



National Program for Prevention and Control of
Cancer, Diabetes, Cardio-Vascular Disease & Stroke

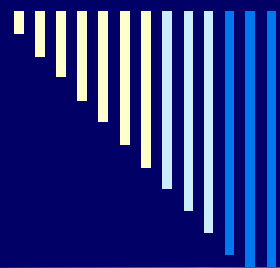


Non-Communicable Diseases: NPCDCS & NPHCE

State Institute of Health & Family Welfare, Jaipur

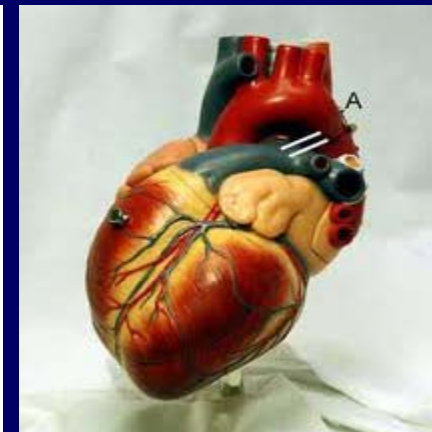
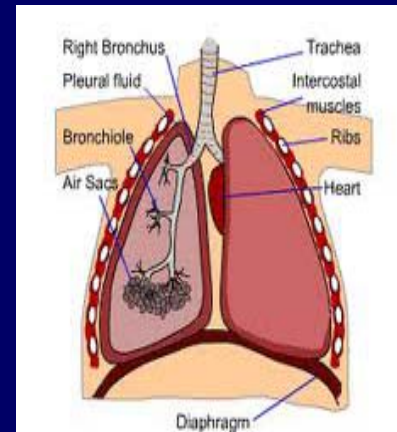
Structure of Presentation

- NCD?
- Why NCDs – Epidemiological Transition
- Risk factors
- Burden of NCDs
- Impact
- Interventions
 - NPCDCS & NPHCE



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Risk factors and NCDs

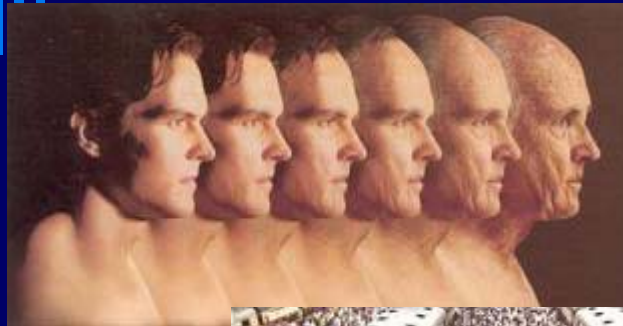


largely preventable , and Manageable

NCDs: some attributes

- Cause –largely unknown,
- Risk factors
- Non infectious, Latent period, Indefinite onset
- Long Duration, slow progression
- Non reversible changes
- Leading causes of death-63% of all deaths, 36% in low & middle income countries
- No gender bias
- Preventable by modifying risk factors

Drivers of NCDs



Major NCDs

- ❑ Cardiovascular (HT, CAD, stroke)
- ❑ Renal (Nephritis, Nephrotic syndrome)
- ❑ Nervous and mental (mania, depression)
- ❑ Musculoskeletal (arthritis)
- ❑ Respiratory (asthma, emphysema, bronchitis)
- ❑ Cancer
- ❑ Diabetes
- ❑ Obesity
- ❑ Blindness
- ❑ Degenerative disorders
- ❑ Accidents

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Why talk of NCDs

Epidemiological Transition

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Achievements in Health Sector

- Crude Death Rate has ↓
- Crude birth rate is ↓
- Life expectancy has ↑
- Smallpox and guinea worm eradicated
- Leprosy has been eliminated
- Polio at the verge of eradication(No case since Feb. 2011)
- IMR ↓
- Health care infrastructure – expanded

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Epidemiological Transition

- Communicable diseases continue to be a public health problem
 - Emerging & Re-emerging infections

- Non-communicable disease are on the rise

- co-existence of communicable diseases and increasing burden of non-communicable diseases

Challenges

- ↑ **Non-communicable diseases**
 - **Cancers**
 - **CVDs – CAD, hypertension**
 - **Obesity**
 - **Endocrine disorders**
 - **Chronic bronchitis and Asthma**
 - **Psychiatric illnesses**
- **Causes –**
 - ↑ longevity,
 - ↑ proportion of geriatric population, (2000 to 2025 pop. >60 shall go from 4.4% to 7.7%)
 - lifestyle changes, *etc.*

Challenges

- Many communicable diseases continue to exist as a public health problem
 - Malaria
 - TB
- New emerging and re-emerging infections
 - Plague
 - Dengue fever / DHF / DSS
 - Chikungunya
 - HIV infection / AIDS

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Challenges in NCD control & Prevention

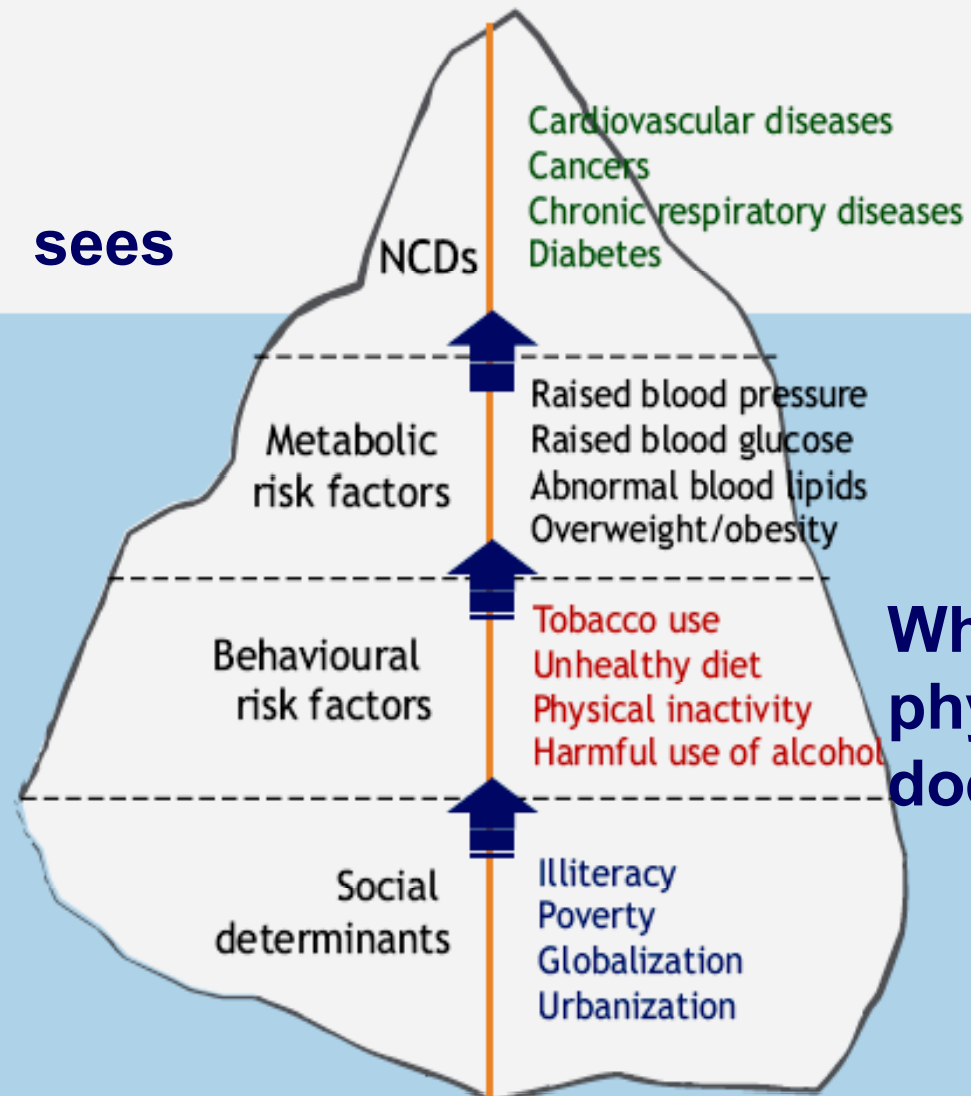
- ❑ Lack of partnerships between different sectors
- ❑ Weak surveillance
- ❑ Limited access to prevention & Treatment
- ❑ Limited Human resource
- ❑ Limited fund allocation
- ❑ Limited commitment of Industry & Pvt. Sector

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What is the Burden of NCDs

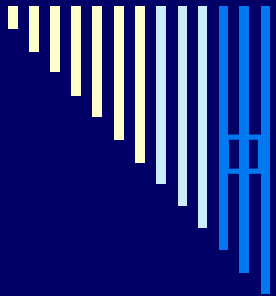
Iceberg of NCDs

What the physician sees



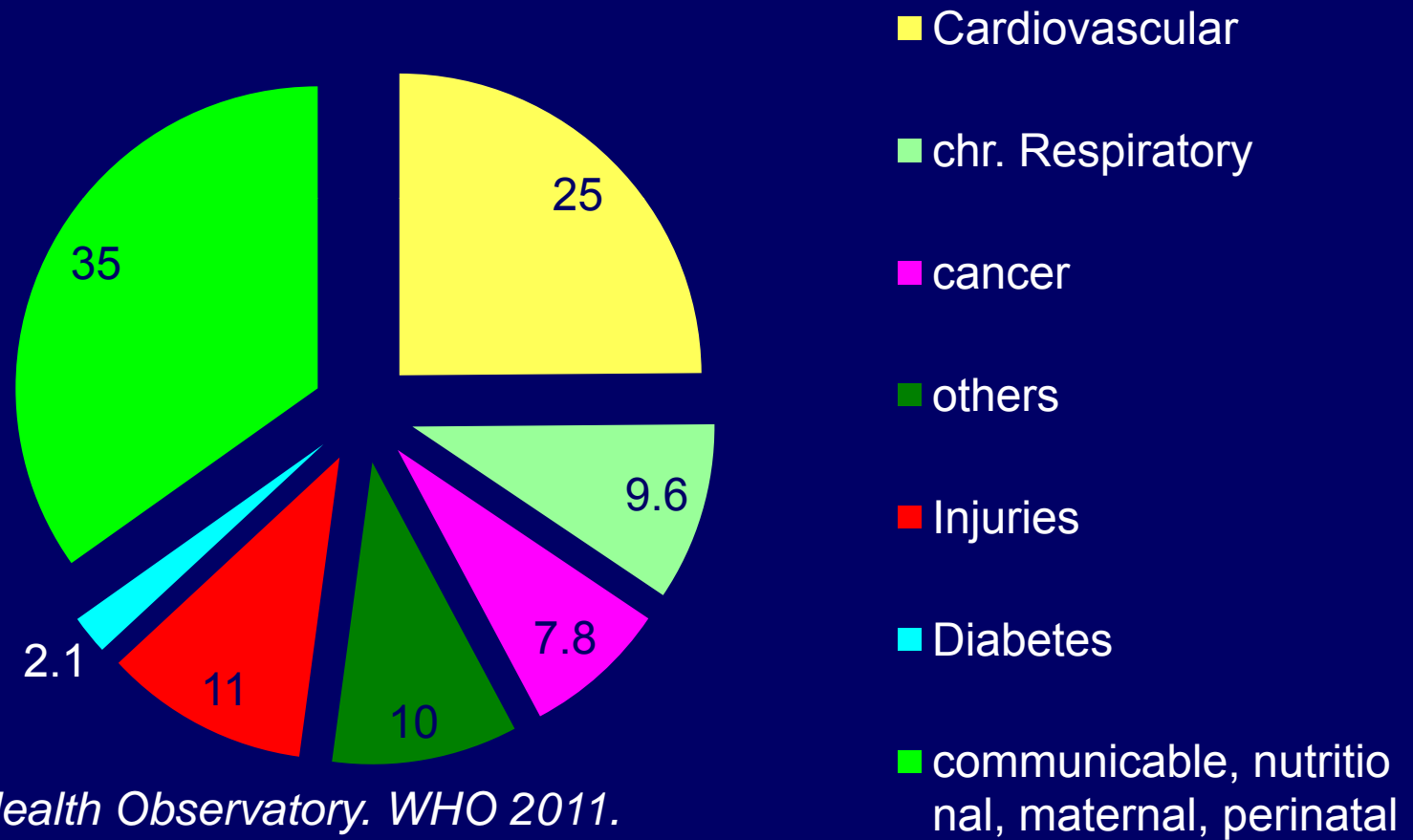
What the physician does not see

Magnitude

- 
- A decorative graphic in the top left corner consisting of a series of vertical bars of varying heights, colored in shades of blue and white, arranged in a descending staircase pattern.
- SEAR-2008: 14.5million total deaths
 - 7.9 million (55%) due to NCDs
 - (34% occurred before the age of 60 years v/s 23% in World).
 - 25% for CVDs, 7-8% cancer, 2.1% Diabetes
 - 22% of the global NCD deaths occur in the South-East Asia Region.
 - Hypertension, raised blood glucose and tobacco use account for 3.5 million annual deaths in the region
 - A 21% increase in NCD deaths is projected in the Region over the next 10 years.

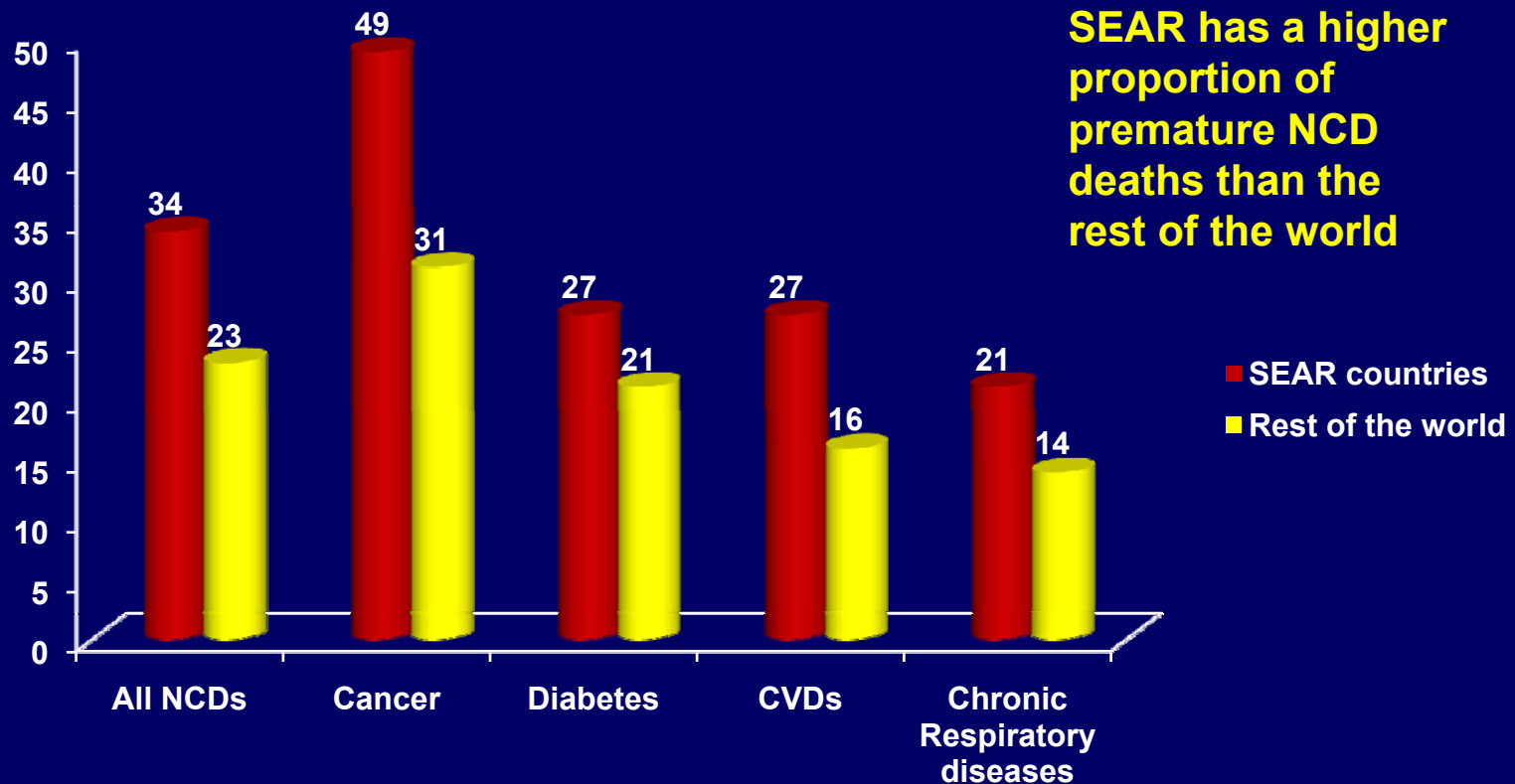
*Source: NCD in SEA region: situation & response, 2011 ,
report by WHO*

Estimated % of deaths by cause, SEA Region, 2008



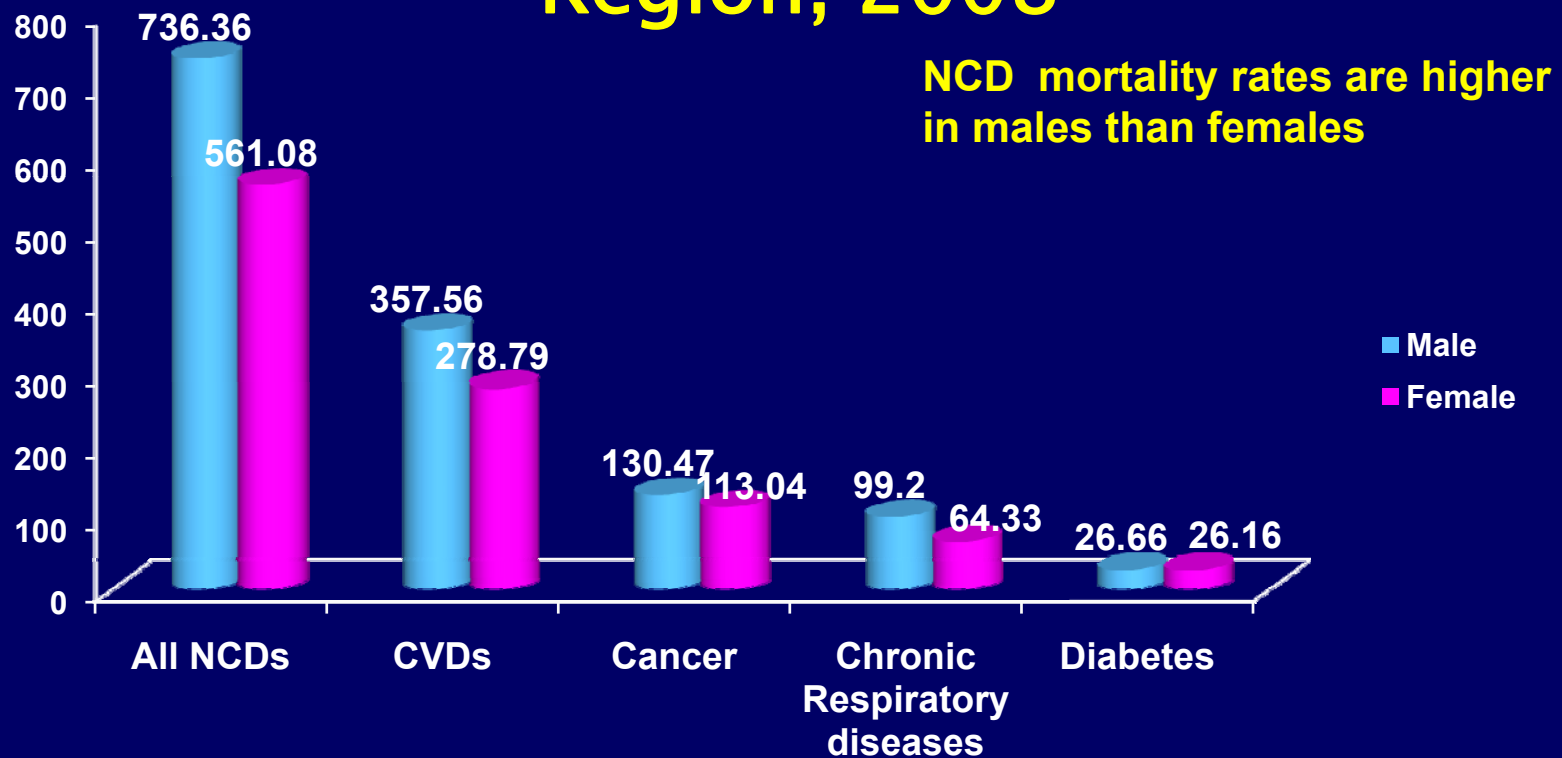
Source: Global Health Observatory. WHO 2011.

Estimated %of premature deaths (<60 years), by cause, SEA Region v/s rest of the world, 2008



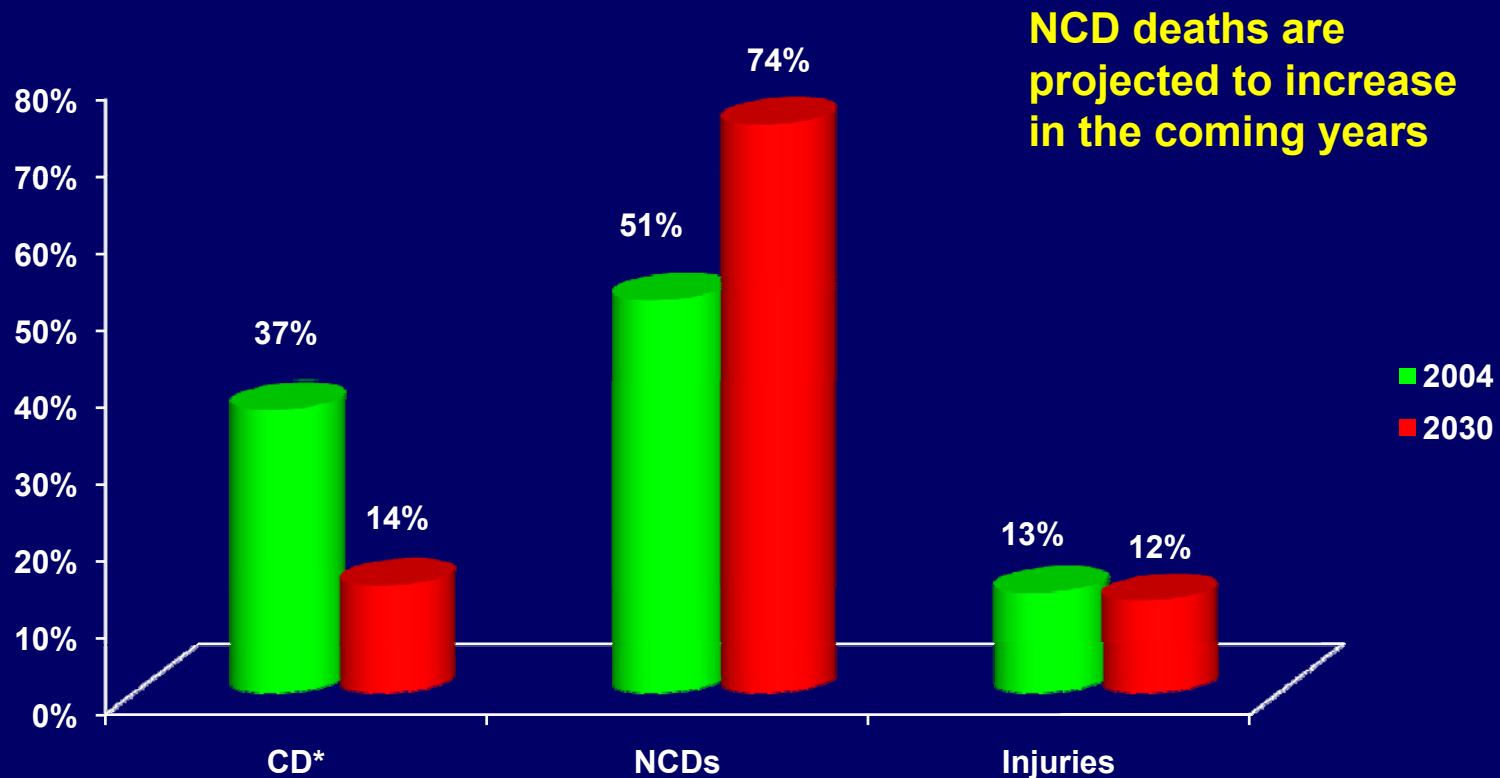
Source: Global Health Observatory. World Health Organization 2011.

Age-standardized mortality rates per 100 000 population by sex, South-East Asia Region, 2008



Source: Global Health Observatory. World Health Organization 2011.

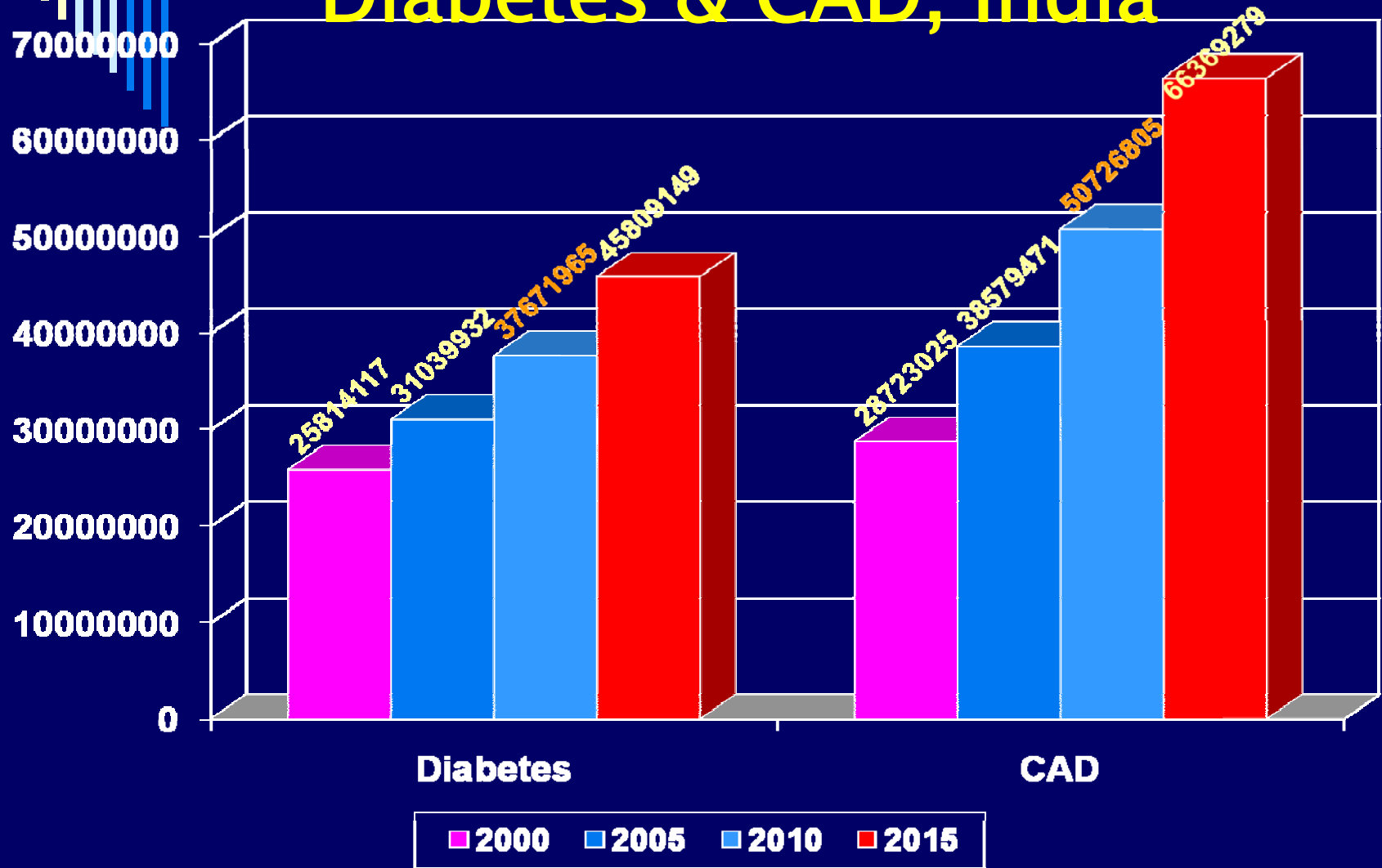
Trends in estimated % of deaths by cause of death, SEA Region, 2004 and 2030



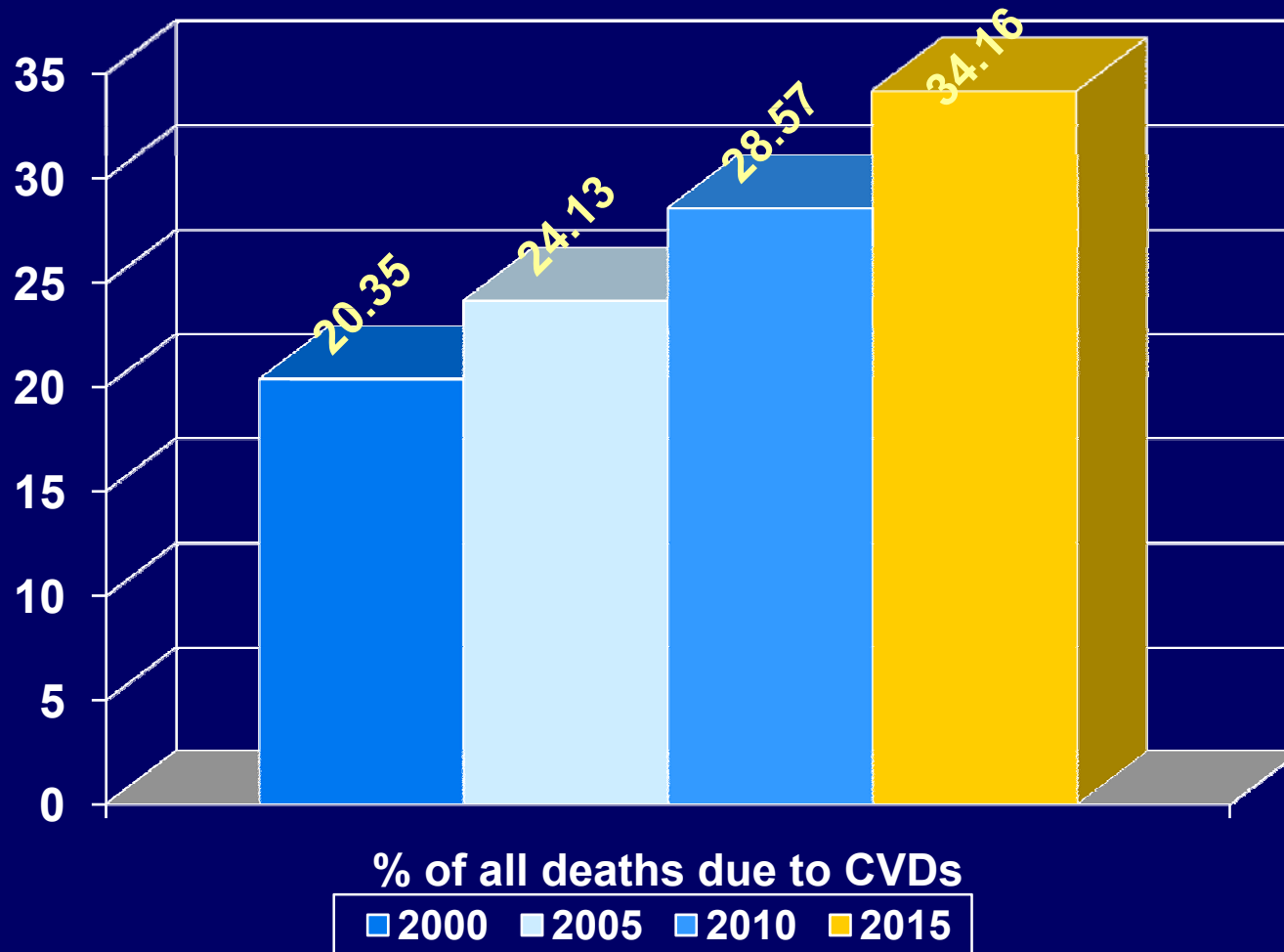
*Communicable diseases, maternal and perinatal conditions, nutritional deficiencies

Source: Mathers CD, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. PLoS Medicine 2006, 3(11):e442.

Estimated & Projected Burden of Diabetes & CAD, India



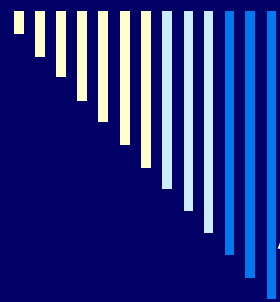
Estimated and Projected Deaths due to CAD, India



NCD deaths–India(2008)

- Total NCD deaths
 - 2.96 M(Males)
 - 2.273 M(Females)
- % of Deaths under 60 yrs.
 - Males: 38.0
 - Females: 32.1

Source: World Health Organization - NCD Country Profiles , 2011.



Pop.(2010): 1 224 614 327

Age standardized Death rates/ 100000

□ Total NCD deaths

Males

Females

781.7

571.0

□ Cancers

78.8

71.8

□ Chr. Resp. dis. 178.4

125.5

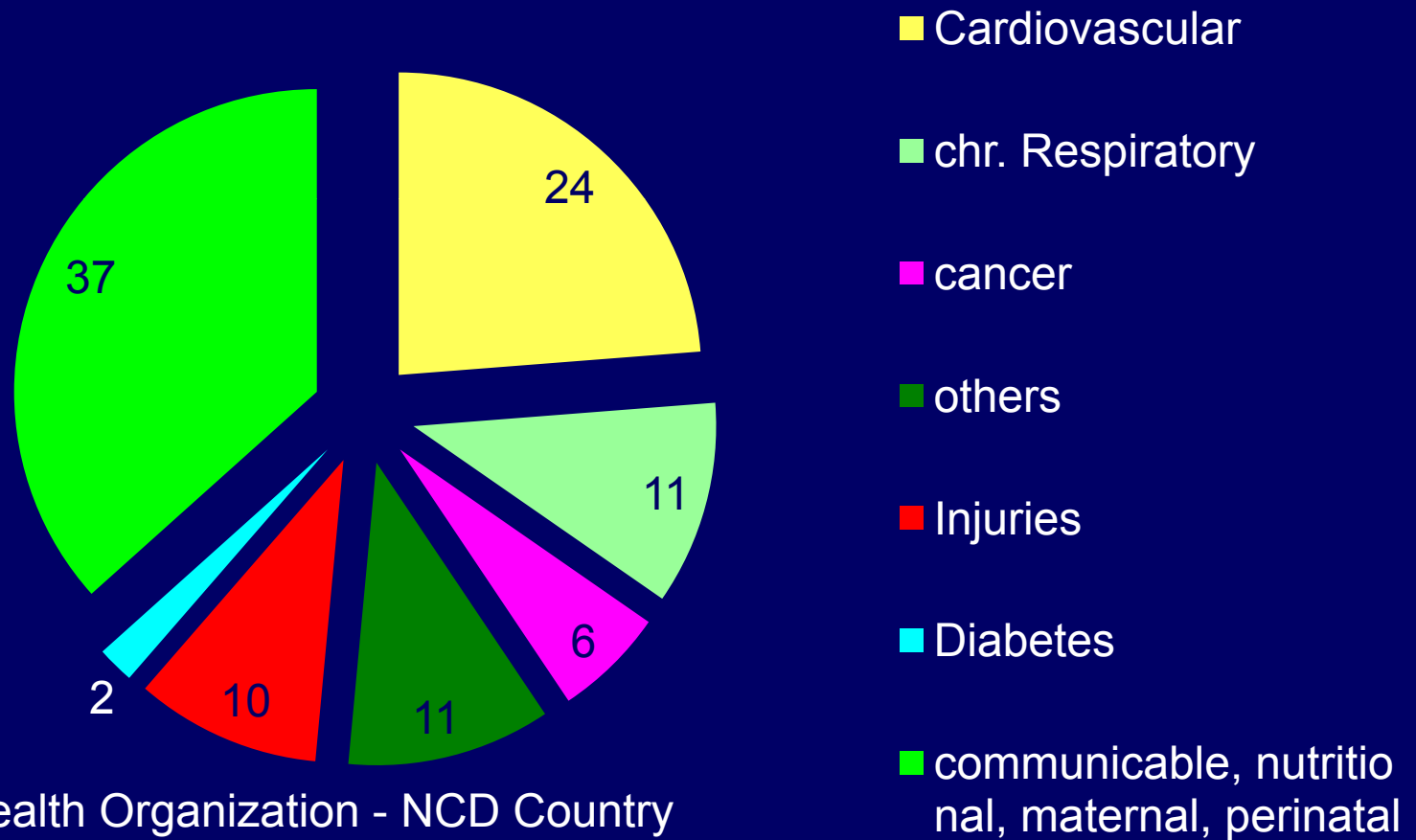
□ Cardiovascular diseases and diabetes

386.3

283.0

Source: World Health Organization - NCD Country Profiles , India ,2011.

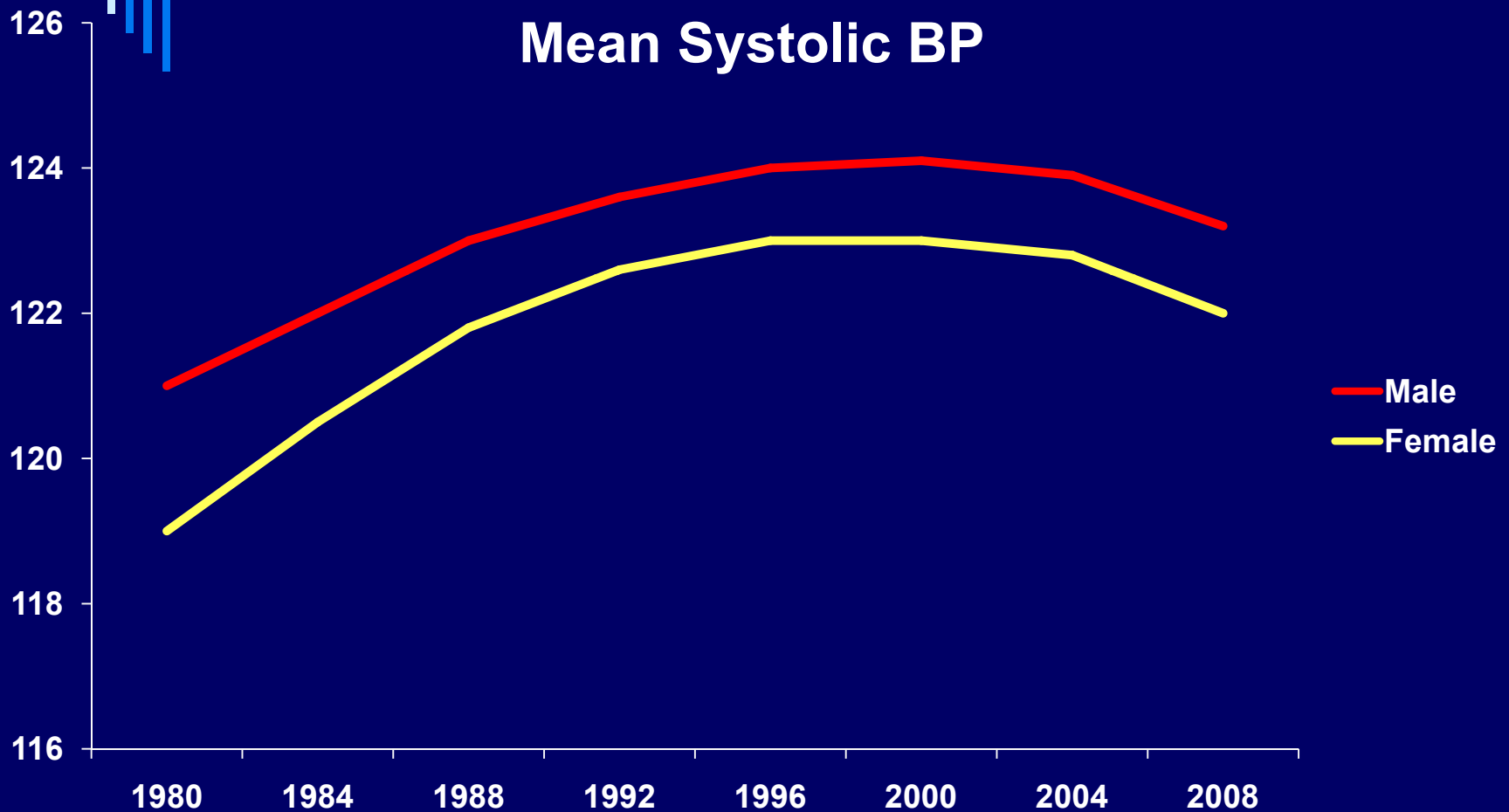
Proportional mortality (% of total deaths, all ages)



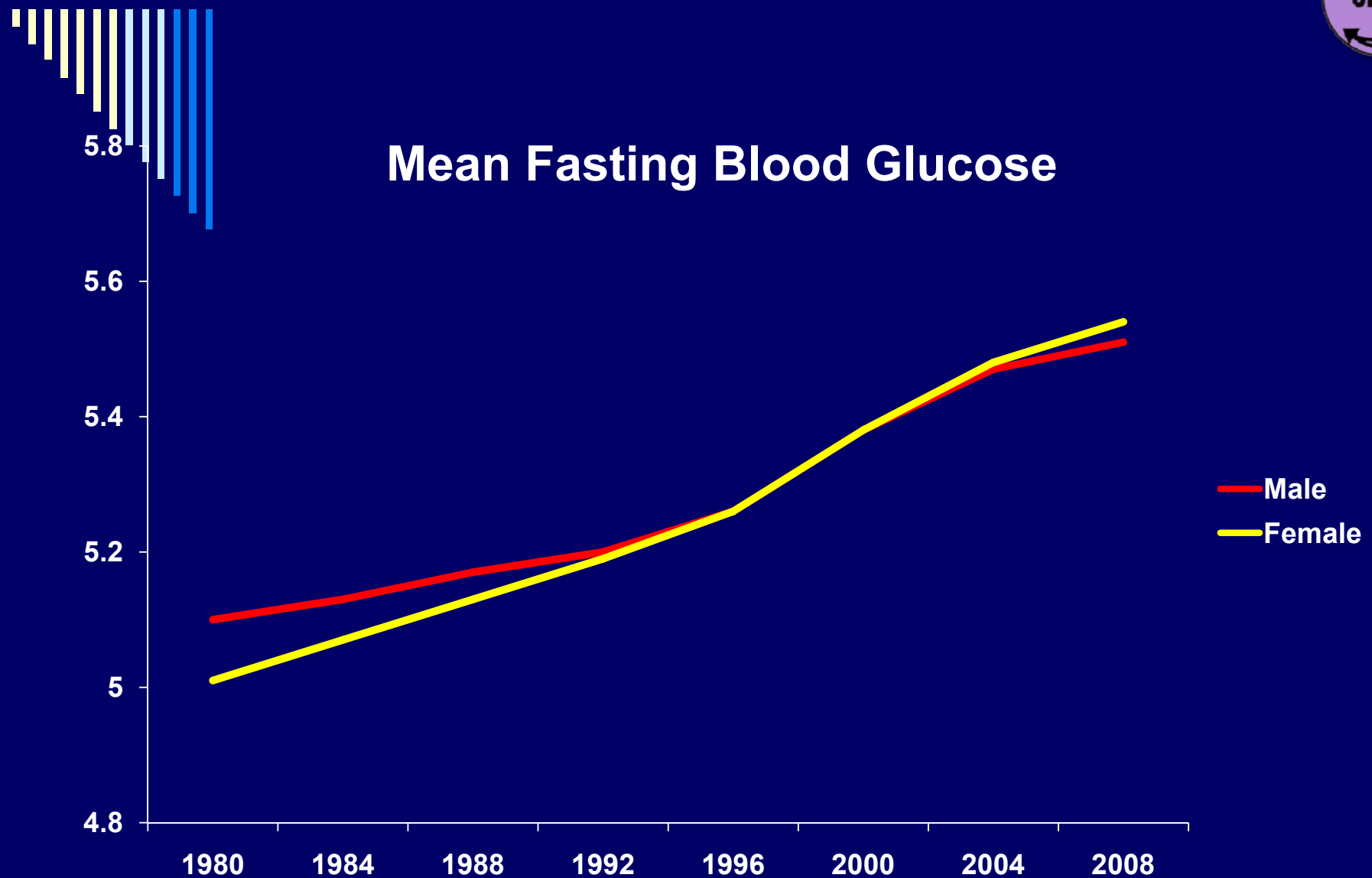
Source: World Health Organization - NCD Country Profiles , India, 2011.

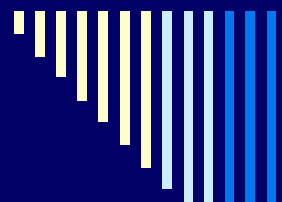
Metabolic Risk factor Trends

Mean Systolic BP

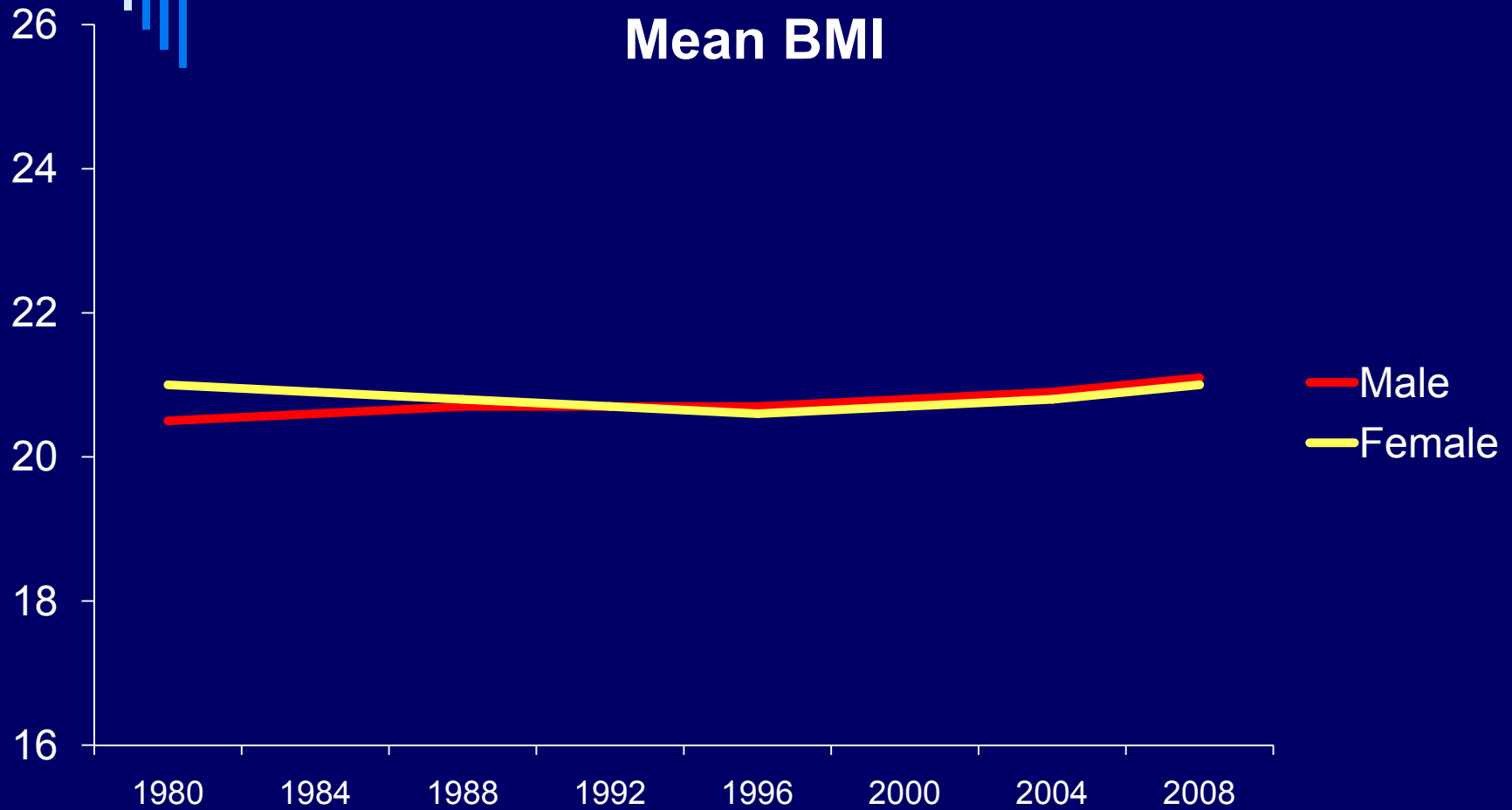


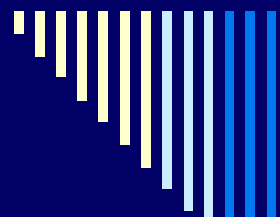
Mean Fasting Blood Glucose



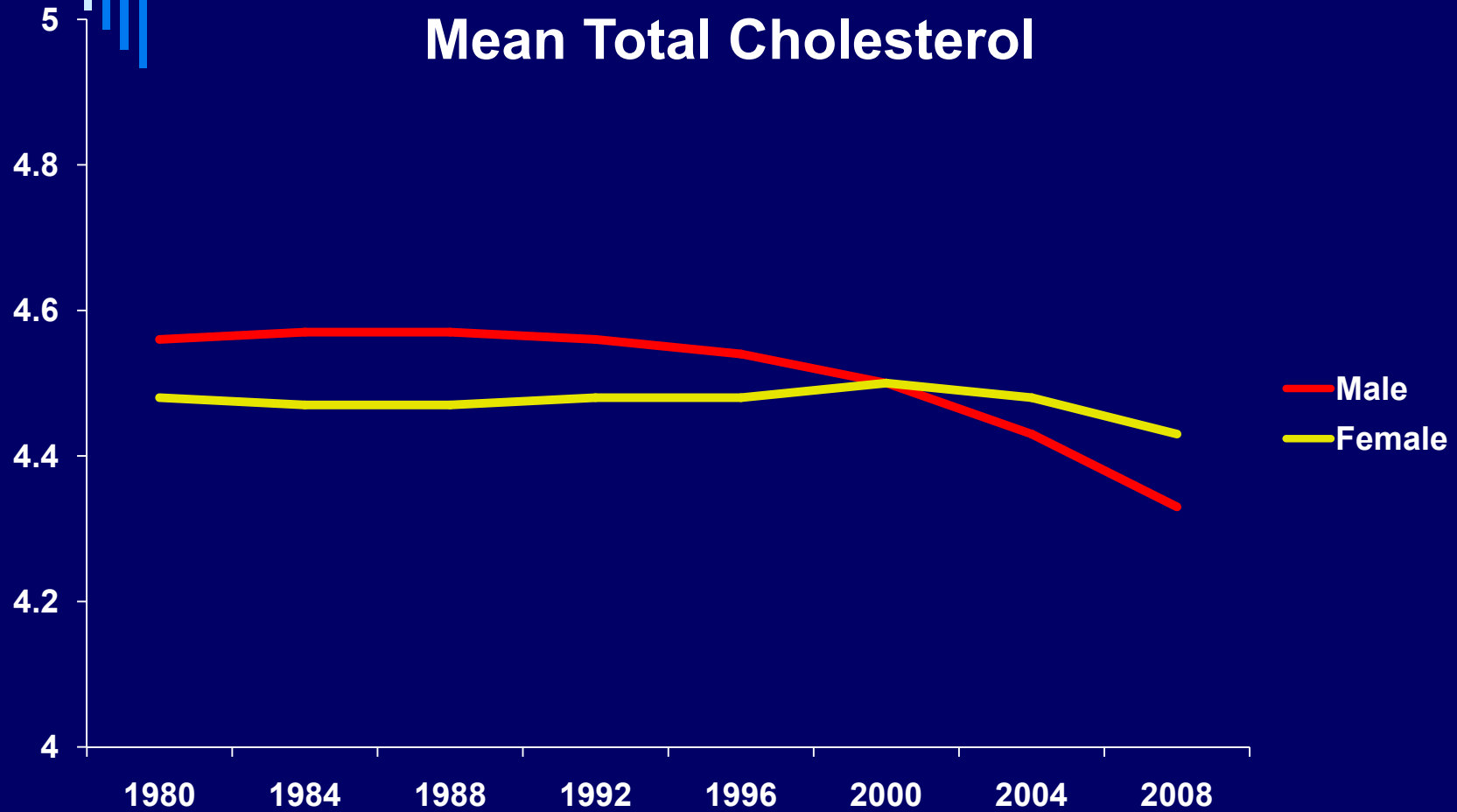


Mean BMI

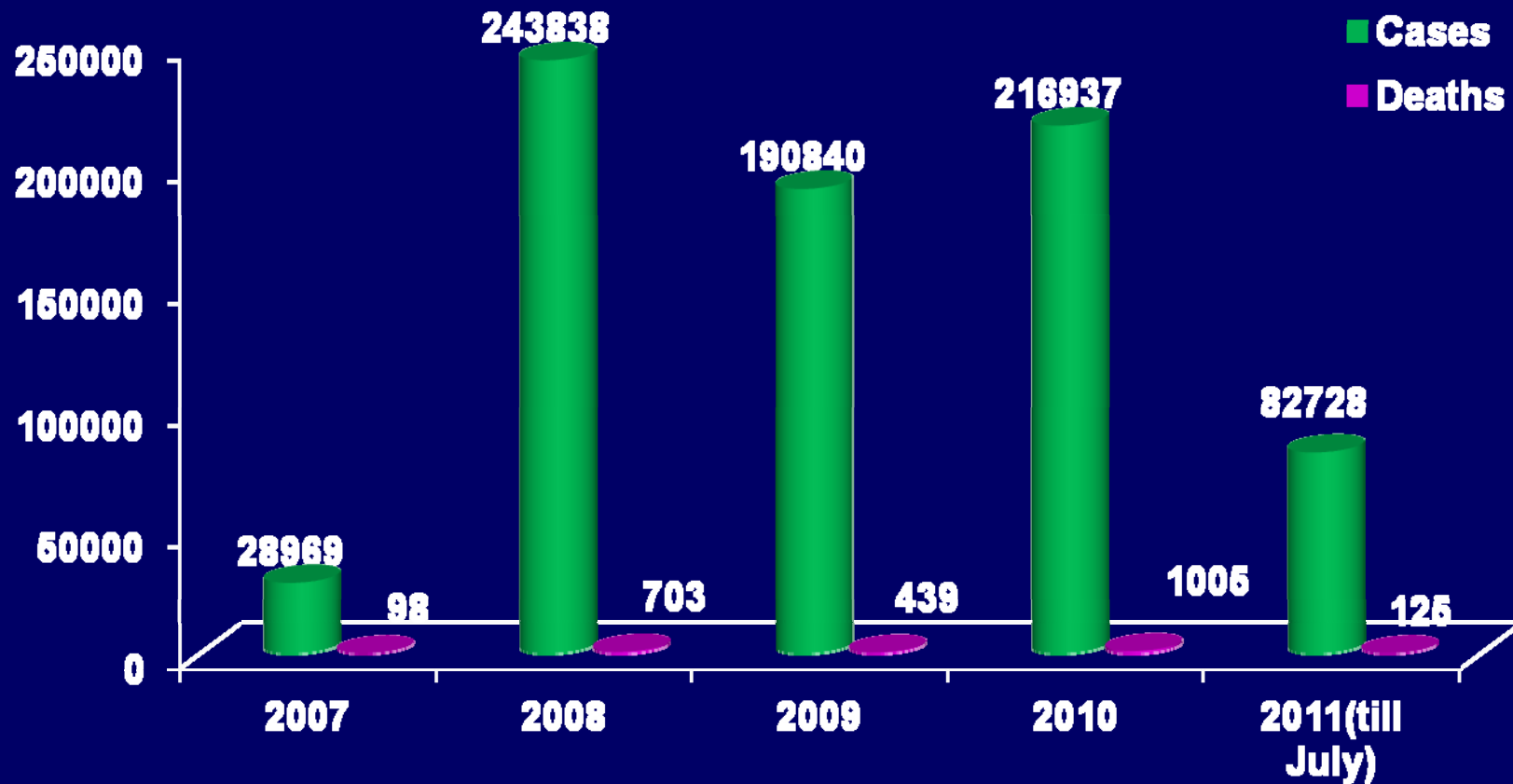




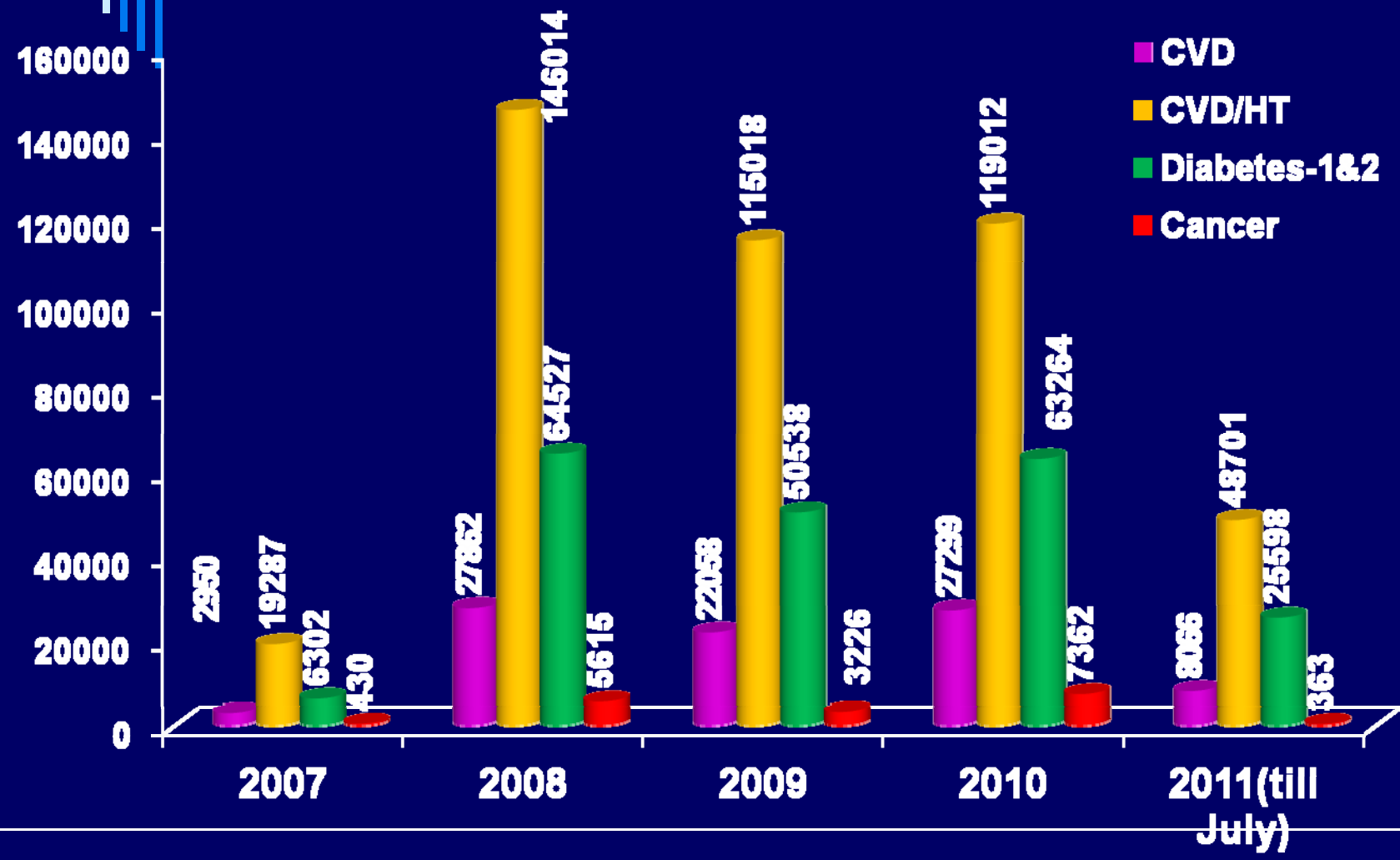
Mean Total Cholesterol



Reported Cases & Deaths due to NCD-Rajasthan

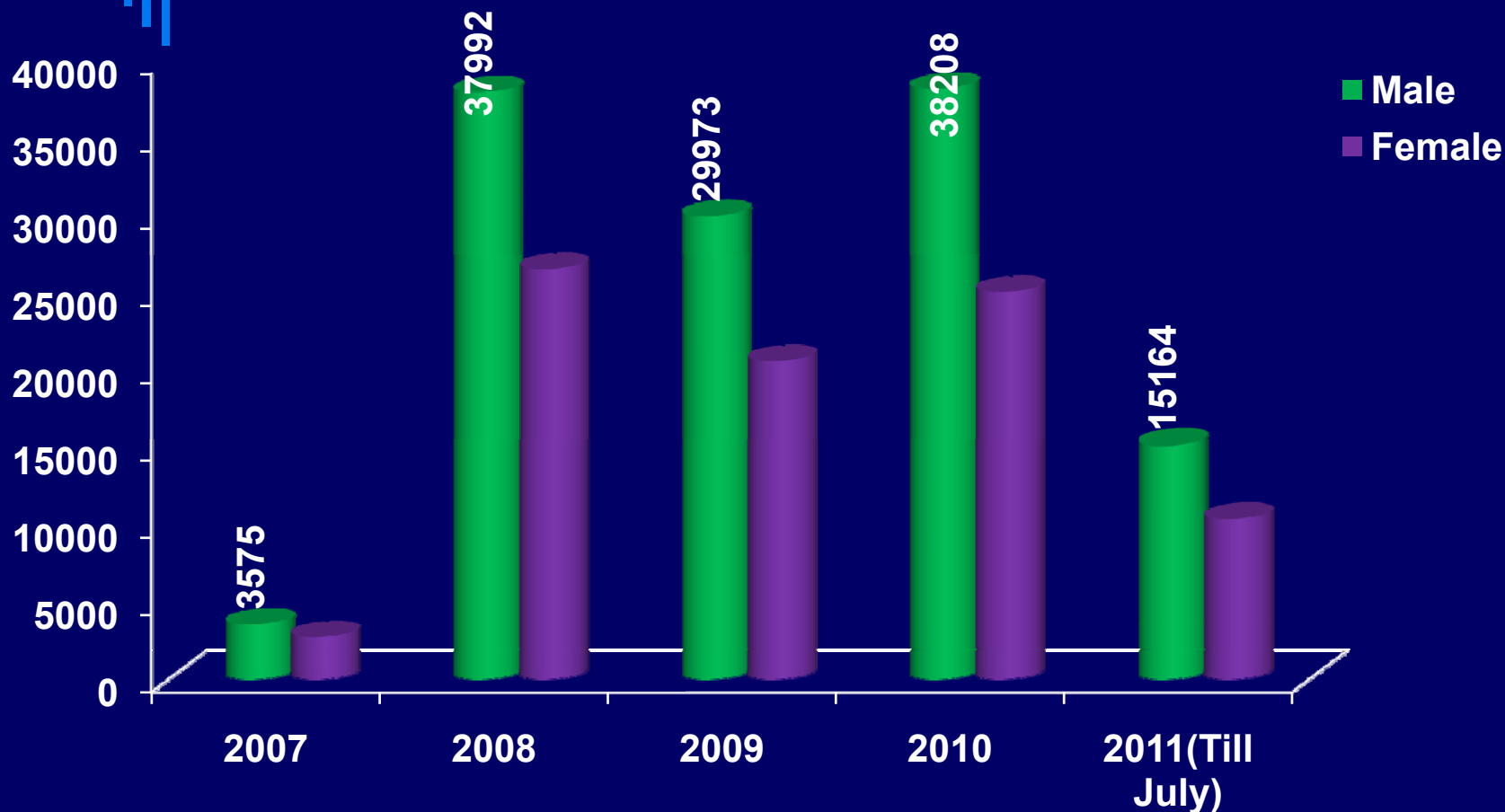


Diseases wise Reported Cases



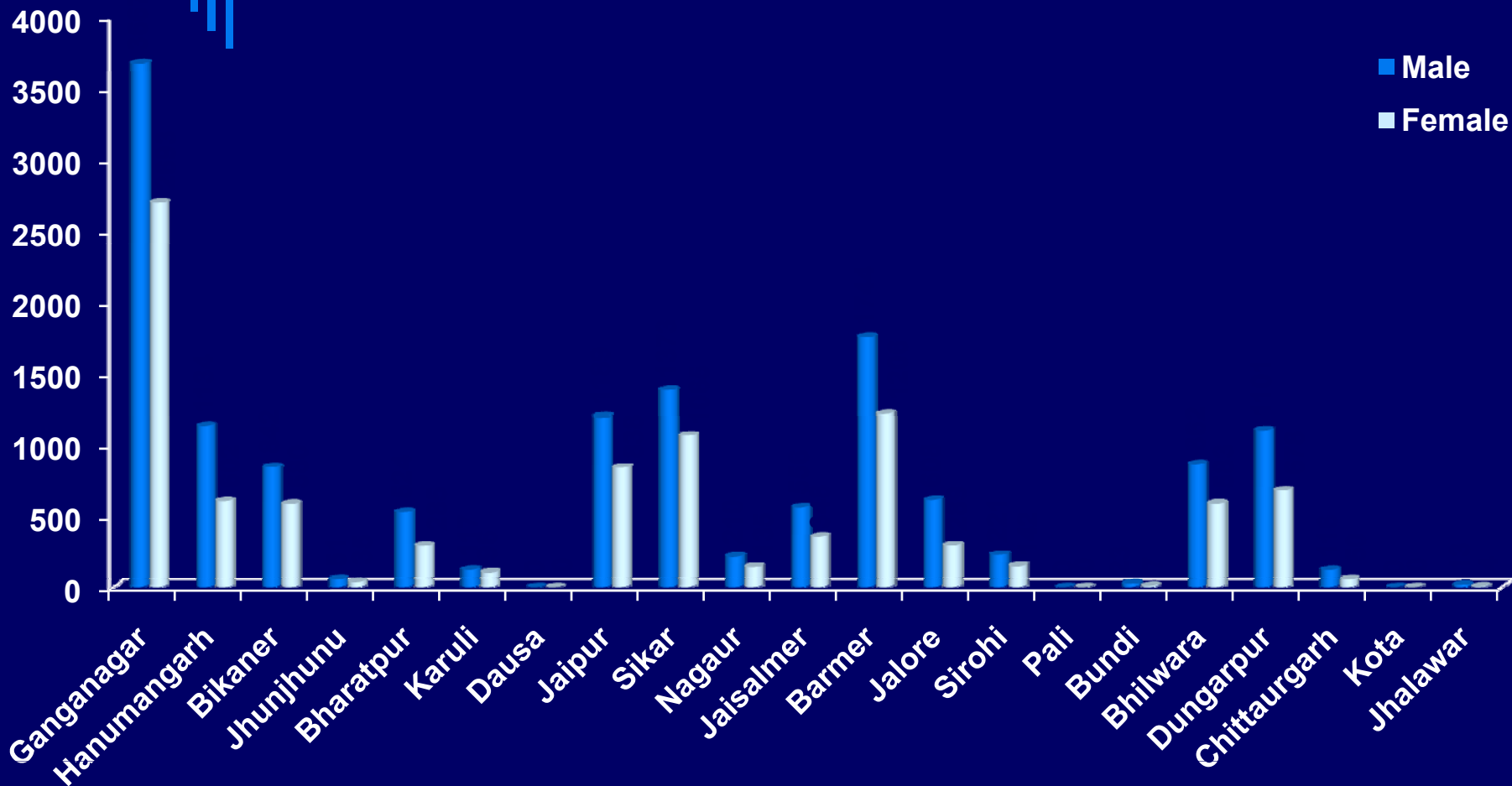
Source-DM&HS

Total Number of Diabetic Cases – Rajasthan



Source: DM &HS-Rajasthan

District wise Reported Cases of Type 1 DM-Rajasthan

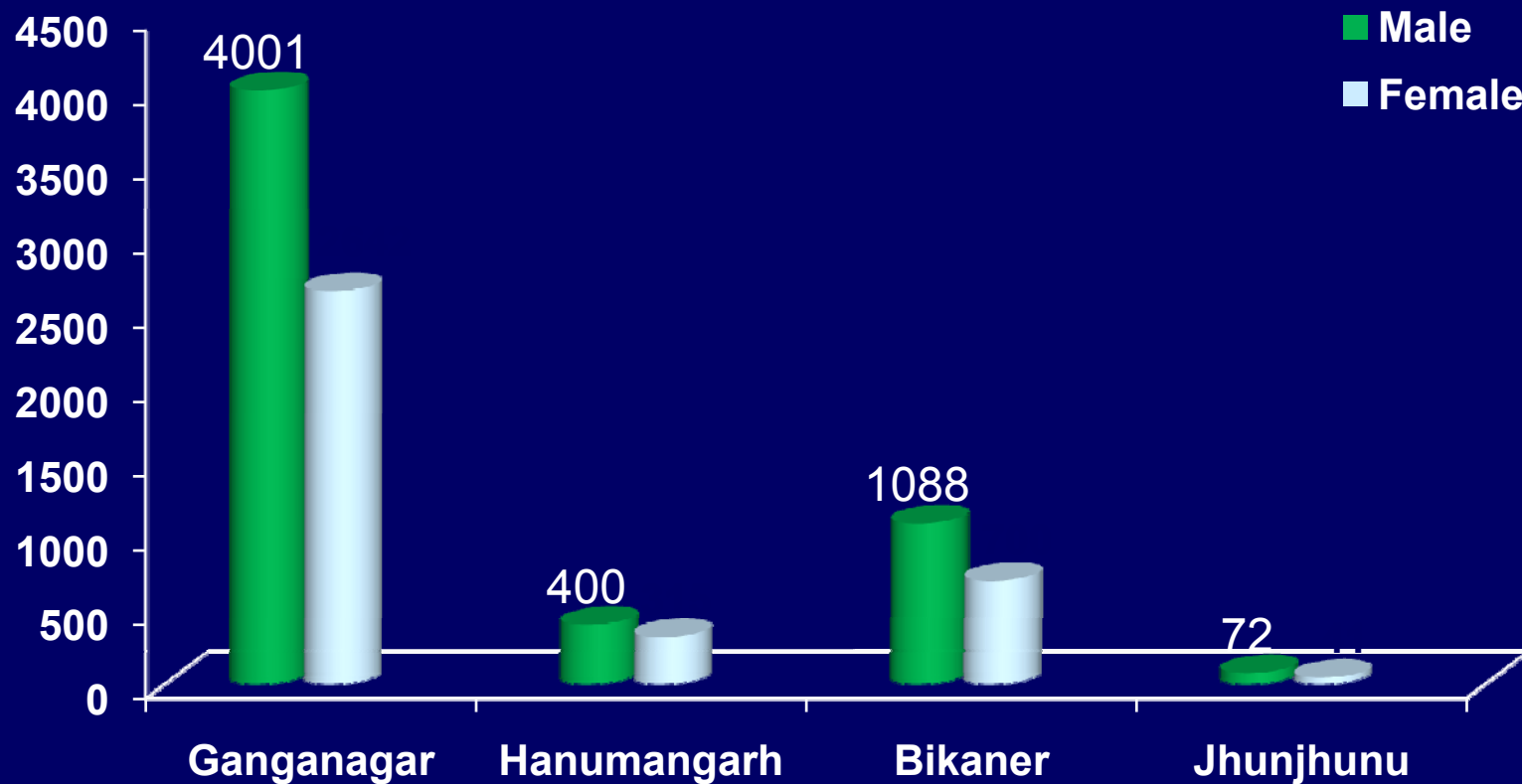


Source: DM & HS-Rajasthan Jan-Dec 2010

Reported Deaths :Type 1 DM– Rajasthan

District	Deaths	
	Male	Female
Ganganagar	2	0
Jhunjhunu	48	34
Nagaur	0	1
Jalore	2	0
Jhalawar	1	0
Total	53	35

District wise Reported Cases of Type 2 DM



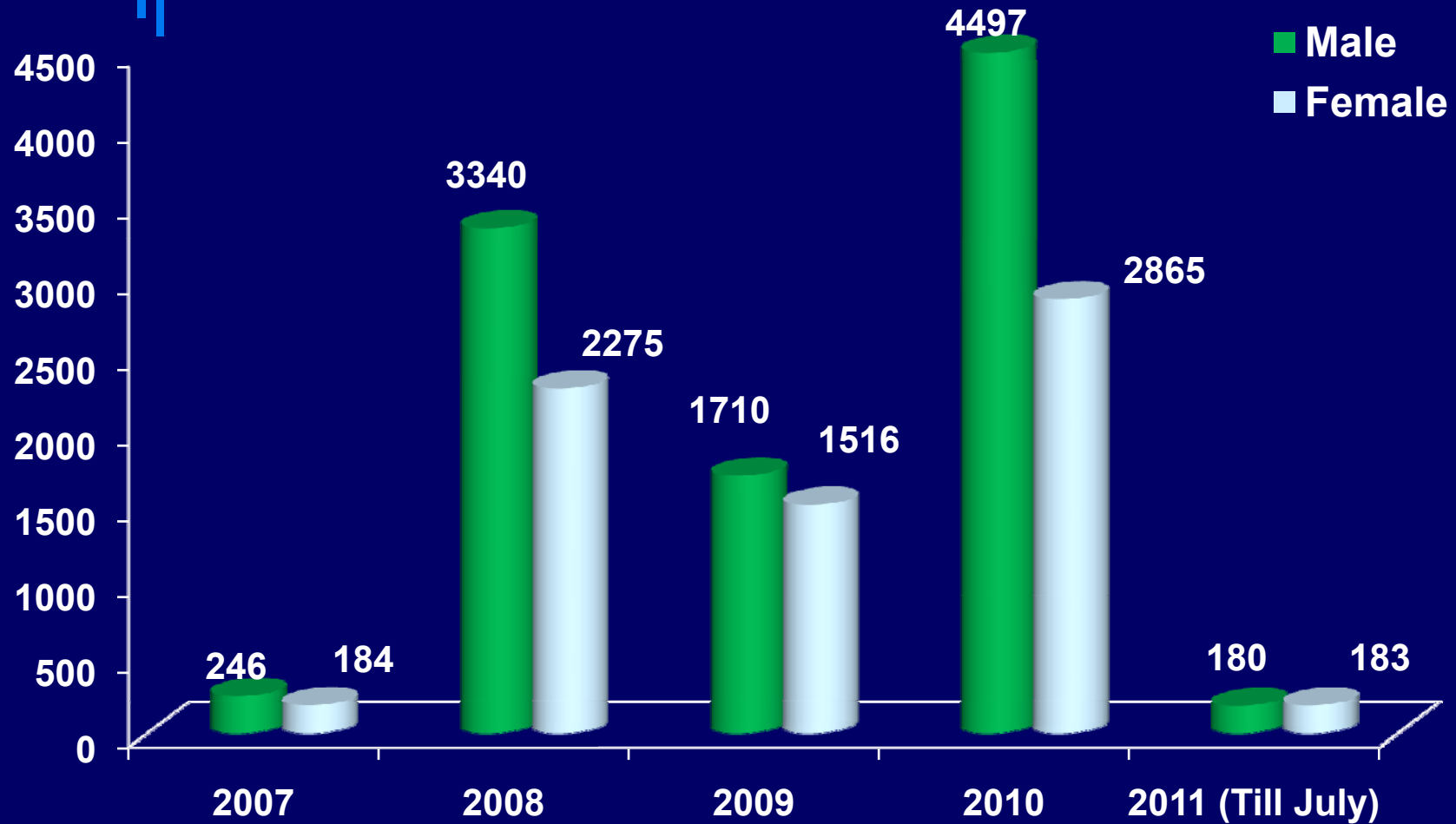
Source: DM &HS-Rajasthan Jan-Dec 2010

SIHFW: an ISO 9001:2008 certified Institution

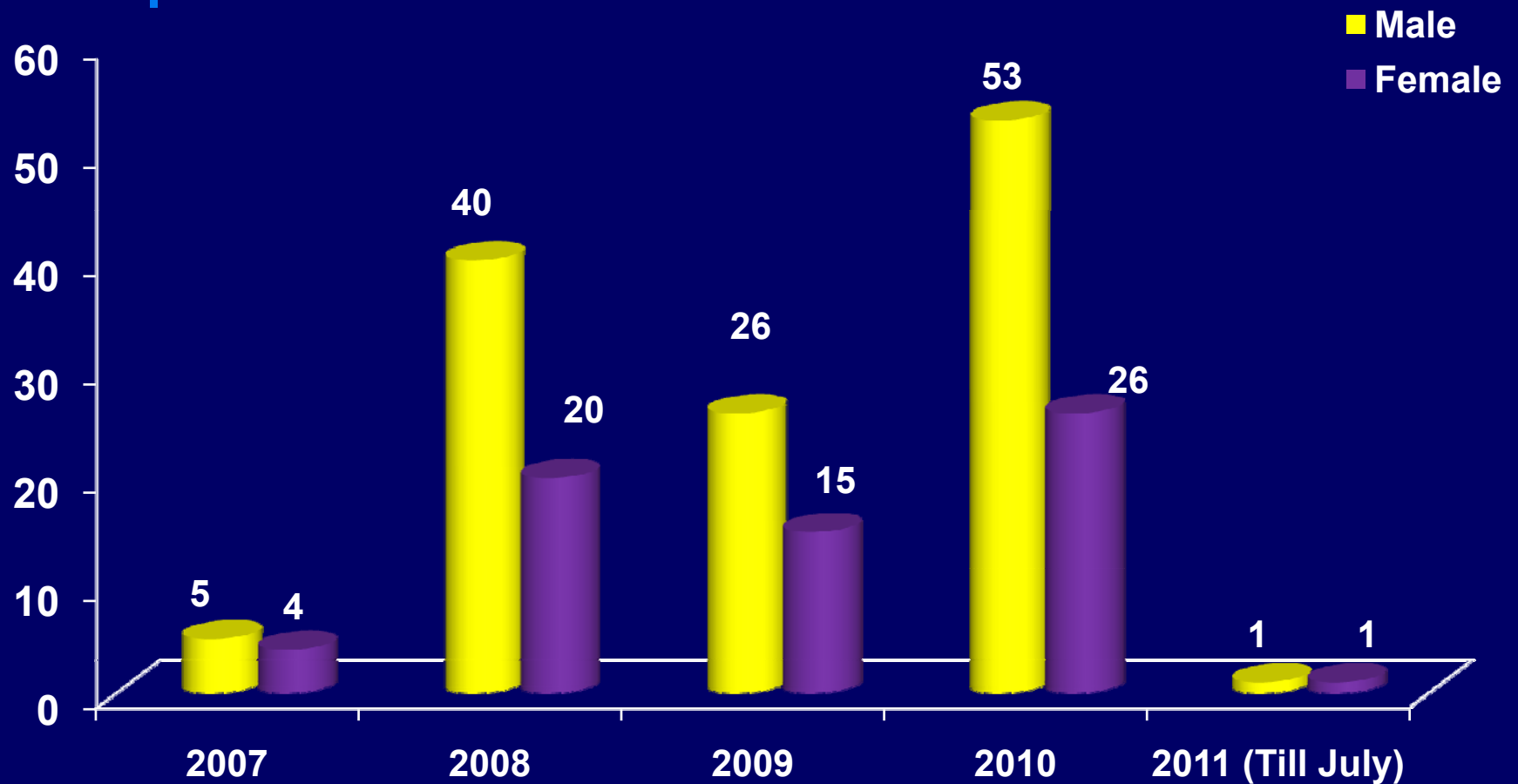
Reported Deaths of Type 2 DM

District	Deaths	
	Male	Female
Ganganagar	3	3
Junjunu	9	1
Karauli	0	1
Jaipur	38	24
Pali	2	1
Total	52	30

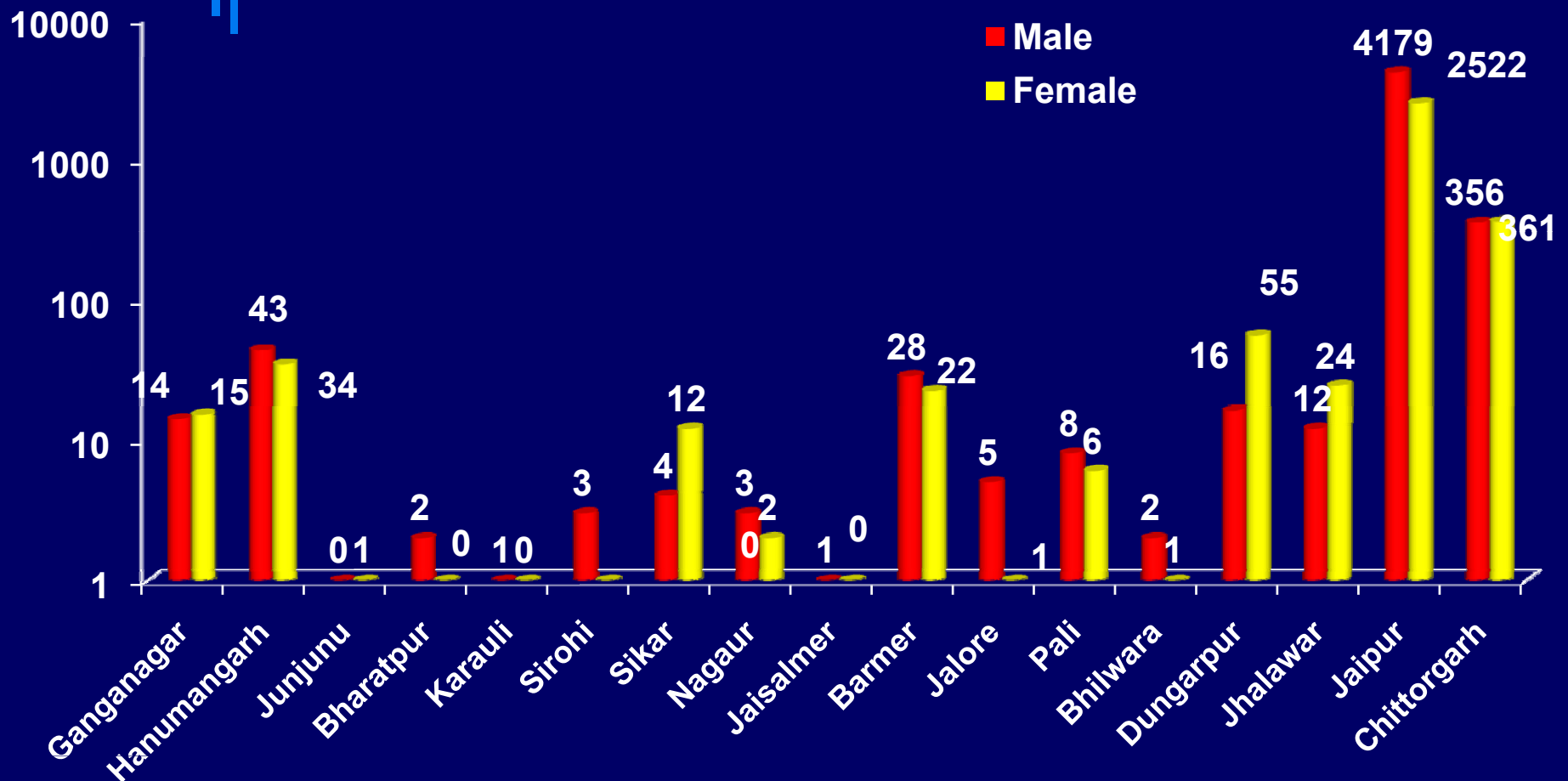
Reported Cases of Cancer-Rajasthan



Reported Cases of Deaths Due to Cancer–Rajasthan



District -wise reported cancer cases-Rajasthan



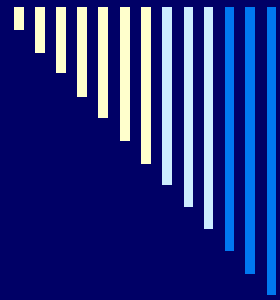
District -wise reported Cancer Deaths

District	Male	Female
Ganganagar	1	1
Jaipur	46	23
Jalore	2	0
Pali	2	2
Jhalawar	2	0
Total	53	26

Expenditure on Cancer Prevention

	2007-08 (Rs in crores)	2008-09 (Rs in crores)	2009-10 (Rs in crores)	2010-11 (Rs in crores)
Cancer Control	60.30	142.46	69.65	85.00
NCCP	46.30	33.60	28.25	55.00
Tobacco control	13.98	33.86	16.40	30.00

Source-NHP 2010



Impacts of NCD

Why NCDs considered a burden

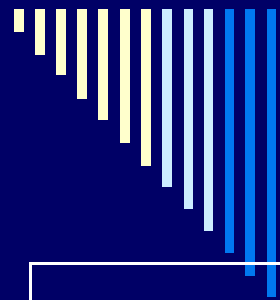
- ❑ Disease occurrence (Incidence+ Prevalence) is increasing
- ❑ Lifestyles are changing → ↑ risk
- ❑ ↑ life expectancy → ↑ in absolute numbers of elderly persons
- ❑ ↓ Crude Birth Rate compounded with ↑ life expectancy → ↑ in proportion of geriatric population (or geriatric dependents)
- ❑ Thus, occurrence of cases of NCDs is expected to increase further with time

Implications of ↑ burden of NCDs

- ↑ Budgetary allocation to prevention and control of NCDs
- Impoverishment of already poor on account of continued treatment over long periods
- ↑ investment in human resources for health sector → more doctors, more nurses, more LTs, more dieticians, *etc.*
- ↑ investment of drugs → further ↑ in non-affordability of many for treatment
- Effect on society – nuclear families, *etc.*

NCD Impacts on MDG

<p>MDG-2 (universal primary education)</p>	<ul style="list-style-type: none"> •Costs for NCD health care, medicines, tobacco and alcohol consumption eat on household resources that might be available for education. •Problem acute in poor families
<p>MDGs 4 and 5 (Maternal and Child health)</p>	<ul style="list-style-type: none"> •Rising prevalence of high BP & gestational diabetes increasing the adverse outcomes of pregnancy & maternal health •Mothers who smoke & breastfeed for shorter period & have lower quantities of milk that is less nutritious •Exposure to second-hand tobacco smoke increases the risks of childhood RI , Sudden infant death and Asthma

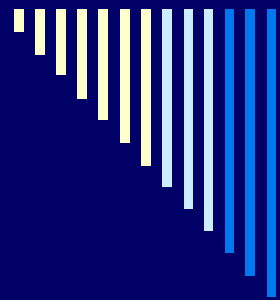


<p>MDG-6 (Combat HIV/AIDS, malaria and other diseases)</p>	<p>NCD burden threatens the possibility to effectively control tuberculosis</p>
<p>MDG-8 (Provide access to affordable essential drugs in developing countries)</p>	<p>access to essential drugs are limited largely to AIDS, TB & Malaria</p>

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Economic Impact

- loss of productivity -absenteeism and inability to work
- Each 10% rise in NCDs is associated with 0.5% lower rate of annual economic growth
macroeconomic analysis
- From 2005 to 2015, India lost \$ 237 billion (1.5% of the GDP).

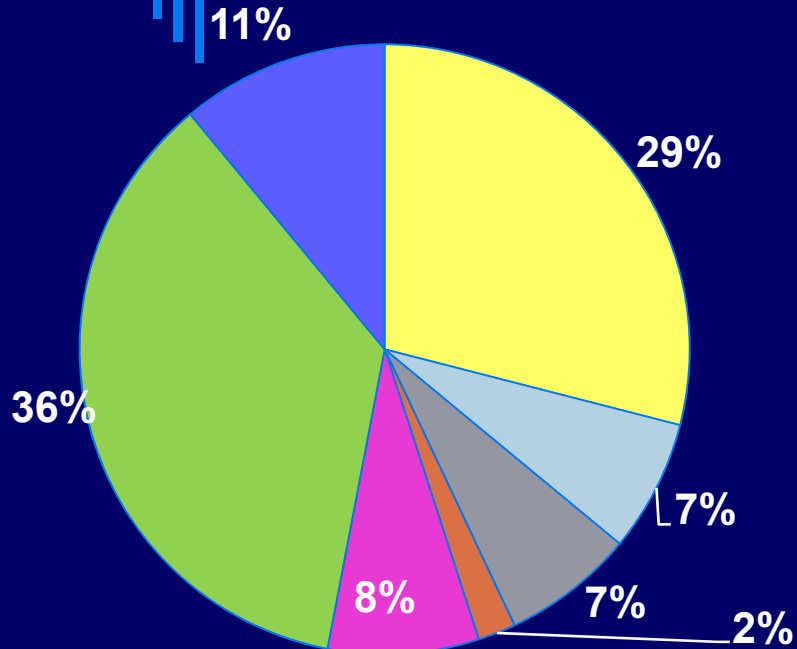


- 2% annual reduction in Chronic Disease Death Rates in India will result in economic gain of 15 billion dollars over the next 10 years WHO
- Per-capita income in India would increase by 87%.

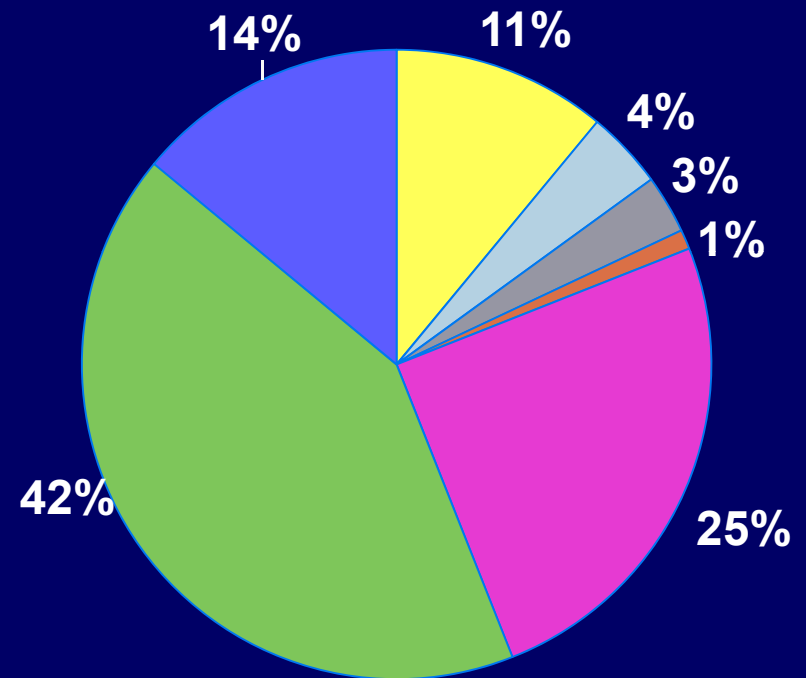
Source-Report of the Working Group on Disease Burden for 12th Five Year Plan



Deaths (Total 10.3 million)



DALYS (total 291 million)

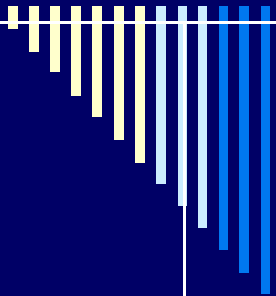


- Cardiovascular diseases
- Cancer
- Chronic respiratory diseases
- Diabetes
- Other chronic diseases
- Communicable diseases, perinatal & maternal conditions, & nutritional deficiencies
- Injuries

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**Answer to the problem:
ACT NOW**

Preventive Strategies for NCDs

	 <p>Susceptibility</p>	Pre-symptomatic stage	<p>Immunity & Resistance</p> <p>Clinical disease</p> <p>Recovery</p> <p>Disability</p> <p>Chronic state</p> <p>Death</p>	<p>Convalescence</p>
Tissue changes	Pre-Pathogenesis- A, H, E interaction	Early Pathogenesis- Tissue changes	<p>Pathogenesis</p>	
Levels of Prevention	Primary	Secondary	Tertiary	
Prevention	Health. Promotion	Early diagnosis	Disability Limitation/ Rehabilitation	
Modes	Specific Protection	Treatment		



Cost effective interventions

Risk factor/disease

Tobacco use:

Protect people from tobacco smoke
Warn about the dangers of tobacco
Enforce bans on tobacco advertising
Raise taxes on tobacco

Use of alcohol:

Enforce bans on alcohol advertising
Restrict access to retailed alcohol
Raise taxes on alcohol

Unhealthy diet:

Reduce salt intake in food
Replace trans fat with polyunsaturated fat

Cardiac diseases and diabetes:

Provide counseling and multi-drug therapy (including glycaemic control for diabetes mellitus) for people with 10-year cardiovascular risk >30%
Treat acute myocardial infarction (with aspirin)

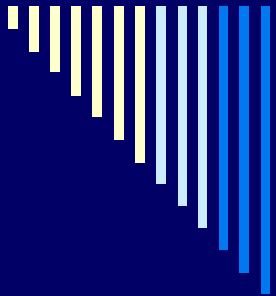
~~Cancers~~

~~Hepatitis B vaccination to prevent liver cancer~~
~~Detection and treatment of precancerous lesions~~

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General Objectives

- To strengthen prevention and control of chronic non-communicable diseases by tackling the major risk factors
- To reduce premature mortality and morbidity, and
- To improve quality of life

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Action at National Level: NPCDCS

- Two components
 - Cancer
 - Diabetes, Cardiovascular Diseases & Stroke

NPCDCS :Objectives

- ❑ Prevent and control common NCDs through behavior and life style changes,
- ❑ Provide early diagnosis and management of common NCDs,
- ❑ Build capacity at various levels of health care for prevention, diagnosis and treatment of common NCDs,
- ❑ Train human resource within the public health setup and
- ❑ Establish and develop capacity for palliative & rehabilitative care.

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Strategies

- Prevention through behavior change
- Early Diagnosis
- Treatment
- Capacity building of human resource
- Surveillance, Monitoring & Evaluation

States to Implement NPCDCS

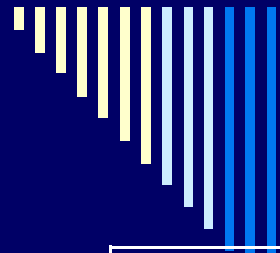


Services

- Preventive, promotive , curative and supportive services (core and integrated services)
- Health promotion, psycho-social counseling, management (out-and-in-patient), day care services, home based care, palliative care and referral
- Linkages of District Hospitals to private laboratories and NGOs for continuum of care and support for outreach services.

Services:

Facility level	Services
PHC	Health promotion for behavior change; 'Opportunistic' Screening using B.P measurement and blood glucose by strip method ; Referral of suspected cases to CHC
CHC	Prevention and health promotion including counseling ; Early diagnosis through clinical and laboratory investigations (Common lab investigations: Blood Sugar, lipid profile, ECG, Ultrasound, X ray etc.); Management of common CVD, diabetes and stroke cases (out patient and in patients.); Home based care for bed ridden chronic cases ; Referral of difficult cases, HMIS



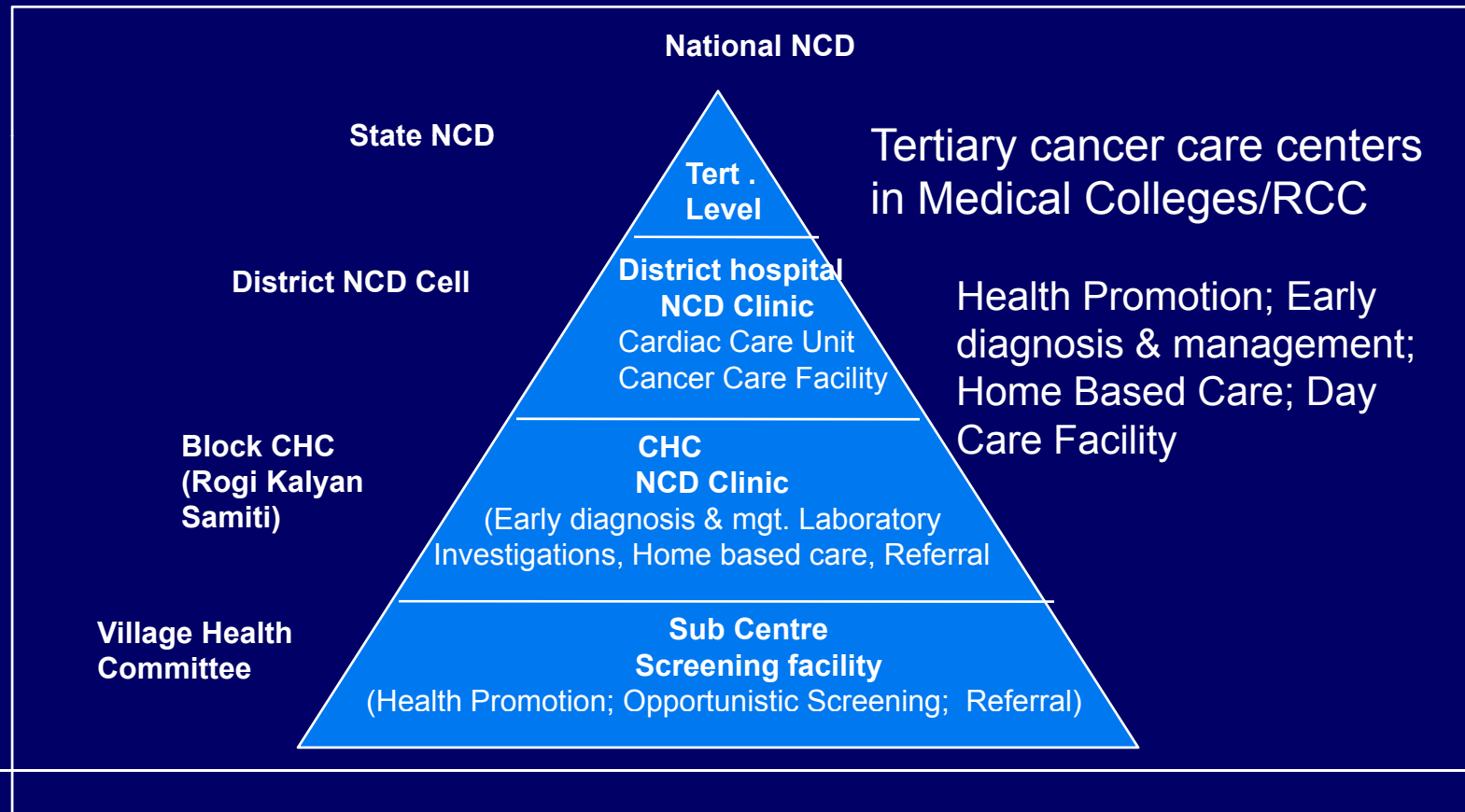
Facility	Services
DH	Early diagnosis of diabetes, CVDs, Stroke and Cancer ; Investigations: Blood Sugar, lipid profile, Kidney Function Test (KFT), Liver Function Test (LFT), ECG, Ultrasound, X ray, colposcopy , mammography etc. (if not available, will be outsourced); Medical management of cases (out patient , inpatient and intensive Care) ; Follow up and care of bed ridden cases; Day care facility; Referral; Health promotion for behavior change ; Trainings, HMIS

Services available under NPCDCS at different levels

Institutional Framework

Public Health Infrastructure

Services



Institutional Framework

- Integration with NRHM
- TRGs(One for Cancer, other for CAD, S, & D)
- State Health Society
 - NPCD cells
 - Retain funds for state level activity and release GIA to the District Health Societies.
- District Health Societies
 - NPCD cells
 - Utilization of funds and quarterly the financial management report

State NCD cell

Composition

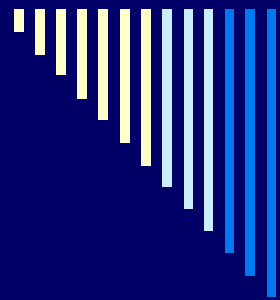
- State Program Officer
- 2. Program Assistant
- 3. Finance cum Logistics Officer
- 4. Data Entry Operators (2)

ToR

- State action plan
- Develop district wise NCD mapping,
- Trainings
- Manpower
- Fund flow and SOE/ UCs
- epidemiological profiling
- *Convergence with NRHM*
- Availability of palliative and rehabilitative services
- Monitoring
- Public awareness



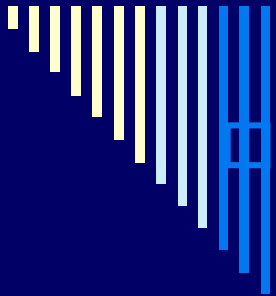
What Medical Officer can do



- Surveillance
- Screening
- Services
- Statistics

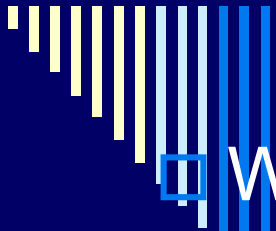
MO to do:

- Screening
- To conduct **comprehensive examination** to diagnose, investigate and manage the cases appropriately.
- To rule out complications or advanced stage.
- To **refer** complicated cases to higher care facility
- To provide **follow up** care to the patients
- **Health promotion**
- Data and **record**

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Health promotion activities – (i) Educate regarding common risk factors, increased intake of healthy foods (ii) increased physical activity through sports, exercise, etc. (iii) avoidance of tobacco and alcohol and (iv) stress management.

- Risk assessment and management through opportunistic screening
- Motivate and create role models in the community

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- A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, colored in shades of yellow and blue, arranged in a descending staircase pattern from left to right.
- ❑ Work closely with other sectors/ departments for NCD prevention
 - ❑ Management of patients suffering from Cancer, Diabetes, CVDs and Stroke referred from different centers
 - ❑ Establish an effective referral mechanism with the nearest medical colleges
 - ❑ Supervision of the activities undertaken by paramedical workers
 - ❑ Assist resource centers/ institution in organizing the training for different cadre of health workers

A decorative graphic consisting of a series of vertical bars of varying heights and colors (yellow, white, and blue) arranged in a descending staircase pattern from left to right.

□ Nursing staff:

- To assist in examination and investigation
- To teach the patient and family about risk factors of NCDs and promote patients wellbeing
- To assist in follow up and care

□ Counselor:

- To provide counseling on diet and life style management
- To assist in follow up care and referral

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Surveillance?

Surveillance is the ongoing collection, analysis, and use of health data for the planning, implementation, and assessment of disease control



"information for action"

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Surveillance helps

- Identify extent of the problem
- Map emerging patterns and trends
- Measure progress in primary prevention
- Contribute to policy making

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Risk Factor Surveillance: Focus

- ... selected risk factors associated with major NCDs and amenable to interventions.**
- ... simple surveillance systems.**
- ... standard definition and methods.**
- ... surveillance for primary prevention of NCDs.**

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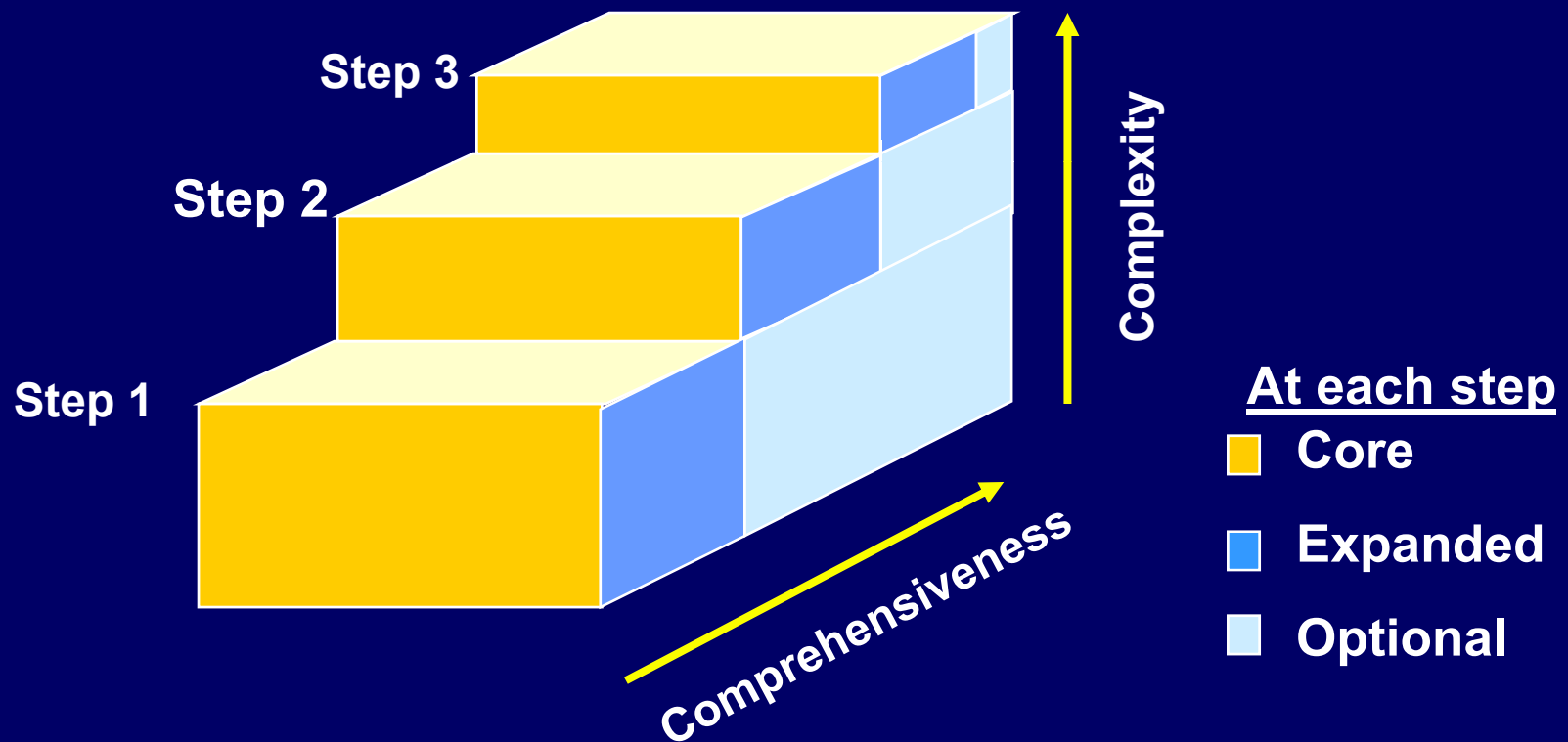
Selecting risk factors

- Greatest impact on NCD mortality and morbidity;
- Modifiable by intervention;
- Validated measurement;
- Meaningful comparisons possible;
- Measurement can be obtained following ethical standards.

Risk factors common to major non-communicable conditions

Risk Factor	Condition			
	CAD	Diabetes	Cancer	Respiratory
Smoking	✓	✓	✓	✓
Alcohol		✓	✓	
Nutrition	✓		✓	
Physical Inactivity	✓	✓	✓	
Obesity	✓	✓	✓	✓
BP	✓	✓		
Blood glucose	✓	✓	✓	
Blood Lipids	✓	✓	✓	

The WHO STEP approach to Surveillance of NCD Risk Factors



Levels of Risk Factor Surveillance

Measures Level	Step 1 (Verbal)	Step 2 (Physical)	Step 3 (Biochemical)
Core	Demographics, Tobacco, Alcohol, Nutrition, Physical activity	Measured weight + height, Waist girth, Blood pressure	Cholesterol, Fasting blood sugar
Expanded	Education, Occupation Indicators,	Hip girth,	HDL-Chol, Triglycerides
Optional	Knowledge+ attitudes regarding health Health-related Quality of life and health-related behaviour	Skinfolds, Pedometer	Urine, etc.

Actions at Hospitals

- Counseling of identified patients of NCDs:
 - What is the illness
 - What is the prognosis
 - What complications can arise
 - What drugs to take – proper dosage, importance of regularity of drug intake, possible side effects
 - What other interventions can reduce the severity of illness
 - Habitual physical exercise
 - Balanced diet
 - Meditation

Actions at Hospitals

- Proper depiction / display of health education messages / posters

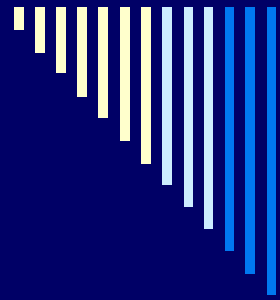
- Educate women on self-examination of breast

- Educate persons coming to the hospital on risk factors for different NCDs (health education corners, documentaries may be shown on TV screens, *etc.*)

Actions at Hospitals

- Screening for early diagnosis of NCDs
 - Routine measurement of BP of all patients
 - Screening tests In high-risk cases
 - Pap smear examination
 - Routine examination of oral cavity for early signs of cancer

- Training of different categories of health staff



Thanks



National Program for Prevention and Control of
Cancer, Diabetes, Cardio-Vascular Disease & Stroke



Risk Factors in NCDs

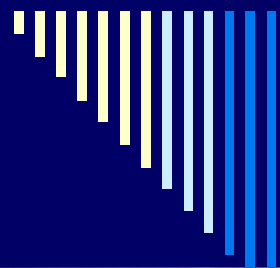


State Institute of Health & Family Welfare, Jaipur

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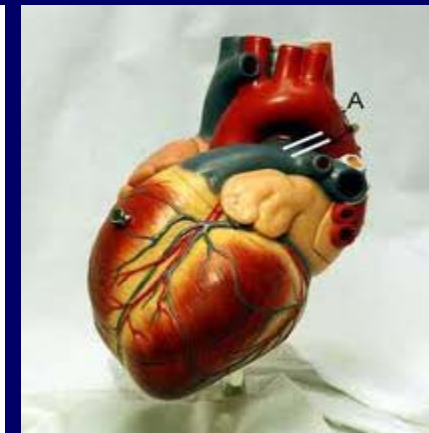
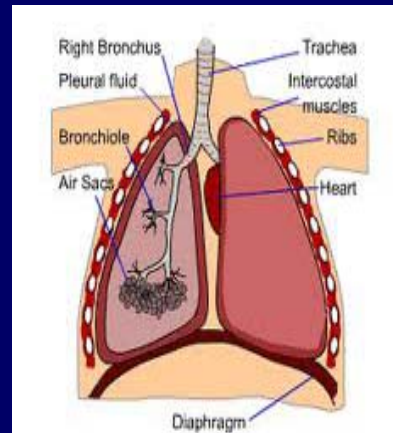
Structure of presentation

- Risk factor ?
- Types of Risk Factors
- Risk Factor Assessment and management
- Primary Prevention through Health Promotion
- Role of Medical Officer of DH,CHC,PHC under NPCDCS and NPHCE



4

Risk factors and NCDs



largely preventable , and Manageable

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Risk factor in NCD

- Any attribute, characteristic or exposure of an individual that increases the likelihood of developing a disease or injury.
- A determinant that can be modified by intervention
- Cumulative effect- Dose and Time response
- Co-existence

Risk factors

only **suggestive**

Presence does not imply that the disease will occur neither absence is guarantee of disease

Observable /identifiable **prior to event**

Smoking, obesity

Combination is purely additive or synergistic

Smoking and occupational exposure
:bladder cancer

Smoking ,high blood cholesterol and HT

Risk factors

- May be truly causative
 smoking and lung cancer
- May be merely contributory to undesired outcome
 lack of physical exercise and CAD
- Predictive only in statistical sense
 illiteracy for IMR

Risk factors

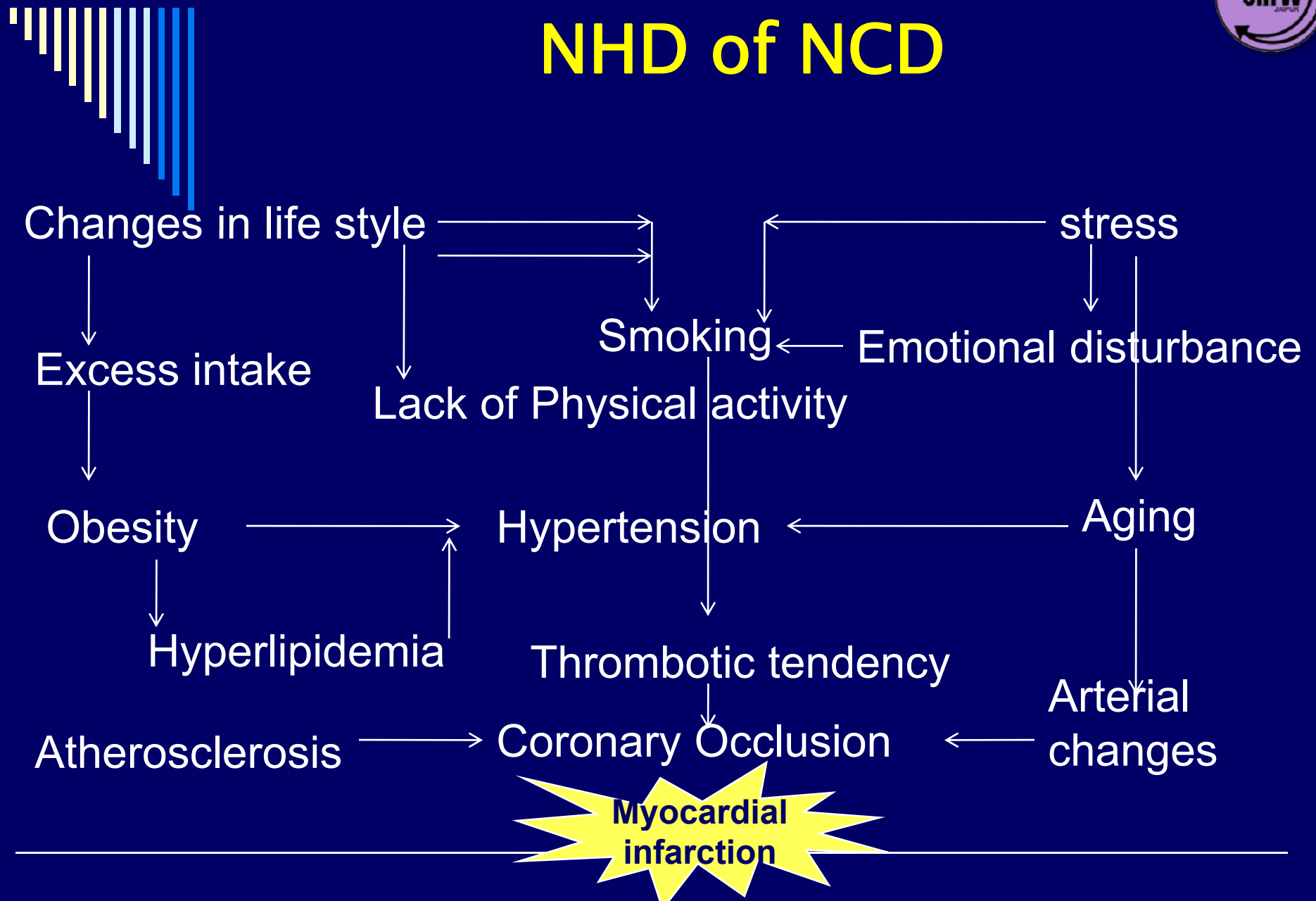
Modifiable

- Behavioral
 - Tobacco
 - Alcohol
 - Physical inactivity
 - Nutrition
- Physiological
 - BMI
 - Blood pressure
 - Blood glucose
 - Cholesterol

Non-Modifiable

- Age
- Heredity, Genetic
- Gender
- Ethnicity

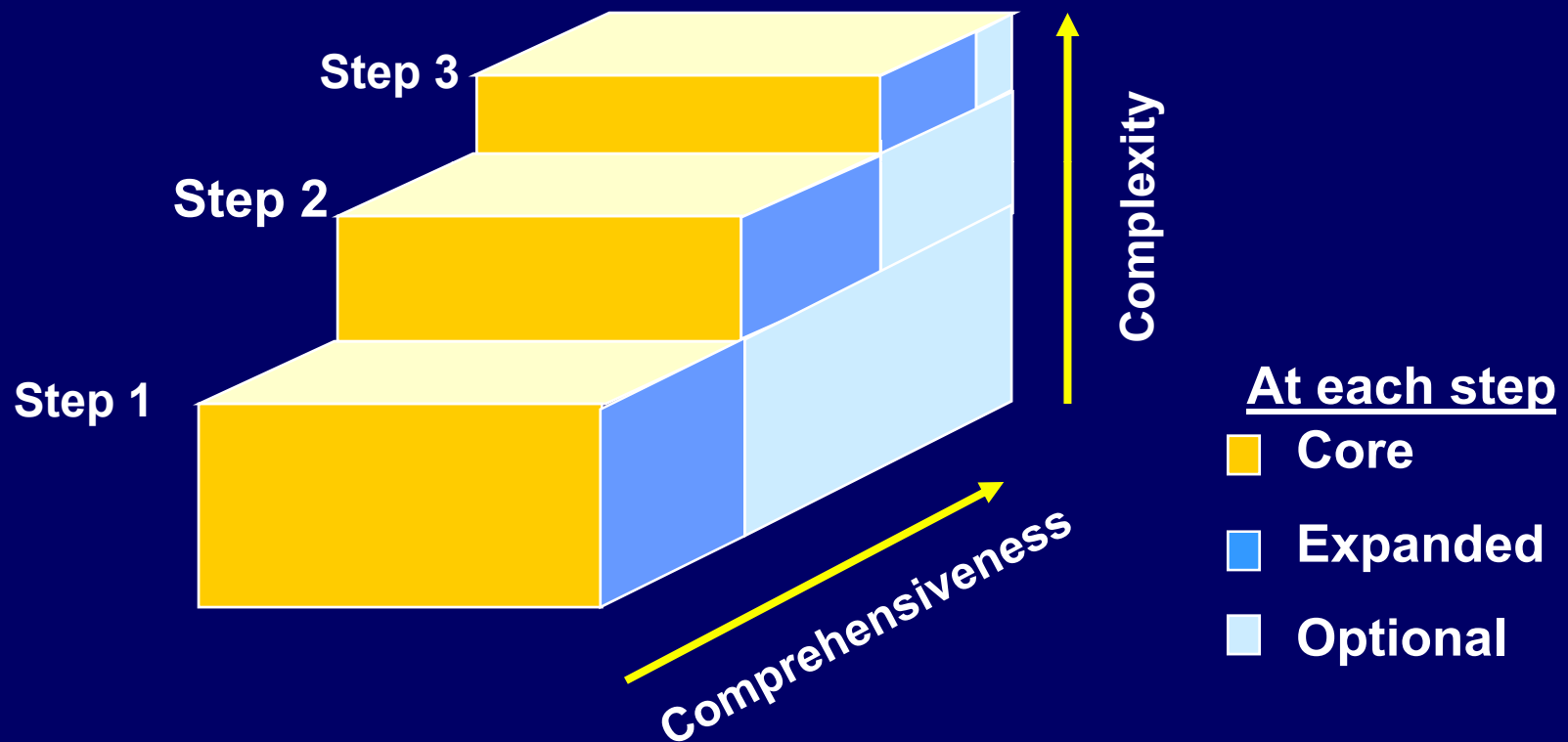
NHD of NCD



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Blood glucose	✓	✓	✓	
Blood Lipids	✓	✓	✓	

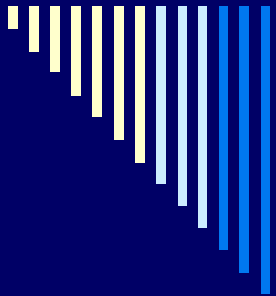
The WHO STEP approach to Surveillance of NCD Risk Factors





Levels of Risk Factor Surveillance

Measures Level	Step 1 (Verbal)	Step 2 (Physical)	Step 3 (Biochemical)
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Expanded	Education, Occupation Indicators,	Hip girth,	HDL-Chol, Triglycerides
Optional	Knowledge+ attitudes regarding health Health-related Quality of life and health- related behaviour	Skinfolds, Pedometer	Urine, etc.

- 
- A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in a gradient from light yellow to dark blue.
- STEPS emphasizes that **small amounts of good quality data** are more valuable than large amounts of poor data. It is based on the following two key premises:
 - Collection of standardized data, and
 - Flexibility for use in a variety of country situations and settings.

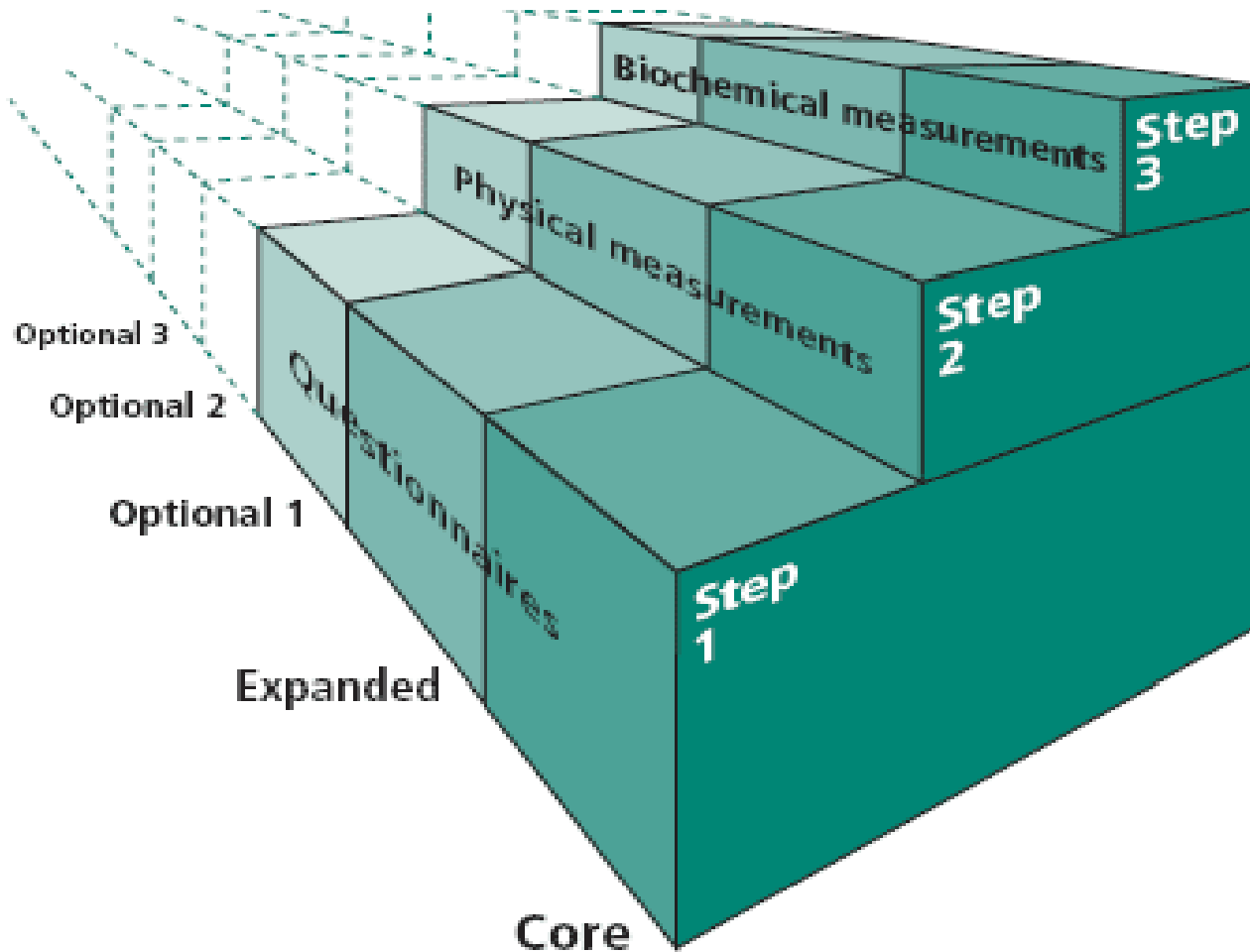
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Population Focus

- STEPS uses a representative sample of the study population.



Framework for WHO STEPwise approach



STEPS Instrument

- 
- A decorative graphic in the top left corner consisting of a series of vertical bars of varying heights, colored in a gradient from light blue to dark blue.
- STEPS Instrument covers three different levels "steps" for risk factor assessment. These steps are:
 - Questionnaire - self reported behaviors and life style risk factors
 - Physical measurements - blood pressure and anthropometric status
 - Biochemical measurements - collection of blood samples

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Step 1 : Questionnaire Based Assessment

- **Description:** Gathering demographic and behavioural information by questionnaire in a household setting.
- **Purpose:** To obtain core data on:
 - Socio-demographic information
 - Tobacco and alcohol use
 - Nutritional status
 - Physical activity
- **Recommendation:** All countries/sites should undertake the core items of Step 1.

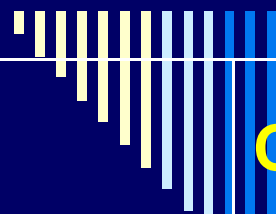
Step 2: Simple Physical Measurements

- ❑ **Description:** Collecting physical measurements with simple tests in a household setting.
- ❑ **Purpose:** To build on the core data in Step 1
 - ❑ and determine the proportion of adults that:
 - are overweight and obese, and
 - have raised blood pressure
- ❑ **Recommendation:** Most countries/sites should undertake Step 2.

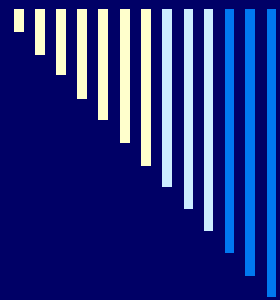
Step 3: Biochemical Measurements

- **Description:** Taking blood samples for biochemical measurement in a clinic.
- **Purpose:** To measure prevalence of diabetes
or raised blood glucose and abnormal blood lipids.
- **Recommendation:** Only recommended for well resourced settings

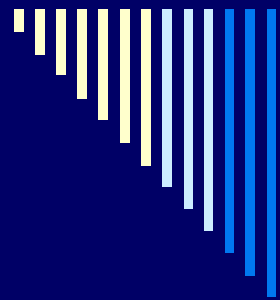
Note: Within each Step, there are three levels of data collection, core, expanded and optional levels



	Core Items	Expanded Items	Optional Modules
Step 1: Behavioral	Basic demographic information, including age, sex, literacy, and highest level of Education Tobacco use Alcohol consumption Fruit and vegetable Consumption Physical activity	Expanded demographic information including years at school, ethnicity, marital status, employment status, household income Smokeless tobacco use Past 7 days drinking Oil and fat consumption History of blood pressure, treatment for raised blood Pressure History of diabetes, treatment for diabetes	Mental health, intentional and unintentional injury and violence and oral health. Objective measure of physical activity behavior



	Core Items	Expanded Items	Optional Modules
Step 2: Physical measurements	Weight and height Waist circumference Blood pressure	Hip circumference, Heart rate	Skin fold thickness, assessment of physical fitness



	Core Items	Expanded Items	Optional Modules
Step 3: Biochemical measurements	Fasting blood sugar Total cholesterol	Fasting HDL-cholesterol and triglycerides	Oral glucose tolerance test, urine examination,

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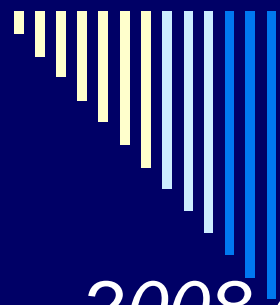
Behavioral Risk Factors

“Actions/Behavior that people engage in that put their health at risk”

NCDs

- Diseases of affluence
- Diseases due to urbanization
- Diseases of developed world
- Chronic diseases

Bio-behavioral disorders

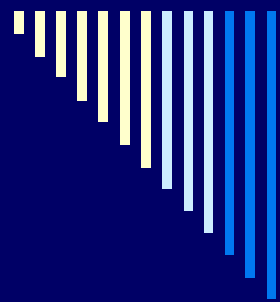


Behavioral Risk Factors

2008 estimated prevalence (%)

	<i>males</i>	<i>females</i>	<i>total</i>
Current daily tobacco Smoking	25.1	2.0	13.9
Physical inactivity	10.8	17.3	14.0

Source: World Health Organization - *NCD Country Profiles* , 2011.



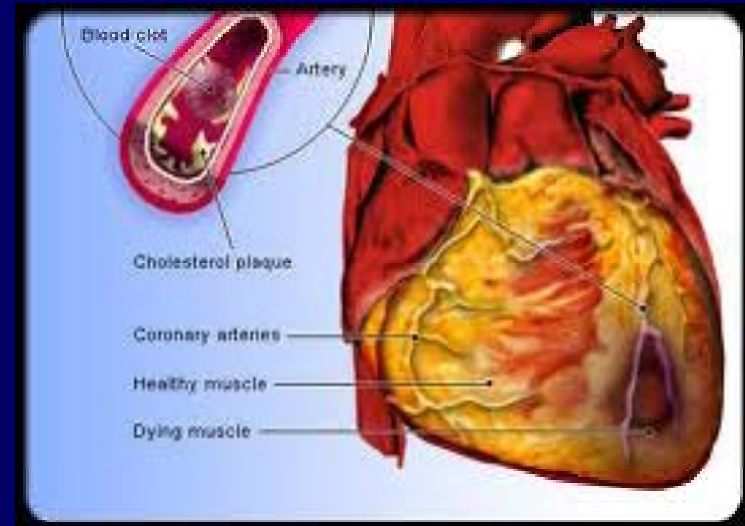
Modifiable Risk Factor: 2008 estimated prevalence (%)

	<i>Males</i>	<i>Females</i>	<i>Total</i>
Raised BP	33.2	31.7	32.5
Raised blood glucose	10.0	10.0	10.0
Overweight	9.9	12.2	11.0
Obesity	1.3	2.4	1.9
Raised cholesterol	25.8	28.3	27.1

Source: World Health Organization - *NCD Country Profiles* , 2011.

A. Cardio vascular diseases

- Atherosclerosis
- Increased level of C reactive protein (CRP).
- Low physical inactivity
- Smoking
- Unhealthy diet



B. Diabetes

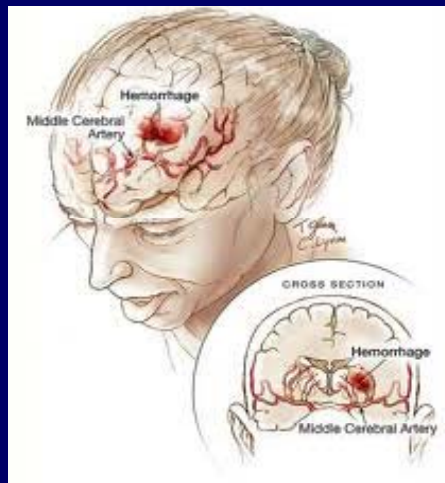
- Obesity
- Sedentary Life style
- Unhealthy eating habits
- Lack of regular exercise
- Genetics & family history
- High blood pressure & high cholesterol
- Increased age



C. Stroke

1. Controllable Risk Factors:

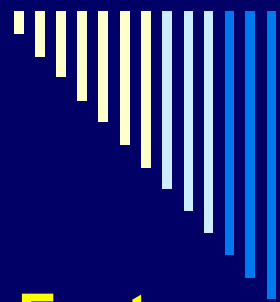
- High Blood Pressure
- Atrial Fibrillation
- High Cholesterol
- Diabetes
- Atherosclerosis
- Circulation Problems
- Tobacco Use and Smoking
- Alcohol Use
- Physical Inactivity
- Obesity.



D. Cancer

- Environment
- Life style
- Tobacco addicted
- Over weight
- Low fruit or vegetable intake
- Low physical inactivity
- Alcohol addiction
- Air pollution
- Sexually transmitted infections





Risk Factors

% of cancer deaths (35–64 yrs)

Factors

Best estimate

Tobacco	30-40
Alcohol	3-10
Rep. & Sexual behavior	10
Occupation	6–8
Pollution	2
Industrial Products	1
Medicines & Medical procedures	1
Geophysical factors	3

Risk factors and level of NCD prevention and management

Behavioral RF	Physiological RF	Disease Outcome
<input type="checkbox"/> Unhealthy Diet	<input type="checkbox"/> BMI (Obesity)	<input type="checkbox"/> Diabetes
<input type="checkbox"/> Physical inactivity	<input type="checkbox"/> Hypertension	<input type="checkbox"/> Heart disease
	<input type="checkbox"/> Hyper-cholesterolemia	<input type="checkbox"/> Stroke
<input type="checkbox"/> Tobacco		<input type="checkbox"/> Cancer
<input type="checkbox"/> Alcohol	<input type="checkbox"/> High Blood sugar level	<input type="checkbox"/> Chronic respiratory disease
<input type="checkbox"/> Stress		
LEVELS OF PREVENTION		
Primary Prevention	Secondary Prevention	Tertiary Prevention
Health promotion	Case management & HP	Case management

Risk Assessment And Management

- There should be evidence-based approach on how to reduce the occurrence of first clinical events of coronary heart disease (CHD), cerebrovascular disease (CeVD) and peripheral vascular disease (PVD) in the population.
- The evidence-based guidelines provide guidance on which specific preventive actions to initiate, and with what degree of intensity. The accompanying World Health Organization/ International Society of Hypertension (WHO/ISH) risk prediction charts enable the estimation of total cardiovascular risk of people in the first category.

Goals of implementing these guidelines

- The goals are to prevent CHD, CeVD and PVD events and Cancer by lowering risk. The recommendations assist people to:
 - Quit tobacco use, or reduce the amount smoked, or not just start the habit
 - Make healthy food choices
 - Be physically active
 - Reduce body mass index, waist hip ratio/waist circumference
 - Lower blood pressure
 - Lower blood cholesterol and low density lipoprotein cholesterol (LDL-cholesterol)
 - Control hyperglycemia
 - Take anti platelet therapy when necessary.

Referral to a specialist facility

- Referral is required if there are clinical features suggestive of:
 - Acute cardiovascular events such as: heart attack, angina, heart failure, arrhythmias, stroke, and transient ischemic attack.
 - Secondary hypertension, malignant hypertension.
 - Diabetes mellitus (newly diagnosed or uncontrolled).
 - Established cardiovascular disease (newly diagnosed or if not assessed in a specialist facility).
 - Suspected lesions for Cancer
 - People needing medical therapy to quit smoking.

Follow up

- Once the condition of the above categories of people (except with suspected lesion) is assessed and stabilized, they can be followed up in a primary care facility based on the recommendations provided in Manual of MO.
- They will need periodic reassessment in specialty

Grading cardiovascular risk using charts for making treatment decisions

- Some individuals are at high cardiovascular risk because they have established cardiovascular disease or very high levels of individual risk factors.
- Risk stratification is not necessary for making treatment decisions for these individuals as they belong to the high risk category; all of them need intensive lifestyle interventions and appropriate drug therapy .

High risk

- With established cardiovascular disease
- Without established CVD who have a total cholesterol ≥ 320 mg/dl or low density lipoprotein (LDL) cholesterol ≥ 240 mg/dl or TC/HDL-C (total cholesterol/high density lipoprotein cholesterol) ratio >8
- Without established CVD who have persistent raised blood pressure of $\geq 160/ \geq 100$ mmHg
- With renal failure or renal impairment.

WHO risk prediction chart

WHO/ISH risk prediction chart applicable for Indian population

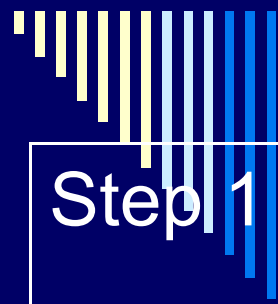


If cholesterol can not be measured

Risk Level ■ <10% ■ 10% to <20% ■ 20% to <30% ■ 30% to <40% ■ ≥40%



Use of chart

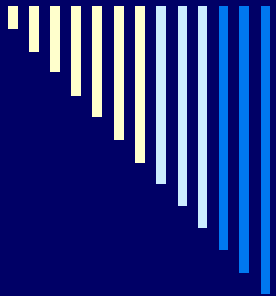


Step 1	Select the appropriate chart depending on the presence or absence of diabetes
Step 2	Select male or female tables
Step 3	Select smoker or non smoker boxes
Step 4	Select age group box (if age is 50-59 years select 50, if 60-69 years select 60 etc)
Step 5	Within this box find the nearest cell where the individual's systolic blood pressure (mm Hg) and total blood cholesterol level (mg/dl) cross. The color of this cell determines the 10 year cardiovascular risk.



Prevention of CVD (according to individual total risk)

10 year risk	Risk classification	Intervention
Risk <10%	Low Risk	Low risk does not mean “no” risk. Conservative management focusing on lifestyle an intervention is suggested. Risk assessed after 5 years unless significant change in health status.
Risk 10% to <20%	Moderate Risk	Monitor risk profile every 2 years.
Risk 20% to <30%	High Risk	Monitor risk profile yearly.
Risk ≥30%	Very High Risk	Individuals in this category are at very high risk of fatal or non-fatal vascular events. Monitor risk profile every 3–6 months.

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CVD risk may be higher if following are already present

- Already on antihypertensive therapy
- Premature menopause
- Approaching the next age category or systolic blood pressure category
- Obesity (including central obesity)
- Sedentary lifestyle
- Family history of premature CHD or stroke in first degree relative (male <55 years, female < 65 years)
- Raised triglyceride level (≥ 150 mg/dl)
- Low HDL cholesterol level (≤ 40 mg/dl in males, ≤ 50 mg/dl in females)
- Fasting glycaemia, or impaired glucose tolerance
- Microalbuminuria
- Socioeconomic deprivation.

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NPCDCS Components

- Prevention through behaviour change

- Early Diagnosis

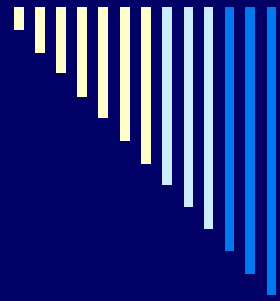
- Medical treatment

- Capacity building of human resource.

- Supervision, monitoring and evaluation

Key Interventions for NPCDCS

Key Area	Activities
Health Promotion	<ul style="list-style-type: none">Public awareness through multi-mediaCounseling for healthy lifestyle (Balanced diet, regular exercise, avoid alcohol and tobacco)
Early Diagnosis	<ul style="list-style-type: none">Screening of persons above 30 years and all pregnant women for diabetes and hypertension at all levels; facilities up to Sub-centre level
Case Management	<ul style="list-style-type: none">Facilities for diagnosis and treatment (NCD Clinic) at CHC level & aboveCCU at District Hospital and aboveTreatment of cancer at District Hospital & above
Capacity Building	<ul style="list-style-type: none">Infrastructure Development & EquipmentTraining of human resources at all levels
Management & Monitoring	<ul style="list-style-type: none">NCD Cell at National, State & District levelSurveillance, monitoring & evaluationRegular review meetings



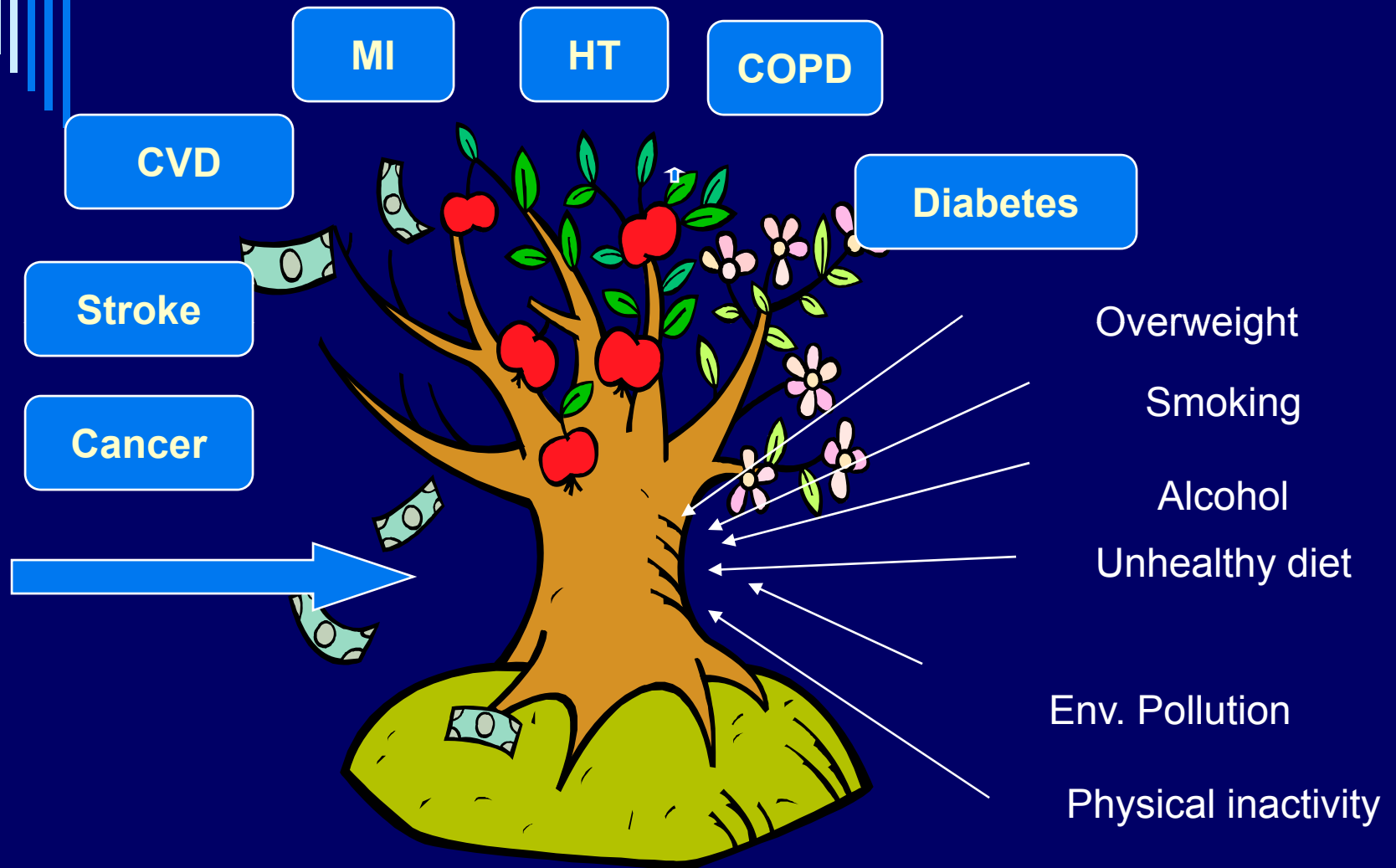
Thank you



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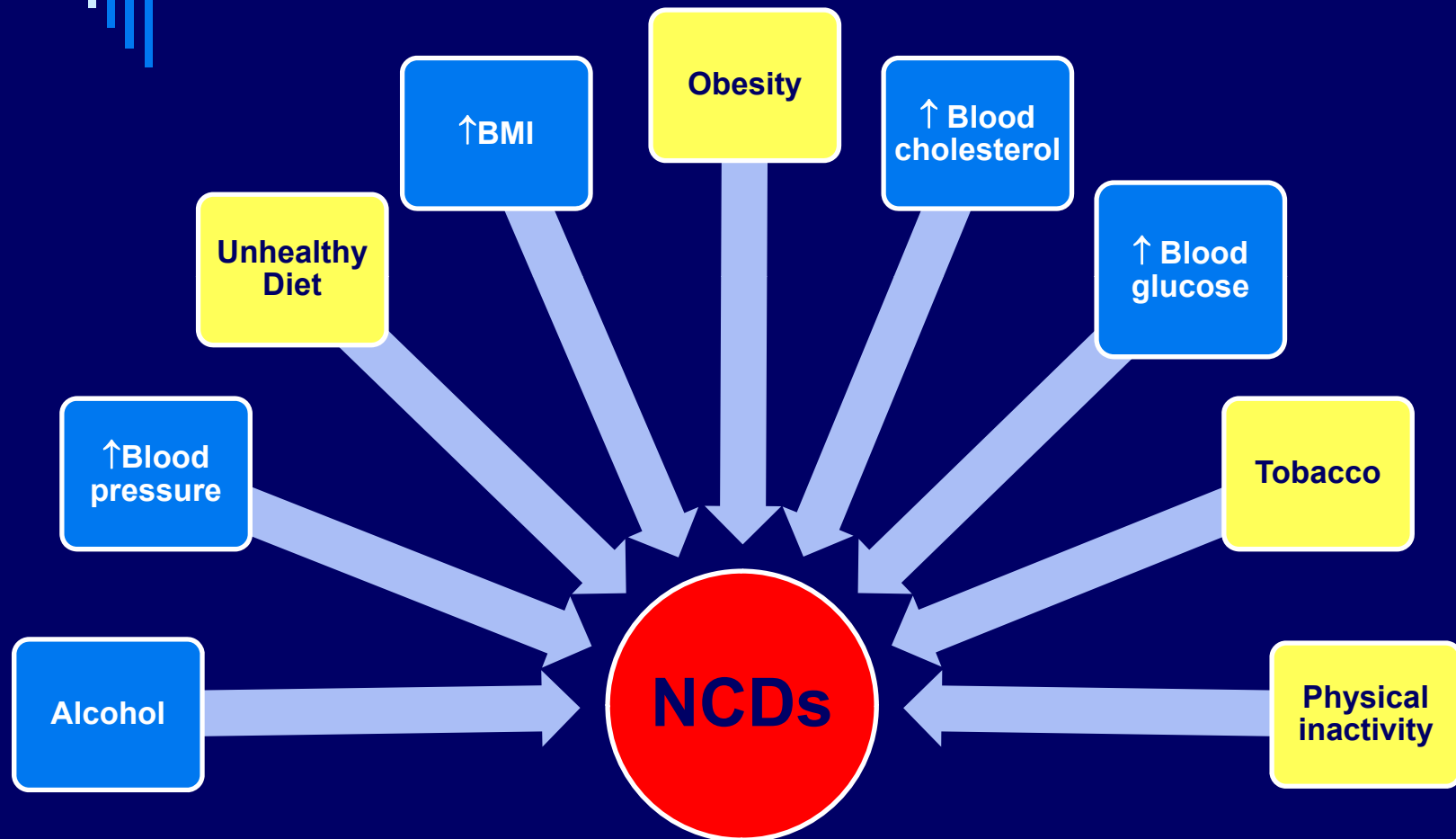
Diet, Life Style Modification & NCDs

Problem on the rise : NCDs



Hit the trunk, branches will fall automatically

Modifiable risk factors for NCDs



Major diet related NCDs



Diet and NCDs

Dietary factors	Mechanisms	Health risks
Excess energy intake ↑	Adipose tissue development ↑ , metabolic changes	NIDDM, CHD, Hormone dependent (breast)or GI cancer , osteoarthritis , gallbladder diseases
Total Fat ↑	Passive overconsumption	NIDDM, CHD, P:ratate cancer , breast cancer , colorectal cancer
Animal fat ↑	Unclear fat metabolism by products	Colon cancer
Saturated fat ↑	TC ↑, LDL ↑, TG ↑, HDL ↓	Arthrosclerosis, CHD, Hypertension, NIDDM

Diet Related-Cancers

Type of cancers	Risk factors	Prevention
Cancers of oral cavity , pharynx and esophagus	Alcohol Tobacco Obesity / Overweight Micronutrient deficiencies related to ↓ Intake of fruits , vegetables and animal products Consumption of foods at very high (thermal) temperatures	Management of obesity ↑ intake of fruits and vegetables ad animal products
Stomach cancer	Infection with helicobacter pylori Increased intakes of traditionally preserved salted foods , (meats and pickles)	↑ intakes of fruits and vegetables (vitamin C)
Colorectal cancer	Obesity / Overweight ↓ Physical activity ↑ intake of meats and fats ↑ intake of preserved and red meat	↑ intake of fruits , vegetables, dietary fibers and calcium ↑Folate consumption



Type of cancers	Risk factors	Prevention
Liver cancer	Chronic infection with Hepatitis B Aflatoxins contaminated foods Excessive alcohol consumption	↓ alcohol consumption
Pancreatic cancer	Obesity / Overweight ↑ intake of red meats	↑ Intake vegetables and fruits
Lung cancer	↑Smoking (↑ risk 30 times) ↓ intake of fruits , veg. and related nutrients (β- carotene)	↑ Intake of fruits and veg.
Breast cancer	Age at Menarche Obesity , Alcohol	
Endometrial cancer	Obesity (3 times ↑ risk in obese women) ↑ Saturated and total fats	↓ total fats / saturate fats
Prostate cancer	↑Intakes of red meat , ↑dairy products	Vit. E, selenium , lycopene has protective effects
Kidney cancer	Overweight / obesity	Weight management ¹³⁰

Prominent risk factor

Disease	Modifiable- Risk factors	Obesity
Heart disease	Smoking, HTN, Dyslipidemia, Diabetes, Obesity , Sedentary habits, Stress	
Some types of Cancers	Smoking, alcohol, solar radiation, ionizing radiation, work-site hazards, environmental pollution, medications, infectious agents, dietary factors, Obesity	
Stroke	High BP, Elevated cholesterol, smoking, obesity / overweight	
Diabetes	Obesity , diet	

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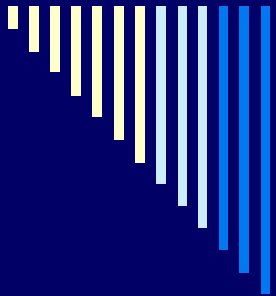
Dietary risk factors

- Total fats
- Saturated fats
- Sugars
- Salt
- Alcohol
- Refined grains
- Foods of animal origin

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Life Style Modification

- Primary Prevention through health promotion
- Diet
- Physical Activity
- Weight Control
- Tobacco Cessation
- Alcohol (moderation)

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Obesity: The other side of poor nutrition

- ❑ Killer lifestyle disease
- ❑ Pandora box of health issues + emotional troubles
- ❑ Public health challenge
- ❑ Overweight is defined as a body mass index (BMI) of 25 to 29.9 kg/m².
- ❑ Obesity is defined as an excess of total body fat more than a BMI of ≥ 30 kg/m².

A decorative graphic consisting of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in shades of blue and white.

Burden of the Bulge

- In India 1 in 6 women and 1 in 5 men are overweight (WHO)
- 1.2 billion people worldwide are officially classified as overweight. (WHO)
- > 25 % of Indians are overweight & > 3% are Obese (3 crore Indians).
- Death rates increases by 200 % for men and women who are significantly overweight

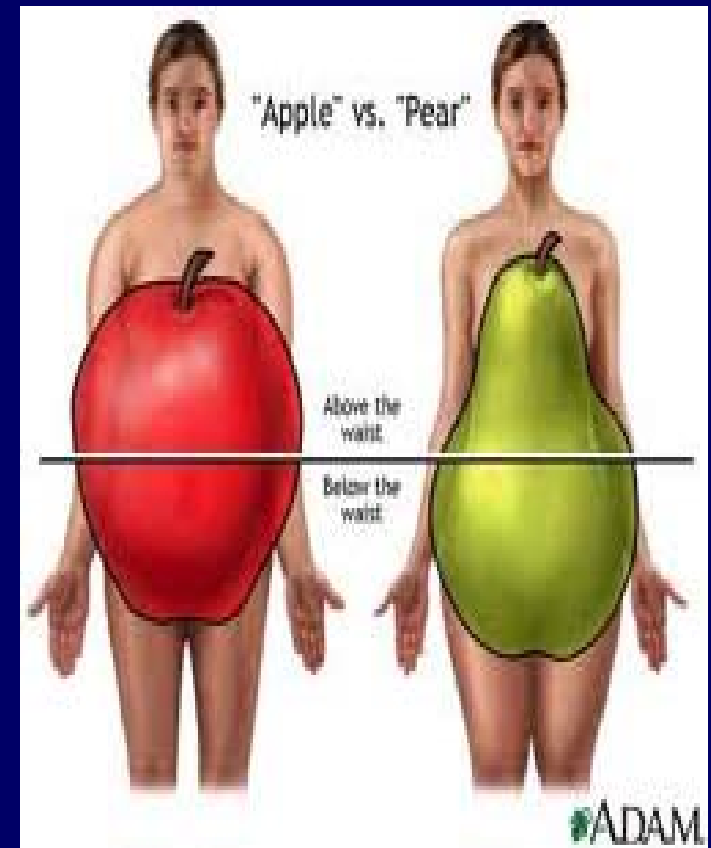
WHO predicts that by 2015, about 2.3 billion adults will be overweight and over 700 million people will be classified as obese.

Types of obesity

Gynecoid & Android

Gynecoid : Lower-body obesity--Pear shape

- Encouraged by estrogen and progesterone
- Less health risk than upper-body obesity



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Android : Upper-body obesity--apple shape

- Associated with more heart disease, HTN, Type II Diabetes
- Encouraged by testosterone and excessive alcohol intake
- Defined as waist measurement of > 40” for men and >35” for women (WHO)

Asian women more than 31 inches.
Asian men more than 35 inches.

Risk factor
for NCDs

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in a gradient from light yellow to dark blue.

Central obesity

- The waist circumference and waist to hip ratio are useful for estimation of central obesity
- Central obesity \propto Chronic Degenerative Diseases

Central obesity is a risk factor for diabetes and Indians are genetically susceptible to weight accumulation around waist

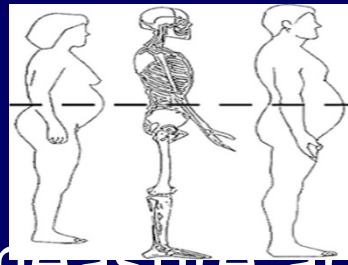
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Assessment of central obesity

- Waist to Hip Ratio of more than 0.9 in men and more than 0.8 in women is associated with increased risk of several chronic diseases.
- The waist circumference cut off levels for Asian Indians are 80 Cm for women and 90 cm for men

Measuring waist circumference

- ❑ Locate the top of the hip bone
- ❑ Place the tape measure evenly around the bare abdomen at the level of this bone



- ❑ Read the tape measure and record the same
- ❑ Ensure the tape is snug but does not push tightly into the skin.
- ❑ Measure waist circumference after breathing out normally; do not “suck in” the stomach.

A decorative graphic in the top left corner consisting of a series of vertical bars of varying heights, colored in a gradient from light yellow to blue.

Why is this happening?

Drivers of the obesity epidemic

- Societal changes + Worldwide nutrition transition.
- Economic growth
- Modernization
- Urbanization
- Globalization of food markets

Transitional Facets

Development + Urbanization



Nutritional
transition



Epidemiological
transition

Nutrition transitions: Absolute cause

- Changes in food handling processes
- Marketing
- Media Exposure
- Women in labor market
- Life style changes with easy money
 - Sedentary nature of work, low physical activity
 - Ready to eat junk food
 - Affluence, Availability, Accessibility

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in a gradient from light yellow to dark blue.

Causes of Obesity

- Heredity
- Unhealthy eating habits
- Low physical activity level
- Metabolic errors in energy utilization
- Insulin Imbalance :favoring fat deposition.
- Low /high birth weight (< 2500 ; > 3500)
- Obesogens :
 - School environment, family customs and practices,
 - Food advertising and labeling policies,
 - ~~Obesity during pregnancy and after menopause.~~

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in a gradient from light blue to dark blue.

Body Mass Index (BMI)

- ❑ Quetlet's Index
- ❑ Tool to calculate adiposity
- ❑ Developed by Adolphe Quetelet
- ❑ Risk indicator: increased BMI, increased risk

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BMI Calculation

$$\text{BMI} = \text{Weight (Kg)} / \text{height (m}^2\text{)}$$

- BMI greater than or equal to 25 is overweight
- BMI greater than or equal to 30 is obesity

BMI Classification

Classification	WHO BMI cut offs	Asians BMI cut offs
Underweight	<18.5	<18.5
Normal Range	18.5 – 24.9	18.5- 22.9
Overweight	>= 25.0	>= 23
Pre-obese	25.0 – 29.9	22.9-24.9
Obese	>= 30.0	>= 25.0
Obese Class I	30.0 – 34.9	25- 29.9
Obese Class II	>= 35.0	>= 30.0

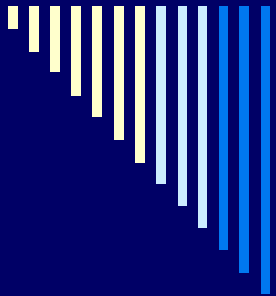
Source: WHO 1998 , Western pacific region of WHO, 2000

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in a gradient from light blue to dark blue.

Health consequences of Obesity

- High blood pressure
- High cholesterol
- Diabetes
- Heart disease
- Stroke
- Gallbladder disease
- Osteoarthritis

Obesity is not a simple problem for it can trigger at least 53 diseases

- 
- A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, colored in a gradient from light yellow to dark blue, arranged in a descending staircase pattern.
- ❑ Sleep apnea and respiratory problems
 - ❑ Some cancers (endometrial, breast and colon)
 - ❑ Liver disease
 - ❑ Venous disease
 - ❑ Acid reflux
 - ❑ Menstrual irregularities and infertility

Health repercussions of obesity, published in the Lancet, has revealed that “by 2030, non communicable disease will account for nearly 70% of all global deaths and 80% of these deaths will occur in developing countries like India”

A decorative graphic in the top-left corner consisting of a series of vertical bars of varying heights, transitioning from white to blue.

Bell the Fat” Anti obesity day: Nov 26”

- Multi-pronged strategy for
 - Effective weight management
 - Prevention of chronic diseases

- Secret to maintaining optimum weight.
 - Healthy lifestyle
 - Proper diet and exercise

Weight management

Weight gain

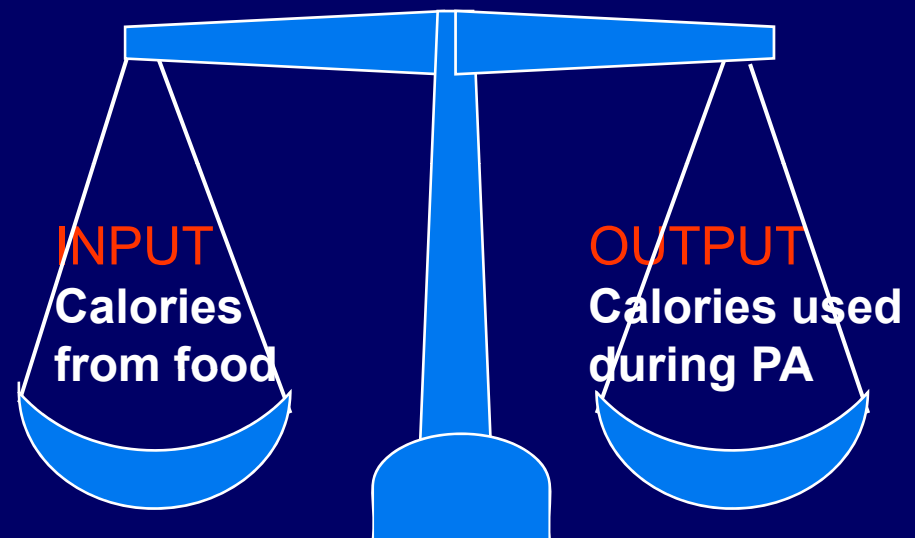
Calories consumed > calorie used

Weight loss

Calories consumed < calorie used

No Weight change

Calories consumed = calorie used



Balancing energy intake and energy expenditure is the basis of weight management throughout life

A decorative graphic in the top-left corner consisting of a series of vertical bars of varying heights, transitioning from white to blue.

Long-term strategies : Weight management

- Prevention
- Weight loss
- Weight maintenance
- Management of co-morbidities

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in a gradient from light yellow to dark blue.

Weight loss goals

- Realistic
- Achievable
- Sustainable
- Strong
- Imperative

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How much weight loss????

- ❑ NIH guidelines recommend a weight loss of 500 grams – 1 kg /week
- ❑ Allow 6 months to achieve 10% weight loss
- ❑ After 6 months, focus should shift to weight maintenance for 6 months

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Lifestyle medicine: Need for change

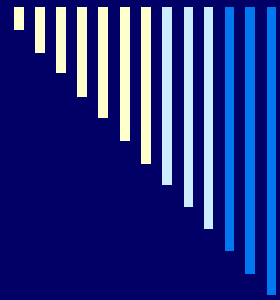
Use of lifestyle interventions in the treatment and management of lifestyle diseases.

- Diet rectifications (Eat Low Fat, Low Salt, High Fiber Diet)
- Exercise (Physical activity)
- Stress management
- Smoking cessation
- Avoid alcohol

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights and colors, ranging from light blue to dark blue, creating a staircase-like effect.

Emphasis of lifestyle medicine

- ❑ Assessing lifestyle
- ❑ Evaluating the risk factors
- ❑ Evaluating laboratory reports
- ❑ Discussing the opportunities for interventions
- ❑ Prescribing an optimal lifestyle
- ❑ Tracking and follow-ups



Dietary interventions

Managing / preventing NCDs

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What is diet ???

DIET is what **We eat**

NUTRITION is what we **Get from Diet**

Life style modification & Diet

Balanced Diet

- Different foods
- Adequate quantity and proportions
- Carbohydrates, Fat, Proteins, Vitamins, Minerals, Fiber



Energy source:

- 50% of from complex carbohydrates
- 15-20% from proteins.
- 25-30% from total fat.
(Of this, saturated fat should be $< 1/3$)

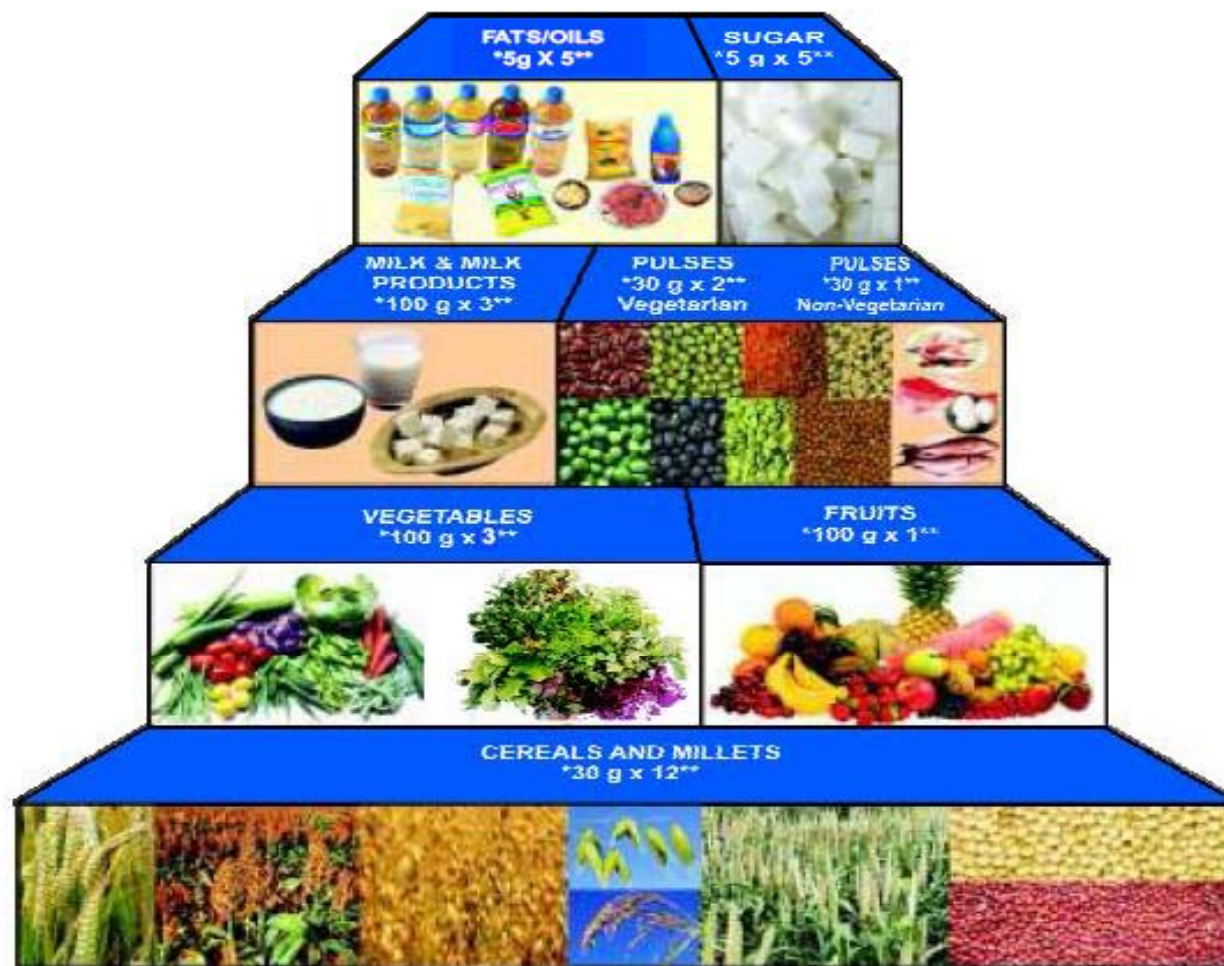
Balanced Diet

foods in quantities and proportions so that the need of calories, proteins, vitamins, minerals and other nutrients is adequately met.

- Includes a variety of foods from all the food groups.
- Differ according to age, sex, physical activity and physiological status

The healthy combination is low fat, low refined carbohydrates, optimal amount of Vitamins, Minerals and fiber

BALANCED DIET FOR ADULT MAN (SEDENTARY)



* Portion Size.

** No. of Portions

Elderly man: Reduce 3 portions of cereals and millets and add an extra serving of fruit

BALANCED DIET FOR ADULT WOMAN (SEDENTARY)



* Portion Size.

** No. of Portions

Extra Portions:

Pregnant women : Fat/Oil-2, Milk-2, Fruit-1, Green Leafy Vegetables-1/2.

Lactating women : Cereals-1, Pulses-2, Fat/Oil-2, Milk-2, Fruit-1, Green Leafy Vegetables-1/2

Between 6-12 months of lactation, diet intake should be gradually brought back to normal.

Elderly women : Fruit-1, reduce cereals and millets-2.

A decorative graphic consisting of a series of vertical bars of varying heights and colors, transitioning from white to light blue to dark blue, arranged in a descending staircase pattern from left to right.

Total energy requirement

Total energy requirement is a sum of :

1. Basal metabolism
2. Daily activities
3. Occupation;

expressed as **RDA**

depends on Age, gender and physical work

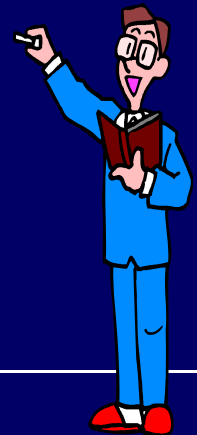
RDA for an Adult Sedentary Worker

Gender	Energy (Kcal/d)	Protein (g/d)	Fat (g/d)	Calcium (mg/d)	Iron (mg/d)
Male	2320	60	25	600	17
Female*	1900	55	20	600	21

*Pregnancy +300 and lactation+550 and 400
ICMR, 2010

Diet for NCD: Main focus

- Gradual weight loss.
- Achieve & maintain the desirable body weight.
- Correct eating habits.
- Reduce the increased lipid levels. (CHD)
- Meet the nutritional requirements
- Reduce sodium intake (Hypertension)
- Maintain blood sugar levels. (Diabetes)



A decorative graphic in the top-left corner consisting of a series of vertical bars of varying heights and colors, transitioning from light blue to dark blue.

Foods promoting health

- Minimally processed grains
- Legumes
- Fiber rich foods
- Vegetables
- Fruits
- Foods of plant origin

A decorative graphic on the left side of the slide, consisting of a series of vertical bars of varying heights and colors (white, light blue, and dark blue) that create a staircase-like effect.

Promoting Healthy lifestyle

- ❑ Traditional healthy diets
- ❑ Avoid tobacco, Alcohol
- ❑ Maintain weight
- ❑ Daily physical activities
- ❑ Restrict foods high in sugar , refined starch and saturated and trans fats to children

Dietary Guidelines for Indians

ICMR

- Consume nutritionally adequate diet through a wise choice from a variety of foods.
- Additional food and extra care during pregnancy and lactation.
- Exclusive breast-feeding. Breast – feeding can be continued up to two years with appropriate and adequate frequent supplements
- Oils and animal foods in moderation, and restr vanaspati /ghee/butter



A decorative graphic on the left side of the slide consists of a series of vertical bars of varying heights and colors, transitioning from white to light blue to dark blue.

Strategies for Obesity Prevention

For infants and young children:

- ❑ Promotion of exclusive breastfeeding
- ❑ Avoid use of added sugars and starches when feeding formula
- ❑ Instruct mothers to accept their child's ability to regulate energy intake rather than feeding until the plate is empty
- ❑ Assure the appropriate micronutrient intake needed to promote optimal linear growth

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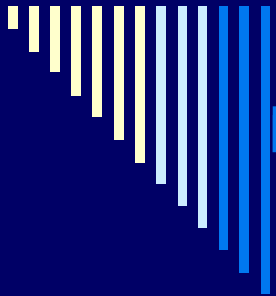
For children and adolescents

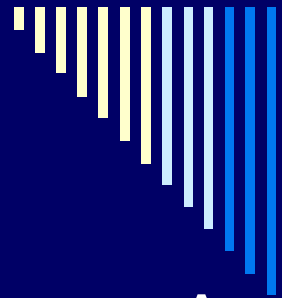
- Promote and active lifestyle
- Limit television viewing
- Promote the intake of fruits and vegetables
- Restrict the intake of energy dense ,
micronutrient poor foods (e.g. packaged
foods)
- Restrict the intake of sugar sweetened soft
drinks

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in a gradient from light yellow to dark blue.

Tips for weight reduction

- ❑ Slow and steady
- ❑ Avoid severe fasting
- ❑ Achieve energy balance and appropriate weight for height
- ❑ Encourage physical activity
- ❑ Eat small frequent meals
- ❑ Cut down on sugar, salt, fatty foods and alcohol.

- 
- A decorative graphic on the left side of the slide consisting of a series of vertical bars of varying heights and colors, transitioning from light yellow to dark blue.
- Promote complex carbohydrates and fiber rich diets
 - Increase consumption of fruits and vegetables, legumes, whole grains and nuts.
 - Limit energy intake from total fat and shift from saturated to unsaturated
 - Eliminate the use of trans fatty acids rich food products and sweets.
 - Use low fat milk.
 - Avoid fasting & feasting.
 - Read the labels carefully.



- Avoid fried foods and bakery products
- Avoid organ meats like liver and brain, poultry with skin, higher fat meat cuts like hamburgers, bacon and sausages.
- Avoid excessive alcohol, stop smoking

The 5 “W” Plan

1. What to eat ?
2. When to eat ?
3. Where to eat ?
4. Why to eat ?
5. Way to eat ?

What you eat ?

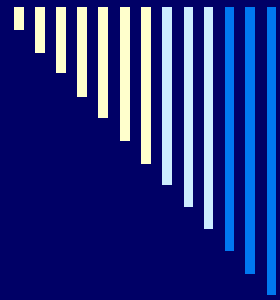
- Have a balanced diet.
- Include micro and macro nutrients and fiber in adequate amounts
- Be careful about your fat intake. Avoid saturated fat.
- Restrict salt and sugar intake.

When to eat ?

- Set aside a time for breakfast ,lunch and dinner too.
- Have smaller meals at regular intervals.
- Never sleep immediately after your meals.

Where to eat ?

- Decide one place in your house or office to eat food.
- While eating your meals, concentrate only on eating



Why to eat ?

- Eat when you feel hungry
- Don not eat because you have nothing else to do
- Do not eat because you cannot say “NO” to anyone

A decorative graphic in the top-left corner consisting of a series of vertical bars of varying heights and colors, transitioning from light yellow to dark blue.

Way to eat ?

- Eat slowly.
- Chew properly.
- Spend at least 15- 20 mins to complete your meals.
- Never drink water during your meals.
- Drink water 20 mts. after meals.
- stroll for about 15 mts. after meals

Recommendations for cancer preventions

- ❑ Maintain weight / avoid weight gain
- ❑ Maintain Regular Physical activity
- ❑ Avoid alcohol
- ❑ Preserved foods and salt : Moderate consumption
- ❑ Minimal exposure to Aflatoxins in foods
- ❑ Diet with 400 gms of total fruits and vegetables
- ❑ Moderate consumption of preserved meats
- ❑ Do not consume food and drink at very hot temperature

A decorative graphic consisting of several vertical bars of varying heights and colors (white and blue) on the left side of the slide.

Recommendations in preventing diabetes

- Prevention / treatment of obesity
- Maintain optimum BMI
- weight reduction in overweight or obese individuals with impaired glucose tolerance
- Increase Physical activity
- Limit total fat intake : >10 % of the total energy intake
- NSP / dietary fibers : adequate amounts

Recommendations in preventing CVDs

- ❑ Fats: restrict SFA (less than 10% of daily energy intake)Trans fatty acid(less than 1% of daily energy intake)
- ❑ Fruits and Veg. : 400-500 gms / day
- ❑ Sodium restriction <5gms / day
- ❑ Potassium: Na: ratio = 1
- ❑ NSP : adequate intake
- ❑ Alcohol: Regular small intake is protective
- ❑ Physical Activity: at least 30 min. moderate workout

Calculating balanced diet?

- Know Recommended Dietary Allowance (RDA)
- Menu Analysis
- Food Exchange List



RDAs for an Adult Sedentary Worker

Gender	Energy (Kcal/d)	Protein (g/d)	Fat (g/d)	Calcium (mg/d)	Iron (mg/d)
Male	2320	60	25	600	17
Female*	1900	55	20	600	21

***Pregnancy +300 ; lactation+550
ICMR, 2010**

A decorative graphic consisting of a series of vertical bars of varying heights and colors (white and blue) on the left side of the slide.

How to calculate balance diet?

Step I: Recommended Dietary Allowance (RDA) (specific for age, gender and activity).

Step II: *Menu Analysis*

Common Home Measures – Weight & Volume Equivalents

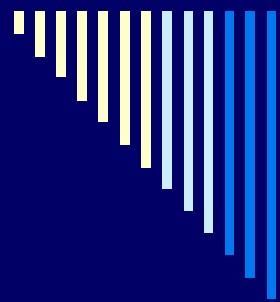
- 1 Medium size bowl: 150-160 ml
- 1 Table spoon (level): 15g or ml (approx)
- 1 Table spoon (heaped): 20 g
- 1 Tea spoon (level): 5g or ml
- 1 Tea spoon (heaped): 7 g
- 1 Medium size tea cup: 180-200 ml
- Big size glass/Cup: 250 ml



Key recommendations – Diet

- ↑ Fruit and vegetable intake
- ↓ Unhealthy fats (Saturated fats e.g. Animal fats, milk products; transfats – hydrogenated oil)
- Substitute with healthy fats
 - PUFA(poly) e.g. Fish oil;
 - MUFA(Mono) e.g. pea nut oil
- ↓ Salt intake
- ↓ Consumption of simple sugars

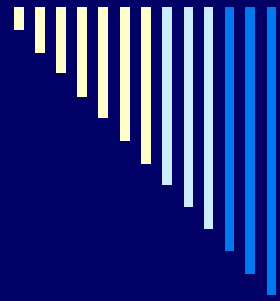




Health Promotion through exercises

Calorie consumption in different activities

Activity	Kcal/hr.	Activity	Kcal/hr.
Cleaning	210	Gardening	300
Watching TV	86	Cycling, 15/h	360
Running, 12/hr	750	Walking 4/hr	160
Shuttle	348	Tennis	392
TT	245	Dancing	372
Typing	108	Sleeping	57
Standing	132	Sitting	86



Thank you





National Program for Prevention and Control of
Cancer, Diabetes, Cardio-Vascular Disease & Stroke



NPCDCS & NPHCE

State Institute of Health & Family Welfare, Jaipur

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Structure of presentation

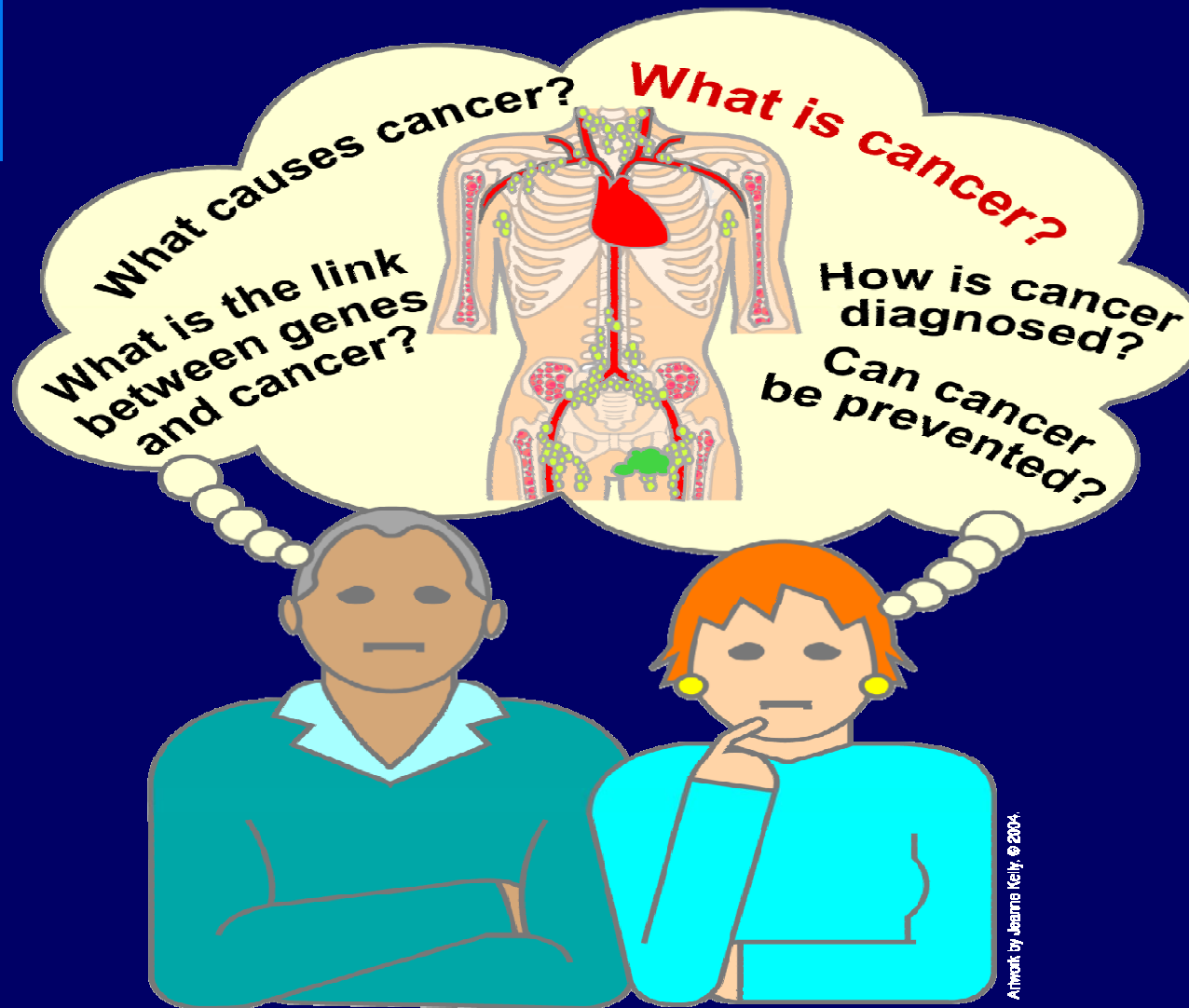
- ❑ Basic Understanding
- ❑ Common cancers
- ❑ Early Diagnosis
- ❑ Breast Cancer
- ❑ Screening of common cancer
- ❑ Case based discussions
- ❑ Prevention of cancer
- ❑ Palliative care

Cancer – How old disease is ?

- Even in Bones of Dinosaurs
- Even in calcified mummies



What is Cancer?



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Cancer?

A group of diseases

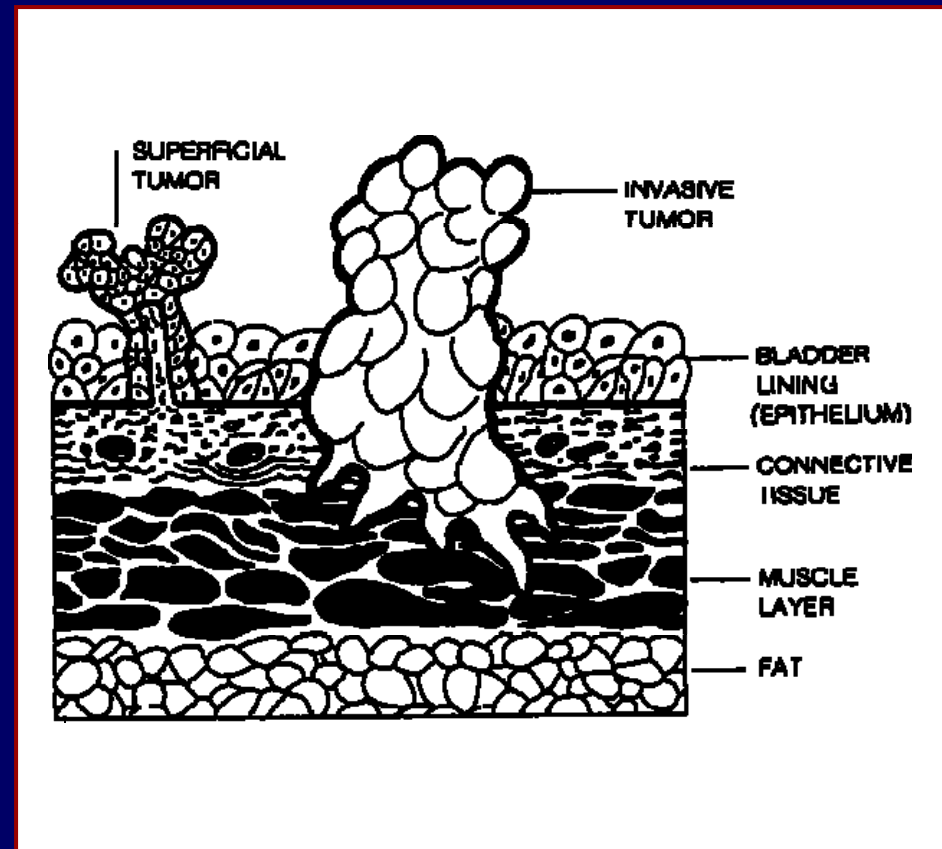
Uncontrolled cell multiplication

- Benign**
- Malignant**

Cancer – What Is It?

Growth of Cells

- Undesirable
- Uncontrolled
- Unregulated
- Useless
- Harmful
- Can invade surrounding tissue



Determinants

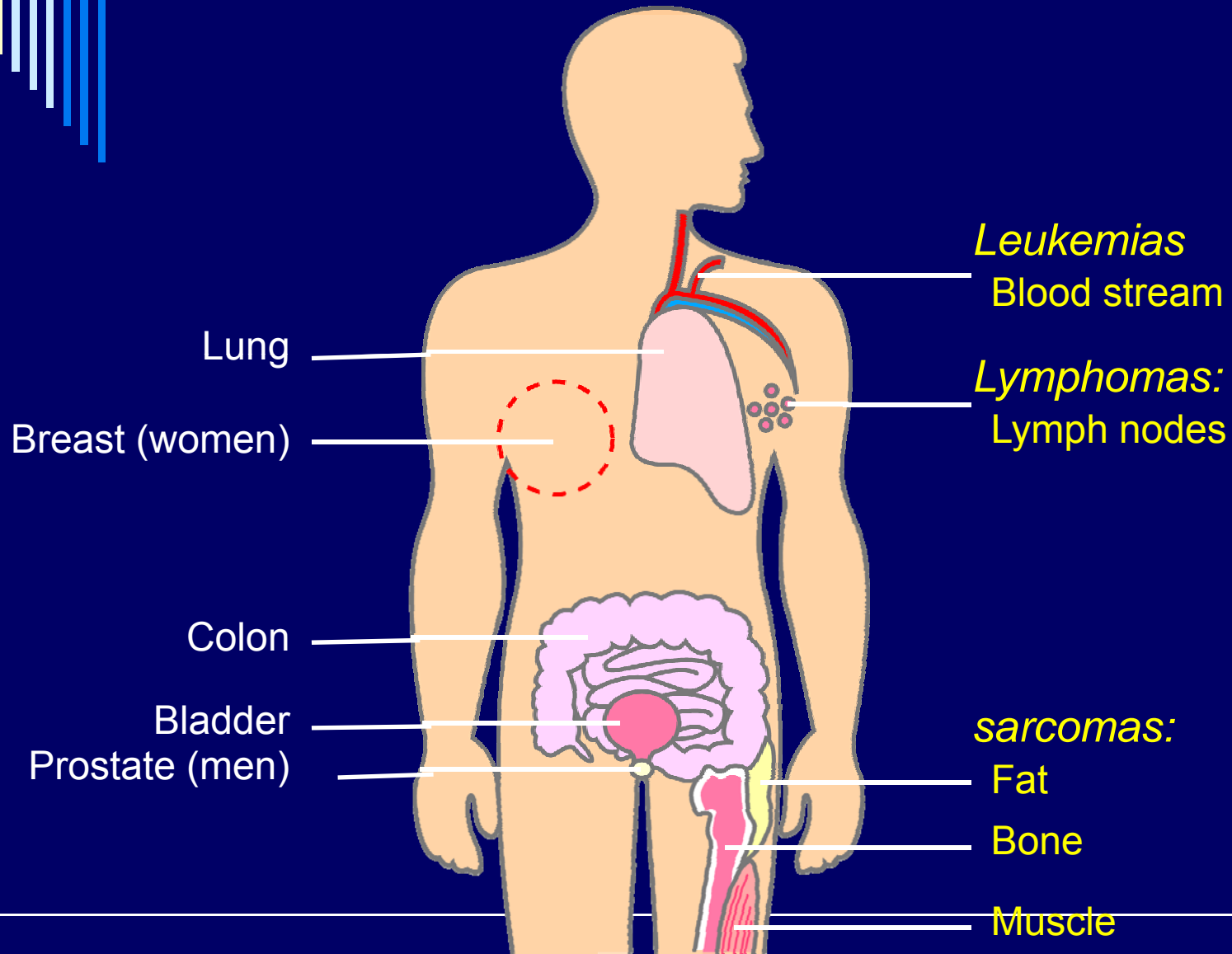
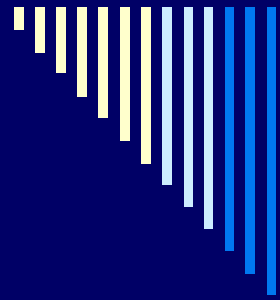
- ❑ Tobacco- (Primary prevention possible)
- ❑ Occupational exposures
- ❑ Diet-
 - ❑ high protein, low fiber, alcohol, Junk,
- ❑ Reproductive pattern influences
 - ❑ Late marriage/ single
 - ❑ pregnancy/Lactation
- ❑ Sexual practices and hygiene
Life style, customs
Viruses-
 - Hepatitis-B virus/Human papilloma virus/CMV



Common Cancer sites

- Male-
 - ***Mouth***
 - ***Oro-pharynx***
 - Stomach
 - Esophagus
 - ***Lungs***
- Female-
 - ***Cervix***
 - ***Breast***
 - Mouth/Oro-pharynx
 - Esophagus

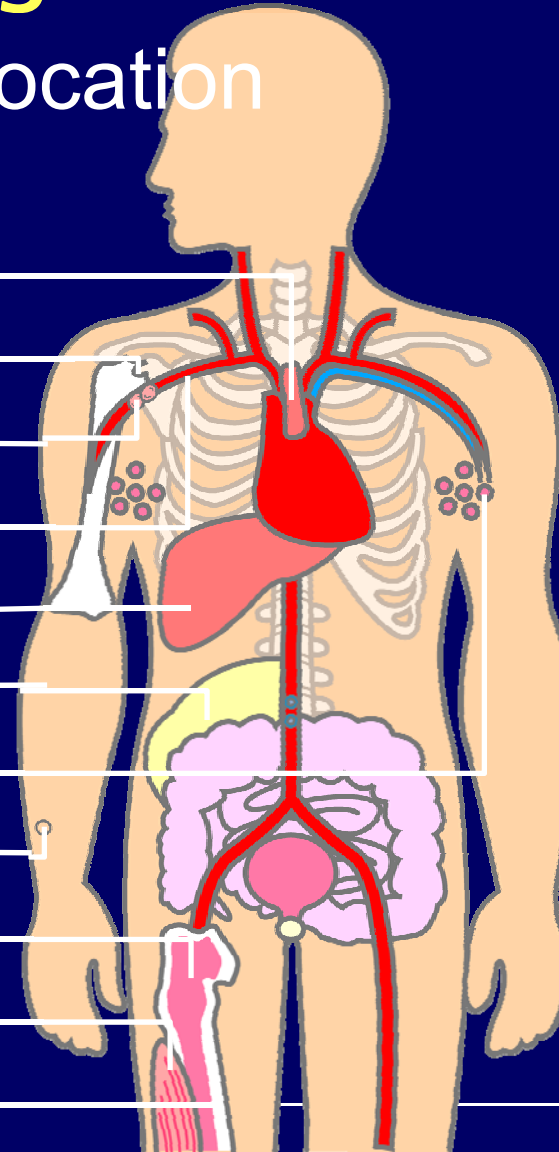
Common cancers



Naming Cancer

Cancer Prefixes Location

Prefix	Meaning
adeno-	gland
chondro-	cartilage
erythro-	red blood cell
hemangio-	blood vessels
hepato-	liver
lipo-	fat
lympho-	lymphocyte
melano-	pigment cell
myelo-	bone marrow
myo-	muscle
osteo-	bone



Global

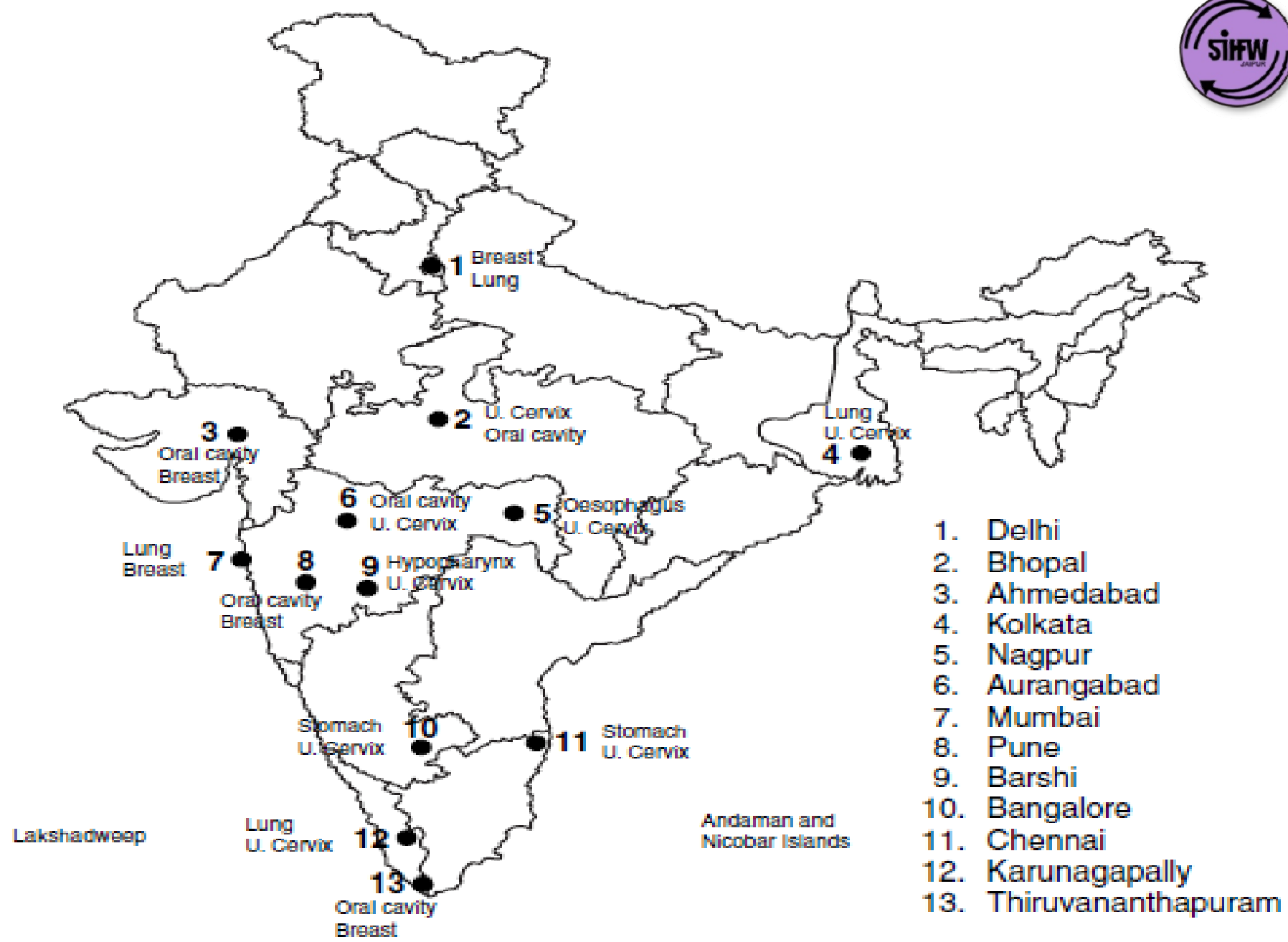


- ❑ 7.6 million deaths (13% of all deaths) in 2008
- ❑ Tobacco is the most important risk factor for cancer
- ❑ Viral infections (HBV/HCV & HPV) responsible for 20% of cancer deaths
- ❑ Approx 70 % of cancer deaths occur in low- and middle-income countries.
- ❑ Projected-13.1 million deaths in 2030

Source-WHO

India

- 0.8 million new cases/year
- 2.4 million prevalent cases
- Tobacco Related Cancers (TRC) are amenable for primary prevention.
- 48% cancers in men and 20% in women are due to tobacco.
- 13% cancers of uterine cervix can be potentially screened and prevented
- 9% of breast cancers can be detected early and treated effectively



1. Delhi
2. Bhopal
3. Ahmedabad
4. Kolkata
5. Nagpur
6. Aurangabad
7. Mumbai
8. Pune
9. Barshi
10. Bangalore
11. Chennai
12. Karunagapally
13. Thiruvananthapuram

India: Cancer pattern

Five Common Cancers

	Rank	World	India
Male	1	Lung	Lung
	2	Stomach	Lip
	3	Prostate	Oral Cavity
	4	Colon/Rectum	Other pharynx
	5	Liver	Esophagus
Female	1	Breast	Uterine Cervix
	2	Uterine Cervix	Breast
	3	Colon/Rectum	Ovary
	4	Lung	Lip, Oral cavity
	5	Stomach	Esophagus

Dynamics of Cancer

- Increased Life expectancy
- Accuracy of Diagnosis
- Improved ? Life style
 - Tobacco
 - Alcohol
 - Newer infections
 - Environment-physical & social
 - Diet



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Issues in Cancer control

- ❑ Burden of disease
- ❑ Poor/ unavailable diagnostic facility
- ❑ Awareness
- ❑ Trained manpower
- ❑ Competing priorities
- ❑ National guidelines- detection/therapy/
palliative

Issues in Cancer control

- Early diagnosis-Individual /Clinic/
Community
- Therapy
- Palliative care-availability & level
- Nursing
- Service Delivery-DCCS/NGO/Private

Cancer patterns

- Predominance of Tobacco related cancers
- Lung, oral , cervix and breast
- Increasing with decrease in communicable diseases
- Majority detected late



A decorative graphic consisting of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in shades of white and light blue.

Prevention and screening programs

□ Primary-

Health promotion

Specific protection

- implementation of tobacco control strategies,
- promotion of adequate and balanced dietary practices and reduction of alcohol intake.
- awareness
- risk factor modification. and Legislation

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, transitioning from white to blue, arranged in a descending staircase pattern.

Prevention and screening

- Secondary-

Early Diagnosis & Treatment

pap smear/ mammography

- Tertiary-

Infrastructure for Chemotherapy/
Radiotherapy/Palliative

A decorative graphic consisting of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in shades of white and light blue.

Cancer control– strategies for primary prevention

- Awareness & education programs
- Role and use of media
- Community participation
- Combining with other programs

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□ Early diagnosis

- Individual's role
 - Reporting early
 - Self examination-
Breast/Oral cavity
 - promoting genital hygiene
and sexual behavior.
 - lifestyle modification.
- System's role
 - Screening

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights and shades of blue, arranged in a descending staircase pattern from left to right.

Common Risk factors and Screening for Cancers

Cancer	Risk factor	Screening procedures
Breast	Age, parity, heredity	Self examination
Cervix	Parity, age, multiple partners	PAP smear
Oral cancer		Self examination, examination for leokoplakia

Diagnosis

- Radiological
- Biochemical
- Endoscopy
- Pathological
- Immunological

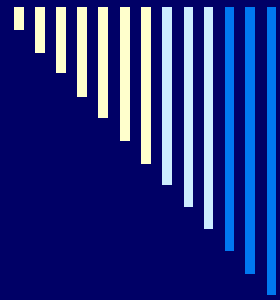
A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in a gradient from light yellow to dark blue.

Treatment

- Surgery
- Radiotherapy
- Chemotherapy
- Palliative care

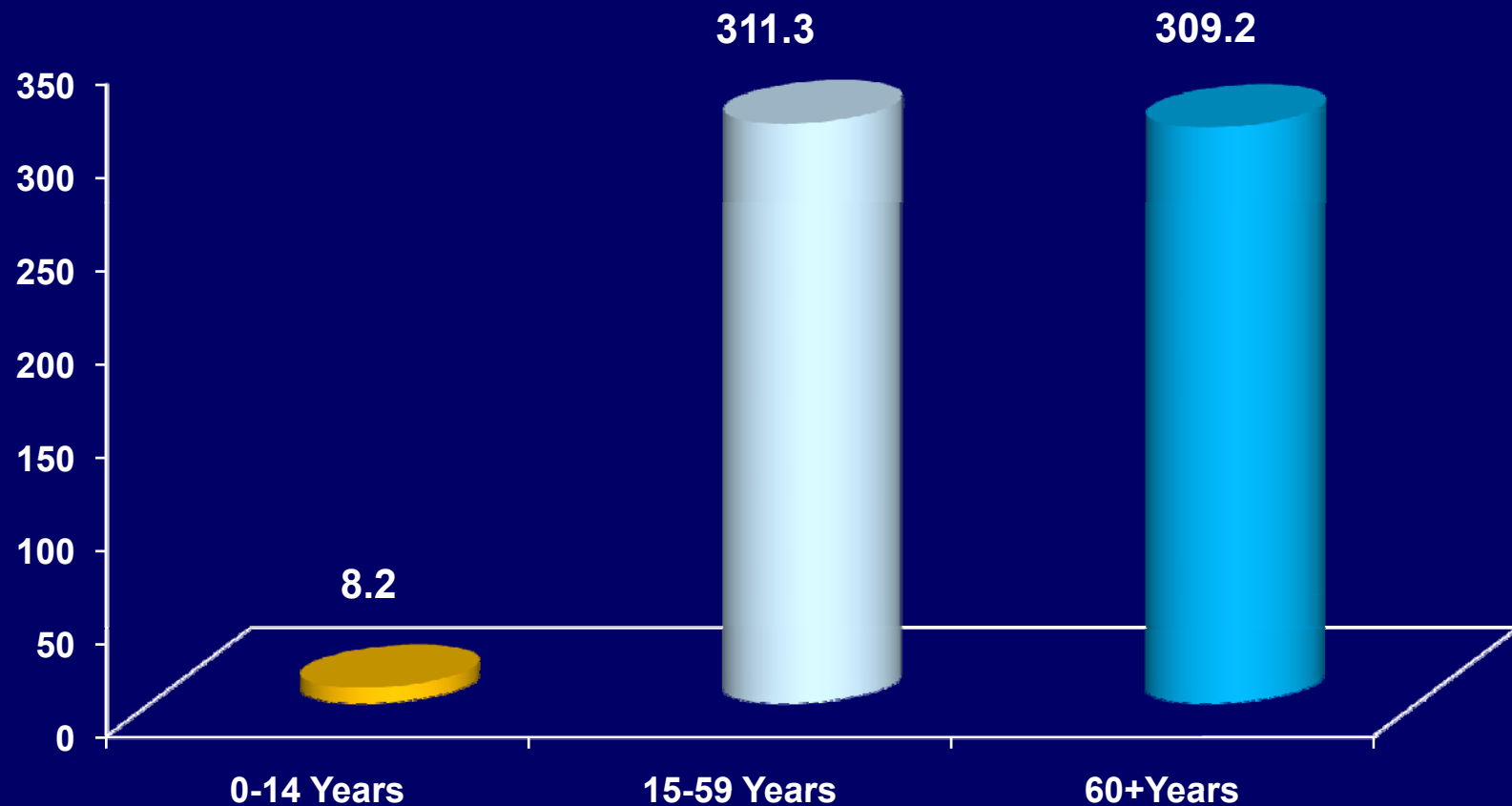
Interventions in different cancers

Cancer	Early Detection	Surgery	Radiation	Chemotherapy/ Hormonal adjuvant therapy	Palliative Care
Mouth/Pharynx	+	++	+++	+	+++
Esophagus	-	+	++	-	+++
Stomach	+	+	-	-	+++
Colon/Rectum	++	+++	++	+++	+++
Liver	-	+	-	-	+++
Lung	-	+	++	-	+++
Breast	+++	+++	++	+++	+++
Cervix	+++	++	+++	-	+++



Burden of Disease

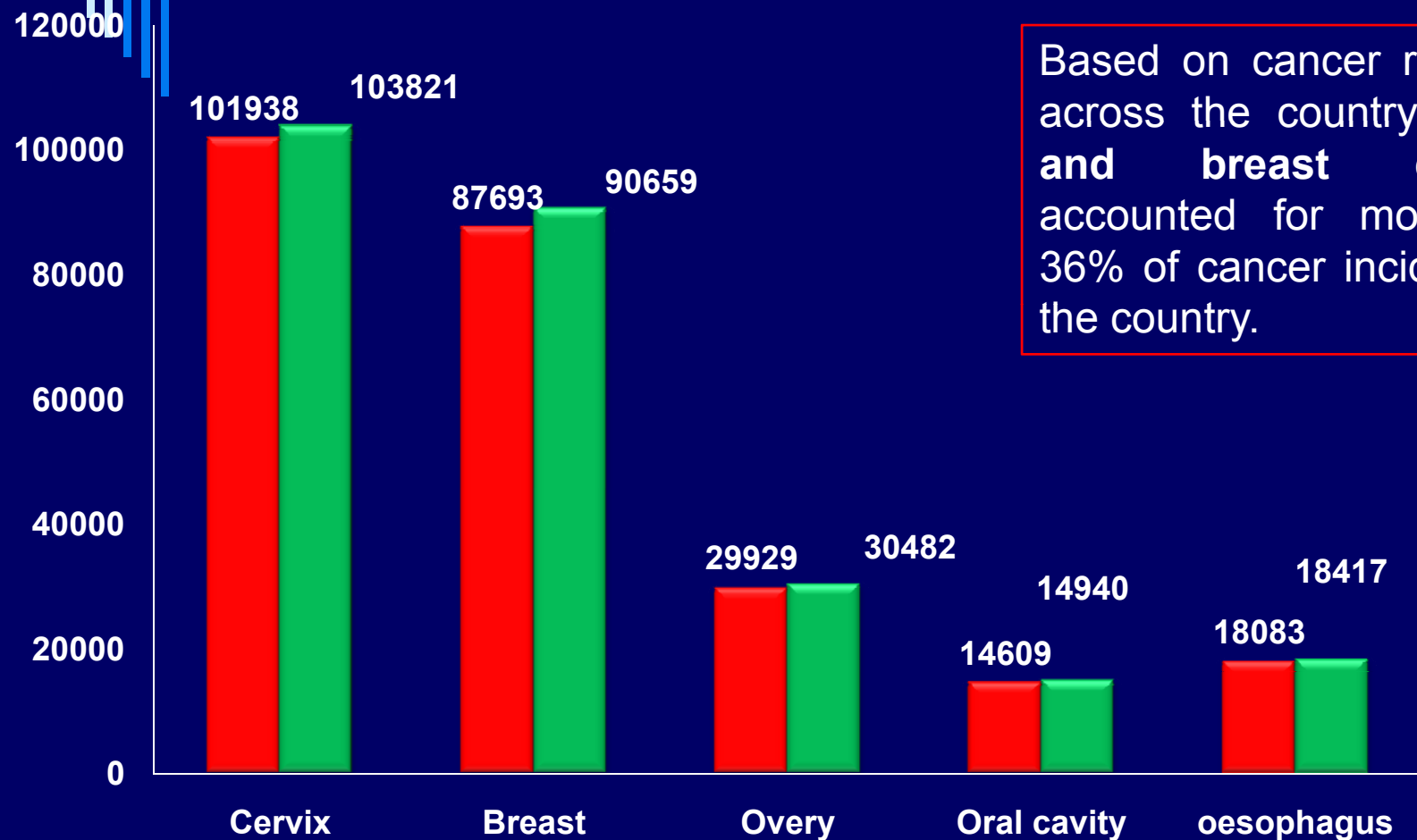
Age wise distribution of deaths due to Cancer per 100000 pop.



Source-WHO Organisation Mondiale de la Santé Department of Measurement and Health Information April 2011

SIHFW: An ISO:9001:2008 certified Institution

Common Cancer (Female)

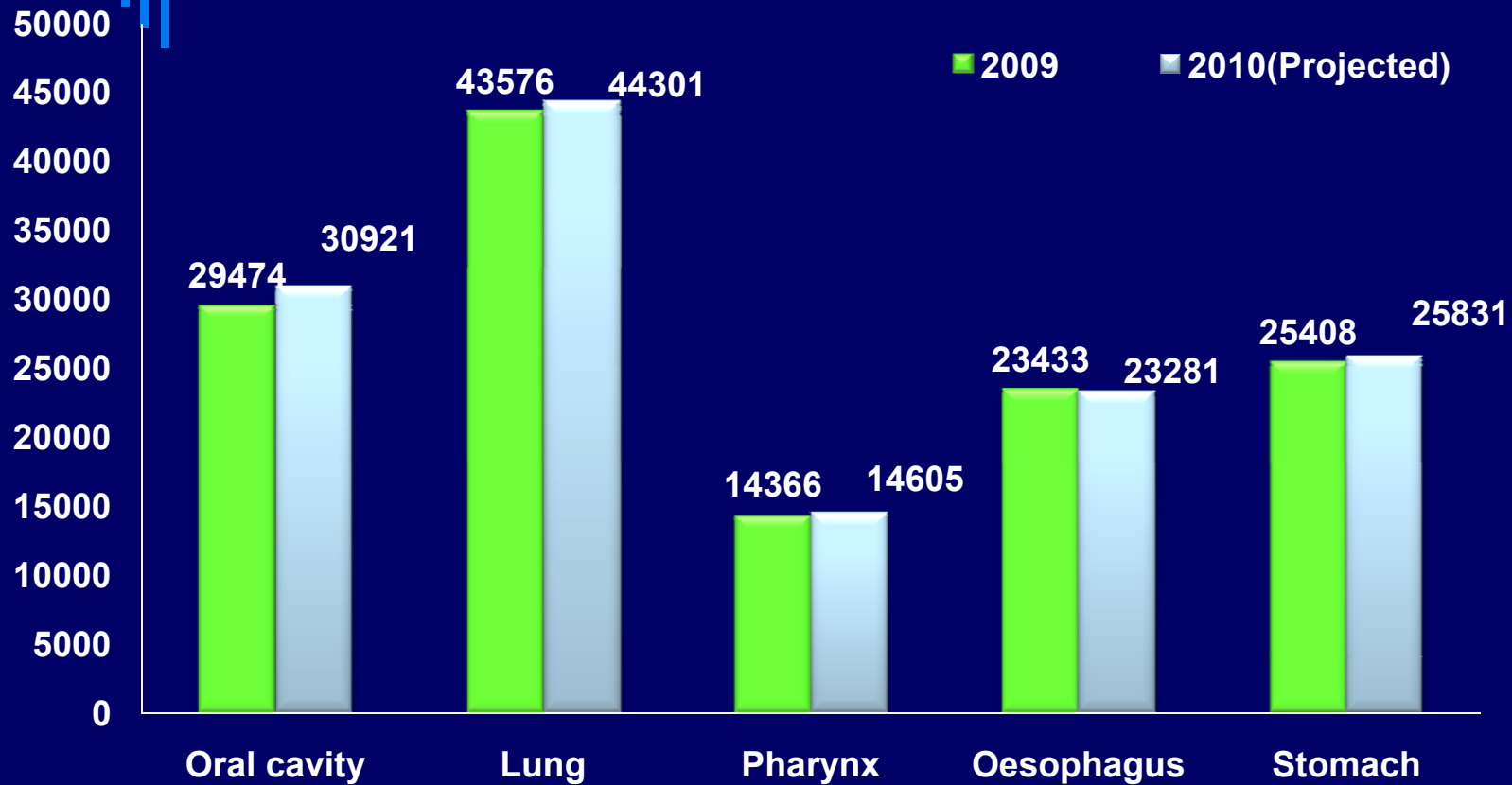


Based on cancer registries across the country, **cervix and breast cancers** accounted for more than 36% of cancer incidence in the country.

Source: - National Health Profile, 2010

■ 2009 ■ 2010(Projected)

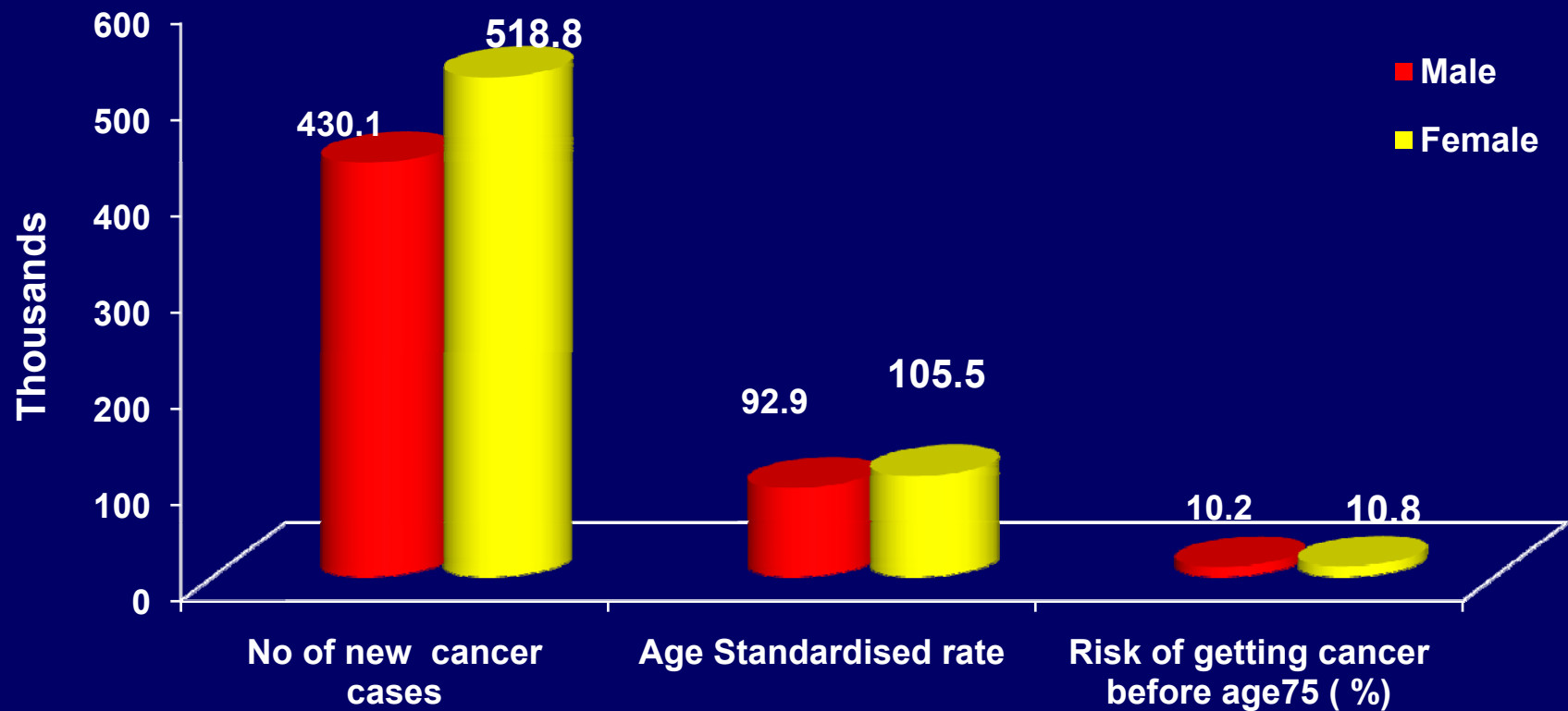
Common Cancer in Male



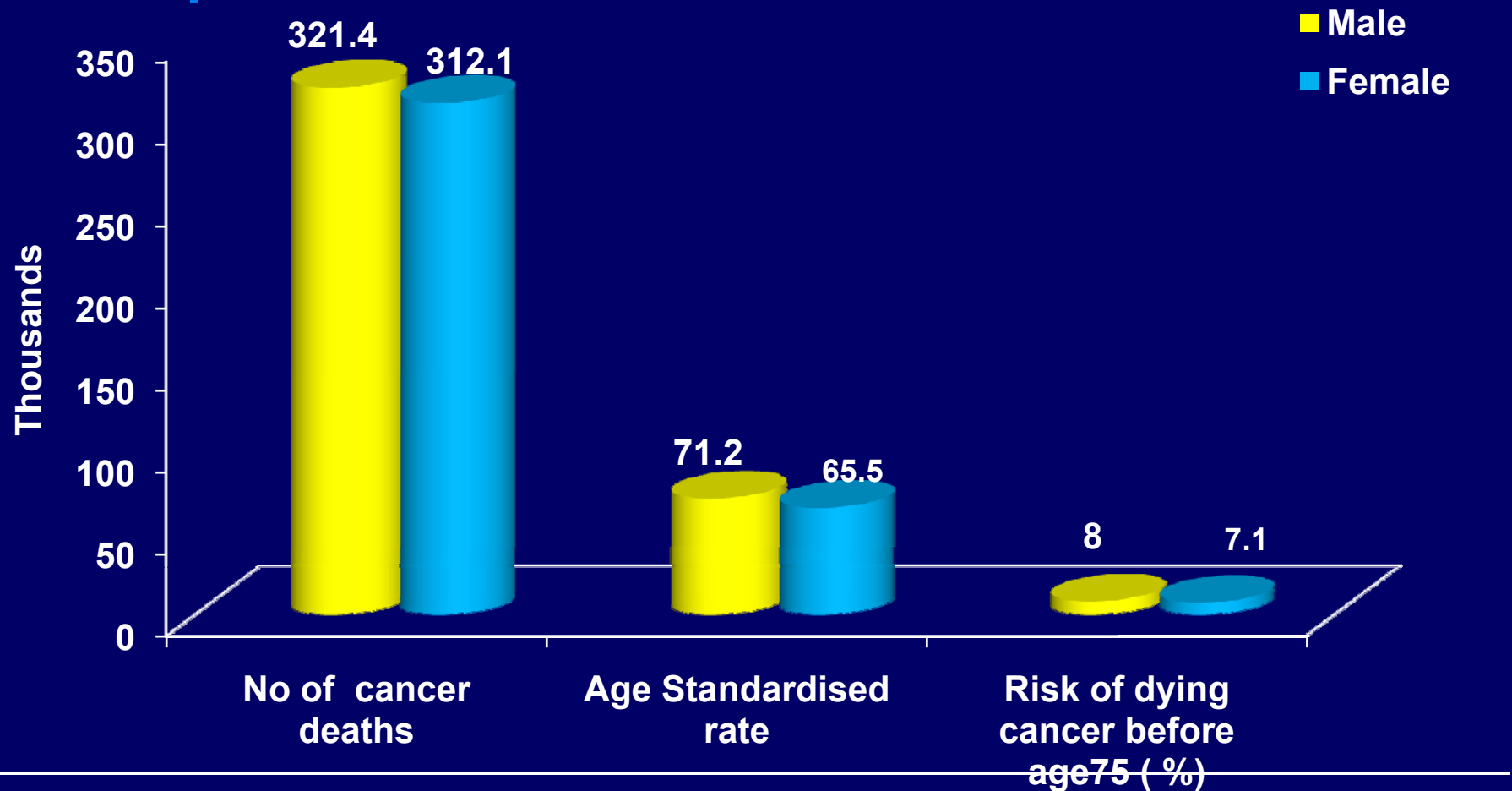
Source: - National Health Profile, 2010

SIHFW: An ISO:9001:2008 certified Institution

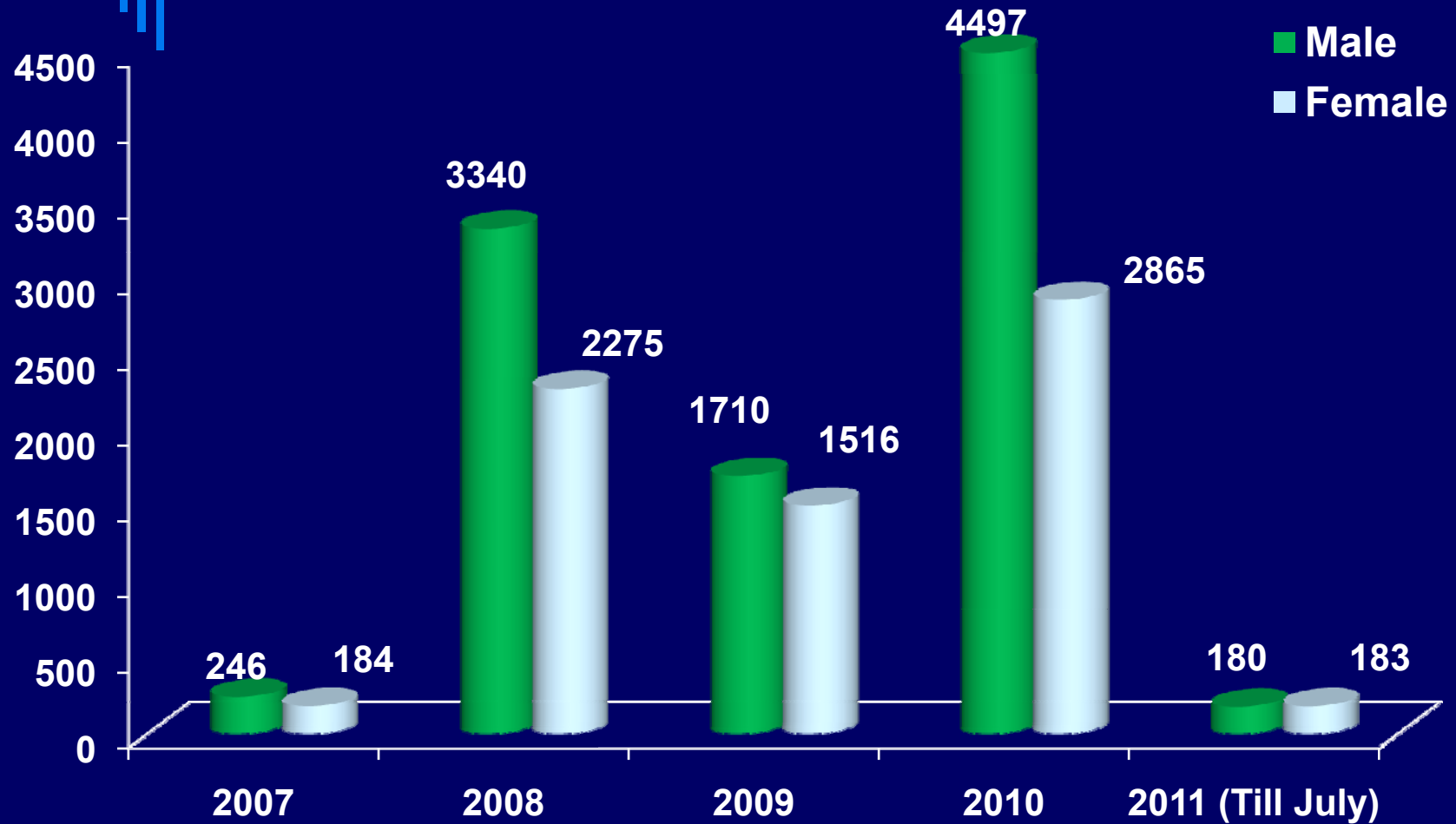
New Cancer Cases–India



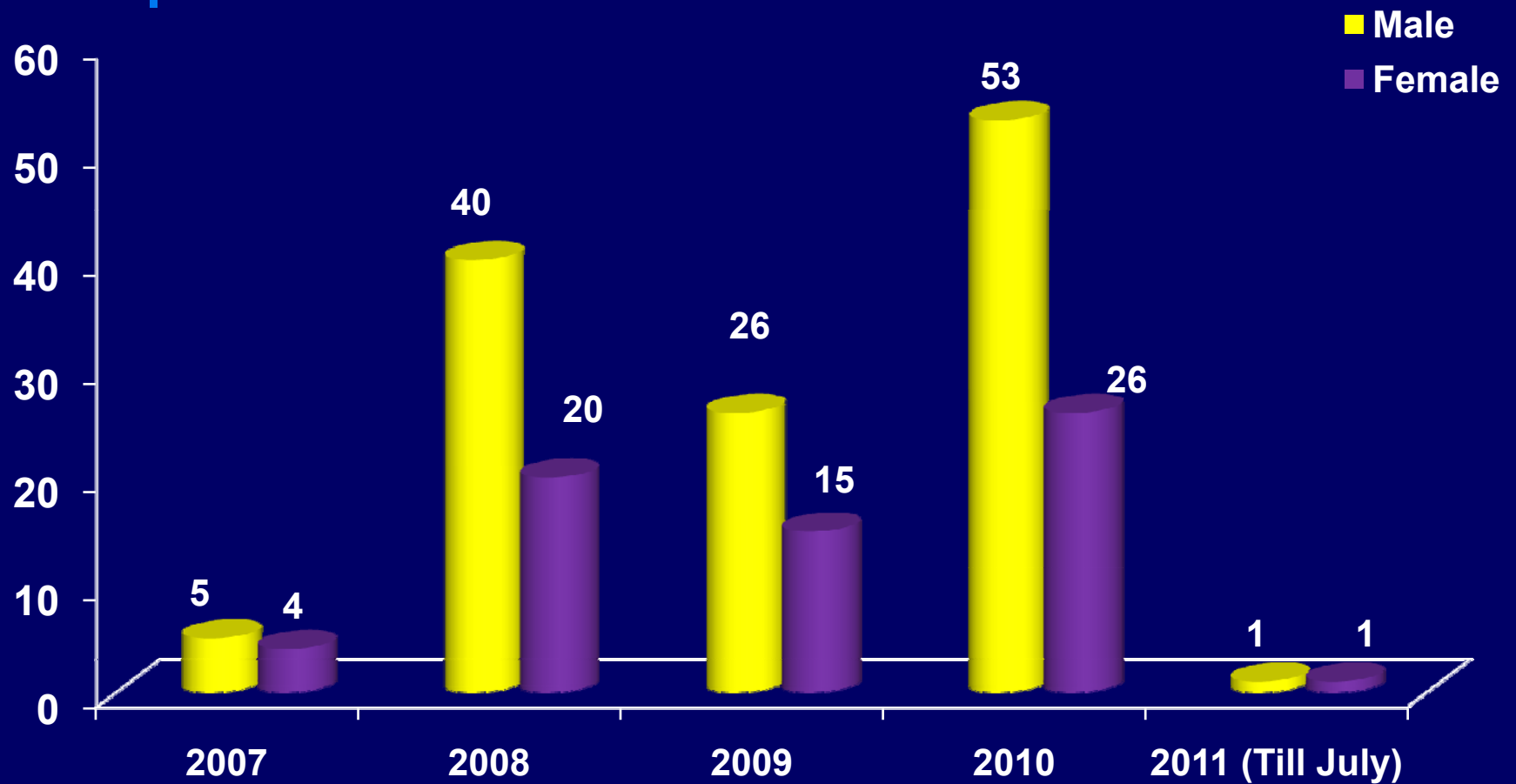
No of Cancer Deaths –India



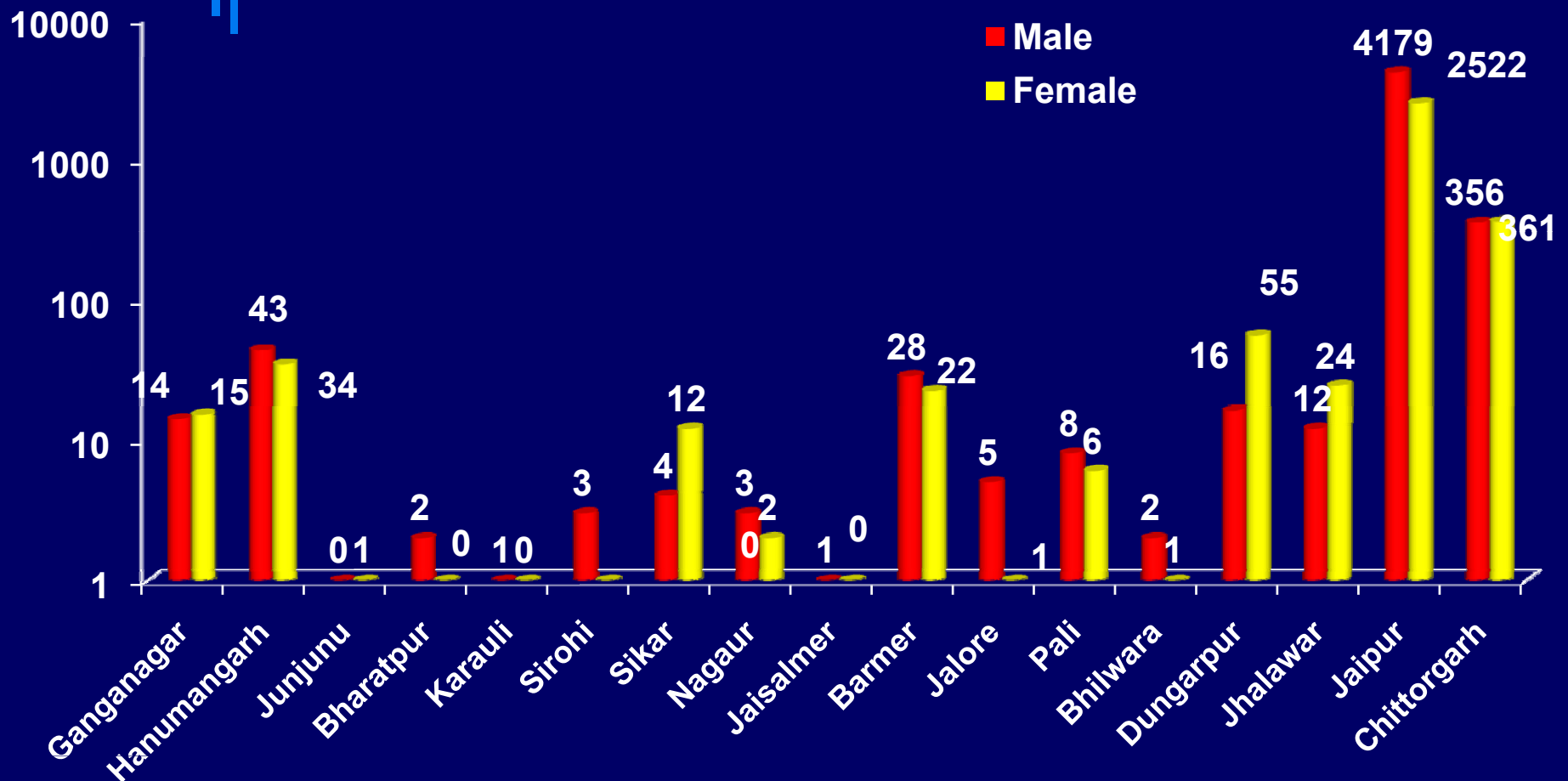
Cancer-Rajasthan



Cancer Deaths – Rajasthan



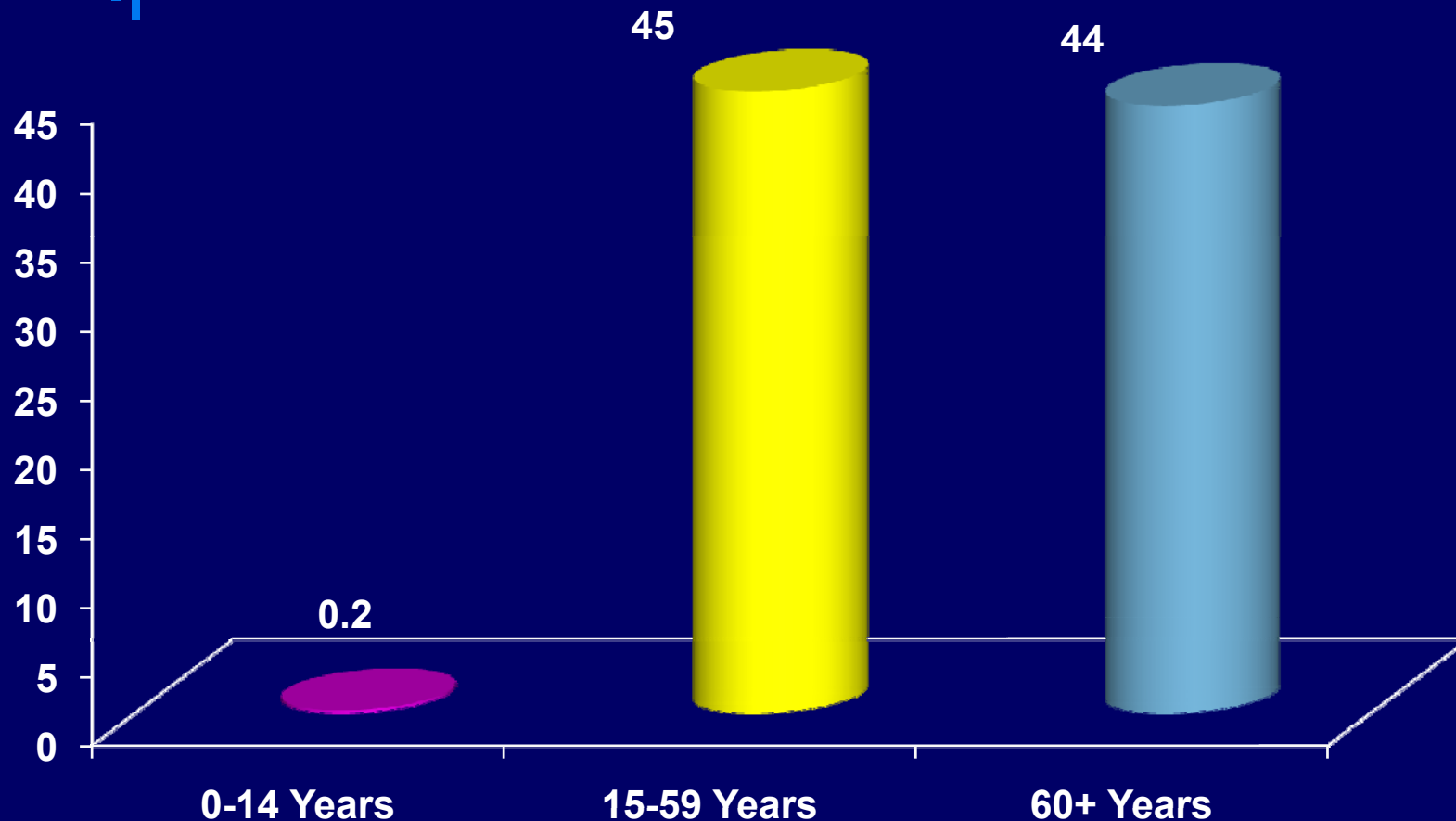
District -wise Reported Cases of Cancer-Rajasthan



District wise Reported Cancer Deaths –Rajasthan

District	Male	Female
Ganganagar	1	1
Jaipur	46	23
Jalor	2	0
Pali	2	2
Jhalawar	2	0
Total	53	26

Age – wise distribution of Deaths due to Oral Cancer



Source-WHO Organisation Mondiale de la Santé Department of Measurement and Health Information April 2011

SIHFW: An ISO:9001:2008 certified Institution

Projected Cases of Oral Cancer in India

Years	Males		Females	
	Oral cancer		Oral cancer	
	Tongue	Mouth	Tongue	Mouth
2008	23932	28066	7687	14402
2009	24330	29474	7829	14669
2010	24735	30921	7974	14940
2015	26590	38380	8689	16280

Source: National Health Profile, 2009

Management

Patient with suspicious oral lesion
(Self-respected or on examination)

Clinical examination by Health professional

Suspicious lesion

Pre-malignant lesion

Investigate for possibility of malignancy

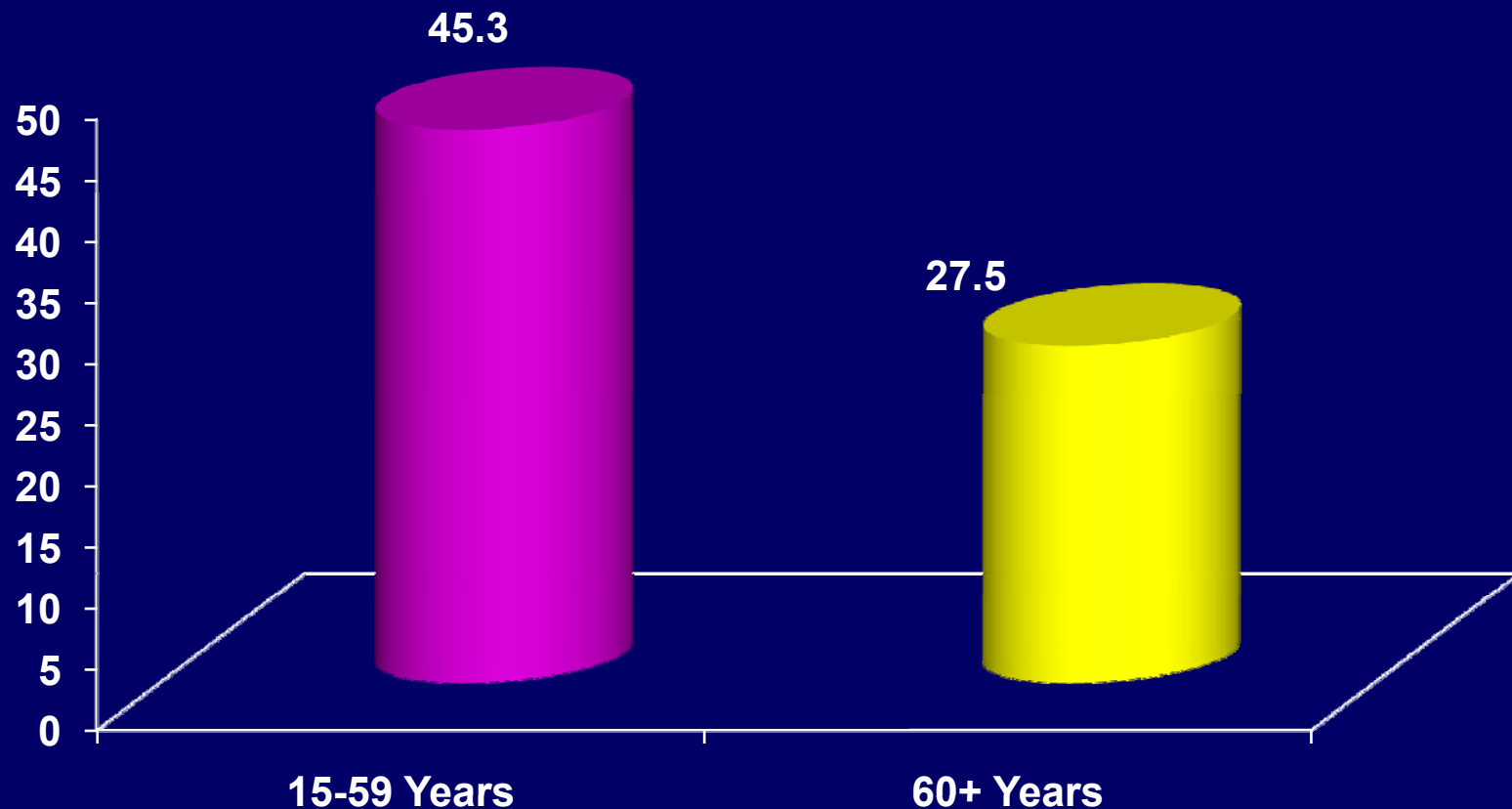
Malignant

Not-Malignant

Refer for appropriate treatment

Treat lesion

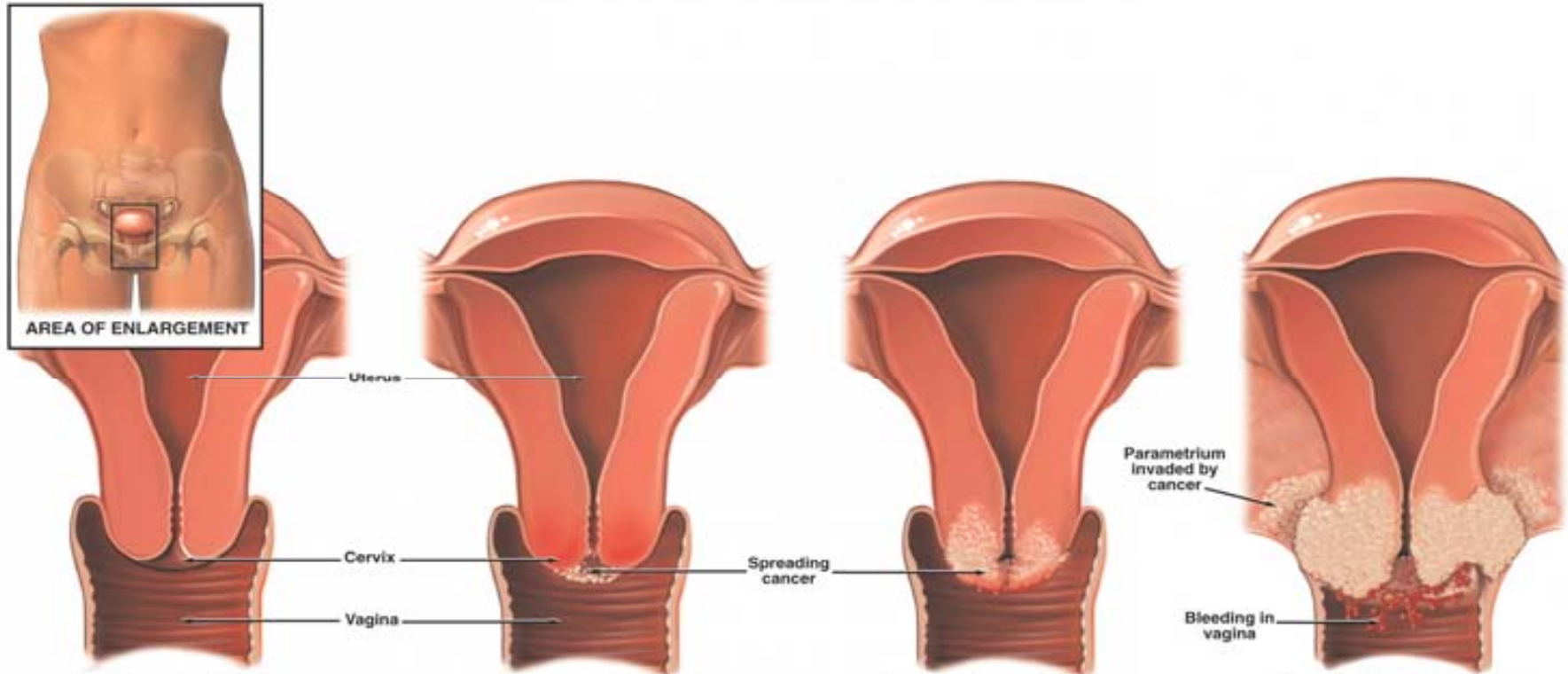
Age – wise distribution of Deaths due to Cervical Cancer



Source-WHO Organisation Mondiale de la Santé Department of Measurement and Health Information April 2011

SIHFW: An ISO:9001:2008 certified Institution

Stages of Cervical Cancer

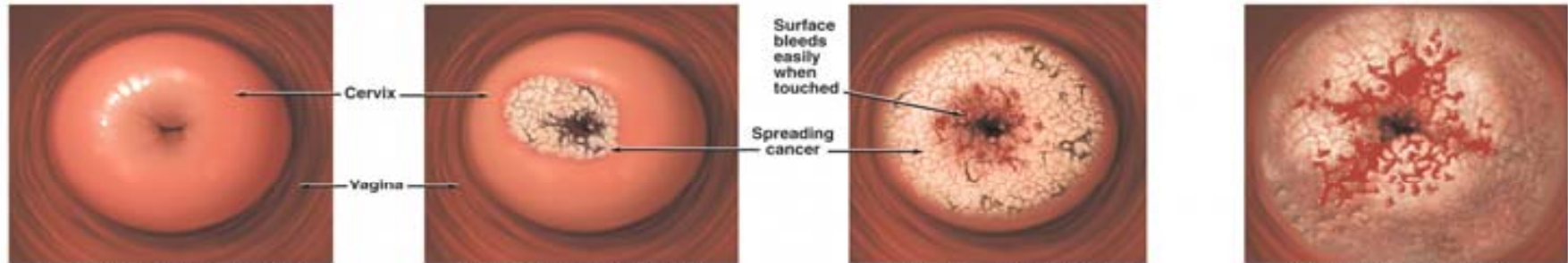


Normal cervix and vagina (cut-away view)

Early stage IB cancer of cervix

Late stage IB cervical cancer

Stage IIB: The cancer spreads outside cervix to pelvic tissue



Normal cervix (speculum view)

Early stage IB cervical cancer

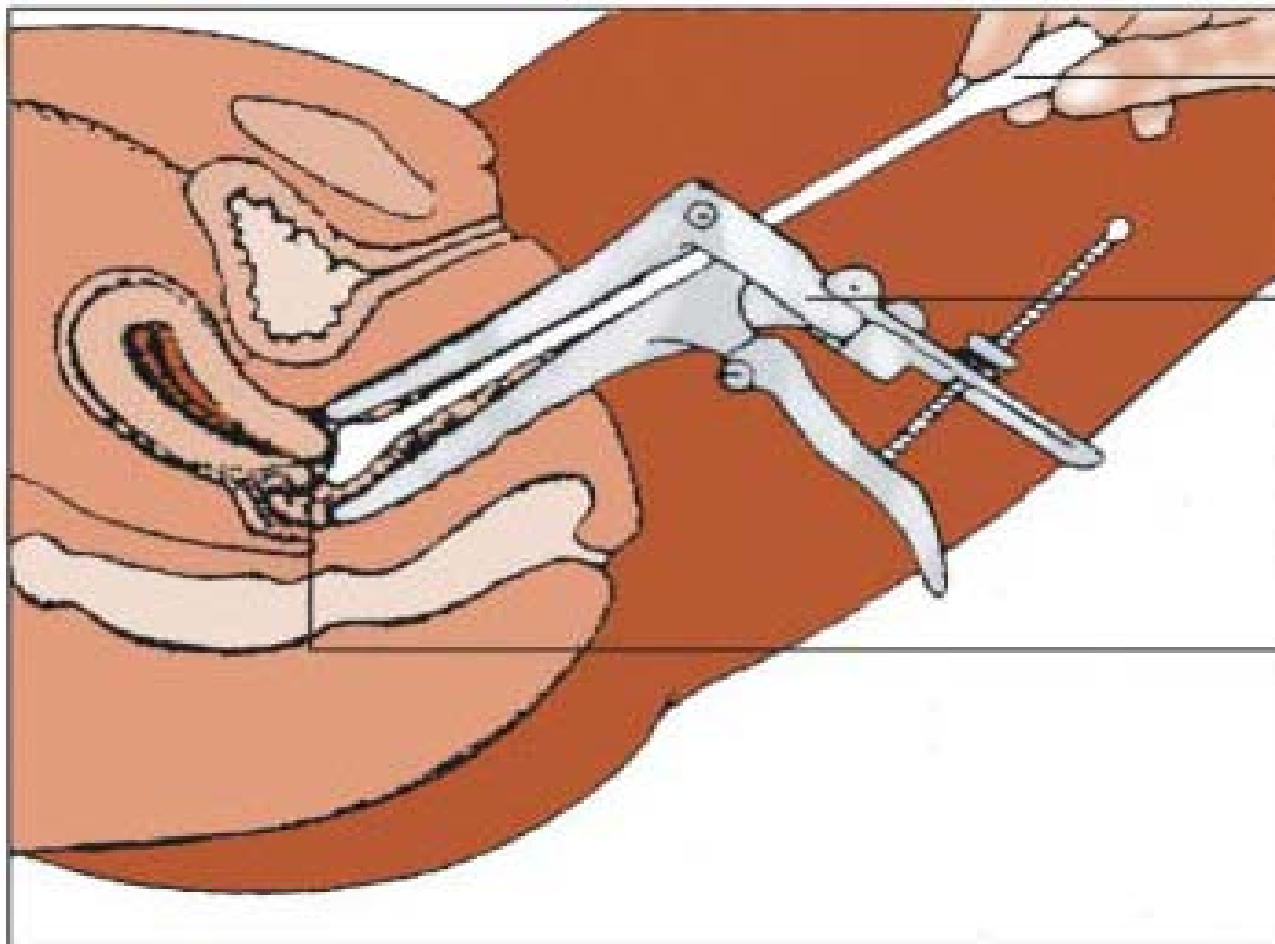
Late stage IB: cervical cancer is still limited to cervix

Stage IIB cervical cancer

A decorative graphic consisting of a series of vertical bars of varying heights and colors (white and blue) on the left side of the slide.

Symptoms of Cervical Cancer

- Post-menopausal bleeding
- Post-coital bleeding
- Inter menstrual bleeding
- Blood stained discharge per vaginum
- Excessive seropurulent discharge
- Backache



Ayre's Spatula

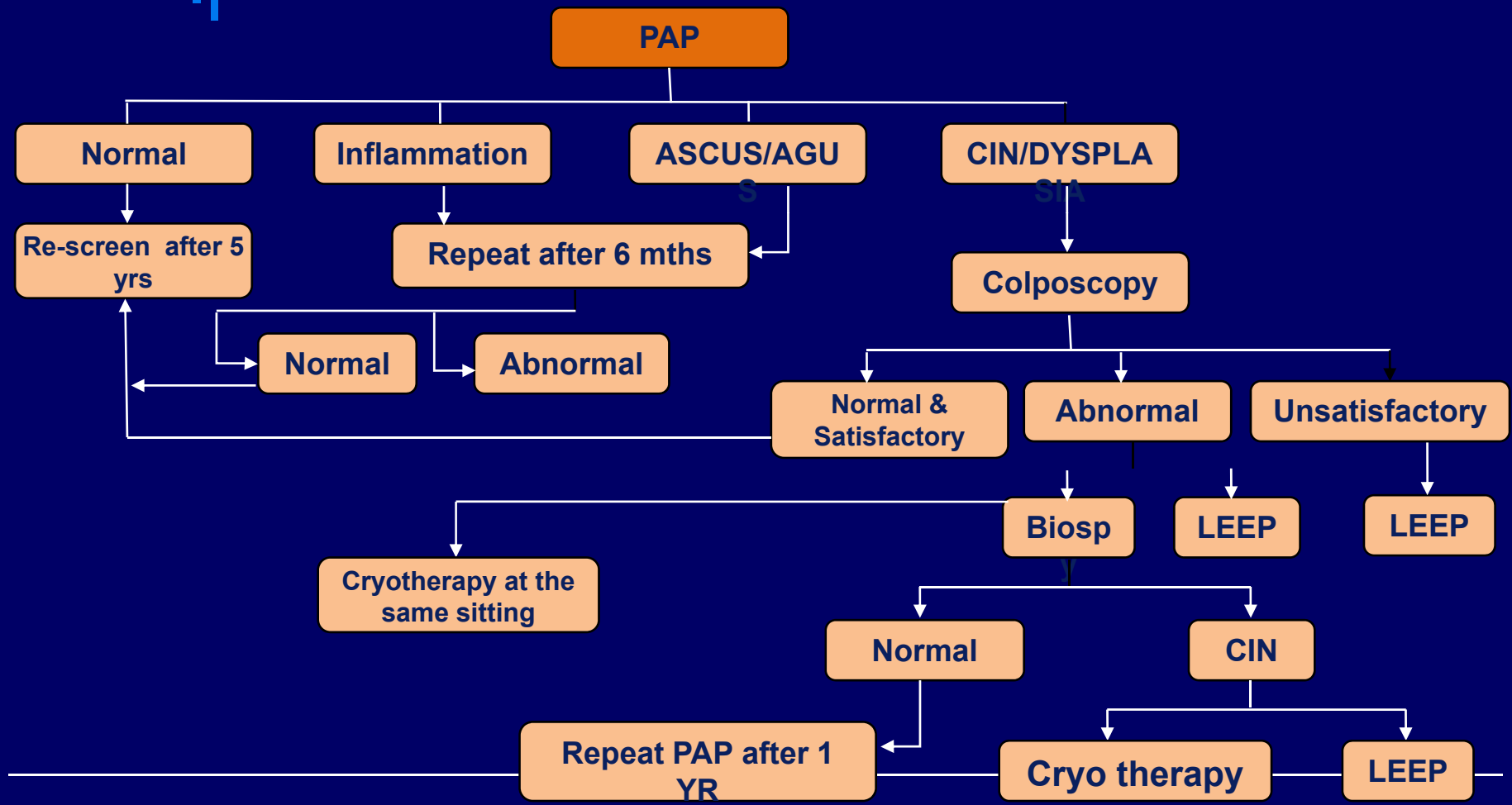
Cusco's Speculum

Cervix



Ayre's Spatula

Evaluation and Management after Pap smear cytology



A decorative graphic consisting of a series of vertical bars of varying heights and colors (white and blue) on the left side of the slide.

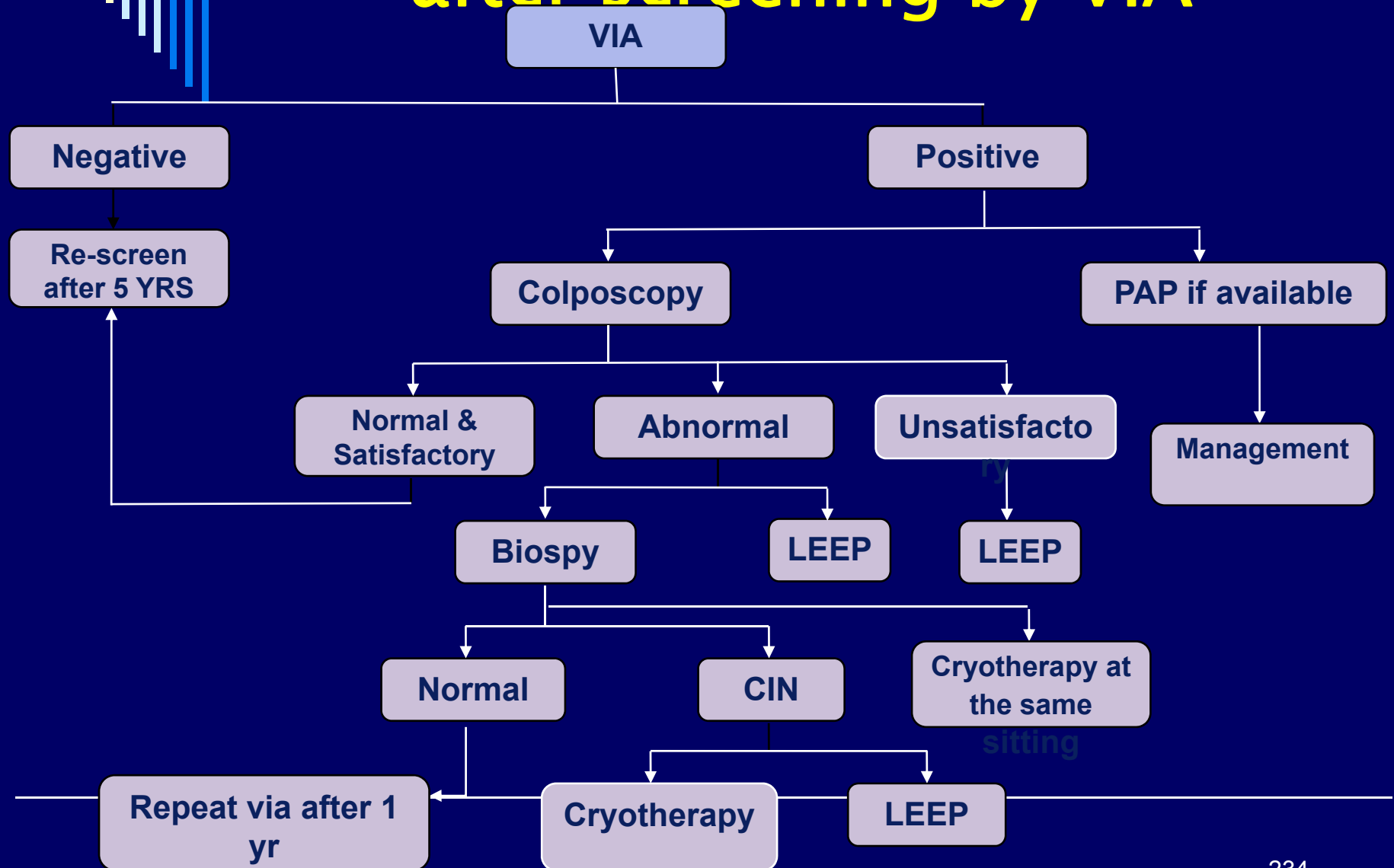
Visual Inspection using 4% Acetic acid (VIA):

- Acetic acid causes dehydration of the cells
- Surface coagulation of proteins reducing the transparency of the epithelium.

Criteria for Categorizing VIA Test Results

VIA Category	Description
Negative	<ul style="list-style-type: none"> • No aceto-white lesions • Transparent lesions or faint patchy lesions without definite margins • Nabothian cysts becoming aceto-white • Faint line like aceto-whitening at the junction of columnar and squamous epithelium • Aceto-white lesions far away from the transformation zone.
Positive	<ul style="list-style-type: none"> • Distinct, opaque aceto-white area • Margin should be well defined, may or may not be raised • Abnormality close to the squamocolumnar junction in the transformation zone and not far away from the os.
INvasive	<p>Obvious growth or ulcer in the cervix. Acetowhite area may not be visible because of bleeding.</p>

Evaluation and management after screening by VIA



Management

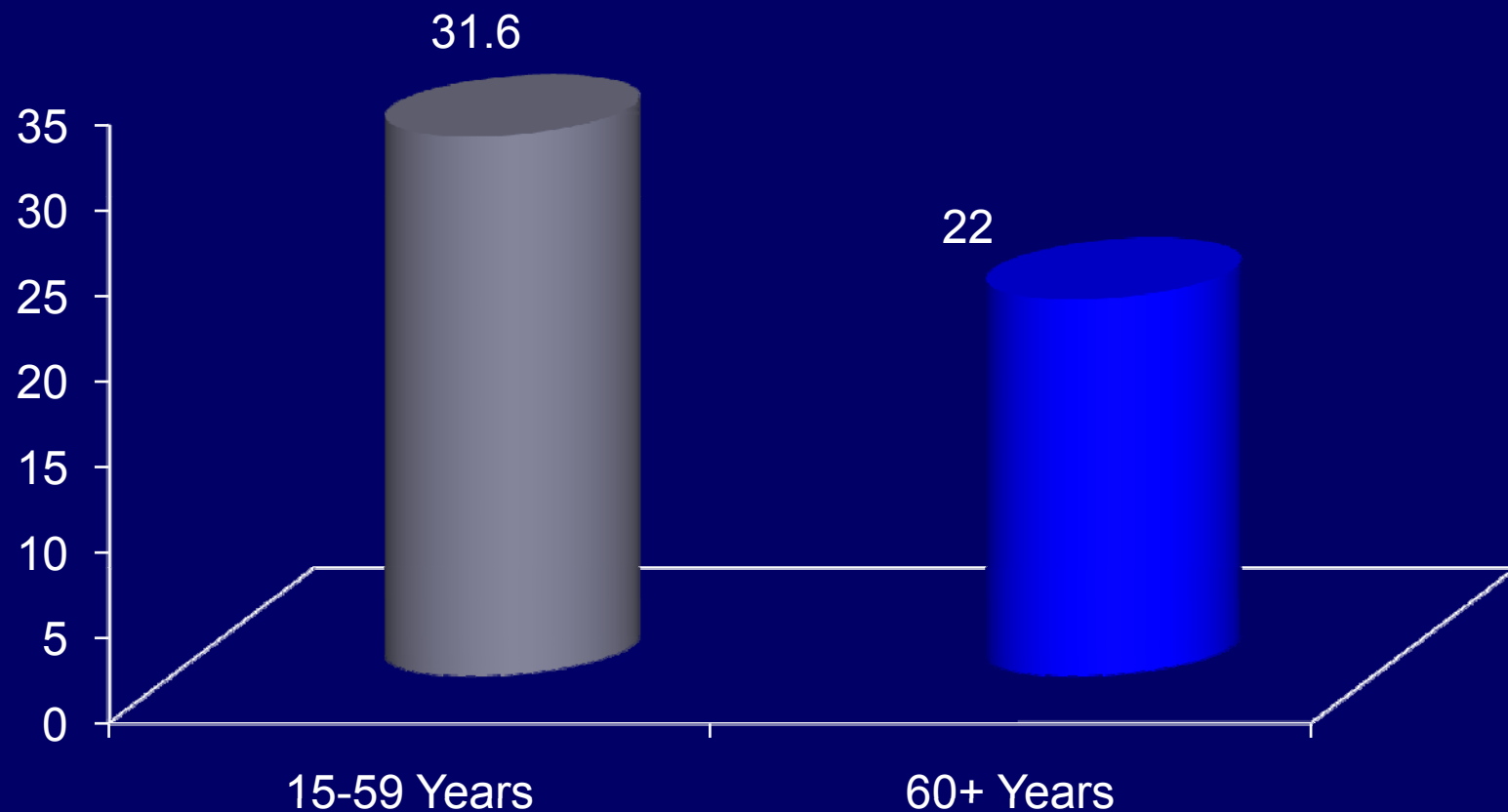
- ❑ Cryotherapy (ablation)
- ❑ Loop Electrosurgical Excisional procedure (LEEP)
- ❑ Cervical cancer can be treated
 - Surgery
 - Radiotherapy
 - Chemotherapy
 - Combination of the three

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, transitioning from light yellow to dark blue.

Breast Cancer

- Second most common cancer among women
- Data from Hospital Based Cancer Registry (HBCR) show that only about 15% of patients present in localized stage.

Age – wise distribution of Deaths due to Breast Cancer



Source-WHO Organisation Mondiale de la Santé Department of Measurement and Health Information April 2011

SIHFW: An ISO:9001:2008 certified Institution



The diagram features a central green oval with a red border containing the text "Breast Cancer Risk". To the left, a purple box lists "Not modifiable" factors. To the right, two green boxes list "Modifiable" and "Potentially modifiable" factors. Blue arrows point from the "Modifiable" and "Potentially modifiable" boxes towards the central oval. In the top left corner, there is a decorative graphic of vertical bars of varying heights in white and blue.

Breast Cancer Risk

Not modifiable:

- Genetic family history
- Age
- Age at menarche

Modifiable:

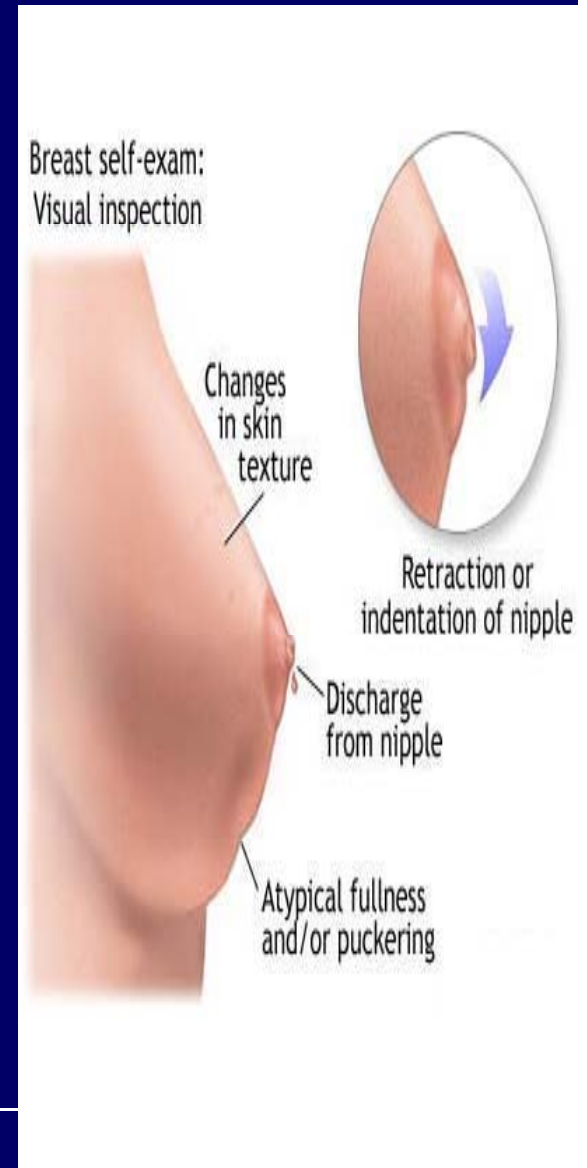
- Diet
- BMI
- Exercise
- Exogenous estrogen use
- Alcohol consumption
- Reproductive history

Potentially modifiable

- Age at first birth
- Age at menopause
- Breast feeding

Sign and Symptoms

- ❑ A lump or thickening in or near the breast or in the underarm area
- ❑ Change in the size or shape of the breast
- ❑ Nipple turned inward
- ❑ Discharge (fluid) from the nipple, especially if it's bloody
- ❑ Dimpling or puckering in the skin of the breast
- ❑ Scaly, red, or swollen skin on the breast, nipple, or areola



TNM Staging of Breast Cancer

Primary Tumor	Regional lymph nodes	Distant metastases
T_x: Tumor cannot be assessed	N_x: Cannot be assessed	M₀: No distant metastases
T₀: No evidence of primary tumor	N₀: No palpable regional lymph nodes	M₁: Presence of distant metastases
T_{is}: Carcinoma in situ	N₁: Palpable, mobile, ipsilateral axillary lymph node	
T₁: Tumor 2cm or less in its greatest dimension	N₂: Fixed ipsilateral axillary lymph node	
T₂: Tumor 2-5cm. in greatest dimension	N₃: Ipsilateral internal mammary/supraclavicular lymph nodes.	
T₃: Tumor >5cm. in greatest dimension		
T₄: Tumor of any size, with direct extension to		

Breast Self-Examination



1. Lie down and put your left arm under your head. Use your right hand to examine your left breast. With your 3 middle fingers flat, move gently in small circular motions over the entire breast, checking for any lump, hard knot, or thickening. Use different levels of pressure - light, medium, and firm - over each area of your breast. Check the whole breast, from your collarbone above your breast down to the ribs below your breast. Switch arms and repeat on the other breast.



2. Look at your breasts while standing in front of a mirror with your hands on your hips. Look for lumps, new differences in size and shape, and swelling or dimpling of the skin.



3. Raise one arm, then the other, so you can check under your arms for lumps.



4. Squeeze the nipple of each breast gently between your thumb and index finger. Report to your healthcare provider right away any discharge or fluid from the nipples or any lumps or changes in your breast.

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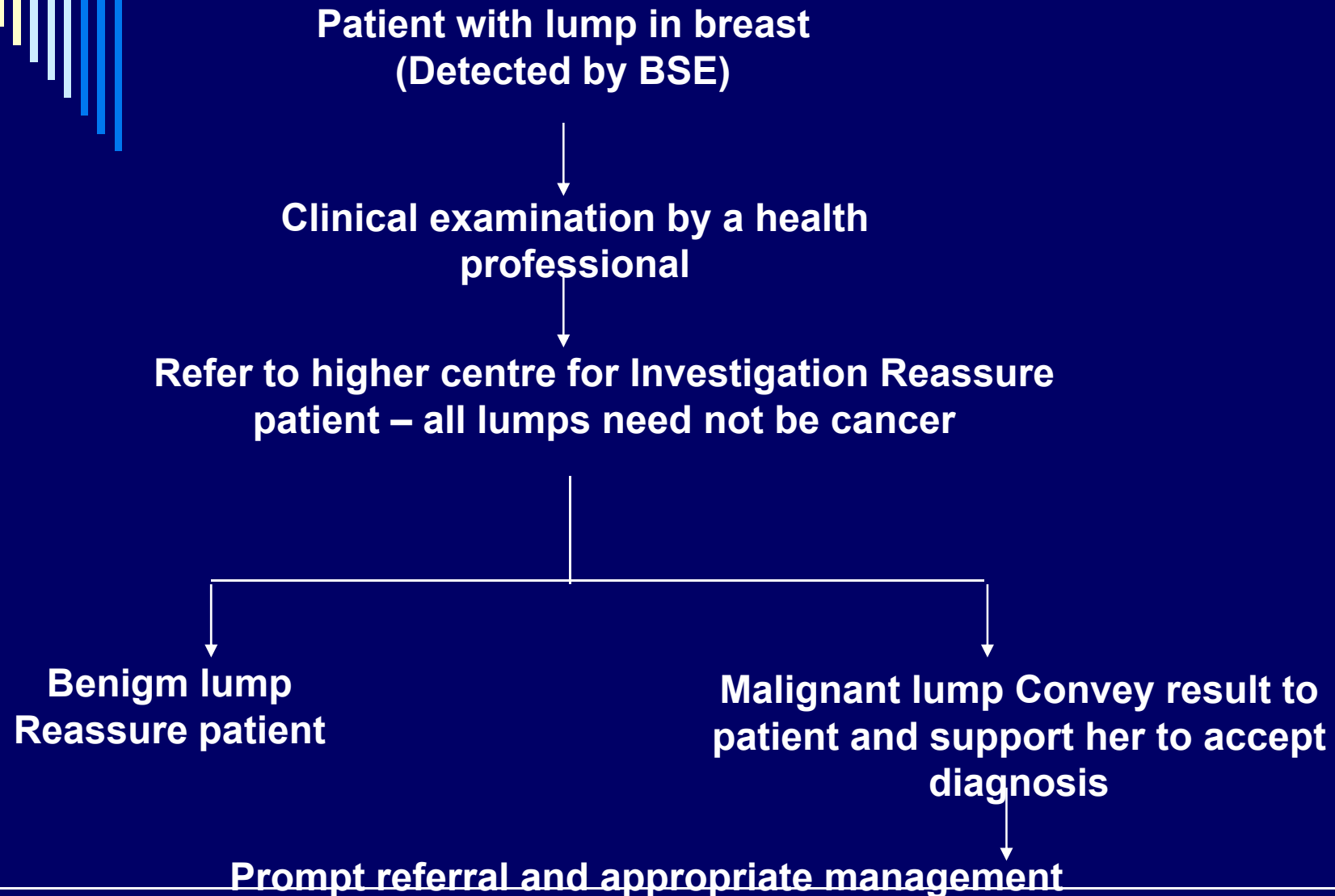
Breast Examination by a Health Professional

- Patient lying down- look for any asymmetry in the breast
- With the flat of the hand, both the breasts are palpated in a circular manner starting from the nipple and areola in a clockwise manner towards the periphery and the axillary tail of the breast in sitting and lying down position.
- The axilla, supraclavicular region and liver are also examined

Diagnosis

- Breast awareness & breast self examination
- Clinical Breast Examination (CBE)
- Mammography

Management of Breast Cancer



Key Messages

- Health professionals can –
 - Create 'Breast Awareness,
 - Offer Clinical Breast Examinations To Women Aged 40-69 Years
 - Reassure – All Lumps Are Not Cancer
 - Ensure Prompt Referral And Appropriate Management
 - Provide pain relief and palliative care

Lung Cancer

- Defined as a malignant tumour of the lung arising within the wall or epithelium of the bronchus.

OR

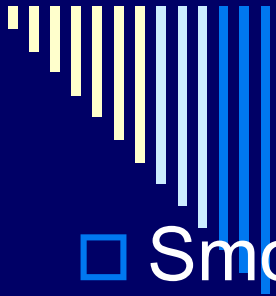
- It is a disease which consists of uncontrolled cell growth in tissues of the lung . This growth may lead to metastasis

Projected Cases of Lung Cancer in India



Source: National Health Profile, 2009

Causes

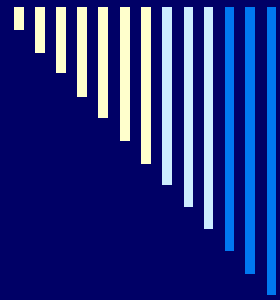
- 
- A decorative graphic in the top-left corner consisting of a series of vertical bars of varying heights and colors, transitioning from light yellow to dark blue.
- Smoking
 - Passive smoking
 - Asbestos fibers
 - Radon gas
 - Familial predisposition
 - Lung diseases
 - Prior history of lung cancer
 - Air pollution

Symptoms

- ❑ Persistent cough or worsening of an existing chronic_cough blood in the sputum
- ❑ Persistent bronchitis or Repeated Respiratory infections
- ❑ Chest pain
- ❑ Unexplained weight loss
- ❑ Fatigue
- ❑ Breathing difficulties such as shortness of breath or wheezing

Treatment and Staging NSCLC

Stage	Description	Treatment Options
Stage I a/b	Tumor of any size is found only in the lung	Surgery
Stage II a/b	Tumor has spread to lymph nodes associated with the lung	Surgery
Stage III a	Tumor has spread to the lymph nodes in the tracheal area, including chest wall and diaphragm	Chemotherapy followed by radiation or surgery
Stage III b	Tumor has spread to the lymph nodes on the opposite lung or in the neck	Combination of chemotherapy and radiation
Stage IV	Tumor has spread beyond the chest	Chemotherapy and/or palliative (maintenance) care



National Programme

A decorative graphic on the left side of the slide consists of a series of vertical bars of varying heights and colors, transitioning from white to light blue to dark blue.

National Cancer Control Programme

□ Established in 1975–76.

□ **Objectives**

- Primary prevention of tobacco related cancer
- Secondary prevention i.e. early detection and diagnosis of cancers
- Strengthening of existing cancer treatment facilities
- Palliative care in terminal stage of the cancer

At least 30% of the future cancer burden is potentially preventable by tobacco control

National Cancer Registry Programme

- Initiated in 1982 by ICMR for data base of cancer cases
- Two types of registries:
 - Population Based Cancer Registry (21)
 - Hospital Based Cancer Registries (6)
- Data was collected from all cancer registries and all medical colleges for the “Development of an Atlas of Cancer in India”

Cancer Awareness Day -7th November

Year	
1975-76	National Cancer Control Program was launched with priorities for equipping the premier cancer hospital/institutions
1984-85	The strategy was revised and stress was laid on primary prevention and early detection
1990-91	District Cancer Control Program was started in selected districts (near the medical college hospitals)
2000-2001	Modified District Cancer Control program initiated
2004	Evaluation of NCCP was done by National Institute of Health & Family Welfare, New Delhi.
2005	The program was further revised after evaluation
2012	National Programme for prevention and control of Cancer, Diabetes and Cardio Vascular Diseases (NPCDCS)

Schemes under NCCP

- ❑ Recognition of New Regional Cancer Centers (RCCs)
- ❑ Strengthening of existing Regional Cancer Centers
- ❑ Development of Oncology Wing
- ❑ District Cancer Control Program
- ❑ Decentralized NGO Scheme
- ❑ Regional Cancer Centers
- ❑ Oncology wing
- ❑ District Cancer Control Program
- ❑ IEC Activities

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in a gradient from light yellow to dark blue.

IEC Strategies

- Under NCCP IEC material used in the form of
 - Audio video spots
 - Posters
 - Leaflets
 - Flipcharts



Cervix Cancer

Cervix Cancer Is Preventable



Cervix Cancer is the cancer of lower part of uterus (womb)

Normal view of the cervix as seen through the birth canal



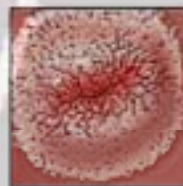
Pre Cancer

The pre-cancer cells are only within the basement membrane



Cancer

The cancer cells have breached the basement membrane



CANCER
detect  eliminate

You can prevent Cervix Cancer. Vaccinate early, Pap test regularly, HPV test when recommended

ROKO CANCER CHARITABLE TRUST
B - 43, SOAMI NAGAR, PANCHSHEEL, NEW DELHI - 110017
WWW.ROKOCANCER.ORG PH: 011-41749060



Patient Care

Awareness

Early detection

CANCER

Rehabilitation

Insurance

Advocacy

Donate Online
Lead a helping hand



Cancer Patients Aid Association

TOTAL MANAGEMENT OF CANCER

PINK HOPE
BREAST CANCER AWARENESS DR

Spend just 10 minutes every year protecting your breasts.

See your doctor if you notice any of these things in your breast:

- Lump, hard knot or thickening
- Swelling, warmth, redness or darkening
- Change in the size or shape
- Dimpling or puckering of the skin
- Itchy, scaly sore or rash on the nipple
- Pulling in of your nipple or other parts
- Nipple discharge that starts suddenly
- New pain in one spot that does not go away.

HCG, South Asia's largest cancer care network, brings you Digital Mammography for accurate and early diagnosis.

Get a Digital mammogram done annually if you are over 40 years old.

Breast Cancer can affect One out of 22 women.

One woman is diagnosed with Breast Cancer every 6.5 minutes.

Early diagnosis gives you a chance to lead a normal life.



FREE DIGITAL MAMMOGRAM FOR BREAST CANCER PATIENTS AND CLOSE RELATIVES*

Call toll-free: 1800 425 6626 (BSNL) 1800 102 6626 (Airtel)

HealthCare Global Enterprises Ltd.,
HCG Tower, #8 P Kalinga Rao Road,
Sampang Ram Nagar, Bangalore 560 027
www.hcgoncology.com / www.cyberknifeindia.com

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Information contained herein is not a substitute for your doctor's advice. *Limited period offer. Conditions apply.

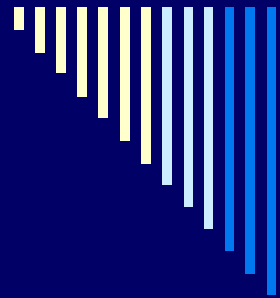
South Asia's
Largest
Cancer Care
Network™

HCG
adding life to years

Services under NCCP at provider level

District

- Health Promotion
- Home Care/
- Early Detection
- Pain Relief/Palliative Care Treatment of common cancers
- Histopathology
- Endoscopy



PHC

- Health education
- Health promotion
- Home care
- Early detection
- Palliative care and pain relief

Medical college

- Health Promotion & Home Care
- Early Detection & Treatment
- Pain Relief/Palliative Care
- Training of Health personals
- Early detection/ Registration/ mobile units
- Radiotherapy with cobalt-60 units
- Diagnosis and staging by clinical/
histopathological/ biochemical/ radiological/
endoscopic/ immunological/ isotope

Regional cancer centre

- Health Promotion
- Home Care
- Early Detection
- Pain Relief/Palliative
Care/Comprehensive Cancer treatment
- Organize screening programme/Cytology
training/
- Basic and applied research/Training of all
categories of personnel
- Cancer Registries
- Epidemiology

A decorative graphic consisting of a series of vertical bars of varying heights and colors (white and blue) on the left side of the slide.

Why include Cancer In NPCDCS ?

- ❑ No uniform cancer prevention strategy
- ❑ No education on risk factors, early warning signals and their management
- ❑ Cancer screening is not practiced in an organized fashion
- ❑ Diagnostic infrastructure is limited

NPCDCS

- NPCDCS formed after merging the NCCP & NPDCS
- Provide technical & financial support to 65 Health care centers.
- These centers are known as “Tertiary Cancer Center” (TCC)
- NPCDCS has two component:
 - Cancer
 - Diabetes, CVD & Stroke

Total 22 cancer drugs are prescribed under NPCDCS guidelines

A decorative graphic consisting of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in shades of white and light blue.

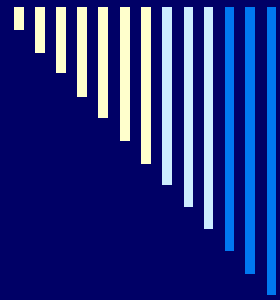
Objective of TCC Scheme

- Develop regional referral cancer centers to provide specialized and comprehensive cancer care,
- Provide training and research facilities in an all types of cancer with focus on Oral, Cervix & Breast Cancer

Financial Assistance For Cancer Component Under NPCDCS

	Yearly (Rs lakhs)
District cancer care facility	166.42
District NCD Cell	21.44
State NCD cell	23.48

- Financial assistance of Rs 6 crores for procurement of equipment, Construction of building & HR recruitment is provided
- Central & State share will be 80 :20



Thank You

For more details log on to
[www. Sihfwrajasthan.com](http://www.Sihfwrajasthan.com)
or

contact : Director-SIHFW on
sihfwraj@yahoo.co.in



National Program for Prevention and Control of
Cancer, Diabetes, Cardio-Vascular Disease & Stroke



Cerebro-vascular accidents: Stroke



NPCDCS & NPHCE

State Institute of Health & Family Welfare, Jaipur

Definition

- Group of brain dysfunctions related to disease of the blood vessels supplying the brain.
- Include diseases of the vascular system that causes
 - Ischemia
 - Infarction of the brain
 - Spontaneous hemorrhage into the brain
 - Subarachnoid space.

A decorative graphic in the top left corner consisting of a series of vertical bars of varying heights, transitioning from light blue to dark blue.

Cerebrovascular Accident

- ❖ 25% with initial stroke die within 1 year
- ❖ 50-75% will be functionally independent
- ❖ 25% will live with permanent disability

Physical, cognitive, emotional, & financial impact

Burden of Disease

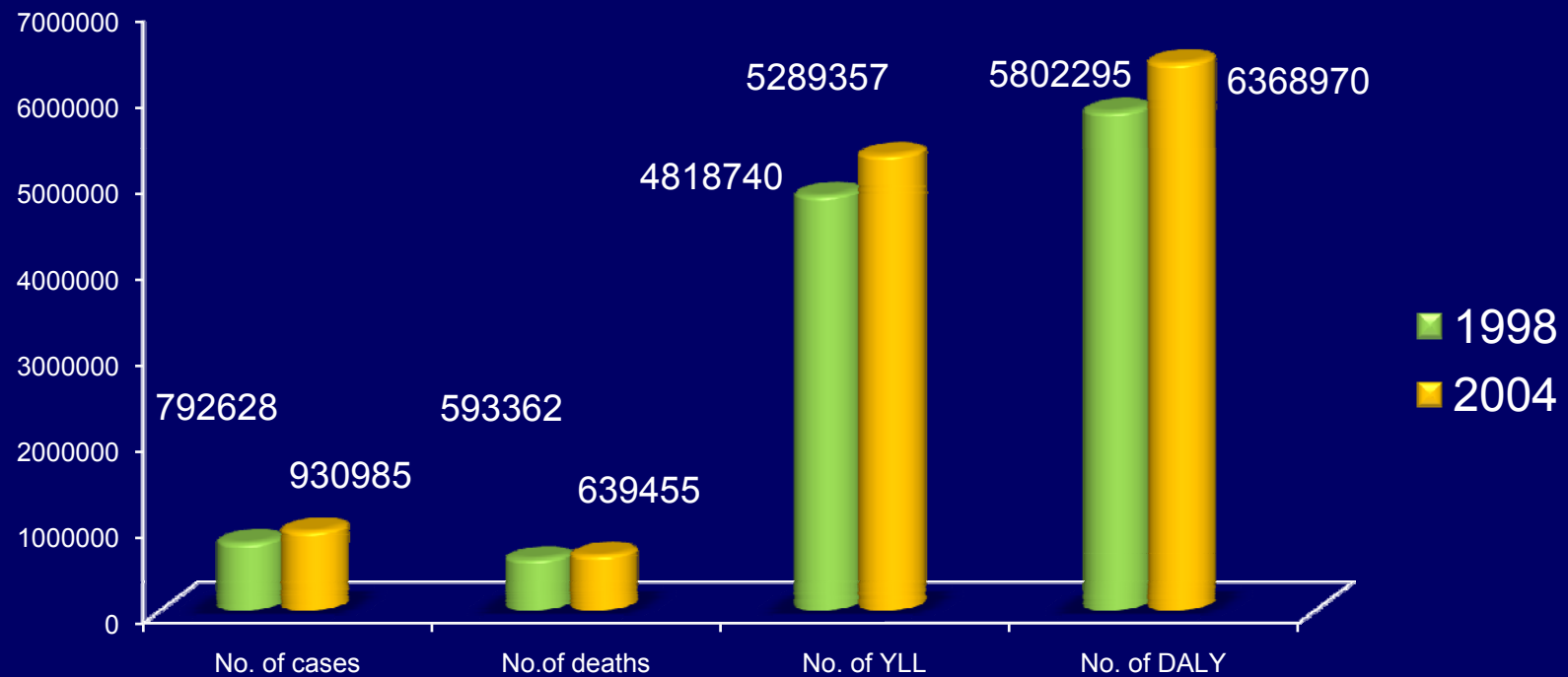


Figure: - Burden of stroke, 2004. Source:-Assessment of Burden of NCD, ICMR, 2006



Epidemiological Determinants

- Hematologic disorders
- Athero Thromboembolism
- Trauma
- Fibro muscular dysplasia
- Congenital arterial anomalies
- Embolism from arterial aneurysm
- Inflammatory vascular disease
- Excessive irradiation of the head and neck
- Dementia
- Cerebral infarction and ischemia
- Occlusion or stenosis

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in a gradient from light yellow to dark blue.

Risk Factors

- Age and Sex
- Hypertension and Cardiac diseases
- Atrial fibrillation (AF)
- Coronary artery disease
- Lipids and Obesity
- Oral contraceptive use
- Transient ischemic attacks
- Blood viscosity
- Smoking/ Alcohol
- Diabetes Mellitus

CV Accident: Risk Factors

Non-modifiable:

- ❖ **Age** – Occurrence doubles each decade >55 years
- ❖ **Gender** – Equal for men & women; women die more frequently than men
- ❖ **Race** – African Americans, Hispanics, Native Americans, Asian Americans -- higher incidence
- ❖ **Heredity** – family history, prior transient ischemic attack, or prior stroke increases risk

Cerebrovascular Accident Risk Factors

Controllable Risks :

High blood pressure

Cigarette smoking

High blood cholesterol

Heart Disease

Oral contraceptive use

Sickle cell disease

Hypercoagulability

Diabetes

TIA (Aspirin)

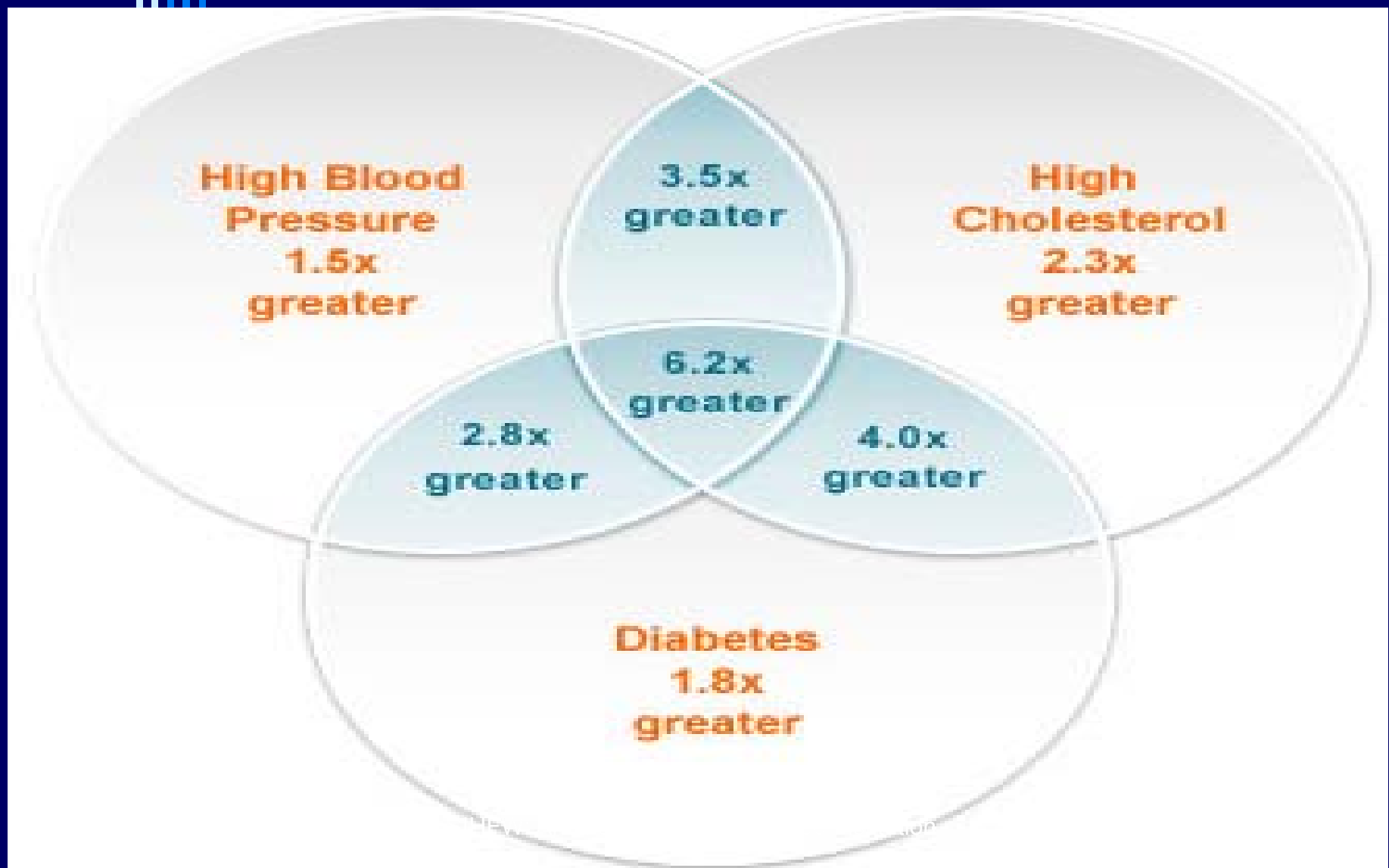
Obesity

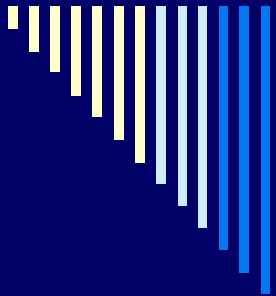
Atrial
fibrillation

Physical
inactivity

Asymptomatic
carotid stenosis

CVA – Risk Factors

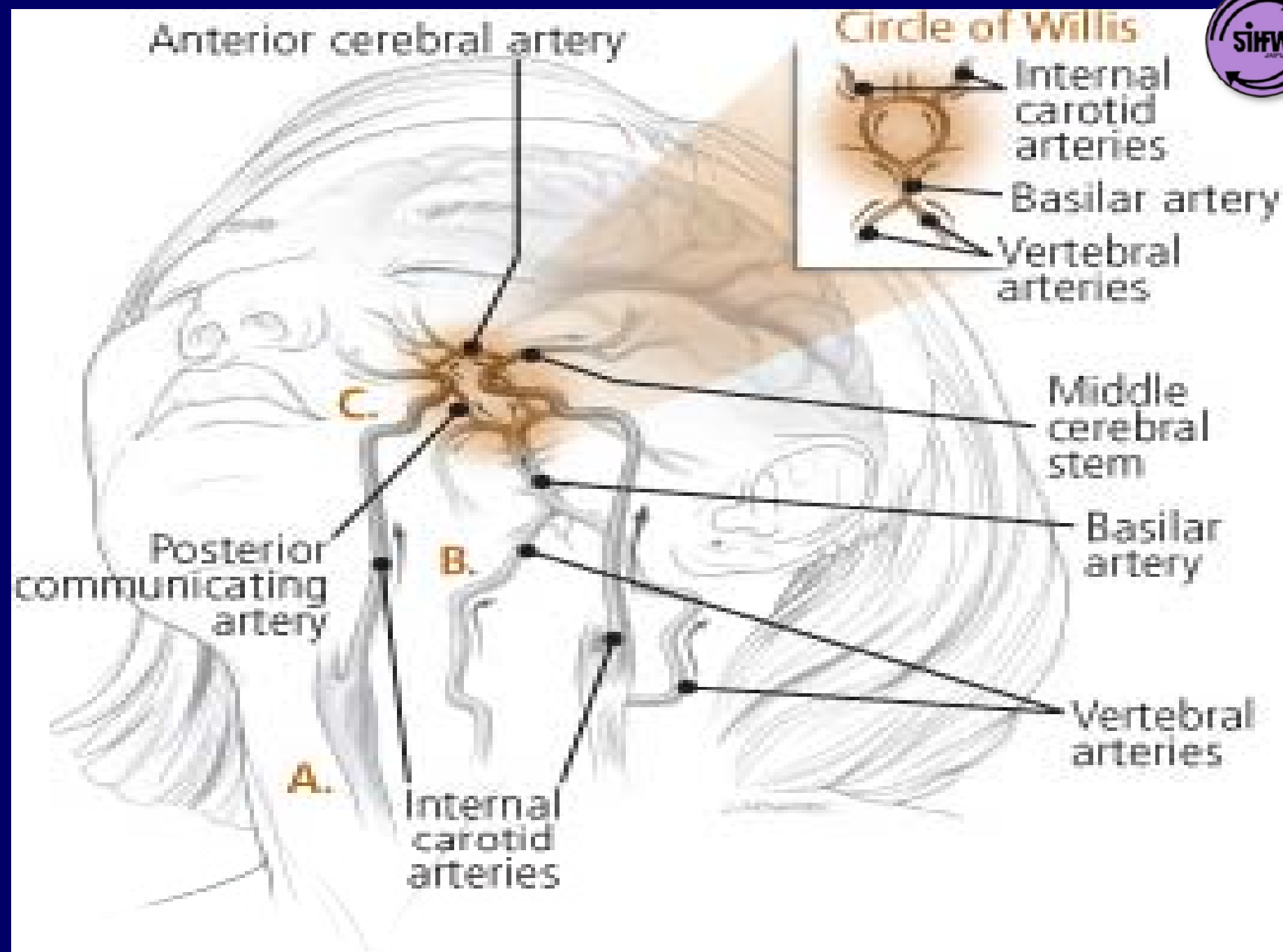


A decorative graphic in the top left corner consisting of a series of vertical bars of varying heights, transitioning from white to blue.

Cerebrovascular Accident

Anatomy of Cerebral Circulation

- ❖ Blood Supply
- ❖ 20% of cardiac output—750-1000ml/min
- ❖ >30 second interruption— neurologic metabolism is altered; metabolism stops in 2 minutes; brain cell death < 5 mins.



Cerebrovascular Accident Pathophysiology

❖ Ischemic Cascade

- ❖ Series of metabolic events
 - ❖ Inadequate ATP adenosine triphosphate production
 - ❖ Loss of ion homeostasis
 - ❖ Release of excitatory amino acids – glutamate
 - ❖ Free radical formation
 - ❖ Cell death
- ❖ Border Zone (ischemic penumbra): reversible area that surrounds the core ischemic area in which there is reduced blood flow but which can be restored (3 hours +/-)

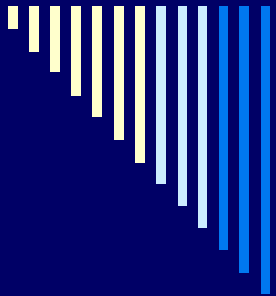
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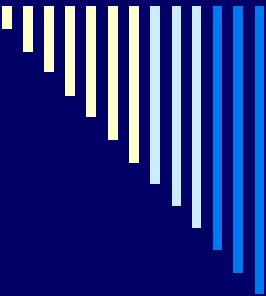
❖ Atherosclerosis:

❖ Thrombus formation & emboli development

- ❖ Abnormal filtration of lipids in the intimal layer of the arterial wall
- ❖ Plaque develops & locations of increased turbulence of blood - bifurcations
- ❖ Increased turbulence of blood or a tortuous area
- ❖ Calcified plaques rupture or fissure
- ❖ Platelets & fibrin adhere to the plaque
- ❖ Narrowing or blockage of an artery by thrombus or emboli
- ❖ Cerebral Infarction: blocked artery with blood supply cut off beyond the blockage

Symptoms

- 
- A decorative graphic in the top-left corner consisting of a series of vertical bars of varying heights and colors, transitioning from light yellow to dark blue.
- Trouble in walking
 - Altered movement coordination and disequilibrium
 - Sudden confusion or trouble in speaking or understanding. Weakness of facial muscles causing drooling.
 - Dysarthria
 - Apraxia

- 
- A decorative graphic consisting of a series of vertical bars of varying heights and colors (yellow, white, and blue) arranged in a descending staircase pattern from left to right.
- Sudden trouble in seeing with one or both eye, troubled walking, dizziness, loss of balance or coordination
 - Aphasia
 - Visual field defect
 - Memory deficits
 - Disorganized thinking, confusion, hypersexual gestures
 - Anosognosia
 - Altered smell, taste, hearing, or vision

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Identification of an acute event

- ❑ Sudden numbness or weakness of face, arm, or leg, especially on one side of the body.
- ❑ Sudden onset of inability or difficulty in speech
- ❑ Sudden loss of consciousness.
- ❑ Sudden onset of blindness in or both eyes.
- ❑ Sudden onset of imbalance.
- ❑ Sudden severe headache with no known cause.
- ❑ Seizure

A decorative graphic consisting of a series of vertical bars of varying heights, colored in shades of blue and white, arranged in a descending staircase pattern from left to right.

Cerebrovascular Accident Transient Ischemic Attack

- ❖ Temporary focal loss of neurologic function
- ❖ Caused by ischemia to one of the vascular territories of the brain
- ❖ Microemboli with temporary blockage of blood flow
- ❖ Lasts less than 24 hrs – often less than 15 mins
- ❖ Most resolve within 3 hours
- ❖ Warning sign of progressive cerebrovascular disease

A decorative graphic consisting of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in shades of blue and white.

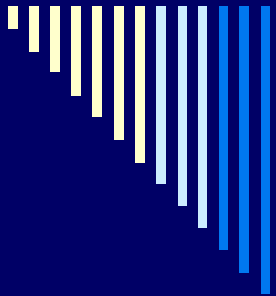
Cerebrovascular Accident Transient Ischemic Attack

❖ Diagnosis:

- ❖ CT without contrast
 - ❖ Confirm that TIA is not related to brain lesions
- ❖ Cardiac Evaluation
 - ❖ Rule out cardiac mural thrombi

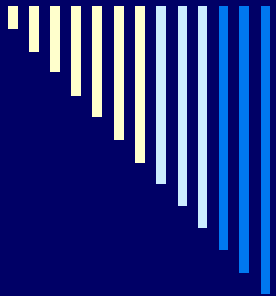
❖ Treatment:

- ❖ Medications that prevent platelet aggregation
 - ❖ ASA-300mg st followed by 150mg/day, Clopidogrel-300mg loading, then 75mg daily.
- ❖ Oral anticoagulants

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Cerebrovascular Accident Classifications

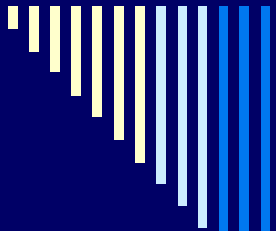
Based on underlying pathophysiologic findings

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Cerebrovascular Accident Classifications

- ❖ Ischemic Stroke
 - ❖ Thrombotic
 - ❖ Embolic

- ❖ Hemorrhagic Stroke
 - ❖ Intracerebral Hemorrhage
 - ❖ Subarachnoid Hemorrhage
 - ❖ Aneurysm
 - ❖ Berry or Saccular

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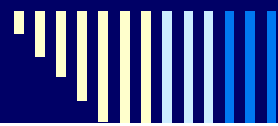
Cerebrovascular Accident Classifications

- ❖ Ischemic Stroke—inadequate blood flow to the brain from partial or complete occlusions of an artery--85% of all strokes
 - Extent of a stroke depends on:
 - Rapidity of onset
 - Size of the lesion
 - Presence of collateral circulation
 - Symptoms may progress in the first 72 hours as infarction & cerebral edema increase
- ❖ Types of Ischemic Stroke:

Thrombotic Stroke

Embolic Stroke

SIHFW: An ISO:9001:2008 certified Institution



CVA Recognition



Stroke Recognition:

3 Steps to Stroke Recognition



Ask the person to smile and stick out tongue



Ask the person to make a complete sentence



I can't fall tell side which one.

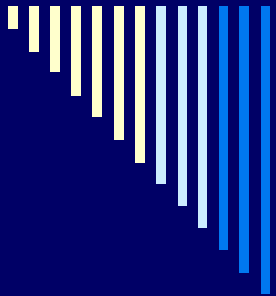


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Ask the person to raise both arms.



Contact someone if the person cannot perform these 3 steps!

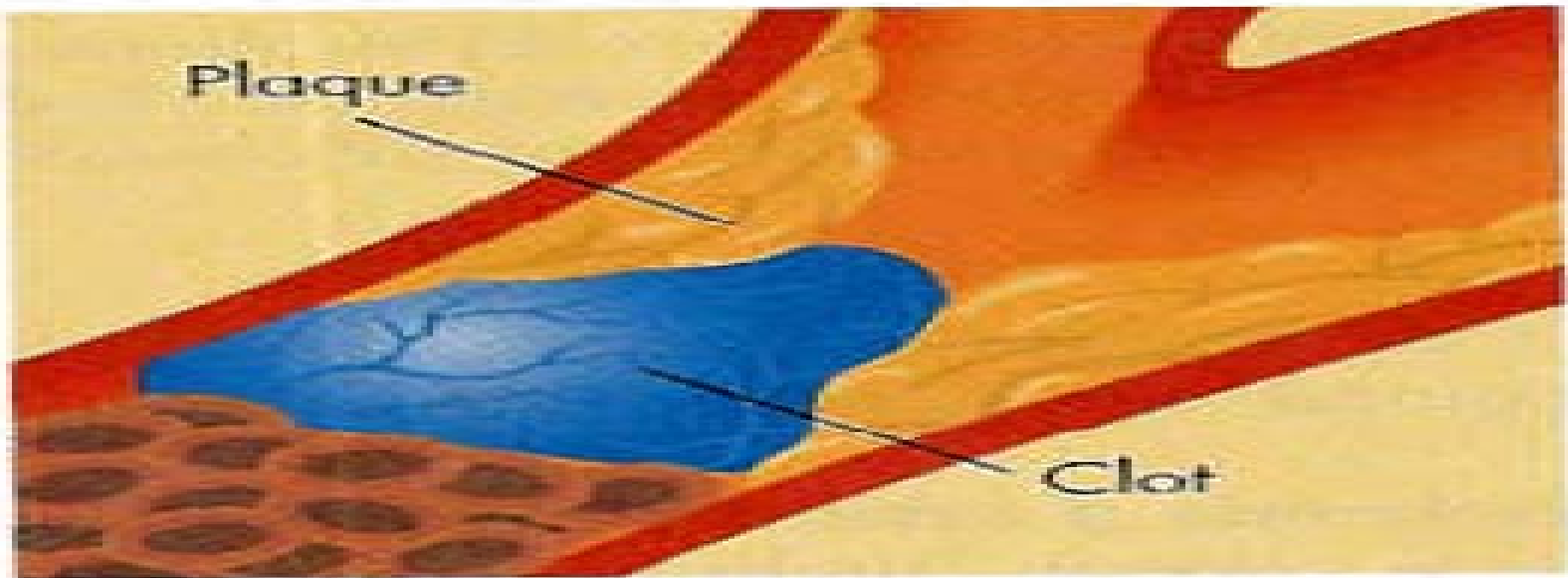
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Cerebrovascular Accident

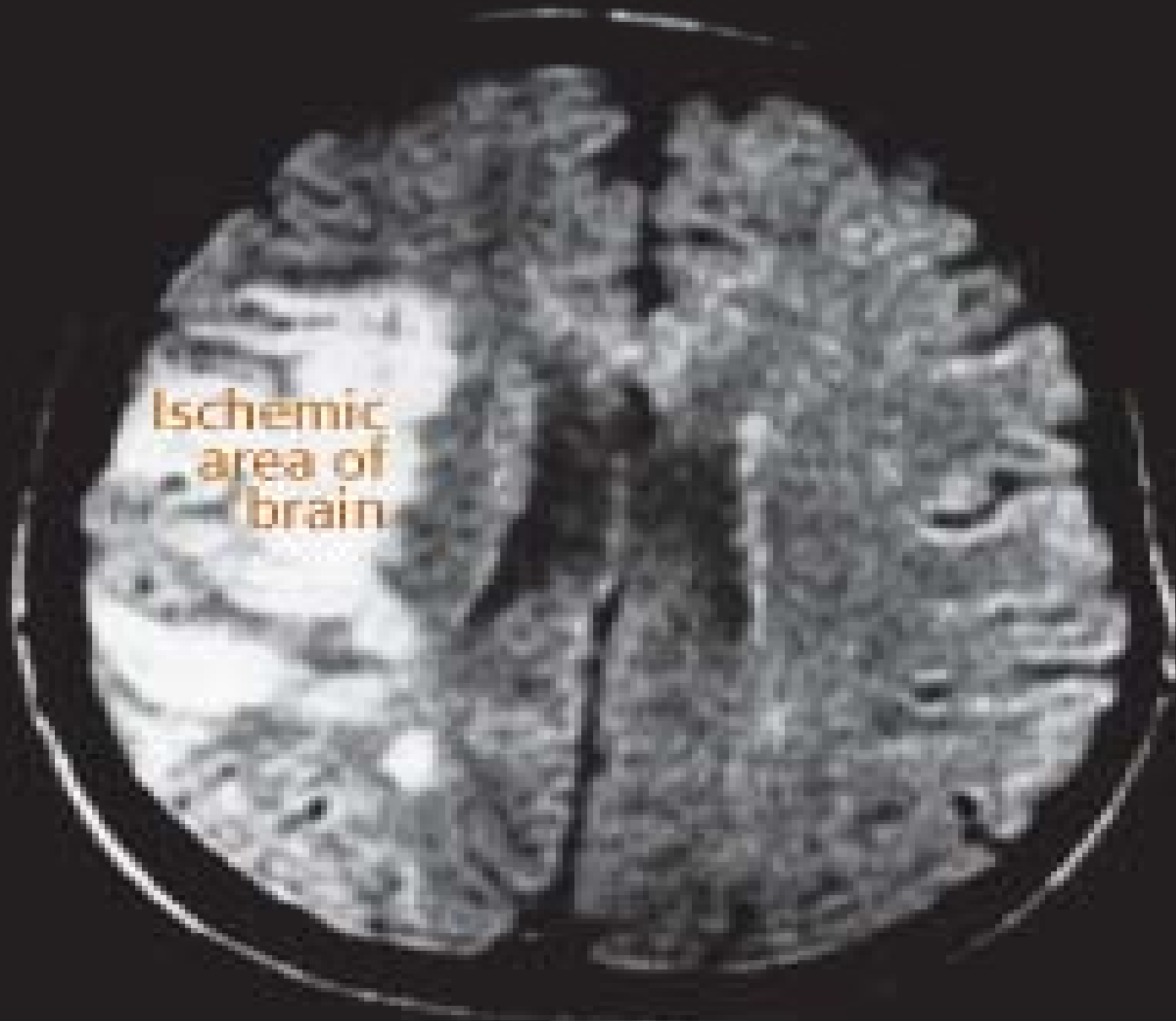
Ischemic – Thrombotic Stroke

- ❖ Lumen of the blood vessels narrow – then becomes occluded – infarction
- ❖ Associated with HTN and Diabetes Mellitus
 - ❖ >60% of strokes
 - ❖ 50% are preceded by TIA
 - ❖ Lacunar Stroke: development of cavity in place of infarcted brain tissue – results in considerable deficits – motor hemiplegia, contralateral loss of sensation or motor ability

Cerebrovascular Accident Thrombotic Stroke

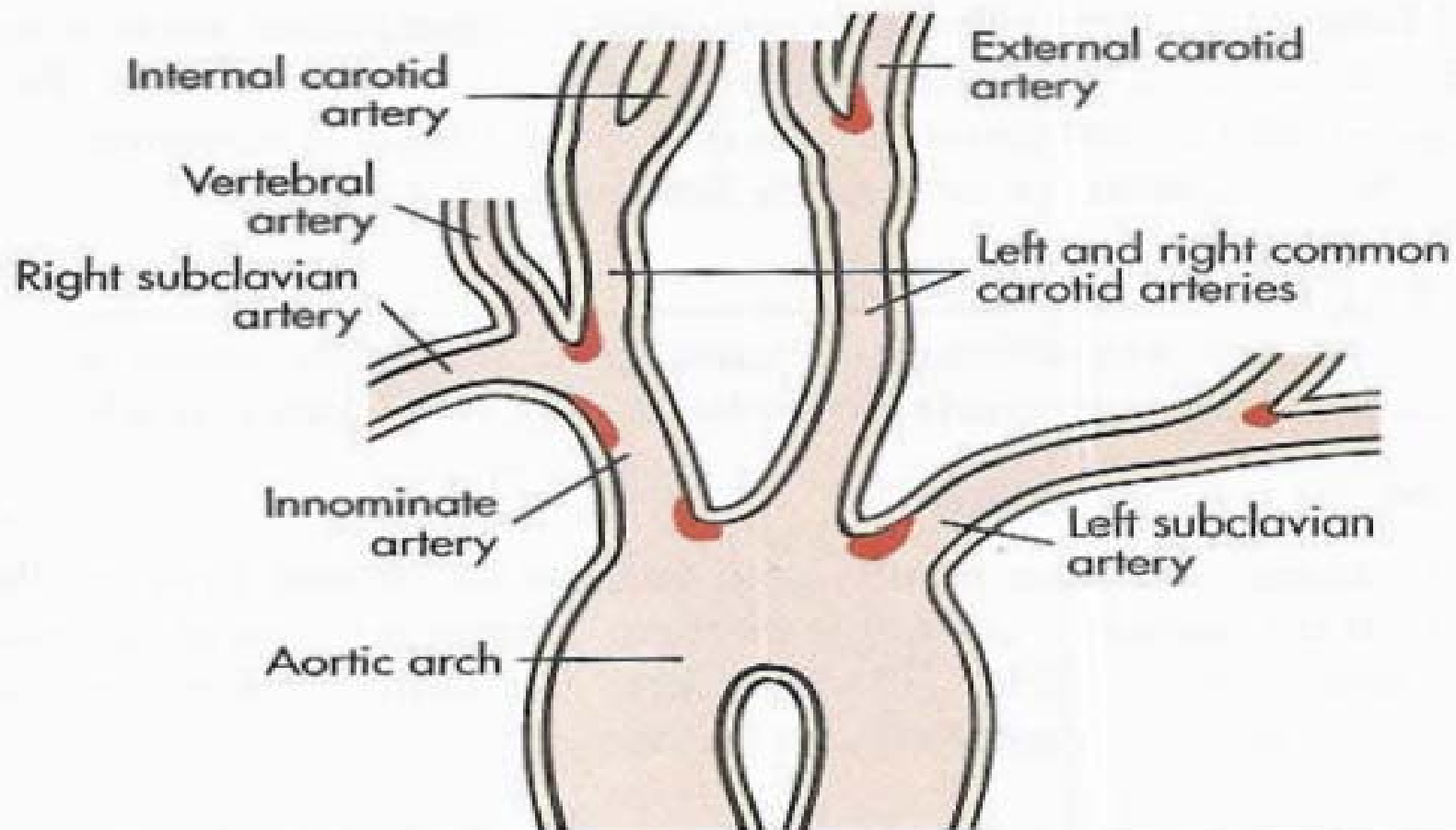


Thrombotic stroke. Cerebral thrombosis is a narrowing of the artery by fatty deposits called *plaque*. Plaque can cause a clot to form, which blocks the passage of blood through the artery.



Cerebrovascular Accident

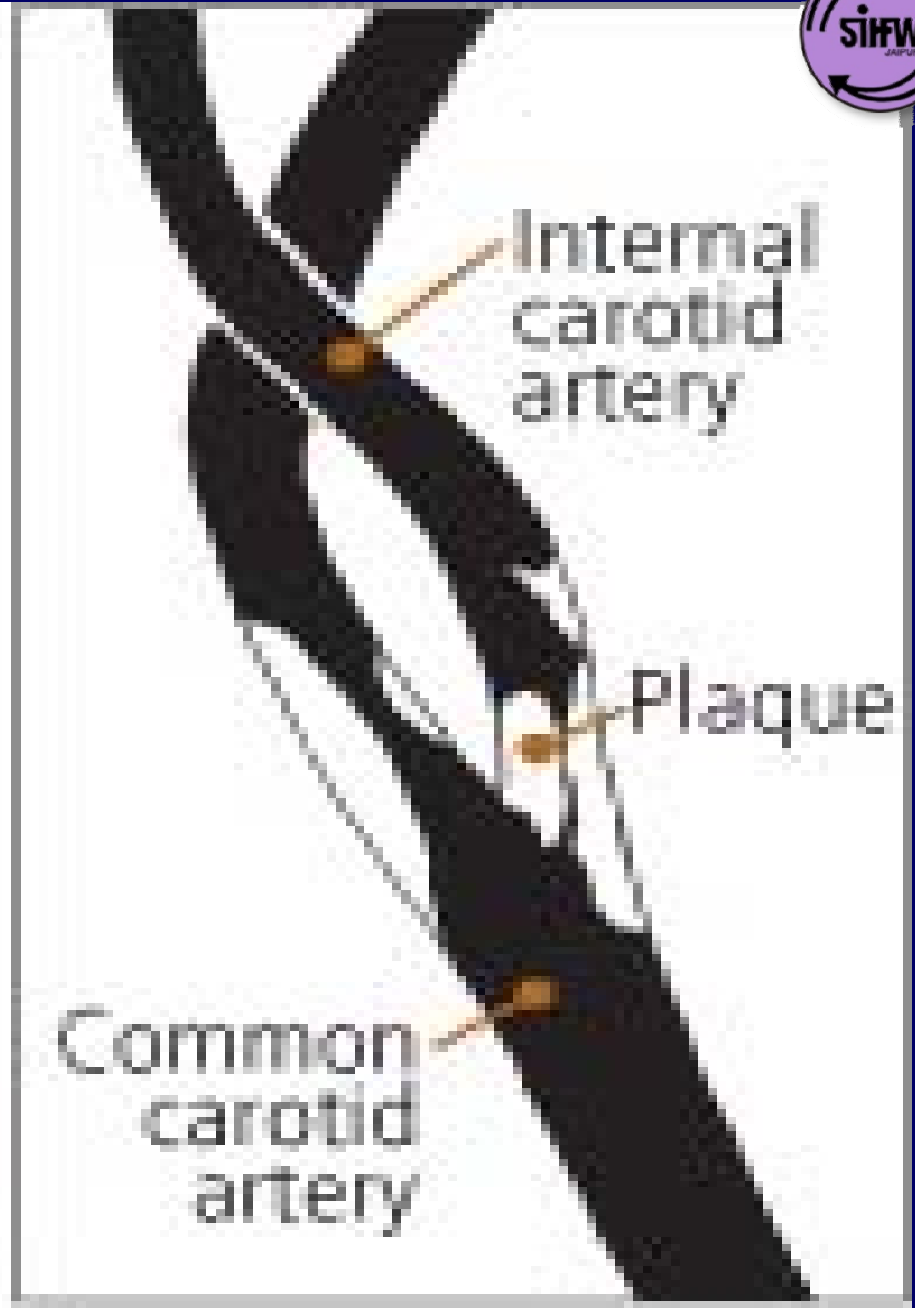
Common Sites of Atherosclerosis



DISEASED CAROTID ARTERY



HEALTHY CAROTID ARTERY



Cerebrovascular Accident

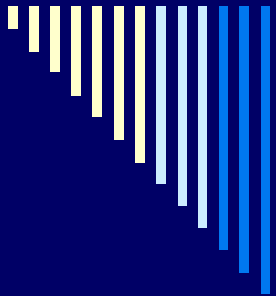
Ischemic – Embolic Stroke

- ❖ Embolus lodges in and occludes a cerebral artery
- ❖ Results in infarction & cerebral edema of the area supplied by the vessel
- ❖ Second most common cause of stroke – 24%
- ❖ Emboli originate in endocardial layer of the heart – atrial fibrillation, MI, infective endocarditis, rheumatic heart disease, valvular prostheses
- ❖ Rapid occurrence with severe symptoms – body does not have time to develop collateral circulation
- ❖ Any age group
- ❖ Recurrence common if underlying cause not treated

Cerebrovascular Accident Embolitic Stroke



Embolitic stroke. An embolus is a blood clot or other debris circulating in the blood. When it reaches an artery in the brain that is too narrow to pass through, it lodges there and blocks the flow of blood.

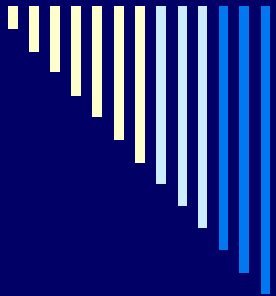
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Cerebrovascular Accident Goals for Management

- Immediate – assess & stabilize
 - ABCs,
 - Oxygen if hypoxic
 - IV access
 - Check glucose
 - 12-lead EKG

Cerebrovascular Accident Goals for Management

- CT Scan – No hemorrhage:
 - Consider Fibrinolytic therapy
 - Check for exclusions
 - tPA
 - No anticoagulants or antiplatelet therapy for 24 hours
 - If not a candidate: Antiplatelet Therapy
- CT Scan – Hemorrhage:
 - Neurosurgery?
 - If no surgery: Stroke Unit
 - Monitor BP and treat Hypertension
 - Monitor Neuro status
 - Monitor blood glucose and treat as needed
 - Supportive therapy

A decorative graphic in the top left corner consisting of a series of vertical bars of varying heights, colored in shades of blue and white, arranged in a descending staircase pattern.

Cerebrovascular Accident Hemorrhagic Stroke

- ❖ Hemorrhagic Stroke
 - ❖ 15% of all strokes
 - ❖ Result from bleeding into the brain tissue itself
 - ❖ Intracerebral
 - ❖ Subarachnoid

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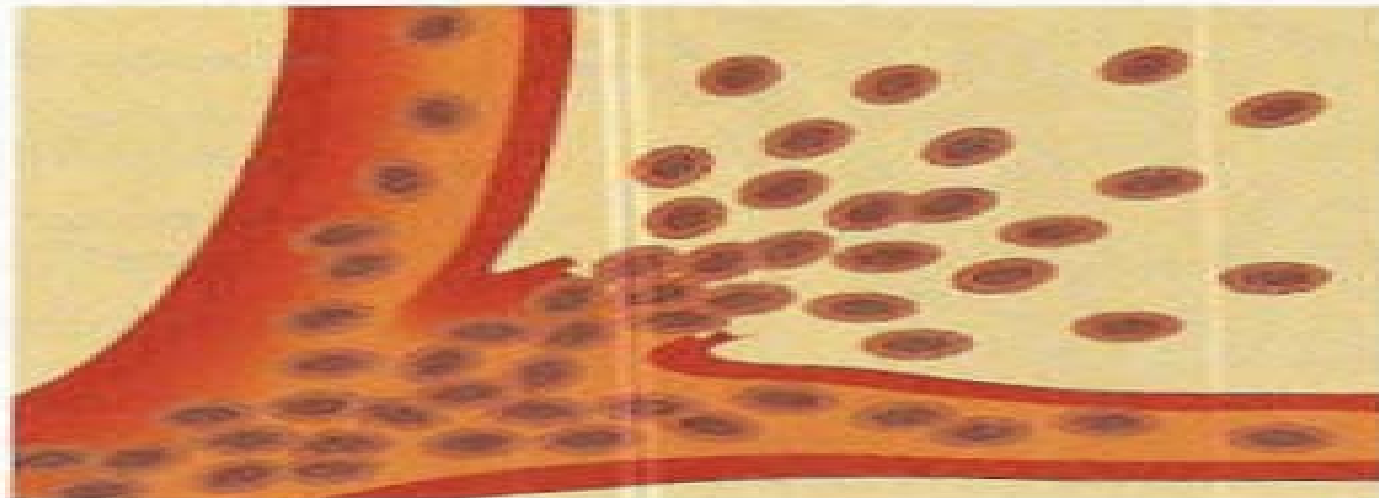
Cerebrovascular Accident Hemorrhage Stroke Intracerebral Hemorrhage

- ❖ Rupture of a vessel
- ❖ Hypertension – most important cause
- ❖ Others: vascular malformations, coagulation disorders, anticoagulation, trauma, brain tumor, ruptured aneurysms
- ❖ Sudden onset of symptoms with progression
- ❖ Neurological deficits, headache, nausea, vomiting, decreased LOC, and hypertension
- ❖ Prognosis: poor – 50% die within weeks
- ❖ 20% functionally independent at 6 months

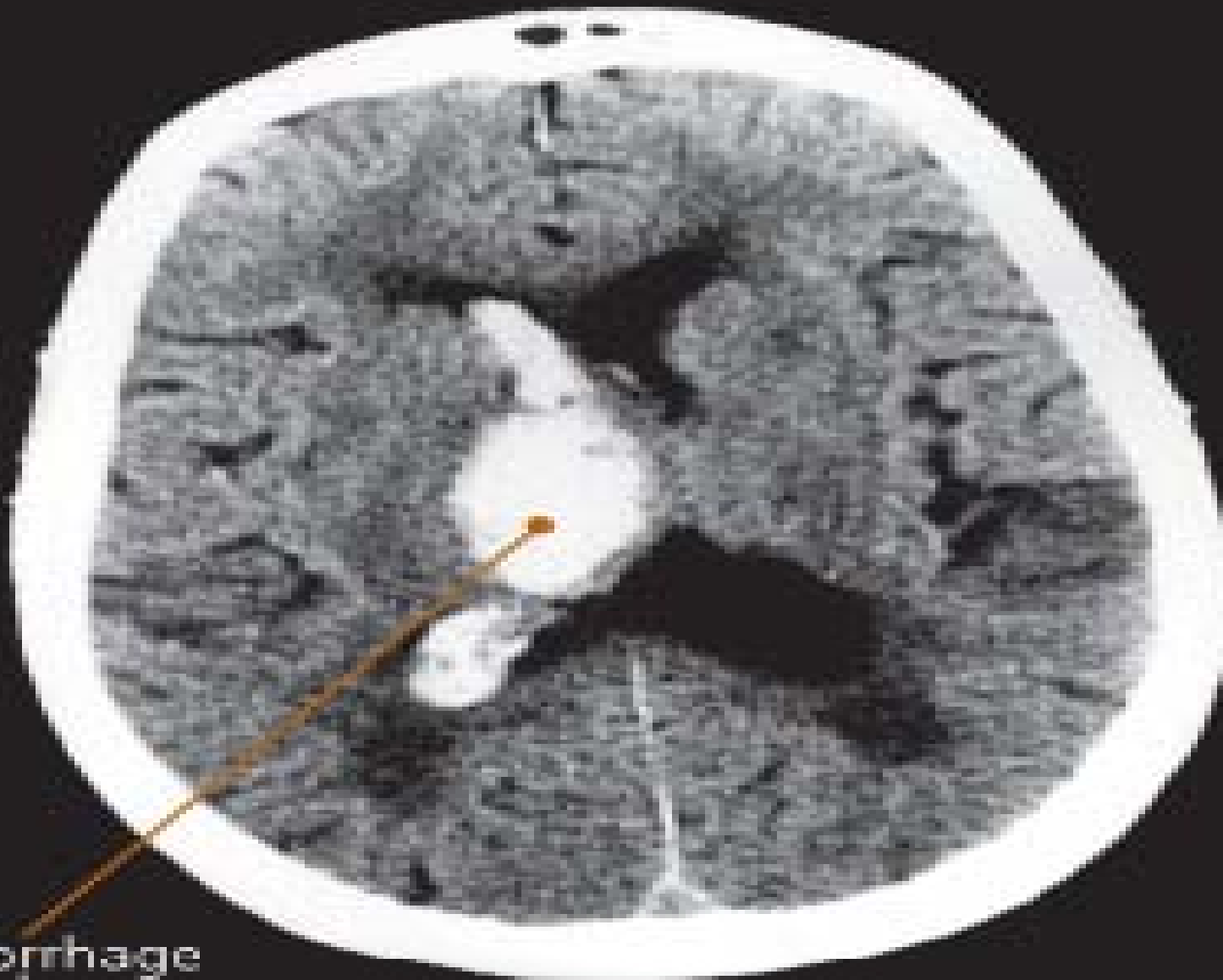
Cerebrovascular Accident

Hemorrhage Stroke

Intracerebral Hemorrhage



Hemorrhagic stroke. A burst blood vessel may allow blood to seep into and damage brain tissues until clotting shuts off the leak.



Hemorrhage
in thalamus

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Cerebrovascular Accident Hemorrhagic–Subarachnoid

❖ Hemorrhagic Stroke–Subarachnoid Hemorrhage

- ❖ Intracranial bleeding into the cerebrospinal fluid-filled space between the arachnoid and pia mater membranes on the surface of the brain

A decorative graphic consisting of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in shades of blue and white.

Cerebrovascular Accident Hemorrhagic–Subarachnoid

- ❖ Commonly caused by rupture of cerebral aneurysm (congenital or acquired)
 - ❖ Saccular or berry – few to 20-30 mm in size
 - ❖ Majority occur in the Circle of Willis

- ❖ Other causes: Arteriovenous malformation (AVM), trauma, illicit drug abuse
- ❖ Incidence: 6-16/100,000
- ❖ Increases with age and more common in women

A decorative graphic consisting of a series of vertical bars of varying heights and colors (white and blue) on the left side of the slide.

Cerebrovascular Accident Hemorrhagic-Subarachnoid Cerebral Aneurysm

- ❖ Warning Symptoms: sudden onset of a severe headache – “worst headache of one’s life”
- ❖ Change of LOC, Neurological deficits, nausea, vomiting, seizures, stiff neck
- ❖ Despite improvements in surgical techniques, many patients die or left with significant cognitive difficulties

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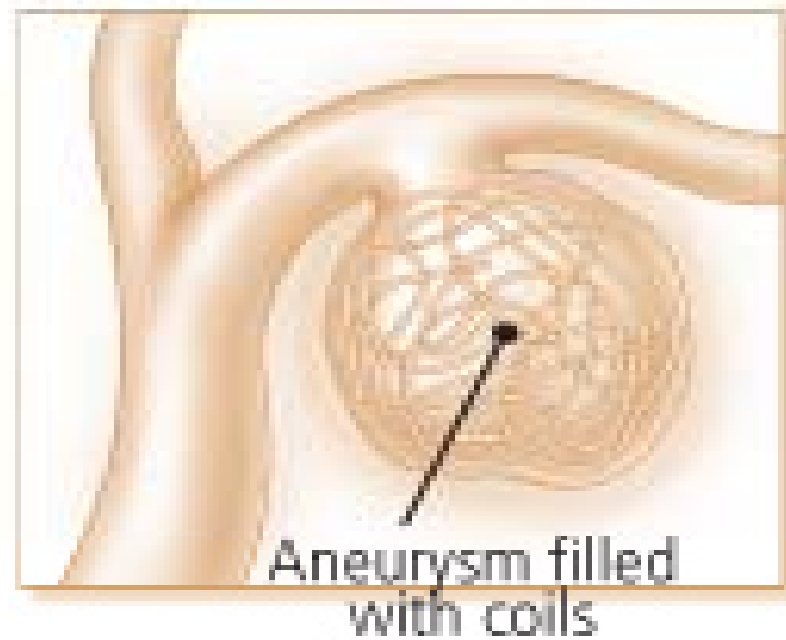
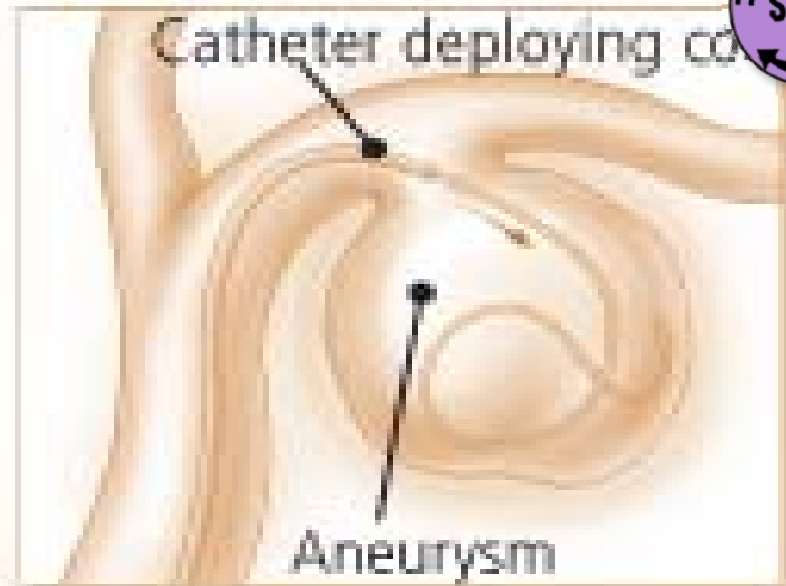
Delayed Neurological deficit in SAH

- Rerupture
- Vasospasm
- Hydrocephalus
- Hyponatremia

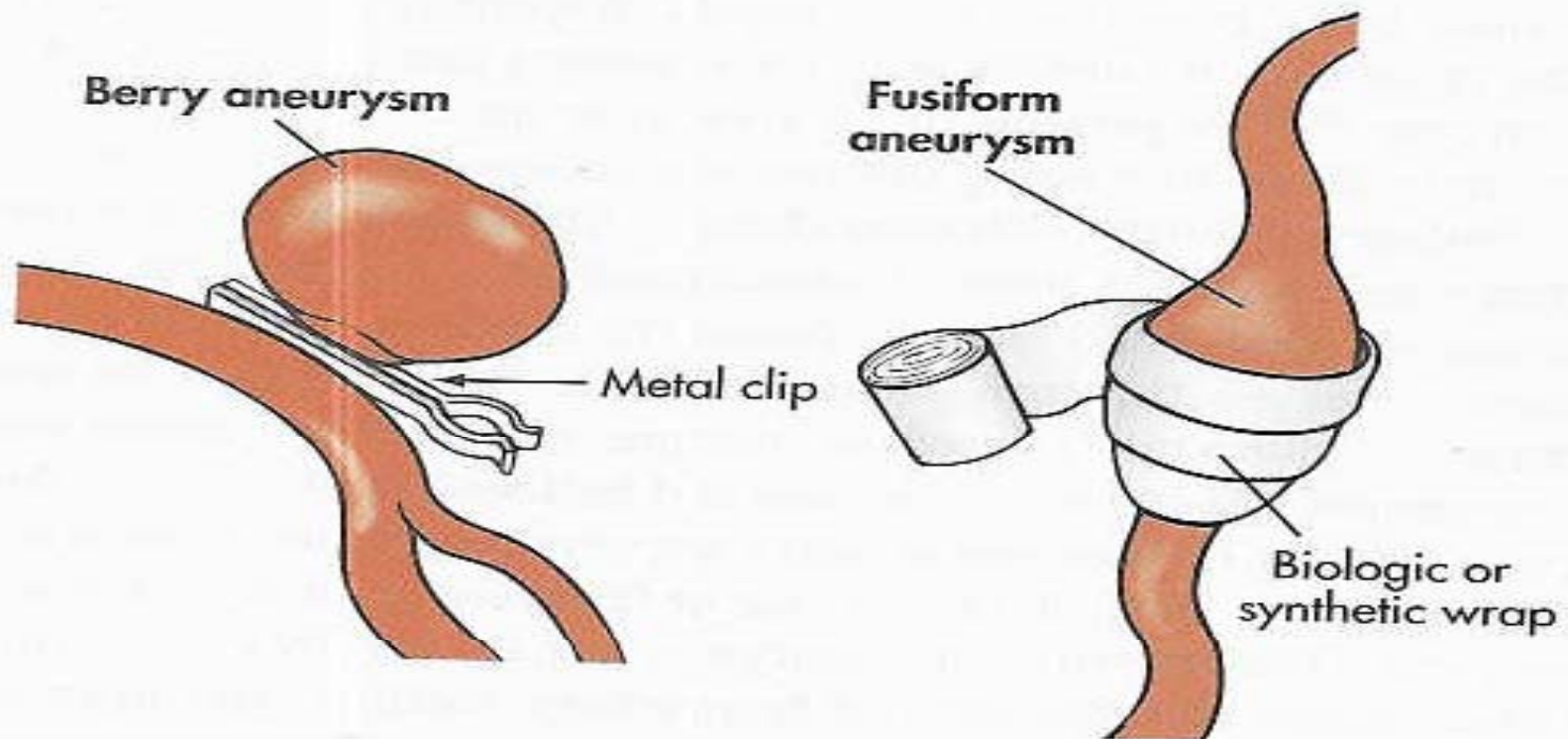
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Hemorrhagic–Subarachnoid Cerebral Aneurysm

- ❖ Surgical Treatment:
 - ❖ Clipping the aneurysm – prevents rebleed
 - ❖ Coiling – platinum coil inserted into the lumen of the aneurysm to occlude the sac
 - ❖ Postop: Vasospasm prevention – Calcium Channel Blockers

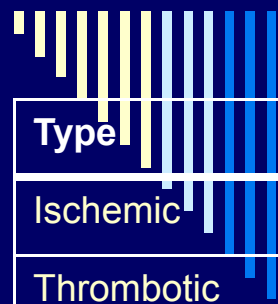


Hemorrhagic-Subarachnoid Cerebral Aneurysm – Surgical Tx



Hemorrhagic-Subarachnoid Cerebral Aneurysm – Coiling





Cerebrovascular Accident Classification

Type	Gender/Age	Warning	Time of Onset	Course/Prognosis
Ischemic				
Thrombotic	Men more than women, oldest median age	TIA (30%-50% of cases)	During or after sleep	Stepwise progression, signs and symptoms develop slowly, usually some improvement, recurrence in 20%-25% of survivors
Embolic	Men more than women	TIA (uncommon)	Lack of relationship to activity, sudden onset	Single event, signs and symptoms develop quickly, usually some improvement, recurrence common without aggressive treatment of underlying disease
Hemorrhagic				
Intracerebral	Slightly higher in women	Headache (25% of cases)	Activity (often)	Progression over 24 hr; poor prognosis, fatality more likely with presence of coma
Subarachnoid	Slightly higher in women, youngest median age	Headache (common)	Activity (often), sudden onset Most commonly related to head trauma	Single sudden event usually, fatality more likely with presence of coma

TIA, Transient ischemic attack

Cerebrovascular Accident Clinical Manifestations Middle Cerebral Artery Involvement

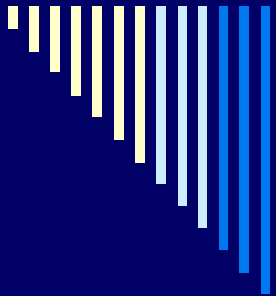
- ❖ Contralateral weakness
 - ❖ Hemiparesis; hemiplegia
- ❖ Contralateral hemianesthesia
- ❖ Loss of proprioception, fine touch and localization
- ❖ Dominant hemisphere: aphasia
- ❖ Nondominant hemisphere – neglect of opposite side; anosognosia – unaware or denial of neuro deficit
- ❖ Homonymous hemianopsia – defective vision or blindness right or left halves of visual fields of both eyes

Cerebrovascular Accident

Clinical Manifestations

Anterior Cerebral Artery Involvement

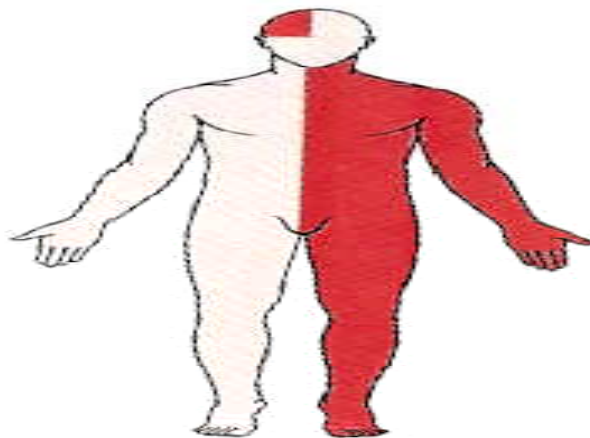
- ❖ Brain stem occlusion
 - ❖ Contralateral
 - ❖ weakness of proximal upper extremity
 - ❖ sensory & motor deficits of lower extremities
 - ❖ Urinary incontinence
 - ❖ Sensory loss (discrimination, proprioception)
 - ❖ Contralateral grasp & sucking reflexes may be present
 - ❖ Apraxia – loss of ability to carry out familiar purposeful movements in the absence of sensory or motor impairment
 - ❖ Personality change: flat affect, loss of spontaneity, loss of interest in surroundings
-
- ❖ Cognitive impairment

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Cerebrovascular Accident Clinical Manifestations Posterior Cerebral Artery & Vertebrobasilar Involvement

- ❖ Alert to comatose
- ❖ Unilateral or bilateral sensory loss
- ❖ Contralateral or bilateral weakness
- ❖ Dysarthria – impaired speech articulation
- ❖ Dysphagia – difficulty in swallowing
- ❖ Hoarseness
- ❖ Ataxia, Vertigo
- ❖ Unilateral hearing loss
- ❖ Visual disturbances (blindness, homonymous hemianopsia, nystagmus, diplopia)

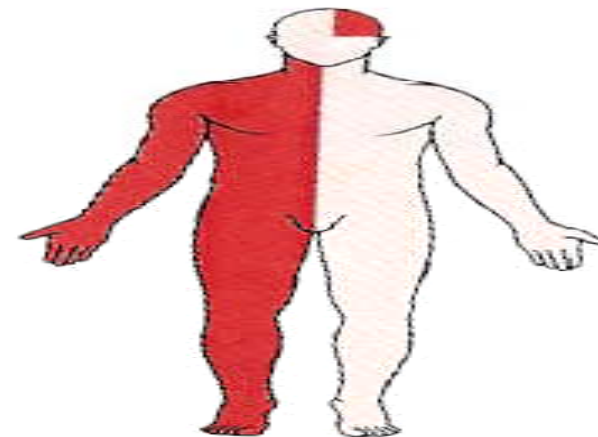
Cerebrovascular Accident Clinical Manifestations Right Brain – Left Brain Damage



Right-brain damage

(stroke on right side of the brain)

- Paralyzed left side: hemiplegia
- Left-sided neglect
- Spatial-perceptual deficits
- Tends to deny or minimize problems
- Rapid performance, short attention span
- Impulsive, safety problems
- Impaired judgment
- Impaired time concepts

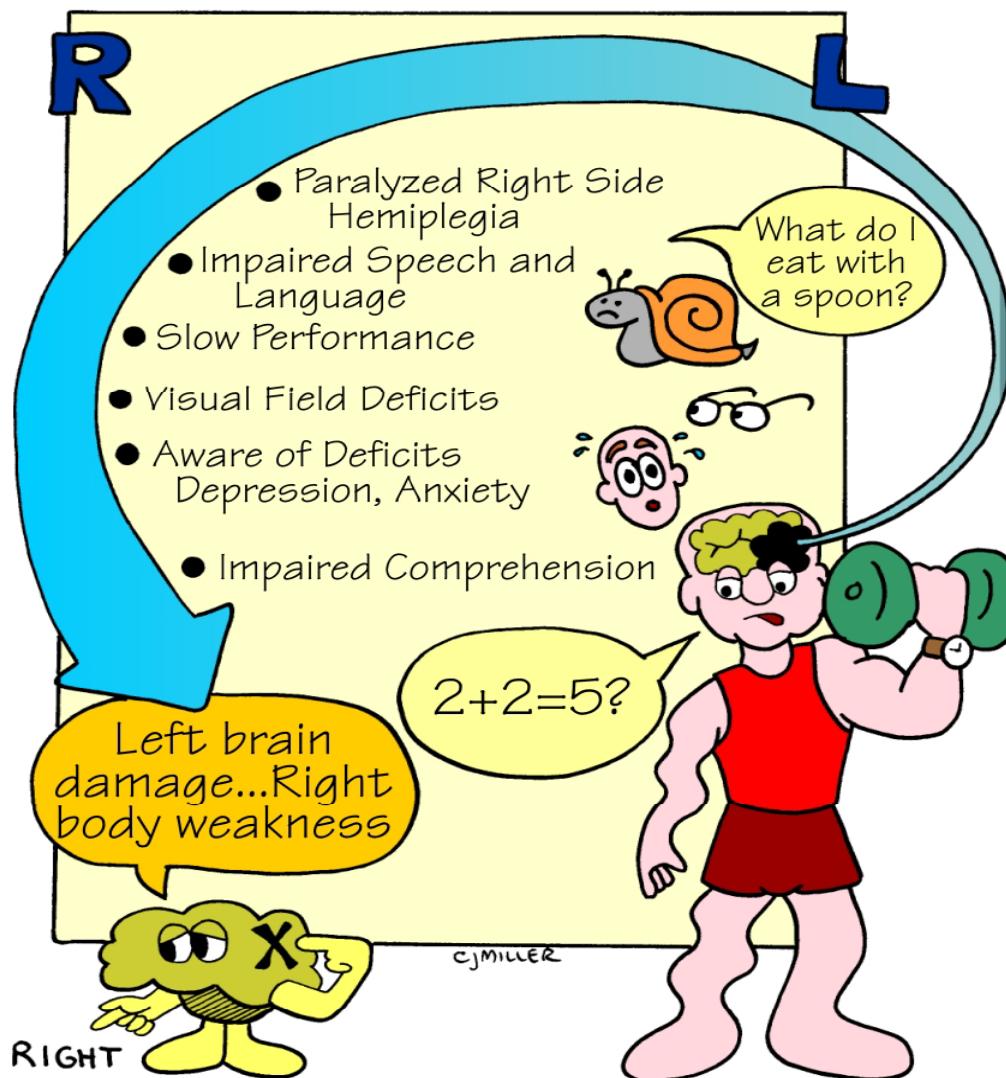


Left-brain damage

(stroke on left side of the brain)

- Paralyzed right side: hemiplegia
- Impaired speech/language aphasia
- Impaired right/left discrimination
- Slow performance, cautious
- Aware of deficits: depression, anxiety
- Impaired comprehension related to language, math

LEFT CVA



RIGHT CVA

R **L**

- Paralyzed Left Side Hemiplegia
- Spatial-Perceptual Deficits
- Tends to Minimize Problems
- Short Attention Span
- Visual Field Deficits
- Impaired Judgment
- Impulsive
- Impaired Time Concept

What Problem?

I don't feel where my left side is.

Right Brain Damage...Left Body Weakness

LEFT

cjmilller

Cerebrovascular Accident Treatment Goals

- ❖ Prevention – Health Maintenance Focus:
 - ❖ Healthy diet
 - ❖ Weight control
 - ❖ Regular exercise
 - ❖ No smoking
 - ❖ Limit alcohol consumption
 - ❖ Routine health assessment
 - ❖ Control of risk factors-BP, Hyperglycemia, hyperlipidemia

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Cerebrovascular Accident Treatment Goals

- ❖ Prevention
- ❖ Drug Therapy
- ❖ Surgical Therapy
- ❖ Rehabilitation

Cerebrovascular Accident Diagnostic Studies

- ❖ Done to confirm CVA and identify cause
 - ❖ PE: Neuro Assessment; Carotid bruit
 - ❖ Carotid doppler studies (ultrasound study)
 - ❖ CT – primary – identifies size, location, differentiates between ischemic and hemorrhagic
 - ❖ CTA – CT Angiography – visualizes vasculature
 - ❖ MRI – greater specificity than CT
 - ❖ May not be able to be used on all patients (metal, claustrophobia)
 - ❖ Angiography: gold standard for imaging carotid arteries

Cerebrovascular Accident Treatment Goals

- ❖ Drug Therapy – Thrombotic CVA – to reestablish blood flow through a blocked artery
- ❖ Thrombolytic Drugs: tPA (tissue plasminogen activator)
 - ❖ produce localized fibrinolysis by binding to the fibrin in the thrombi
 - ❖ Plasminogen is converted to plasmin (fibrinolysin)
 - ❖ Enzymatic action digests fibrin & fibrinogen
 - ❖ Results is clot lysis
- ❖ Administered within 3 hours of symptoms of ischemic CVA
 - ❖ Confirmed DX with CT
 - ❖ Patient anticoagulated
- ❖ ASA

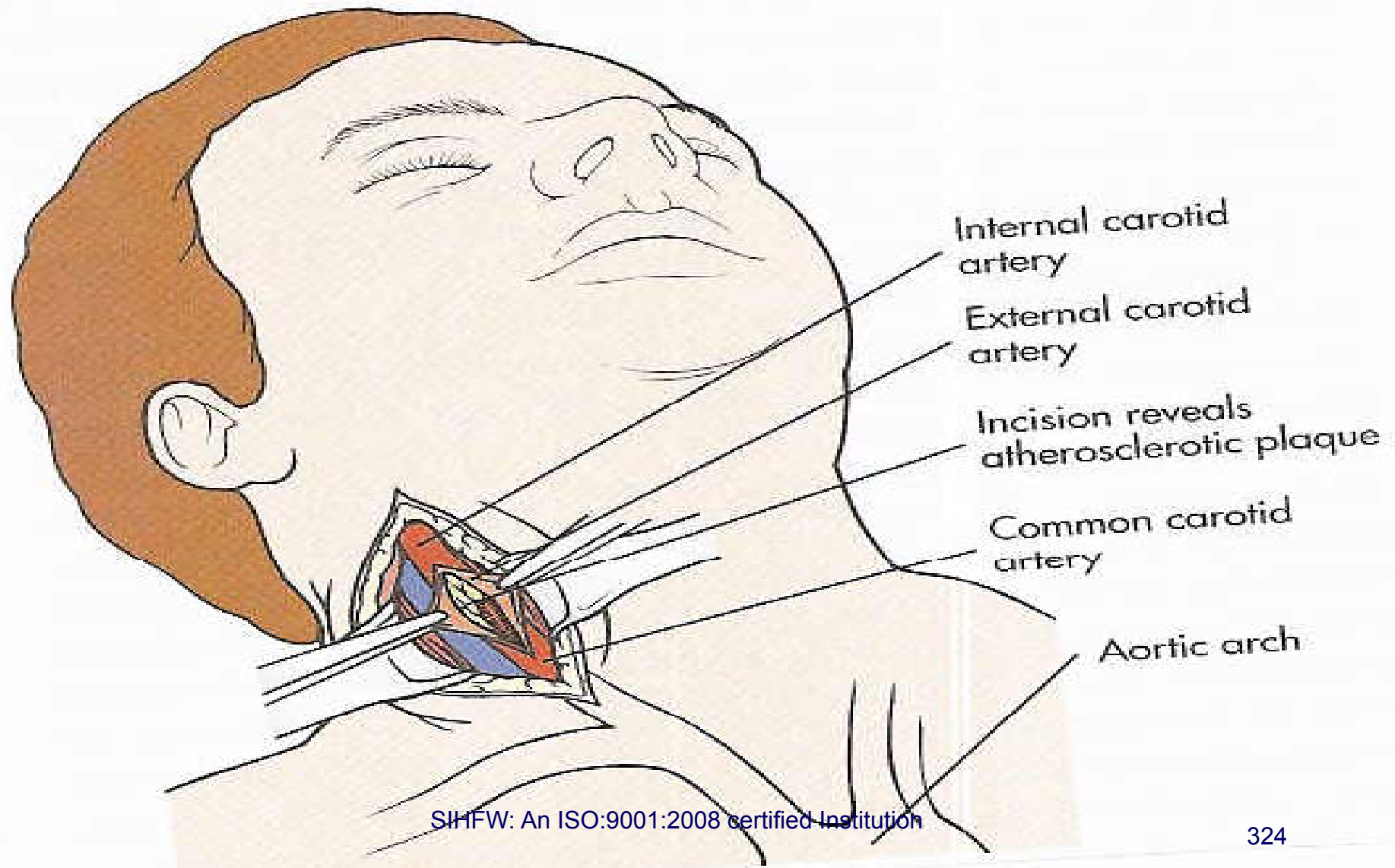
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CVA – Treatment Goals

❖ Surgical Treatment

- ❖ Carotid endarterectomy – preventive – > 100,000/year
- ❖ Removal of atheromatous lesion
- ❖ Clipping, wrapping, coiling Aneurysm
- ❖ Evacuation of aneurysm-induced hematomas larger than 3 cm.
- ❖ Treatment of AV Malformations

Carotid Endarterectomy



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Cerebrovascular Accident Treatment Goals

❖ Drug Therapy

- ❖ Measures to prevent the development of a thrombus or embolus for “At Risk” patients:

❖ Antiplatelet Agents

- ❖ Aspirin
- ❖ Clopidogrel
- ❖ Combinatio

❖ Oral anticoagulation – Coumadin

- ❖ Treatment of choice for individuals with atrial fibrillation who have had a TIA

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Cerebrovascular Accident Acute Phase

❖ Patient Education:

- ❖ Clear explanations for all care/treatments
- ❖ Focus on improvements—regained abilities
- ❖ Include family

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Cerebrovascular Accident Rehabilitation

- ❖ Comprehensive plan –
- ❖ Physical Medicine & Rehabilitation
- ❖ Learn techniques to self-monitor & maintain physical wellness
- ❖ Avoid complications of stroke
- ❖ Communication
- ❖ Maintain nutrition & hydration
- ❖ Use community resources
- ❖ Family cohesiveness



FUN^CTIONING
VS
A^AFFECTED



Assist CVA client
to get out of bed
on the functioning
vs affected side.

Cardio-Vascular Diseases



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Introduction

Cardiovascular disease (CVD) includes dysfunctional conditions of-

Heart,

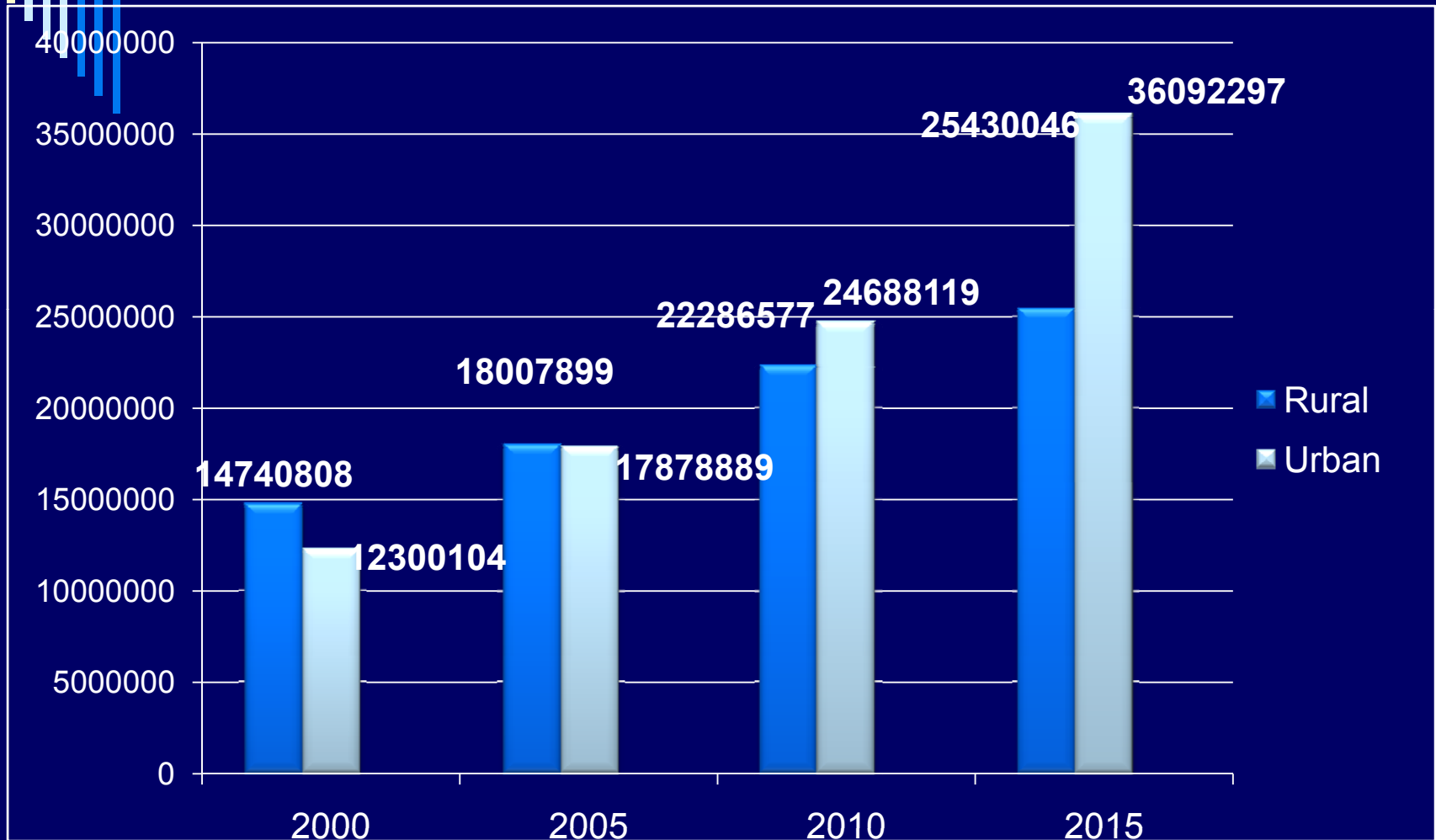
Arteries and

Veins

Burden of Disease

- ❑ Number one cause of death globally: more people die annually from CVDs than from any other cause
- ❑ 17.3 million people died from CVDs in 2008
- ❑ 30% of all global deaths
- ❑ 7.3 million - coronary heart disease
- ❑ 6.2 million – stroke
- ❑ By 2030, almost 23.6 million people will die from CVDs, mainly from heart disease and stroke.

Estimated cases of CHD in India

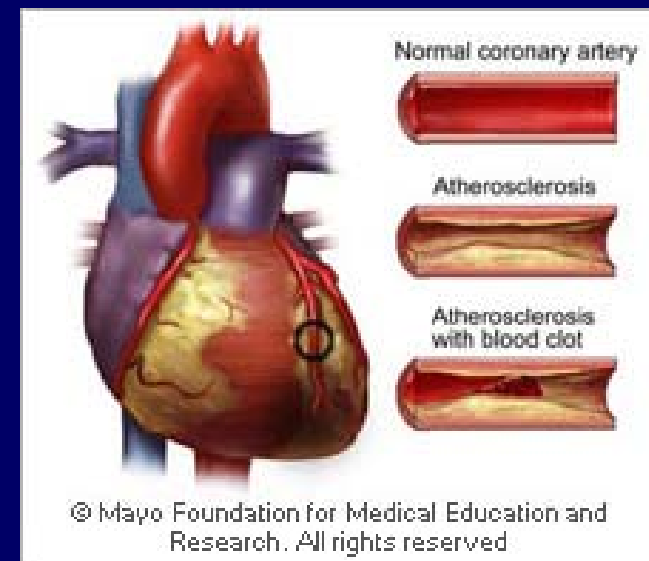


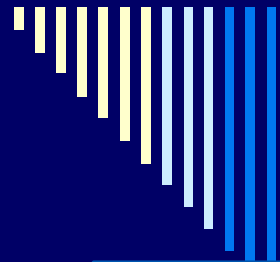
Source: - NCMH Burden of Diseases in India, 2005

Cardiovascular Diseases?

group of disorders of the heart and blood vessels, and include:

- Coronary heart disease
- Cerebrovascular disease
- Peripheral arterial disease
- Rheumatic heart disease
- Congenital heart disease
- Deep vein thrombosis and pulmonary embolism
- Heart attacks and strokes





Risk Factors

High cholesterol
High BP
Diabetes
Obesity
Smoking
Ageing

Consequence

Stiff Arteries

Results

Heart Attack
Stroke
Heart Failure

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Newly emerging CVD risk factors

- Low birth weight
- Folate deficiency
- Infections

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WHO CVD–Risk Management Package

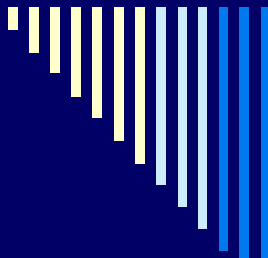
Designed primarily for the management of cardiovascular risk in individuals detected to have hypertension through opportunistic screening includes

- Conditions that characterize the three scenarios
- Skill-level of the health worker
- Diagnostic and therapeutic facilities
- Available health services

Resource required	Scenario-1	Scenario-2	Scenario-3
Human resource	Health worker	Medical Doctor or Nurse	Medical doctor with specialist care
Equipments	Stethoscope BP instrument Measuring tape Weighing scale Test tubes Burner Strips for urine sugar	Stethoscope BP instrument Measuring tape Weighing scale Test tubes Burner Strips for urine sugar and albumin	Stethoscope BP instrument Measuring tape Weighing scale ECG machine Ophthalmoscope Blood chemistry analysis support Test tubes Burner Strips for urine sugar

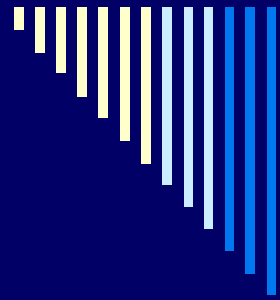
<p>Generic drugs</p>	<p>Thiazide diuretics Metformin (optional)</p>	<p>Thiazides Angiotensin converting enzyme inhibitors Calcium channel blockers Betablockers Aspirin Metformin</p>	<p>Thiazides Angiotensin converting enzyme inhibitors Calcium channel blockers Betablockers Aspirin Insulin Metformin Glibenclamide Statins (cost?) Angiotensin blockers (cost?)</p>
<p>Other facilities</p>	<p>Referral Maintenance & Calibration of BP instrument</p>	<p>Referral Maintenance & Calibration of BP instrument</p>	<p>Specialist care Maintenance & Calibration of BP instrument</p>

Prevention of CVD

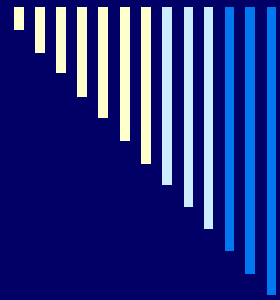


Heart disease and stroke can be prevented through-

- Healthy diet
- Regular physical activity
- Avoiding tobacco smoke
- A diet rich in Nuts, fruit and vegetables
- Maintaining a healthy body weight



Hypertension



Hypertension

“ high blood pressure“

A chronic medical condition in which the systemic arterial blood pressure is elevated.

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in a gradient from light yellow to dark blue.

Introduction

- Abnormally elevated blood pressure is a pathological condition which increases the work load on the heart. This condition is termed as high blood pressure or hypertension.
- Hypertension doubles the risk of CAD, CHF, ischemic and hemorrhagic stroke, renal failure and PAD
- Based on the etiology, high blood pressure is of two types:
 - Primary/essential
 - Secondary

Classification

Primary / Essential hypertension

- No medical cause found.
- 90–95% of cases relate to it.

Secondary hypertension

- Caused by identified conditions affecting kidneys, arteries, heart, or endocrine system.

Primary V/s secondary

Primary

- More Common
- Gradual :in onset
- Age: Affects after 40
- Strong Family History
- Cause Premature Artherosclerosis
- Is life long

Secondary

- Less common
- Dramatic in onset
- Age: 1st 2nd Decade/5th 6thdecade
- F.H: May/may not be present
- Causes: Endocrine tumor
- Chronic steroids
- May/or may not resolve

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Epidemiological Determinants

Risk/ trigger factors

- Stress
- Potassium deficiency & sodium sensitivity
- Alcohol intake
- Vitamin D deficiency
- Obesity/metabolic disorder
- Sedentary lifestyle and Smoking
- Pre-eclampsia during pregnancy

Secondary Causes of Hypertension

- ❑ Chronic kidney disease – CRF, PCKD, obstructive uropathy
- ❑ Drug-induced or related causes
- ❑ Primary aldosteronism
- ❑ Renovascular disease – atherosclerotic, fibromuscular dysplasia
- ❑ Chronic steroid therapy and Cushing's syndrome
- ❑ Pheochromocytoma
- ❑ Coarctation of the aorta
- ❑ Thyroid or parathyroid disease
- ❑ Sleep apnea

Symptoms



- Headache
- Drowsiness
- Confusion
- Vision disorders
- Nausea and
- Vomiting

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Drug-Induced Hypertension: Prescription Medications

- Steroids
- Estrogens
- NSAIDS
- Phenylpropanolamines
- Cyclosporine/tacrolimus
- Erythropoietin
- Sibutramine
- Methylphenidate
- Ergotamine
- Ketamine
- Desflurane
- Carbamazepine
- Bromocryptine
- Metoclopramide
- Antidepressants
 - Venlafaxine
- Buspirone

Criteria for diagnosing high blood pressure

Category	Systolic	Diastolic
Normal	Less than 120	Less than 80
Pre-hypertension	120-139	80-89
High Blood Pressure		
Stage 1	140-159	90-99
Stage 2	160 or higher	100 or higher

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Management of Hypertension

1. Assessment of medical history
2. Physical Examination
3. Laboratory Investigation

Assessment of medical history

- Headache (severe hypertension) < morning in occipital region
- Dizziness, palpitations, easy fatigability
- Ask for:
 1. Risk factors
 - ✓ Lack of physical activity (or sedentary lifestyle).
 - ✓ Obesity or being overweight
 - ✓ Abdominal obesity
 - ✓ High sodium intake/high salt intake
 - ✓ Excess alcohol consumption

A decorative graphic consisting of a series of vertical bars of varying heights and colors (yellow, white, and blue) arranged in a descending staircase pattern from left to right.

2. Family history

3. Symptoms of consequences of hypertension

4. Frequent intake of pain relieving drugs (NSAIDS)

5. Steroid intake for asthma

6. Breathing difficulty particularly on exertion

7. Swelling of feet

8. Urinary difficulties, history of passing stones in the past

Physical Examination

- Physical examination should include
 - Pulse rate
 - Palpating all peripheral pulses
 - BP measurement at least in one upper and one lower limb
 - Assessment of BMI (Body weight and height to obtain BMI)
 - Measurement of Waist circumference
 - Palpation of neck for enlarged thyroid
 - Auscultation for bruit (renal, carotid, abdominal and others)
 - Eye evaluation if ophthalmology facility is available

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Laboratory Tests

Essential:

- i. Blood Sugar
- ii. Urine analysis for proteinuria

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Desirable:

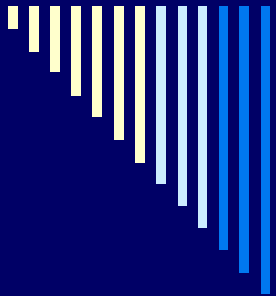
(at CHC/sub-district/district level hospitals depending upon the available facilities for laboratory investigations)

- I. Haemogram,
- II. Serum creatinine
- III. Serum sodium, potassium and calcium levels
- IV. Lipid profile
- V. Complete Urine analysis
- VI. Electrocardiogram (ECG)
- VII. X-Ray chest
- VIII. Thyroid function test

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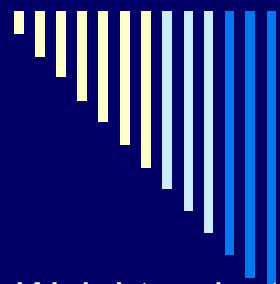
Management

- Therapeutic life-style management
- Drug Therapy

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Life style advice is advocated for the first six month after the diagnosis of high BP in the following situations:

- ❖ If the BP is less than 160/100 mm of Hg
- ❖ There is no diabetes, co-existing heart disease stroke or peripheral vascular disease
- ❖ No evidence of LVH on ECG
- ❖ Absence of urinary proteinuria and
- ❖ Serum creatinine <1.6mg/dl



Lifestyle modifications to manage hypertension

Weight reduction
Dietary salt reduction

Attain and maintain BMI $<25 \text{ kg/m}^2$
 $< 6\text{g NaCl/d}$

Adapt DASH – type dietary plan

Diet rich in fruits, vegetables, and low – fat dairy products with reduced content of saturated and total fat

Moderation of alcohol consumption

For those who drink alcohol ,
Consume ≤ 2 drinks /day in men and
 ≤ 1 drink/day in women

Physical activity

Regular aerobic activity, e.g., brisk walking for
30 min/d

Treatment Goals

- ❑ The aim should be to get to blood pressure levels of less than 120/80 mms of Hg without bothersome side-effects.
- ❑ Don't accept blood pressure levels of 140/90 mms of Hg or more
- ❑ Maintain healthy blood pressure throughout the person's lives
- ❑ Prevent and control risk factors which could give rise to high blood pressure.
- ❑ Always make sure that risk factors are controlled.
- ❑ Prevent and control risk factors which could increase risk of complications due to high blood pressure.

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in a gradient from light blue to dark blue.

Pharmacologic therapy

- Diuretics
- Ace inhibitors/ARB's
- Aldosterone antagonists
- Beta blockers
- Calcium channel blockers
- α -adrenergic blockers
- Sympatholytic agents
- Direct vasodilators

ACE inhibitors

- Decrease production of angiotensin II, thus causing efferent arteriolar vasodilatation
 - Enalapril 5-40mg/day(1-2)
 - Captopril 25-200mg/day(2)
 - Lisinopril 10-40mg/day (1)
 - Ramipril 2.5-20mg/day(1-2)
- Can be combined with diuretics and CCB
- Side effects-Dry cough, Angioedema, Hyperkalemia

ARB's

- Losartan 25-100mg/day (1-2)
- Valsartan 80-320mg/day(1)
- Candesartan 2-32mg/day (1)
- Telmisartan 20-80mg/day(1)
- Olmisartan 20-40mg/day(1)
- C/I of ACEI's and ARB's are renal failure, bilateral renal artery stenosis, pregnancy

Beta blockers

- Act by decreasing cardiac output, due to reduction of heart rate and contractility
- Selective (β_1)
 - Acebutolol-200-600mg/day(2)
 - Atenolol-50-100mg/day(1)
 - Metoprolol-12.5-100mg/day(2)
 - Bisoprolol-10mg/day(1)
 - Esmolol-50-300 μ g/kg/min IV
- Nonselective
 - Propranolol-40-160mg/day(2)
- Combined alpha/beta
 - Labetalol-200-800mg/day(2)
 - Carvedilol-12.5-50mg/day(2)
- Contraindications are asthma, COPD, PR-<60/min, 2nd or 3rd degree heart block, sick-sinus syndrome.

Calcium channel blockers

- ❑ Reduce vascular resistance through L channel blockade, which reduces intracellular Ca and causes vasodilatation
- ❑ Dihydropyridines
 - ❑ Amlodipine-5-10mg/day
 - ❑ Felodipine-5-10mg/day
 - ❑ Nicardipine-20-40mg tid
 - ❑ Nifedipine(LA)-30-60mg/day(1)
- ❑ Nondihydropyridines
 - ❑ Diltiazem-30-80mg qid
 - ❑ Diltiazem(LA)-180-420mg/day(1)
 - ❑ Verapamil-40-160mg tid
- ❑ Side effects are flushing, headache, pedal edema

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α adrenergic blockers

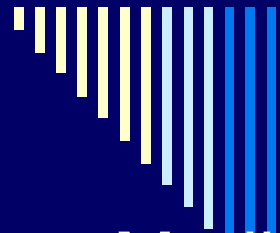
- Lower BP by decreasing peripheral vascular resistance
 - Selective
 - Prazosin 2-20mg/day (2-3)
 - Doxazosin 1-16mg/day(1)
 - Terazosin 1-10mg/day(1-2)
 - Nonselective
 - Phenoxybenzamine 20-120mg/day(2-3)

Sympatholytic agents

- Decrease peripheral resistance by inhibiting sympathetic outflow
 - Clonidine 0.1-0.6mg/day(2)
 - Methyldopa 250-1000mg/day(2)
 - Reserpine 0.05-0.25mg/day(1)
- Usefulness is limited by dryness of mouth, orthostatic hypotension, sexual dysfunction, sedation and numerous drug-drug interaction

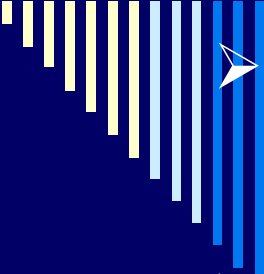
Direct vasodilators

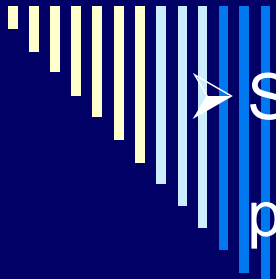
- Reduce peripheral resistance
 - Hydralazine 25-100mg/day(2)
 - Minoxidil 25-80mg/day(1-2)
- Hydralazine- may cause lupus –like syndrome and minoxidil may cause hirsutism and pericardial effusion



Medicines are tailored depending on the following factors

1. Blood pressure level
2. Patient characteristics (like age, body weight, occupation)
3. Co-existing risk factors
4. Type and extent of target organ damage
5. Other associated diseases
6. Affordability

- 
- A decorative graphic on the left side of the slide consisting of a series of vertical bars of varying heights and colors, transitioning from yellow to blue.
- diuretics (hydrochchlorthiozide), calcium channel blockers (amlodipine) and ACE inhibitors (Enalapril) are relatively cheap.
 - Drug therapy should be started in individuals at the time of diagnosis if they have blood pressure more than 160/100mmHg (despite non-pharmacological interventions)
 - or if BP>140/90 in diabetic subjects or end organ damage such as proteinurea, high blood urea, ECG evidence of left ventricular hypertrophy, presence of heart diseases and evidence of retinopathy. In all other individuals life style modification should be tried for at least six months before initiating drug therapy.

- 
- A decorative graphic on the left side of the slide consisting of a series of vertical bars of varying heights and colors, transitioning from yellow to blue.
- Start with calcium channel blockers (specifically if the person is older than 55 years) and
 - ACE inhibitors if less than 55 years. Recheck the BP in 2 weeks. If BP is not under control adding diuretics (Hydrochlorothiazide 12.5 mg a day) may be helpful. Normally this should bring the BP under control.
 - If the BP is not controlled by the combination of Amlodipine 10mg + Hydrochlorothiazide 25mg a day or Enalapril 10mg and Hydrochlorothiazide 25mg a day, a referral to a higher center may be necessary.

Treatment of Hypertension

Lifestyle Modifications

Goal Blood Pressure (<140/90 mmHg) (<130/80 mmHg for those with diabetes or chronic kidney disease)

Initial Drug Choices

Without Compelling Indications

With Compelling Indications

Stage 1 HTN (SBP 140–159 or DBP 90–99 mmHg)
Thiazide-type diuretics for most.
May consider ACEI, ARB, BB, CCB, or combination.

Stage 2 HTN (SBP \geq 160 or DBP \geq 100 mmHg)
2-drug combination for most
(usually thiazide-type diuretic and ACEI, or ARB, or BB, or CCB)

Drug(s) for the compelling indications
Other antihypertensive drugs (diuretics, ACEI, ARB, BB, CCB) as needed.

Not at Goal Blood Pressure

Optimize dosages or add additional drugs until goal blood pressure is achieved.
Consider consultation with hypertension specialist.

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Compelling Indications for Individual Drug Classes

Compelling Indication	Initial Therapy Options
Diabetes	ACEI, ARB, CCB, THIAZ, BB,
Chronic kidney disease	ACEI, ARB
Recurrent stroke prevention	THIAZ, ACEI

A decorative graphic consisting of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are white and blue.

Compelling Indications for Individual Drug Classes

Compelling Indication	Initial Therapy Options
Heart failure	THIAZ, BB, ACEI, ARB, ARA
Postmyocardial infarction	BB, ACEI
High CAD risk	THIAZ, BB, ACEI, CCB

Management of Hypertension at different levels of care

Services	Levels of Care		
	Sec. care	CHC	PHC
Screening for Hypertension	√	√	√
<i>Initial Risk Assessment</i>			
Assessment of Medical History	√	√	√
Physical Examination	√	√	√
<i>Laboratory Investigation</i>			
Essential	√	√	√
Desirable	√	√	
Therapeutic Lifestyle Management	√	√	√
<i>Pharmacotherapy</i>			
Initiation (Uncomplicated cases)	√	√	√
Initiation (Complicated cases)	√	√	√
Follow-up	√	√	√
Annual Assessment	√	√ ³⁷³	√

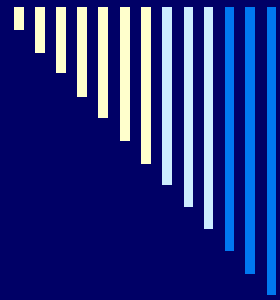
Causes of Resistant Hypertension

- Resistant hypertension -BP persistently $>140/90$ mmHg despite taking 3 or more agents including a diuretic, in reasonable combination and at full dose
 - Improper BP measurement
 - Excess sodium intake
 - Inadequate diuretic therapy
 - Medication
 - Inadequate doses
 - Drug actions and interactions:
 - Non-steroidal anti-inflammatory drugs (NSAIDs), illicit drugs, sympathomimetics, oral contraceptives
 - Over-the-counter (OTC) drugs and herbal supplements
 - Excess alcohol intake
- Identifiable causes of HTN

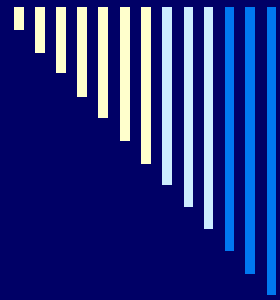
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Follow-up and Monitoring

- Patients should return for follow-up and adjustment of medications every 1-2 months until the BP goal is reached
- After BP at goal and stable, follow-up visits at 3- to 6-month intervals
 - More frequent visits for stage 2 HTN or with complicating comorbid conditions
 - Continue to encourage self BP monitoring
- Serum potassium and creatinine monitored 1–2 times per year

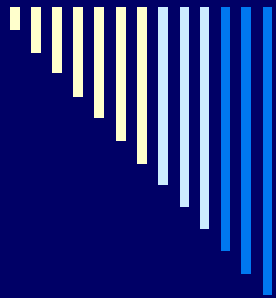


Ischemic heart disease



Ischemic Heart Disease

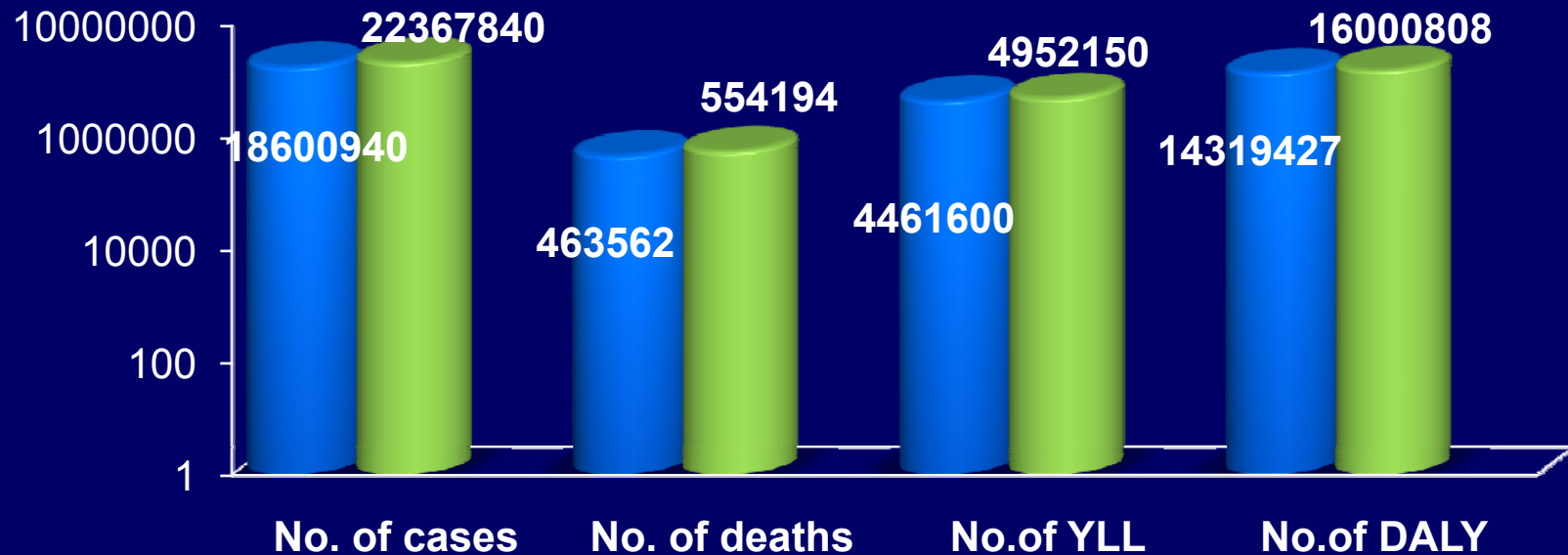
Myocardial impairment due to imbalance between coronary blood flow and myocardial requirement.



Cause

- Atherosclerotic coronary artery disease
- Imbalance between supply and demand in left ventricular hypertrophy

Burden of IH Disease



Source: Burden of Ischemic Heart Disease 2004

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Epidemiological Determinants

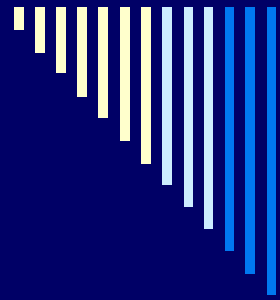
- Heredity
- High cholesterol
- Tobacco
- Obesity and High-fat diet
- Hypertension
- Diabetes
- Physical inactivity
- Emotional stress and Type A personality (impatient, aggressive, competitive)

Symptoms

- Abrupt, unexpected cardiac arrest.
- Chest pain on exertion (angina pectoris), which may be relieved by rest.
- Shortness of breath on exertion & Irregular heartbeat.
- Jaw/back/arm pain, especially on left side, either during exertion or at rest.
- Palpitations
- Dizziness, light-headedness, or fainting
- Weakness on exertion or at rest

Diagnosis

- ❑ Physical findings related to elevated BP, corneal arcus, Retinal arteriolar changes and aortic stenosis
- ❑ ECG monitoring
- ❑ Left ventricular Function assessment
- ❑ Coronary anatomy assessment
- ❑ Stress testing
- ❑ Echocardiography



Treatment of IHD

➤ Medical treatment

- Platelet inhibitors
- Lipid lowering agents
- Beta blockers(Metoprolol, Atenolol)
- Calcium channel blockers(Nifedipine, diltiazem)

➤ Potassium channel openers(Nicorandil)

- Estrogen replacement
- Antioxidants
- Gene therapy
- Metabolic modulation

Interventional

- Percutaneous coronary intervention
- Surgical revascularization
- Trans-myocardial laser revascularization
- Spinal cord stimulation
- Transcutaneous electric nerve stimulation

Lifestyle modification for treatment of IHD



- Cessation of smoking



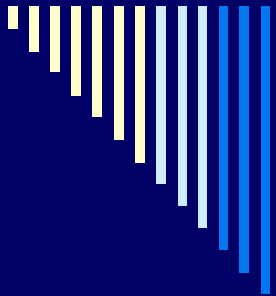
- Exercise



- Diet



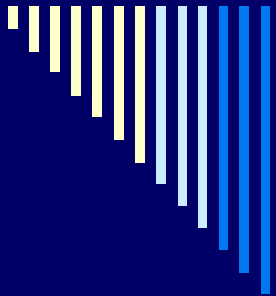
- Alcohol

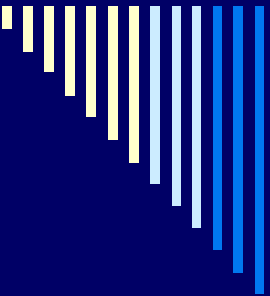
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Management & Prevention: Modifying the risk factors

- High blood fats
- LDL
- Triglycerides
- Smoking
- Diabetes
- Hypertension
- Obesity
- Inactivity
- Emotional stress

Regular follow-up visits with your health care provider / taker are essential.

- 
- A decorative graphic in the top-left corner consisting of a series of vertical bars of varying heights and colors, transitioning from light yellow to dark blue.
- Drooping of eyelid (ptosis) and weakness of ocular muscles
 - Decreased reflexes: gag, swallow, pupil reactivity to light
 - Decreased sensation and muscle weakness of the face
 - Balance problems and nystagmus
 - Altered breathing and heart rate

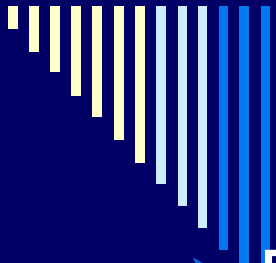
- 
- A decorative graphic in the top-left corner consisting of a series of vertical bars of varying heights, transitioning from light yellow to dark blue.
- Weakness in sternocleidomastoid muscle with inability to turn head to one side
 - Weakness in tongue (inability to protrude and/or move from side to side)
 - Sudden numbness or weakness of the face, arm or leg, especially on one side of the body.

Diagnosis

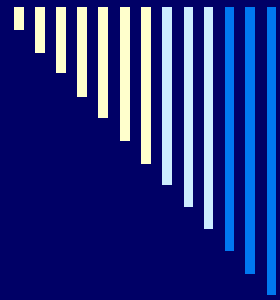
- CT scan for brain hemorrhage
- Conventional angiogram for view the blood vessels
- Carotid Doppler ultrasound for detect decreasing blood flow in the carotid arteries
- ECG for abnormal heart rhythms

Prevention

- Strokes are preventable
- Check blood pressure
- Health diet and exercise
- Control diabetes.
- Stop smoking

- 
- A decorative graphic consisting of a series of vertical bars of varying heights and colors (yellow, white, blue) arranged in a descending staircase pattern from left to right.
- Physical therapy to improve strength and walking
 - Family education to orient them in caring for their loved one at home and the challenges they will face.





Rheumatic heart diseases

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Rheumatic heart diseases

- Complication of rheumatic fever
- Usually occurs after attacks of rheumatic fever.

A decorative graphic consisting of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars transition in color from light blue to dark blue.

Epidemiological Determinants

- Untreated strep throat.
- Damage the heart valves

Symptoms

- Breathlessness
- Fatigue
- Palpitations
- Chest pain, and
- Fainting attacks



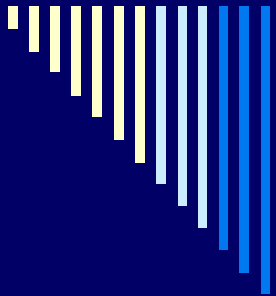
Treatment

Include medication and surgery.

- Medication aim to avoid overexertion.
- Surgery to replace the damaged valve(s).

Prevention

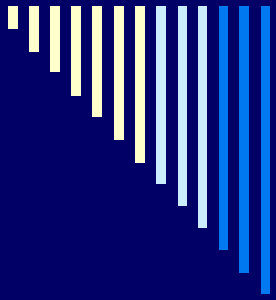
- Seek immediate medical attention for sore throat
- Do not let it progress to rheumatic fever.

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Comprehensive and integrated action to prevent and control CVDs

Focus on main risk factors for a range of chronic diseases such as CVD, diabetes and cancer

- Comprehensive Tobacco Control Policies
- Healthy diet
- Physical activity,
- Healthy meals



Thank you

A decorative graphic consisting of a series of vertical bars of varying heights and colors, transitioning from light yellow on the left to dark blue on the right, arranged in a descending staircase pattern.

National Program for Health and Care of Elderly

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Conceptualization of NPHCE

- ❑ UN Convention on the Rights of Persons with Disabilities (UNCPRD),
- ❑ National Policy on Older Persons (NPOP) adopted by the Government of India in 1999 &
- ❑ Section 20 of “The Maintenance and Welfare of Parents and Senior Citizens Act, 2007” dealing with provisions for medical care of Senior Citizen.

NPHCE

- ❑ 10th June, 2010 ;
- ❑ Rs.288.00 crore for the remaining period of the 11th five year plan(20% by states)
- ❑ Implemented in 30 districts of 21 states during the year 2010-11 and
- ❑ 70 added during 2011-12.
- ❑ Expected to be expanded to the entire country during the 12th Plan.

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in a gradient from light yellow to dark blue.

Objectives

- Provide Preventive, curative and rehabilitative services to the elderly persons;
- To strengthen referral system;
- To develop specialized man power and to promote research in the field of diseases related to old age.

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Ageing

- Age-related changes in molecules and cells (theories of ageing)
- Normal ageing and associated disorders of key physiological systems
- Influence of environment and lifestyle.

Ageing?

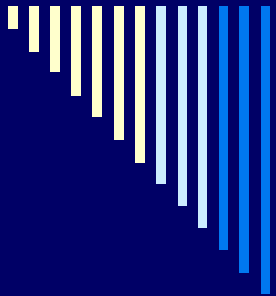
Ageing is a progressive biological process

Ageing is not a disease.



Common terms

- Elderly
- Senior Citizen
- Aged
- Old Person
- Older Person



Ageing means.....

- Demographers: A **Number**
- Economists: A **Burden**
- Politicians: A **Vote**
- Medical Doctors: A **Case**
- Nurses: A **Patient**
- You: **????????????????????????????????**

Global Population 60 + Years . 1980–2020

	1980	1990	2000	2010	2020
World	8.6	9.2	9.9	10.8	12.9
Developed	15.2	16.8	18.4	19.7	22.4
Developing	6.3	7	7.7	8.7	10.9
Africa	4.9	4.8	4.8	4.9	5.6
Latin America	6.5	7	7.7	8.8	11
Asia (excl. Japan)	6.5	7.4	8.5	9.8	12.8
China	7.4	9	10.5	12.4	16.6
India	6.5	7.3	8.4	9.9	12.6

Source : United Nations , World Demographic Estimate and Projections



Ageing

- Progressive and generalized impairment of functions
- loss of adaptive response to stress and increasing risk of age-related diseases.
- UN -'ageing population' proportion of people over 60 reaches 7 per cent
- As per 2001 census people aged 60 and above constituted about 7.7% of the total population (up from 6.7 % in 1991).
- It is projected to rise to about 172 million by the year 2026 (about 12 % of the total population)

Some Facts!

- Aging is an end product of demographic transition.
- The number of elderly people in developing countries is almost 3-4 times of that of developed countries.
- The developed countries have already experienced the consequences of this transition.

Some Facts!

- World population of 6.9 billion in 2011 is likely to become 7.5 billion in 2020
- Global aged population is 86.5 million (2011)
- Global aged population constitutes 0.8% of world population.(2011)

Source:HDR-2011,UNDP and UN, Population Division, Department of Economic and Social Affairs (World Population Prospects: The 2010 Revision)

Some Facts!

- 73 % of deaths in the elderly are related to heart diseases, smoking and cancers.
- 20% of doctor's visits, 30 % of hospital days and 50% of bedridden days are ascribed to elderly patients.
- 'Ageing adds to BOD due to chronic non-communicable diseases.

Projections

- ❑ 60+ 24 million in 1961 increased to 86.5 million in 2011.
- ❑ Projected to rise to 179 million in 2031 and 301 million in 2050.
- ❑ 70 and above projected to increase from 45 million in 2011 to 146 million in 2050.
- ❑ 80+ would be fastest to grow – 21 million in 2011 to 40 million in 2050.

Source:HDR-2011,UNDP and UN, Population Division, Department of Economic and Social Affairs (World Population Prospects: The 2010 Revision)

India: Some Facts!

- 2nd largest elderly (60+) population in the world (2010)

- Elderly(60+) :-100.819 million

Source : United Nations , Population Division, Department of Economic and Social Affairs
(World Population Prospects: The 2010 Revision)

- 80% are in rural areas

- 40% are below poverty line

- Over 73 per cent are Illiterate.

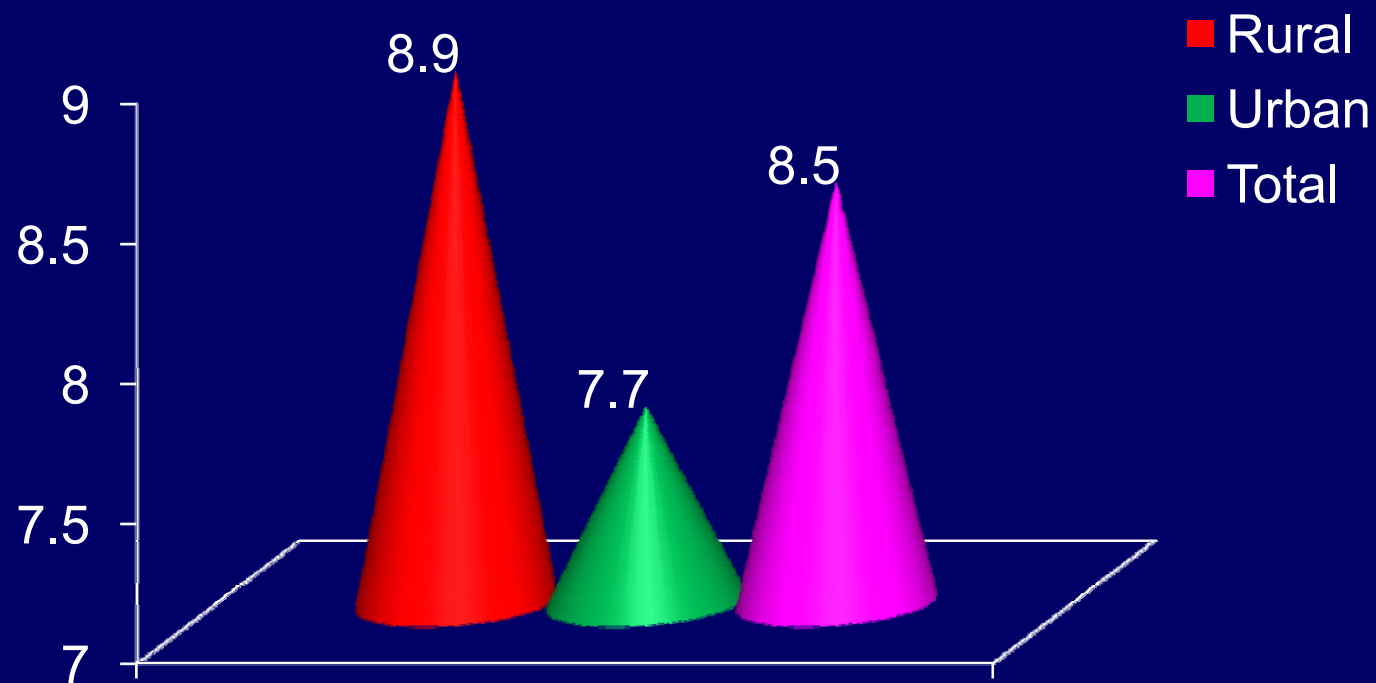
- about 90 % of the old people have no official social security (i.e., without PF, Gratuity and Pension etc).

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India: Some Facts!

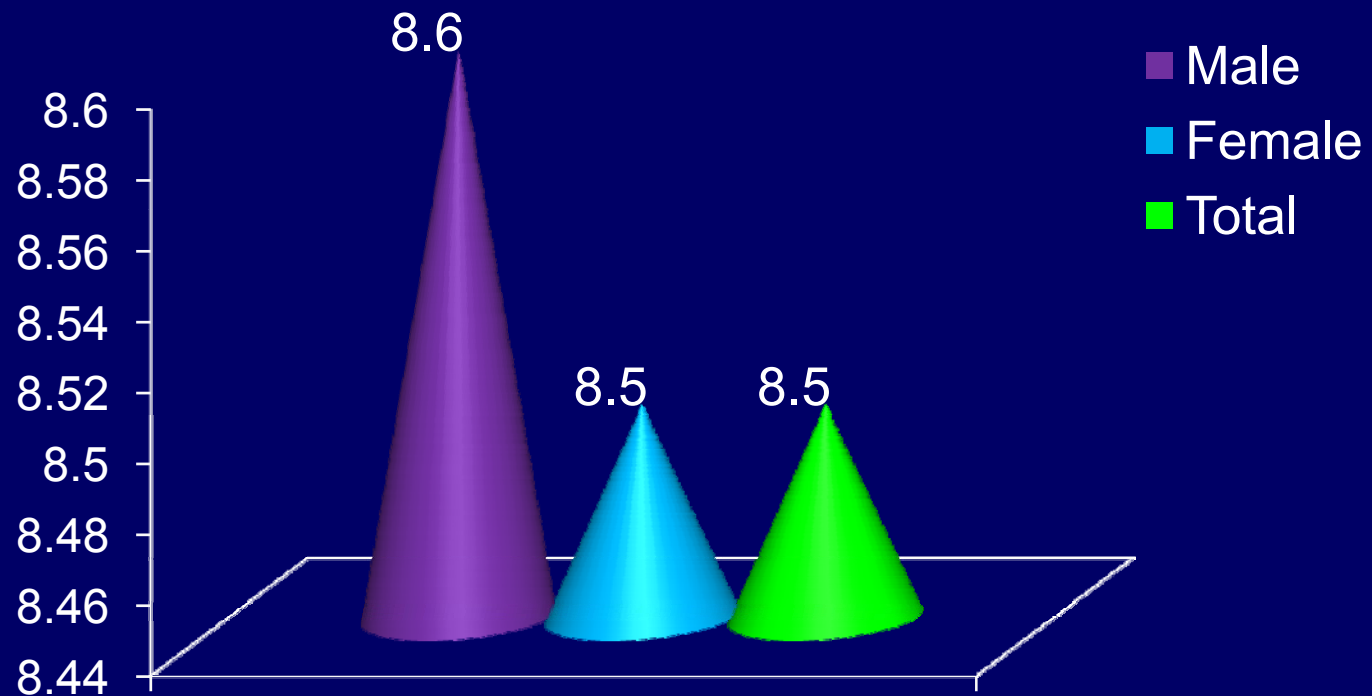
- Life expectancy 31.7 years in 1941 increased to 66.9 years (Census 2011) and 65.4 years (HDR-2011, UNDP) in 2011.
- 55% of the women of 60 years and above are widows.
- Older women most vulnerable.
- Elderly poverty is a major risk of ageing in developing countries.

Household population + 60 Age



Source : NFHS-III

Household population + 60 Age By Sex



Source : NFHS-III

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Not just the numbers...

- ❑ Family structure is changing to nuclear/small unit families.
- ❑ Without the safe, secure and dignified status in the family, the elderly are finding themselves vulnerable.
- ❑ Welfare of the elderly has been a low priority with the state...

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Ageing: Common Myths

- ❑ Most elderly need long-term care
- ❑ Anyone over a certain set age (such as 65) is old
- ❑ Elderly people are incompetent
- ❑ All elderly people live in poverty
- ❑ Older people are unhappy and lonely
- ❑ Elderly individuals do not want to work, and prior to retirement, they lose interest in work
- ❑ Retired people feel dejected

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Ageing process

- ❑ Physical changes are a normal part of the aging process
- ❑ Rate and degree of change varies
- ❑ Usually related to a decreased function of body systems
- ❑ Recognizing normal changes allows the individual to adapt and cope

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Integumentary System

- ❑ Production of new skin cells decreases
- ❑ Sebaceous (oil) and sudoriferous (sweat) glands become less active
- ❑ Circulation to skin decreases
- ❑ Hair loses color; hair loss may occur

A decorative graphic in the top-left corner consisting of a series of vertical bars of varying heights, colored in a gradient from light yellow to blue.

Musculoskeletal System

- ❑ Muscles lose tone, volume, and strength
- ❑ Osteoporosis
- ❑ Arthritis

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Circulatory System

- ❑ Heart muscle becomes less efficient at pushing blood into the arteries
- ❑ Blood vessels narrow and become less elastic
- ❑ Blood flow may decrease to brain and other vital organs

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Respiratory System

- ❑ Respiratory muscles become weaker
- ❑ Rib cage becomes more rigid
- ❑ Bronchioles lose elasticity
- ❑ Changes in larynx affect voice

Nervous System

- ❑ Progressive loss of brain cells
- ❑ Decreasing Senses
- ❑ Poor adaptation to changes

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Digestive System

- ❑ Reduced secretions and enzymes
- ❑ Slower smooth Muscle action
peristalsis decreases
- ❑ Teeth are lost
- ❑ Liver function is reduced

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Urinary System

- ❑ Decreased circulation to kidneys
- ❑ Decreased number of nephrons
 - Kidneys decrease in size; are less efficient

- ❑ Bladder function weakens

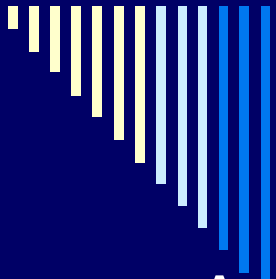
Endocrine System

- Increased/ decreased production of some hormones

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Reproductive System

- Female: vaginal walls thin and secretions decrease; decreased support of uterus; breasts sag when fat is redistributed
- Male: production of sperm decreases; response to sexual stimuli is slower; ejaculation takes longer; testes become smaller and less firm; seminal fluid becomes thinner and less is produced

- 
- A decorative graphic in the top-left corner consisting of a series of vertical bars of varying heights, colored in a gradient from light yellow to dark blue.
- Aging causes many physical changes in all body systems; rate and degree vary
 - All experience some degree of change
 - Adapting and coping means fuller enjoyment of life within physical limitations
 - Tolerance, patience, and empathy are essential

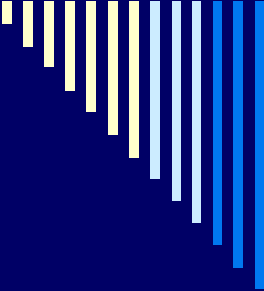
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Psychosocial Changes of Aging

- Loneliness
- Dependency
- Failure to adjust
- Feeling of vegetative life
- Irritability
- Dejection
- Depression

Disease and Disability

- Elderly people are more prone to disease and disability
- Diseases sometimes cause permanent disabilities
- When functioning is affected, psychological stress is experienced
- Sick people often have fear of death, chronic illness, loss of function, and pain

- 
- A decorative graphic in the top-left corner consisting of a series of vertical bars of varying heights, colored in a gradient from light yellow to dark blue.
- Psychosocial changes can be a major source of stress
 - As changes occur, individuals must learn to accommodate the changes and function in new situations
 - With support, understanding, and patience, health care workers can assist individuals as they learn to adapt

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, colored in a gradient from white to blue, arranged in a descending staircase pattern.

Confusion and Disorientation in the Elderly

- ❑ Most remain mentally alert until death
- ❑ Signs of confusion or disorientation
- ❑ It is sometimes a temporary condition
- ❑ Disease and/or damage to the brain can result in chronic confusion or disorientation

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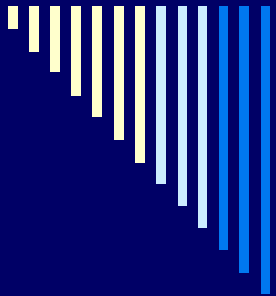
Dementia

- Term used to describe a loss of mental ability
- Characteristics include decrease in intellectual ability, loss of memory, and personality change
- Acute dementia
- Chronic dementia

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Alzheimer's Disease

- ❑ One form of dementia
- ❑ Causes progressive changes in brain cells
- ❑ Lack of neurotransmitter
- ❑ Frequently occurs in 60s, but can occur as young as 40 years of age
- ❑ Cause is unknown

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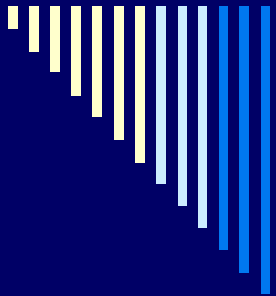
Alzheimer's Disease (continued)

- ❑ Terminal incurable brain disease; usually lasting 3-10 years
- ❑ Early stage
- ❑ Middle stage
- ❑ Terminal stage

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights and colors, ranging from light blue to dark blue, creating a staircase-like effect.

Caring for the Confused or Disoriented Patient

- ❑ Provide safe and secure environment
- ❑ Follow the same routine
- ❑ Follow “reality orientation” guidelines
- ❑ Caring for a confused or disoriented individual can be frustrating and even frightening
- ❑ Perform continual assessments
- ❑ Design program to maximize function
- ❑ Practice patience, consistency, and sincere caring

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Meeting the Needs of the Elderly

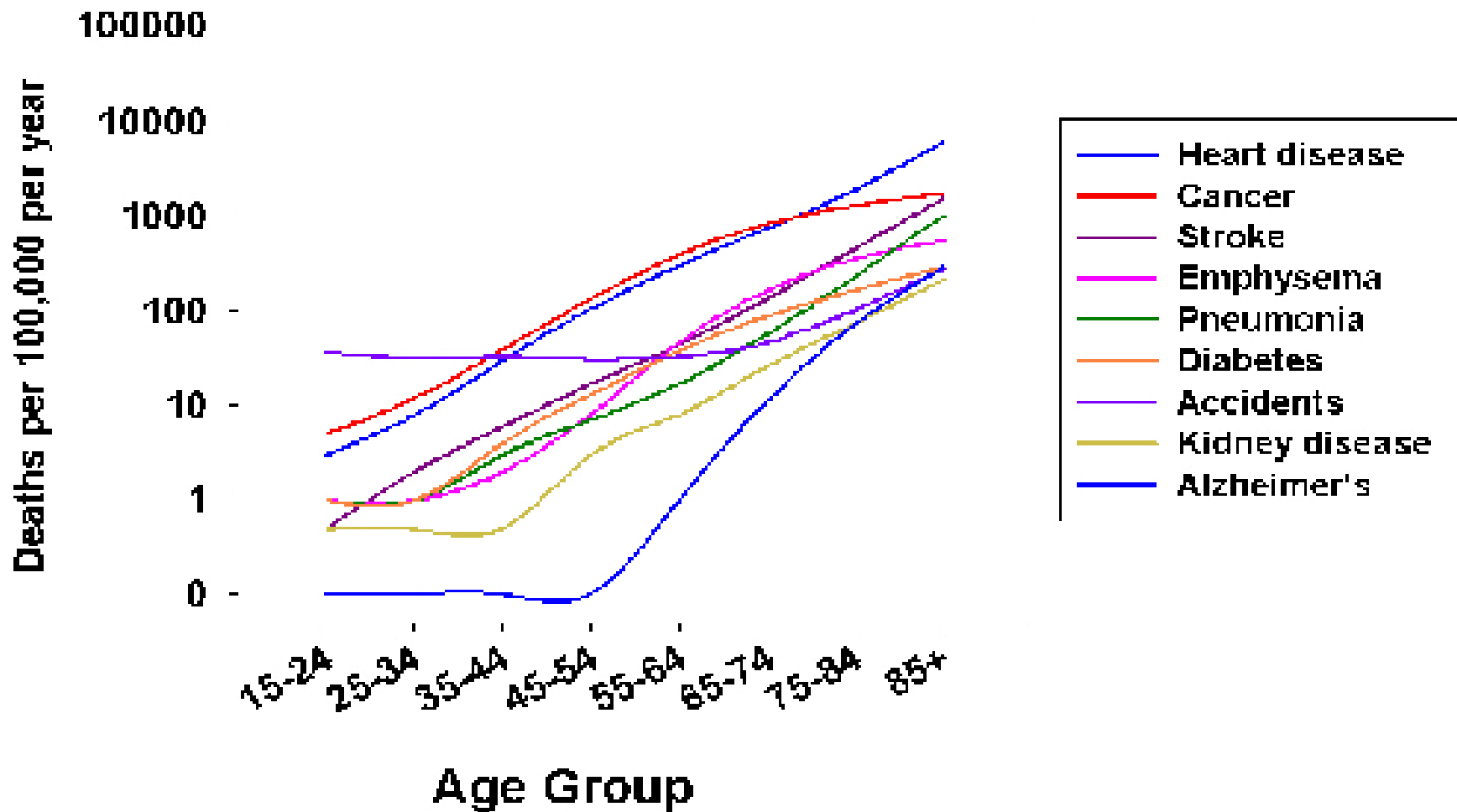
- ❑ Geriatric care can be challenging but rewarding
- ❑ Elderly people have the same needs as others
- ❑ Cultural needs
- ❑ Religious needs
- ❑ Freedom from abuse
- ❑ Respect patient's rights

A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, colored in a gradient from light yellow to blue.

Common problems with Ageing

- ❑ Nutrition- Digestion, Denture, Taste
- ❑ Arthritis-Exercise, movement restriction
- ❑ Smoking-Whiling time, addiction
- ❑ Alcohol – slowed metabolism
- ❑ Accidents-Fall, decreased vision
- ❑ Adverse drug reactions: Overdose-forgetfulness
- ❑ CVDs, Hypotension, Syncope
- ❑ Incontinence

Aging and age-related diseases



Social status of older Indians

- General lowering of social status
- Dependency-Burden.
- Authority weakened
- Elderly abuse (30%)

A decorative graphic consisting of a series of vertical bars of varying heights, arranged in a descending staircase pattern from left to right. The bars are colored in shades of blue and white.

Gender and Ageing in India

- ❑ Discrimination on account of gender, widowhood and age', (and poverty).
- ❑ Widowhood, -lowers the socio-economic level of women.
- ❑ Most older women are either illiterate or poorly educated.
- ❑ Low social status, discriminatory practices, food taboos, and poor attention to health are responsible for the poor health of older women (more prone to chronic disabilities).

Services for Elderly in India

- Constitutional and legal provisions.
- Maintenance and welfare of parents and senior citizens Bill 2007
- Ministry of Social Justice & Empowerment
- National policy on older persons
 - January, 1999. areas of intervention -- financial security, healthcare and nutrition, shelter, education, welfare, protection of life and property etc. for the wellbeing of older persons in the country.
- National Council for Older Persons
 - Constituted by the Ministry of Social Justice and Empowerment to operationalise the National Policy on Older Persons.

Care – Services for Elderly in India

- ❑ "Old Age Social and Income Security (OASIS)"
- ❑ The Scheme of assistance to Panchayati Raj Institutions/Voluntary Organizations/Self Help Groups for construction of old age homes/multi service centers for older persons
- ❑ Old age pension for the general public
 - National Old Age Pension (NOAP) Scheme.
- ❑ Annapurna (schemes & programs to provide food & security).
- ❑ Pension, family pension, widow's pension and Gratuity.
- ❑ Relief in taxation
- ❑ Insurance schemes for elderly
- ❑ Travel
- ❑ Miscellaneous
 - Telephone, Helpline, Expeditious disposal of Court cases, Banking, Magazines for the elderly

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Role of NGO's & Private Sectors

- Help Age India
- Age-well foundation in Delhi
- Dignity foundation
- The center for old in Need (COIN),
- Age care India
- The Self Employed Women's Association (SEWA)
- Centre for Health Education, Training and Nutrition Awareness (CHETNA)



Primary Health Center

- ❑ Training of medical and Para medical staff
- ❑ Provide basic medical care for common illnesses and follow-up ,coordinate rehabilitative services.
- ❑ Identify patients who would need the specialist care.
- ❑ Provide preventive services like immunization, health education and screening.
- ❑ These centers will be equipped with the basic investigative facilities also.
- ❑ The MMU could visit these centers also for organizing medical camps and care.

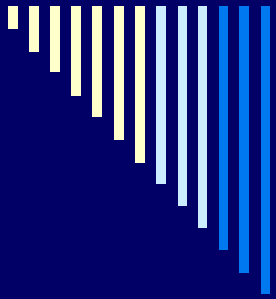
Secondary Care Hospital

- Comprehensive health care service with multidisciplinary approach
- A special Geriatric unit
- The hospital -elderly friendly particularly with the architect and behavior and communication skills of the staff.
- Separate investigations lab & imaging facilities for elderly.
- Mobile medical unit will also located here.
- The Geriatric unit will maintain close liaison with ~~Primary care center and community.~~



How to achieve it?

- Active advocacy at various levels of planning
- Most of the infrastructure and health care services already exist in the country
- Need for reorganization of the facilities and approach
- Efforts to be made to revive cultural values and reinforce the traditional practice of interdependence among generations
- Reinforcing the existing familism



Thank You



Mental Health : Problem, Strategies and Program



Non-Communicable Diseases: NPCDCS & NPHCE

State Institute of Health & Family Welfare, Jaipur

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Key Facts

- ❑ More than 450 million people suffer from mental disorders. Many more have mental problems.
- ❑ Mental health is an integral part of health; indeed, there is no health without mental health.
- ❑ Mental health is more than the absence of mental disorders.
- ❑ Mental health is determined by socio-economic, biological and environmental factors.
- ❑ Cost-effective intersectoral strategies and interventions exist to promote mental health.

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Health ?

"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."

Mental health is an integral and essential component of health.

Mental Health

- Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community.
- In this positive sense, mental health is the foundation for individual well-being and the effective functioning of a community.

Mental Health Problems in India

- 1%----Severe Mental Disorder (Schizophrenia, Other psychoses)-10-12 millions
- 10% ---Minor mental disorders(Anxiety, neurotic disorders)-100 millions
- 20-30% attending General clinical settings suffers from underlying psychiatric disorders
- Suicide rate- 10 per lac population
- 1-2% of all children have underlying M H Problem.
- 0.5-1% of all children have Mental Retardation.

Major Drug Abuse: India

Drug Type	NHS(Current prevalence,%)	DAMS (% among treatment seekers)
Alcohol	21.4%	43.9
Cannabis	3.0%	11.6
Heroin	0.2%	11.1
Opium	0.4%	8.6

As per Global Adult tobacco Survey (GATS), India (2010), more than one-third (35%) of adults in India use tobacco in some form.



Extent of the problem...

- Mental Health Problem In Future
- Projections for 2020
 - Mental illnesses are expected to increase their proportion of total global burden of disease 15 percent
 - The top three causes of disease burden projected to be IHD, depression and RTAs
- While psychiatric conditions are responsible for little more than 1 % of deaths, account for almost 11 % of disease burden worldwide

Source: White Paper, April 2000: *Responding to The Global Burden of Disease(WHO)*

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Mental Health Resources In India

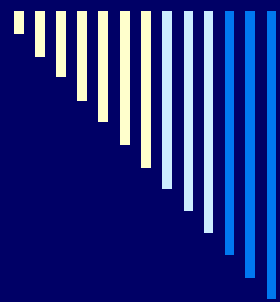
Psychiatric practice in India

- Psychiatrist
- Allopathic practitioner
- Traditional practitioner
- Faith healer
- Temple healing
- Yoga and meditation method



Mental Health Resources In India

Manpower	Estimated Requirement	Current estimate
Psychiatrists	11500	4000
Clinical Psychologists	17250	500-800
Psychiatric Social Workers	23000	400-600
Psychiatric Nurses	3000	900-1200



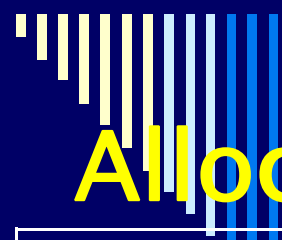
Mental Health Resources In India...

	World	India
Psychiatric Beds per 10,000 population		
❑ Total psychiatric beds	1.69	0.25
❑ Psychiatric beds in mental hospitals	1.16	0.2
❑ Psychiatric beds in general hospitals	0.33	0.05
❑ Psychiatric beds in other settings	0.20	0.01
 Professionals per 100,000 population		
❑ Number of psychiatrists	1.20	0.2
❑ Number of psychiatric nurses	2.0	0.05
❑ Number of psychologists	0.60	0.03
❑ Number of social workers	0.40	0.03

(WHO country profile 2001)

Mental Health Resources In India...

- The Indian Psychiatric Society (2011), 4000 registered psychiatrists in this country.
- If equitably distributed, this translates to just one psychiatrist for every three lakh population
- Currently the total numbers of seats recognized and permitted by the MCI are 266 for MD in Psychiatry and 124 for DPM, 49 students qualify for DNB Psychiatry .
(http://mciindia.org/tools/medical_colleges/courses.htm accessed on 17th August 2010).



Health Budget – Allocation to Mental Health in India

Year	Total Health Budget Crore rupees)	Mental Health Budget (Crore rupees)	% Spend on Mental Health
2006-2007	8207	50(NMHP)	0.60
2007-2008	15291(10890 NRHM)	70(NMHP)	0.45
2008-2009	16534(12050 NRHM)	70(NMHP)	0.42
11 Plan period (2007-2012)	152910	1000(NMHP)	0.66

Budget for mental health increasing but still it is less than 1% and most of other developed country. SIHFW: An ISO:9001:2008 certified Institution

Mental Health Resources in India

- ❑ 25000 beds in 37 mental hospitals
- ❑ 3000-4000 beds in general & teaching hospital
- ❑ One psychiatric bed per 30000 population
- ❑ 5000-6000 qualified psychiatrists, 1500 clinical psychologist and 800-1000 psychiatric social workers
- ❑ One psychiatrist per 3 lacs population

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National Mental Health Program 1982

□ Aims :

- Prevention and treatment of mental and neurological disorders and their associated disabilities.
- to improve general health services.
- Application of mental health in total national development to improve quality of life

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National Mental Health Program

Objectives

1. Ensure availability and accessibility of minimum mental health care for all
2. Encourage application of mental health knowledge in general health care and in social development.
3. Promote community participation in the mental health services development and to stimulate efforts towards self-help in the community.

District Mental Health Programme

- Developed by NIMHANS in Bellary
- Start under the National Mental Health Programme 1996–97
- Currently forms the central mental health intervention as part of the NMHP

The objective of DMHP :

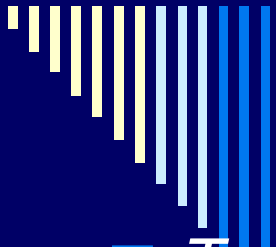
- Integration of mental health care with general health care and overall socio economic development through development of community mental health services and community involvement

Essentials of DMHP

1. A decentralized training programme
2. Provision of mental health in all health facilities
3. Involvement of all categories of health workers
4. Provision of essential psychiatric drugs
5. A simple record keeping
6. monitor PHC personnel in mental health care
7. Mental health team at district level,
8. Referral support
9. Supervision

10. Administrative support of local government

Service in DMHP

- 
- A decorative graphic in the top left corner consists of a series of vertical bars of varying heights, colored in shades of white and blue, arranged in a descending staircase pattern from left to right.
- *Team consisting of psychiatrist, clinical psychologist, psychiatric social worker, psychiatric nurse, statistician, programme manager, programme assistant*
 - Medical consultation on difficult cases
 - Hospitalization & treatment for psychiatric patients including ECT treatment
 - Training of medical officers and health personnel
 - Support to NGOs
 - Linkage with state mental hospital and medical college for further referral facilities

Restrategised NMHP 2003

Components

- ❑ Expansion of DMHP to 100 districts
- ❑ Strengthening and Modernization of State run Mental Hospitals
- ❑ Upgradation of Psychiatry Wings of Govt. Medical colleges/General Hospitals
- ❑ IEC activities
- ❑ Research and Training in Mental Health for improving the service delivery

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Revised NMHP

[11th Five-Year Plan ('07-'12)]

- ❑ Establish Centres of Excellence in Mental Health by upgrading and strengthening of identified existing mental hospitals
- ❑ Modernization of state run mental hospitals and up gradation of psychiatric wings of medical colleges/general hospitals
- ❑ DMHP with added components of Life Skills training
- ❑ Research & Training
- ❑ IEC
- ❑ NGOs and Public Private Partnership for implementation
- ❑ Effective Monitoring ,Implementation ,Evaluation at Central/State/District level
- ❑ Support for Central and State Mental Health Authorities

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Integration of NMHP in NRHM

- National Rural Health Mission
 - A major initiative of the Government to revamp and strengthen the health care delivery system
 - Integration initiated during the 11th five Year plan
 - Basic objective of improving mental health services and effective outreach of initiatives under NMHP with integrate mental health into general health system

Need for Integration of NMHP into NRHM

- ❑ Optimal use of existing infrastructure at various levels of health care delivery system
- ❑ Use of NRHM platform for transfer/flow of funds to the states/U.T.s for better accountability and flexibility
- ❑ Involvement of state/district level health authorities in the programme monitoring & implementation
- ❑ Integrated IEC activity under NRHM
- ❑ Involvement of NRHM infrastructure for training related to mental health in District
- ❑ Involving AYUSH practitioners in delivering mental health services at grass root level.
- ❑ Involvement of community based organisation

- ❑ Building of credible referral chains

DMHP Evaluation

- ❑ Independent evaluation carried out during 2008-2009, the (Indian Council of Marketing Research) covering 20 of the 123 districts.
- ❑ The main objective was to assess the functioning of DMHP objectively and critically and to suggest future expansion of the scheme along with improvement in implementation based upon the evaluation
- ❑ To strengthen the services at sub center, PHC, CHC level so that the services become more accessible
- ❑ A need for strong IEC for awareness creation/stigma reduction was noted

DMHP Evaluation

Lessons learnt

- ❑ Limited development of the DMHP in its operational aspects by the Central agency
- ❑ Limited state level capacity to implement the DMHP
- ❑ Lack of emphasis on creating awareness in the community
- ❑ Lack of mental health indicators
- ❑ Lack of monitoring



NMHP Achievement

Scheme	Financial Support Provided
District under DMHP	123
Up gradation of Psychiatry wings of Medical colleges/GHs	85 Psychiatry Wing
Modernization of State run Mental hospitals	29 institutions
Centers of Excellence	9 Institutions
Support for new departments of Mental Health disciplines	19

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NMHP Achievement

- 43 State-run Mental hospitals/mental health institutions.
- 292 Departments of Psychiatry in Medical Colleges.
- Approx. 30,000 psychiatric beds, PG Training Infrastructure:

Failures

- ❑ It is top down approach
- ❑ It is not based on the cultural aspects of the country
- ❑ It is driven by WHO policies
- ❑ The community voices have not been included
- ❑ The programme is a singular approach of DMHP

NMHP Implementation Barriers

- ❑ Poor funding in the initial period
 - ❑ Non availability of Psychiatrists and other mental health professionals like psychiatric social workers & clinical psychologists in many states.
 - ❑ Limited undergraduate training in psychiatry
 - ❑ Limited number of models and their evaluation
 - ❑ Uneven distribution of resources across states
 - ❑ There is lack of co-ordination at state level
 - ❑ Little scope for community participation, NGO's, Civil Society were not involved to take up the activities to grass root level.
 - ❑ Lack of regular & dedicated monitoring and facilitating mechanism.
-
- ❑ No operational guidelines for implementation

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Urban Mental Health

Meta analysis by Reddy and Chandrasekhar(1998)

- Higher prevalence of mental disorders in urban area i.e., 80.6%, whereas it was 48.9% in rural area
- Mental disorders primarily composed of depression and neurotic disorders
- Women often disproportionately bear burden of changes associated with urbanization
- Huge mental health service gap(82-96%)
- Lack of sub specialty health service and human resource deficit in non medical health professional

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Improvement In Urban Mental Health

- Reorientation of DMHP
- Involvement of private sector and NGO
- Recognition there is huge mental health service gap in urban area
- Encouraging specific clinical and social service research
- Carrying out more health services research

NGO Work In INDIA

- **SCARF** (Schizophrenia Research Foundation):
SCARF, is a Chennai-based organisation that Specialises in patient of schizophrenia and research.
- **Chaitanya**: Pune-based organisation
Runs a half-way home for schizophrenics patient.
- **Snehi**: Snehi is an organisation committed to community mental health care for young people for their psychological well being through its community mental health programmes.
- **Paripurnata**: Paripurnata is a Kolkata-based organisation
It provides shelter, treatment and rehabilitation to women with mental illness who have been imprisoned or hospitalised.

NGO Work In India

- **Ashra:** Ashra is an Orissa-based organisation for the rescue, treatment, rehabilitation and resettlement of homeless women with mental illness.
- **The Richmond Fellowship Society (India):**
The world's largest network of mental health service providers
It provides care and psychosocial rehabilitation for persons with mental health needs in India and neighboring countries.
- **SANJIVINI**
Addressed the mental health needs of our community since 1976.
It provides free and confidential counselling to anyone faced with situations that causes emotional and mental distress.
- **SUMAITRI**
Delhi based voluntary organization
It is running a crisis intervention centre for people who are depressed, distressed or may be feeling suicidal.

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Mental Health NGO Activities

- ❑ Treatment: care and rehabilitation
- ❑ Community-based activities and prevention
- ❑ Research and training
- ❑ Advocacy and empowerment

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NGO Strength And Limitation

STRENGTHS

- Working in partnership
- Innovation in practice
- Transparency in administration

LIMITATION

- Sustainability
- Accountability
- Scope

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Community Awareness Activities

- Role of media
- Agony aunts columns
- Phone help lines
- Phone in programmes on Radio/TV
- Mental Illness Awareness Week (MIAW)
First week of October
- Mental Health Camps

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School Mental Health Program

- ❑ Early detection and treatment
- ❑ Training of Teacher
- ❑ Impact of Life Skill to Children
- ❑ Enhance Psychosocial Competency
- ❑ Holistic approach

Tobacco

- ❑ As per Global Adult tobacco Survey (GATS), India (2010), more than one-third (35%) of adults in India use tobacco in some form.
- ❑ The prevalence of smokeless tobacco use (26%) is almost twice of the prevalence of smoking (14%).
- ❑ The prevalence of tobacco use among men (48%) is more than twice than women (20%).
- ❑ Smoking causes a 10-year decrease in life expectancy in smokers in India
- ❑ It is estimated that smoking will contribute to almost a million deaths per year from 2010 .

Changing Trends Of Drug Use

- ❑ Changing trends of drug use
- ❑ A review of several of the rapid situation assessments of drug abuse commissioned by the UNODC 31 suggests the following trends:
 - ❑ More younger users
 - ❑ More female users
 - ❑ High rates of alcohol and tobacco consumption
 - ❑ Increasing rates of opiate use, particularly pharmaceutical opiates
 - ❑ Increasing use of solvents, particularly among impoverished populations

Stepped Care Approach in Substance Use

A stepped care approach

- ❑ Step 1: Recognition of substance use and related problems in the primary health care/general hospital setting
- ❑ Step 2: Management of hazardous/harmful use at the primary care level
- ❑ Step 3: Management of moderate to severe dependence in primary care and referral to specialized units for relapse prevention
- ❑ Step 4: Management by mental health or addiction specialists
- ❑ Step 5: In-patient treatment

Looking Ahead– Challenges

Challenges

- Very uneven distribution of resources
- Low allocation of budget
- Low human resources for mental health
- Poor training in psychiatry at UG level
- Lack of welfare programmes.
- Public ignorance
- Stigma with psychiatry Hope
- Increasing interest from the State
- Increasing allocation of budget
- Centre of excellence
- Increasing facilities for training of mental health manpower
- Upgrading of departments of psychiatry and mental health institutions

Future Direction

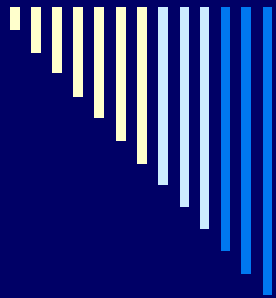
Vision 2020: Road Map for the Future

The Need for a Balanced Approach

- ❑ Mainstreaming Mental Health
- ❑ Psychiatric services should be available to all sections.
- ❑ Psychiatry should not be seen as a peripheral discipline but must become a part of mainstream medicine
- ❑ Mental health services must become more relevant for Indian cultural needs
- ❑ Develop public-private partnership and support for NGO initiatives
- ❑ Increasing public awareness about mental disorders

Conclusion

- India has been in the forefront of addressing mental health problems of its people.
- Programmes and initiative not spread widely.
- Large treatment gap.
- Larger problem of the chronically mental ill.
- The stigma of mental illness await major initiative to fight.
- Comprehensive service of promotion, prevention and treatment have just been started.



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