

Introduction to NCDs

Dr Bhavna Puwar
Associate Professor

Chronic Disease

- The Commission on chronic illness in USA
- "As comprising all impairments or deviations from normal, which have one or more of following characteristics
- Are permanent
- Leave residual disability
- Caused by non reversible pathological alteration
- Require special training of the patient for rehabilitation
- May be expected to require a long period of supervision

- Includes
- Cardiovascular,
- Renal,
- Nervous
- Mental diseases,
- Musculoskeletal conditions-*Arthritis & allied disease,*
- Chronic nonspecific respiratory disease- *chronic bronchitis emphysema, asthma,*
- Permanent result of accidents ,
- Senility,
- Blindness,
- Cancer
- Degenerative diseases
- Chronic results of communicable diseases

Communicable diseases

- Sudden onset
- Single cause
- Short natural history
- Short treatment schedule
- Cure is achieved
- Single discipline
- Short follow up
- Back to normal

Non-communicable diseases

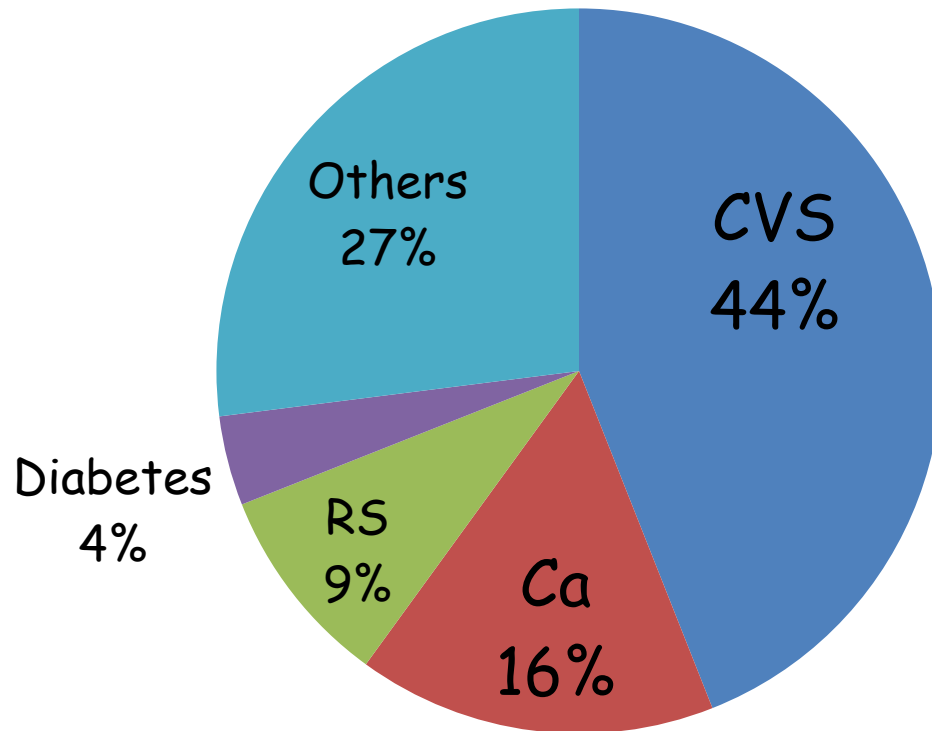
- Gradual onset
- Multiple causes
- Long natural history
- Prolonged treatment
- Care predominates
- Multidisciplinary
- Prolonged follow up
- Quality of life after treatment

- Cardiovascular and cancer are the leading cause of death in developed countries
- Chronic disease Upward trend-
- Life expectancy
- Life style and behavioral patterns
- Modern medical care
- Impact:
- Loss of life, disablement, family hardship, poverty and economic loss to the country

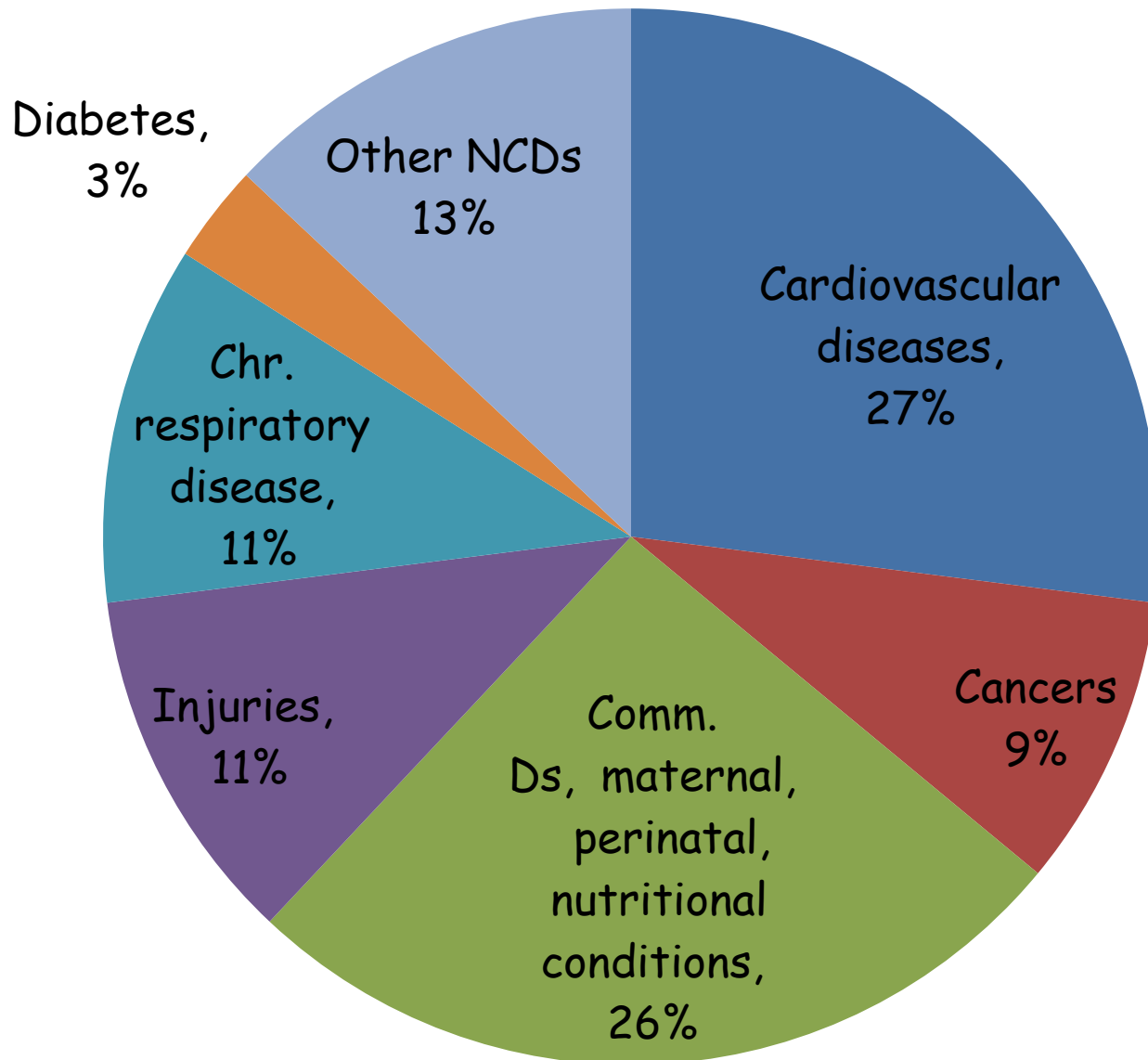
Global Picture

- Global deaths: 41 million out of total 57 million attributed to NCD (CVS, Ca and CRD) (2016)
- 28 million in low and middle income countries
- Probability of dying from major NCD between 30 to 70 years is 23% .

Globally: Leading cause of NCD deaths in 2016 were



Proportional Mortality in India



Epidemiological transition Ratio

DALYs caused by CMNND

DALYS caused by NCDs

If >1 then burden of CMNND is high and
if <1 burden of NCDs is high

India: 1990 it was >1 and in 2016 < 1

NCDs - Gaps in Natural History

1. Absence of known Agent
2. Multi factorial causation
3. Long latent period
4. Indefinite onset

Risk Factor

- An aspect of personal behavior or lifestyle, an environmental exposure, or a hereditary characteristic that is associated with an increase in the occurrence of a particular disease, injury, or other health condition."

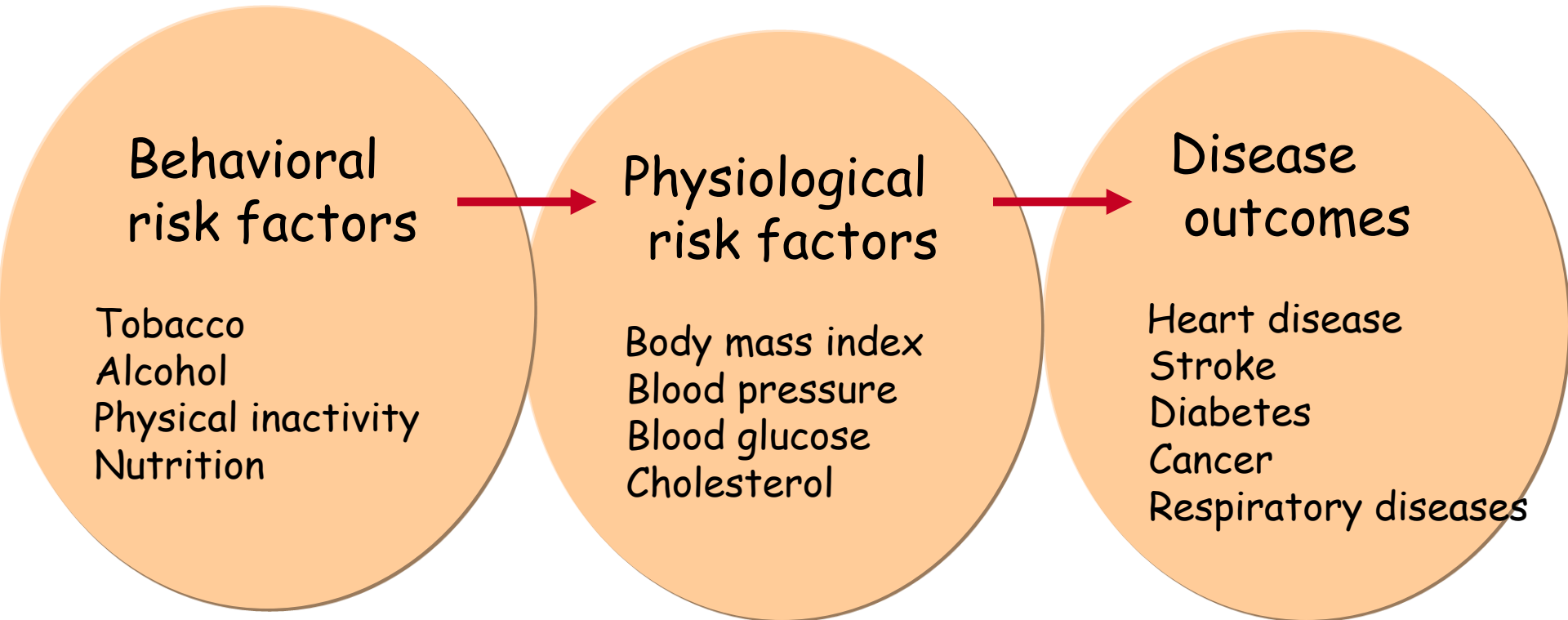
Modifiable Risk Factor

- A risk factor that can be reduced or controlled by intervention, thereby reducing the probability of disease.
- The WHO has prioritized the following four:
 - Physical inactivity
 - Tobacco use
 - Alcohol use
 - Unhealthy diets

Non Modifiable Risk Factor

- A risk factor that cannot be reduced or controlled by intervention, for example:
 - Age
 - Gender
 - Race
 - Family history (genetics)














The causal chain explains the risk factor approach for surveillance of non communicable diseases



- Four behavioural risk factors
- Tobacco
- Unhealthy diet
- Physical inactivity
- Harmful use of alcohol
- Major metabolic risk factors are
- Obesity
- Raised BP
- Raised blood glucose
- Raised total cholesterol

Non Communicable Diseases

4 Diseases, 4 Modifiable Shared Risk Factors

	Tobacco Use	Unhealthy diets	Physical Inactivity	Harmful Use of Alcohol
Cardio-vascular				
Diabetes				
Cancer				
Chronic Respiratory				

Risk factors in NCD

Alcohol : causes Heart disease, cancer, Liver disease, Mental and behavioural problems, and other CDs and NCDS.

Physical Inactivity: Adults > 18 years

32% men and 23% women are insufficiently active

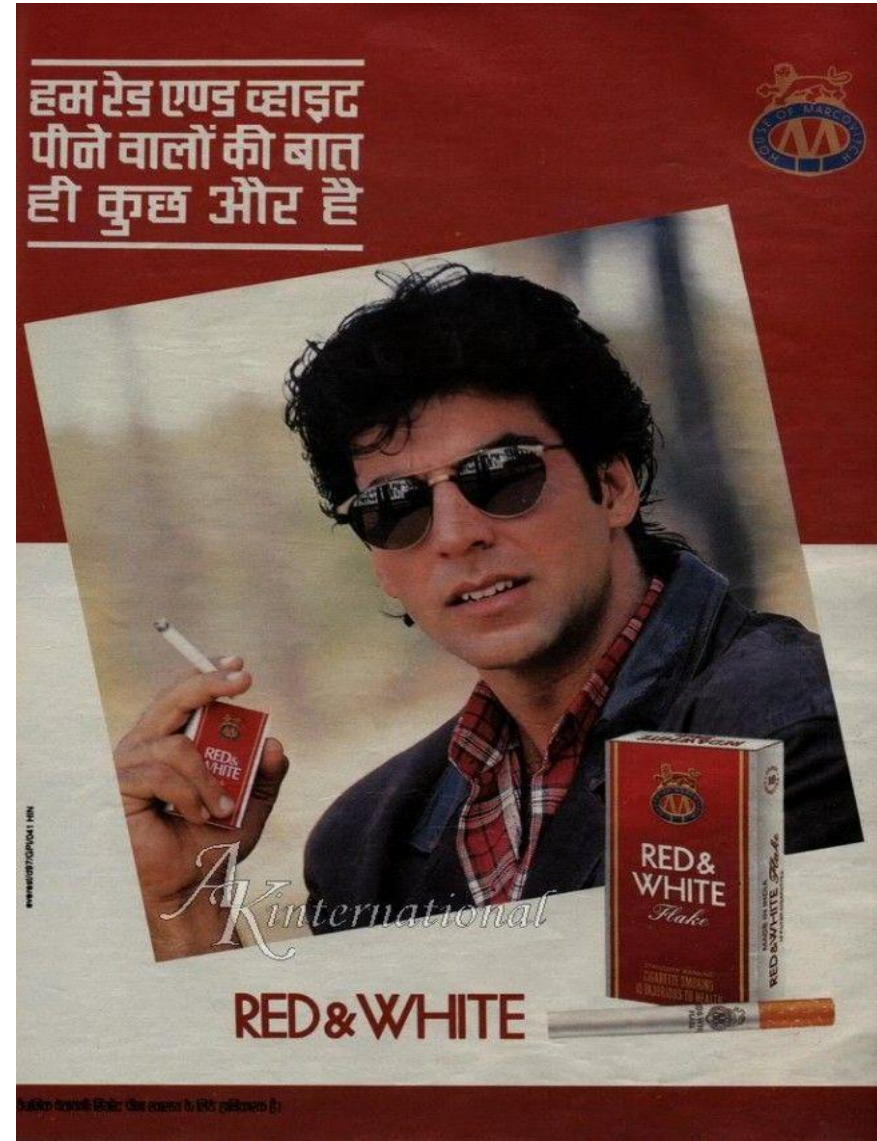
Physical activity reduces the risk of overall mortality and others like stroke, hypertension, and depression

30 minute of moderate intensity of physical activity on most of the days of the week





Tobacco use: In adult >15
years
34% men and 6% women



Salt Intake: Recommended < 2 gm sodium or < 5 gm of salt
Study estimate shows average intake of 9 to 12 gm per day by the population

Raised Blood Pressure: Leads to increase risk of stroke, CAD, Chronic Renal Disease
22% of population(Adult.18years) globally had raised blood pressure i.e $> 140/90$ mmHg



Diabetes: 9% of Population showed raised blood glucose (2014)

Obesity:

Increased risk of Hypertension, Diabetes, CAD, Stroke, Cancer,

Trend shows increase from 9% in 2000 to 13% in 2016

Air Pollution :

1. Both type indoor and outdoor
2. Indoor mainly due to the cooking fuel
3. 29% Lung ca, 24% Stroke and 25% of heart disease are attributable to air pollution
4. 2016 , 91% of world population lived in places whrere air is unsafe to breathe

WHO Best Buys intervention for coping with burden of NCD

Package of 16 best buys

Cost effective

Affordable

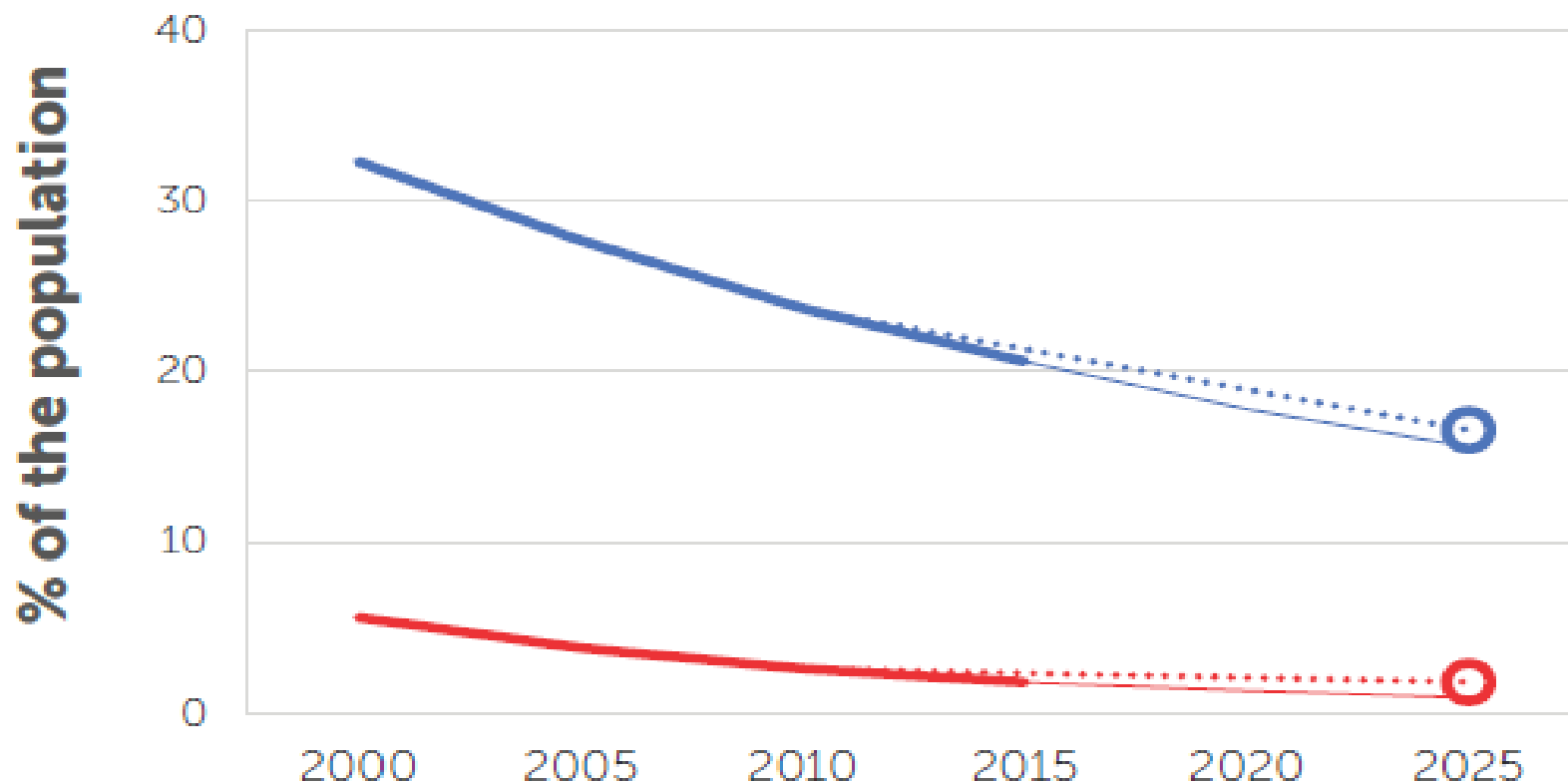
Feasible

Scalable

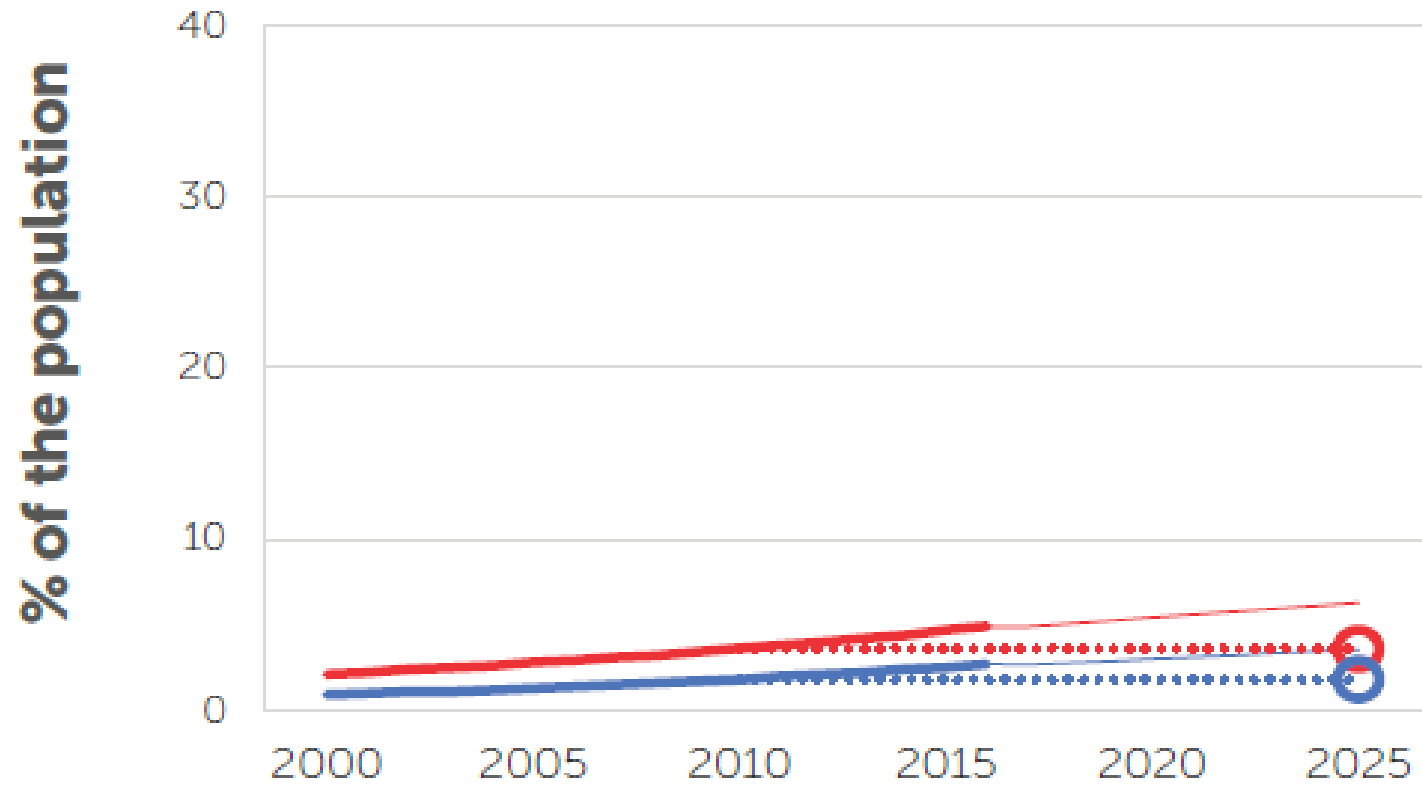
Risk Factors for NCDs	DATA YEAR	MALES	FEMALES	TOTAL
Total NCD deaths	2016	3 313 000	2 682 000	5 995 000
Risk of premature death betw. 30-70 yrs (%)	2016	27	20	23
Total alcohol per capita consump., adults aged 15+(lit. of pure alco.)	2016	9	2	6
Physical inactivity, adults aged 18+ (%)	2016	24	43	33
Mean pop. salt intake, adults aged 20+ (g/day)	2010	10	9	9

Risk Factors for NCDs	DATA YEAR	MALES	FEMALES	TOTAL
Current tobacco smoking, adults aged 15+ (%)	2016	20	2	11
Raised bld. pressure, adults aged 18+ (%)	2015	24	23	24
Raised bld. glucose, adults aged 18+ (%)	2014	8	8	8
Obesity, adults aged 18+ (%)	2016	3	5	4
Obesity, adolescents aged 10-19 (%)	2016	2	1	2





CURRENT TOBACCO SMOKING







OBSESITY

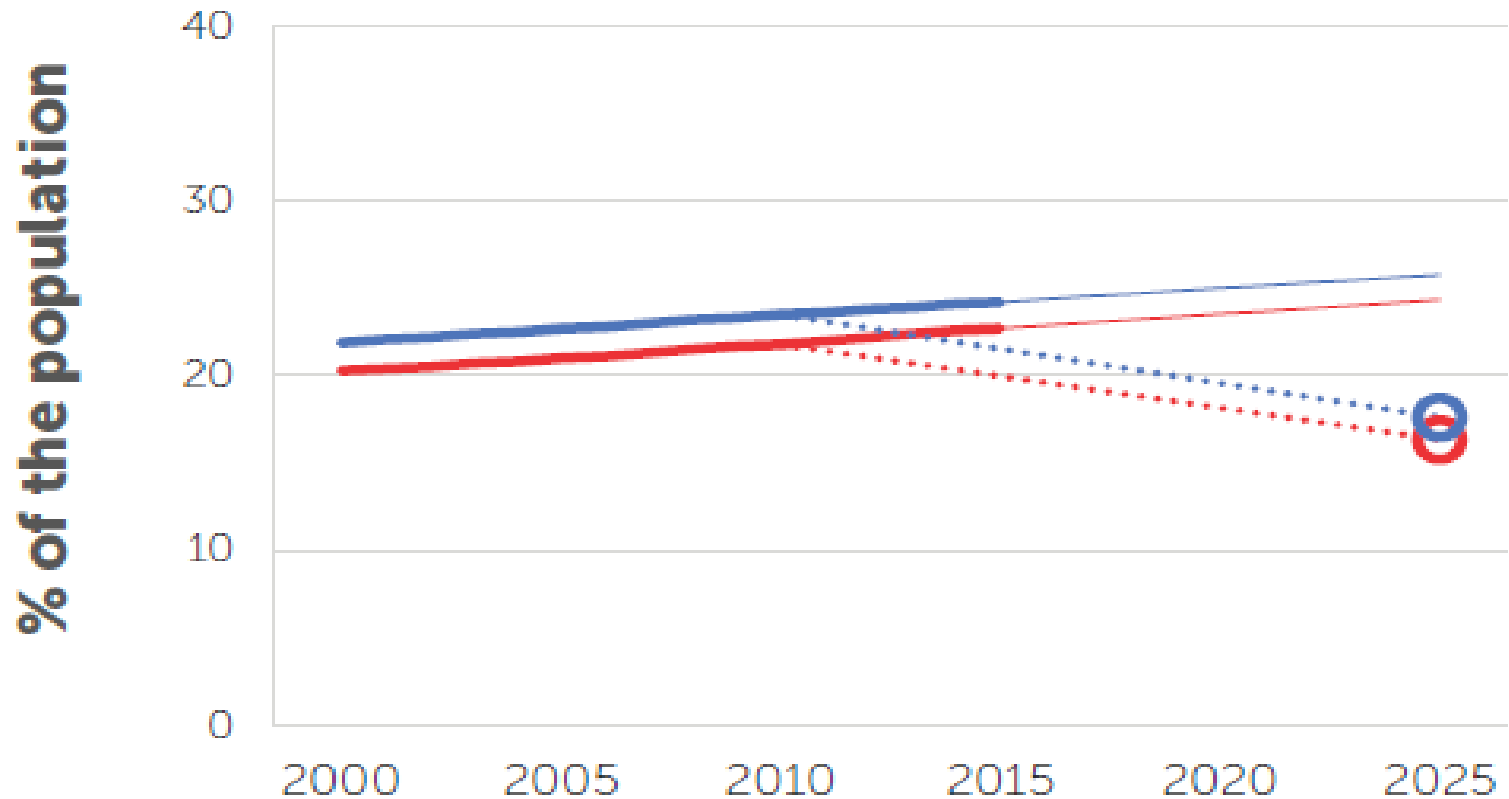


Past trends Projected linear trends Global targets

Males    

Females    

RAISED BLOOD PRESSURE



Legend:

- Past trends: Thick solid line
- Projected linear trends: Thin solid line
- Global targets: Dotted line with circle

Males: Blue lines and circles
Females: Red lines and circles

Risk factor/ disease	Interventions	Detailed description
Reduce Tobacco use	Tax	Increase price and tax on products
	Packaging	Large graphic warning on tobacco packages
	Adv. Promotion and sponsorship	Bans on Adv. Promotion and Sponsorship
	Smoke free public place	Eliminate second hand smoke at all indoor work place and public place
	Educate	Mass media campaign for harmful effects and second hand smoke

Reduce harmful use of alcohol	Tax	Increase tax on alcoholic beverages
	Advertising	Bans and restriction on advertising (all type of media)
	Availability	Restrictions on availability of alcohol
Reduce Unhealthy diet	Reformulate food	Less salt and target setting for amount of salt in food
	Supportive environment	In establishments like school, hospital workplace reduce sodium
	Educate	Reduce salt intake by BCC and mass media campaign
	Packaging	Reduce salt intake by Front of pack labeling

Reduce Physical Inactivity	Educate	Mass media campaign, community based education, environmental and motivation encouraging BCC for activity level
Manage CVS disease and Diabetes	Drug therapy and counselling	Glycemic control for diabetes and total risk approach for hypertension control and counselling-heart attack or stroke and those at high risk
Manage cancer	Vaccinate Screening	Vaccination against HPV (2 doses) in girls 9 to 13 yrs Cervical ca-Screening women 30 to 49 yrs by visual inspection, pap smear every 3 to 5 yrs, HPV test every 5 yrs

- **Indian Tobacco Control Act, 2003**
- **National Programme for Prevention and Control of Cancer, Diabetes and Cardiovascular Diseases (Including Stroke)**
- **National Blindness Control Program**
- **National Iodine Deficiency Disorders Control Programme**
- **National Mental Health Programme.**
- **National Rural Health Mission**

Global Action plan for prevention and control of NCDs(2013-2020)

- Road map and menu of policy which will contribute to progress on 9 global NCD targets
 1. 25% relative reduction in premature deaths from CVS , Ca, Diabetes and Respiratory Diseases
 2. 10% relative reduction in harmful use of alcohol
 3. 10% relative reduction in prevalence of insufficient physical inactivity
 4. 10% relative reduction in mean population intake of salt/sodium

5. 30% reduction in current tobacco use
6. 25% relative reduction in prevalence of raised blood pressure
7. Halt the rise of diabetes and obesity
8. At least 50% eligible couple receive drug and counseling for prevention of heart attack and stroke
9. 80% availability of basic tech and essential medicine including geriatrics

Thank You

