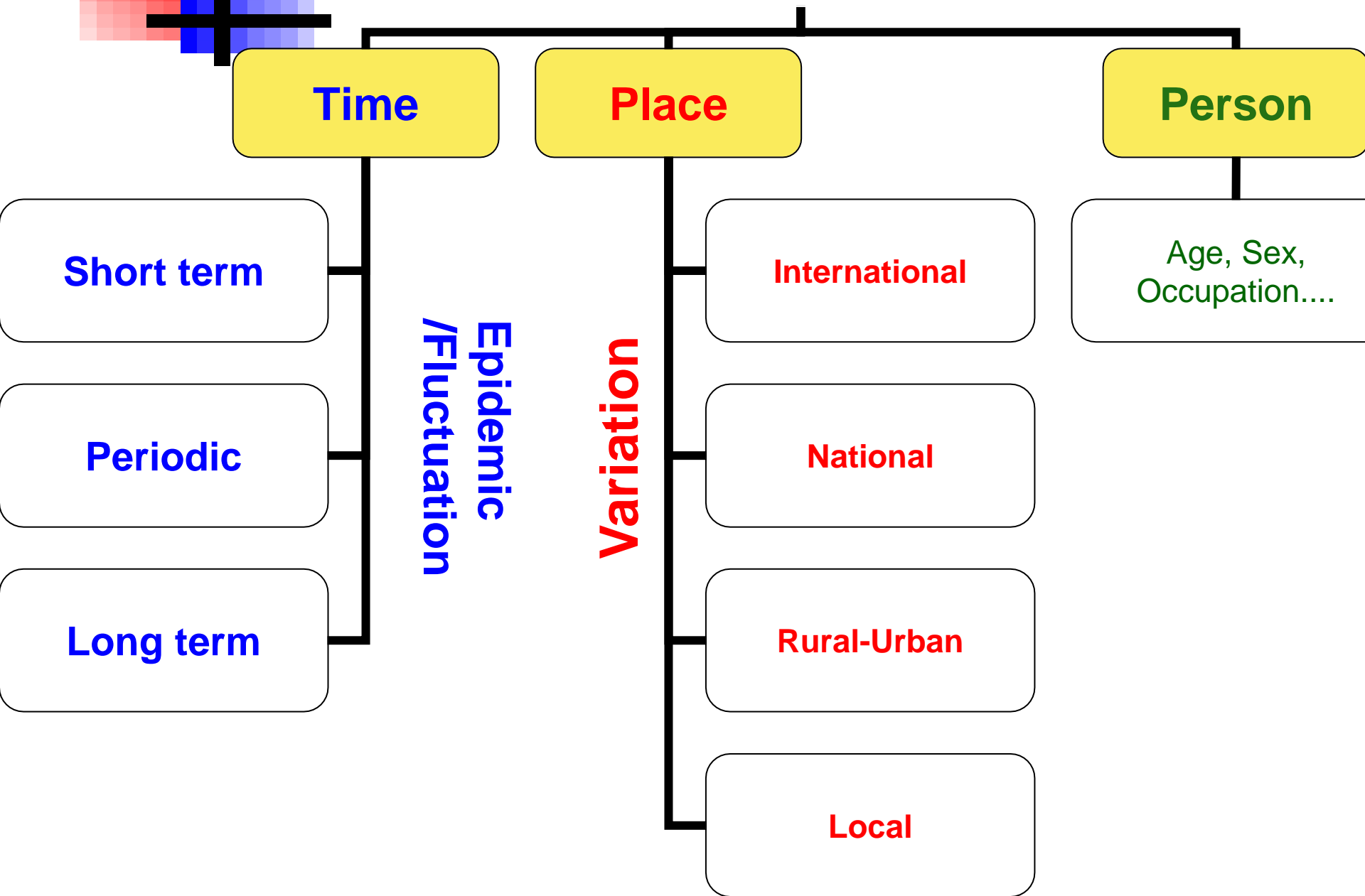
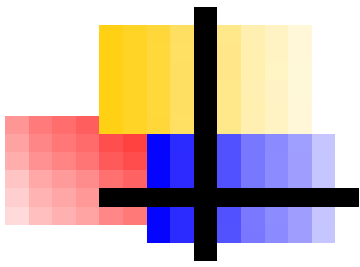


Descriptive Epidemiology

	Types			Alternative Name	Unit of study
I	Observational studies				
	a	Descriptive		Cross sectional	Population
	b	Analytical			
			Ecological	Co relational	population
			Cross Sectional	Prevalence	Individual
			Case- control	Case	Individual
		Cohort	Follow up	Individual	
II	Experimental studies			Interventional Studies	
	a	RCT		Clinical Trial	Patients
	b	Field Trials			Healthy Population
	c	Community Trials		Community Interventional	Community
III	Evaluational Epidemiology				
	Coverage Evaluationa Survey				Community & Health system

Descriptive Epidemiology





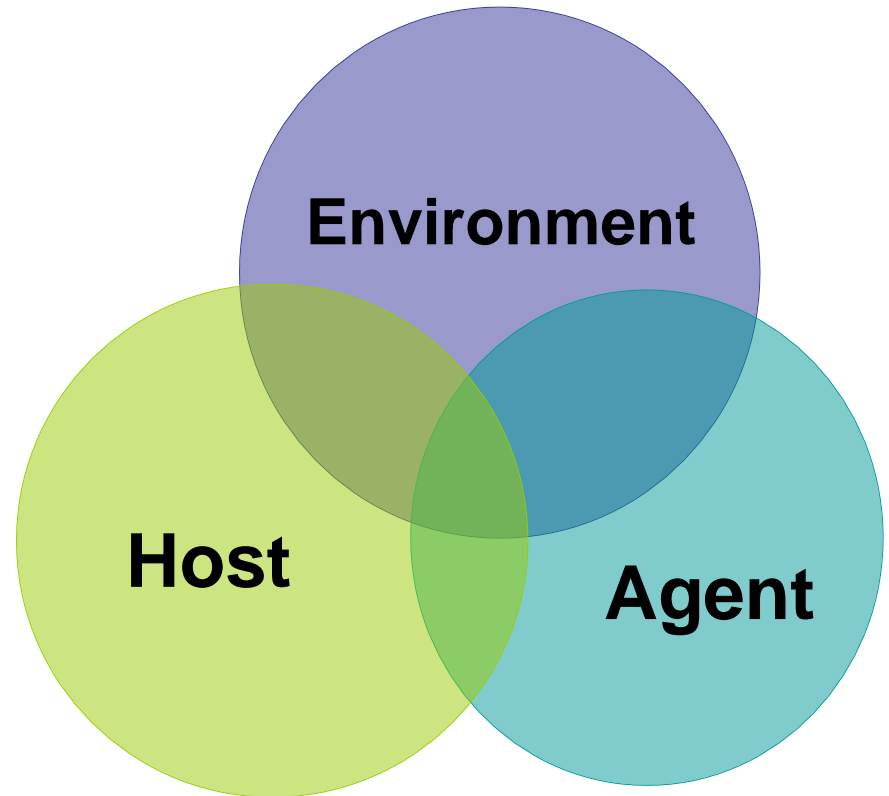
Place Distribution

It is the study of geography of disease

(Geographical pathology)

Place Distribution

Mode of living & environment may vary from country to country.



e.g. . Vector Borne Disease

USES

- To know disease distribution in different population
 - Difference in the disease pattern
- To know relative importance of genes vs. environment
- Change with migration, role of diet, other etiological factors.....

Geographical Variation

- 1. International variations**
- 2. National variations**
- 3. Rural- Urban differences**
- 4. Local distribution**

INTERNATIONAL VARIATION

AIM- To identify factors which are crucial in cause & disease prevention

Factors-

Environmental, Genetic, cultural.....

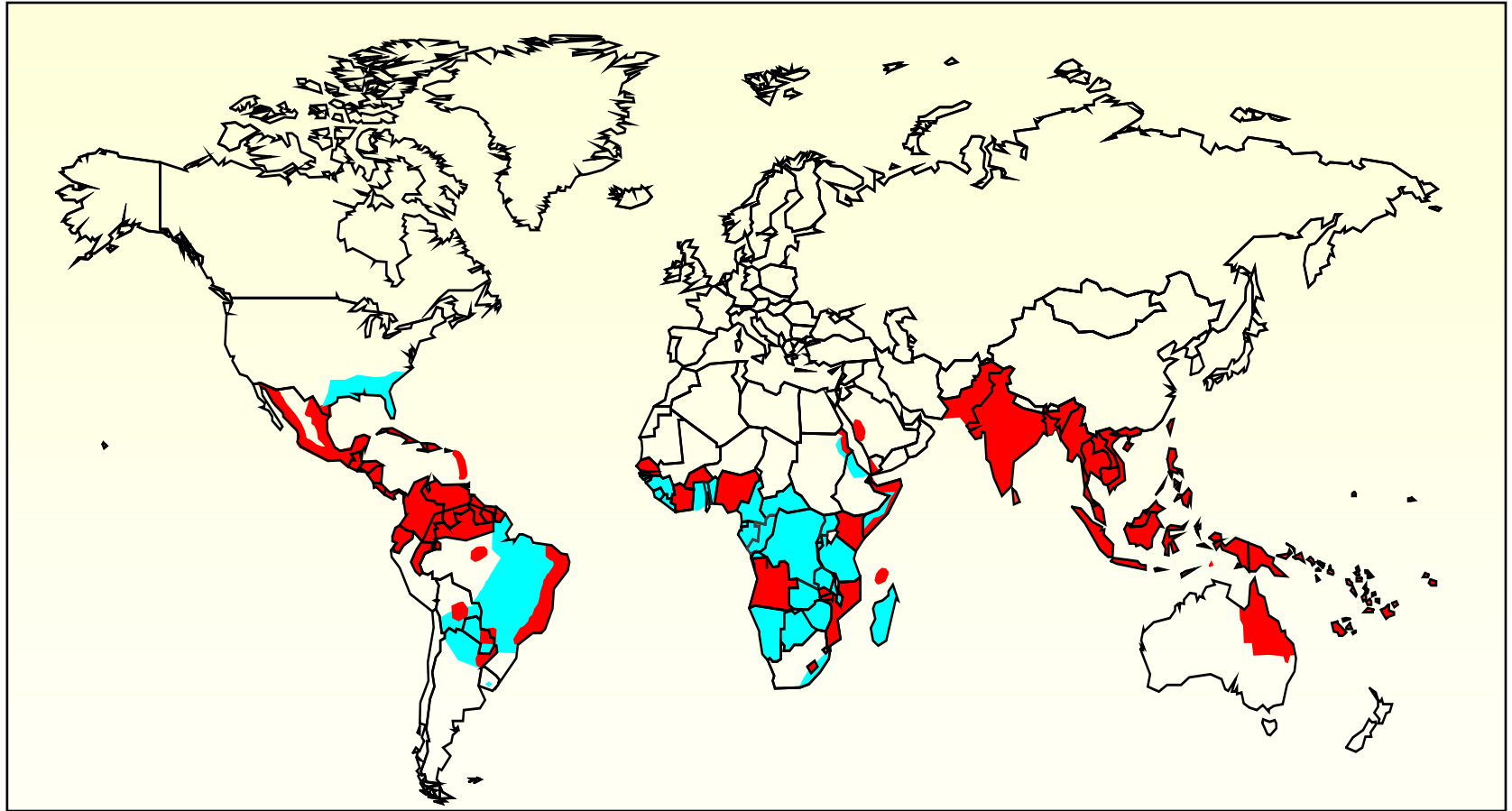
Use-

Strategies for disease prevention

International Variation

Distribution of Dengue

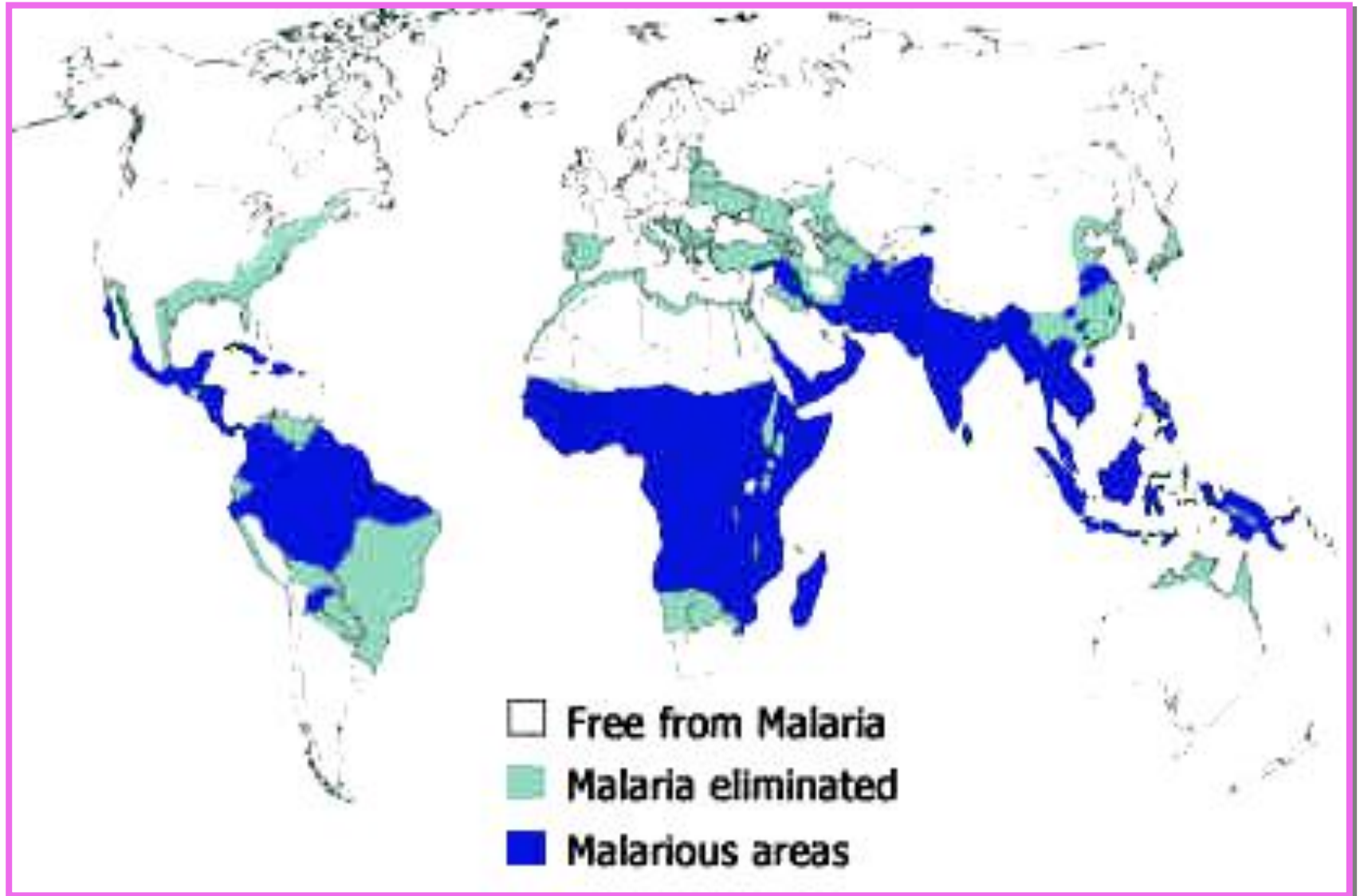
30°N to 40°S latitude of tropics – subtropics.

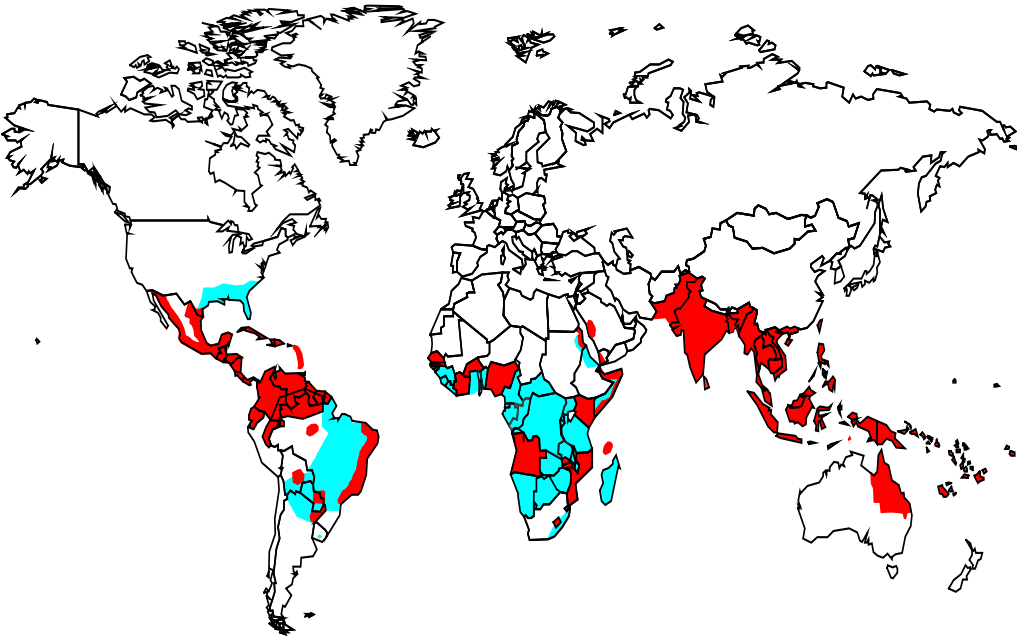


■ Areas infested with *Aedes aegypti*

■ Areas with *Aedes aegypti* and recent epidemic dengue

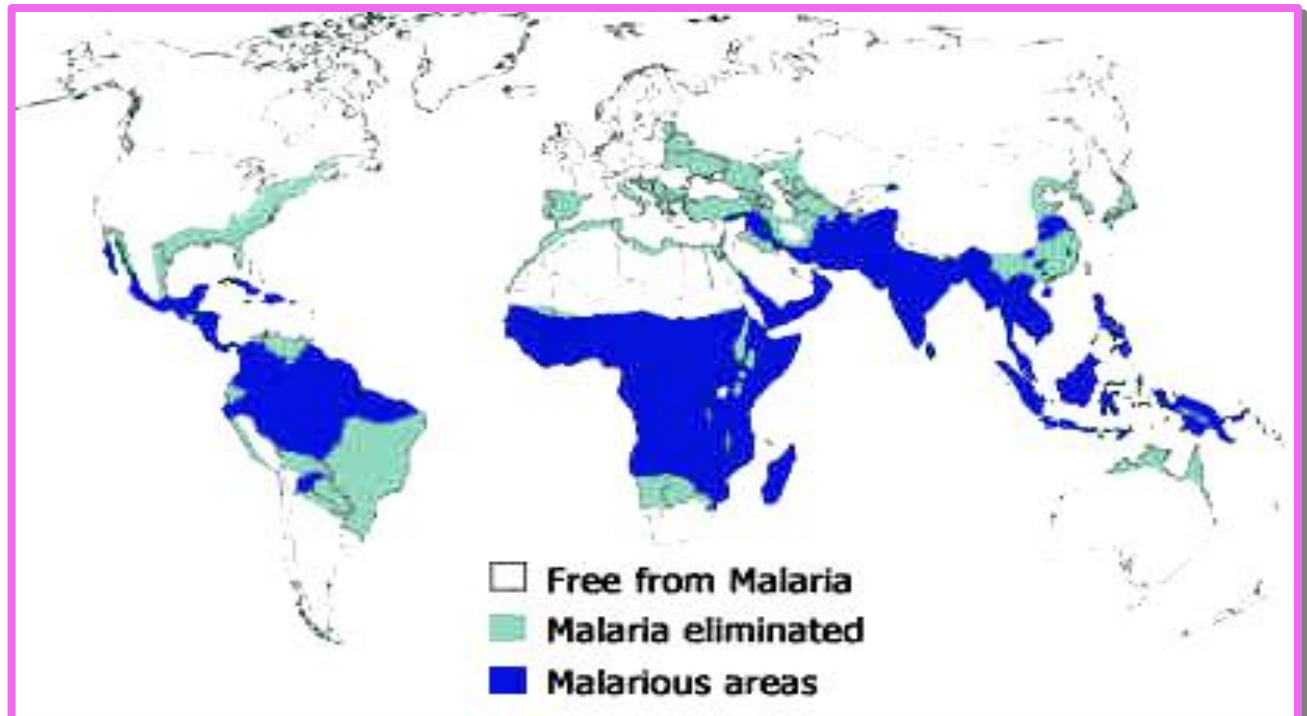
Malaria is a major global health problem





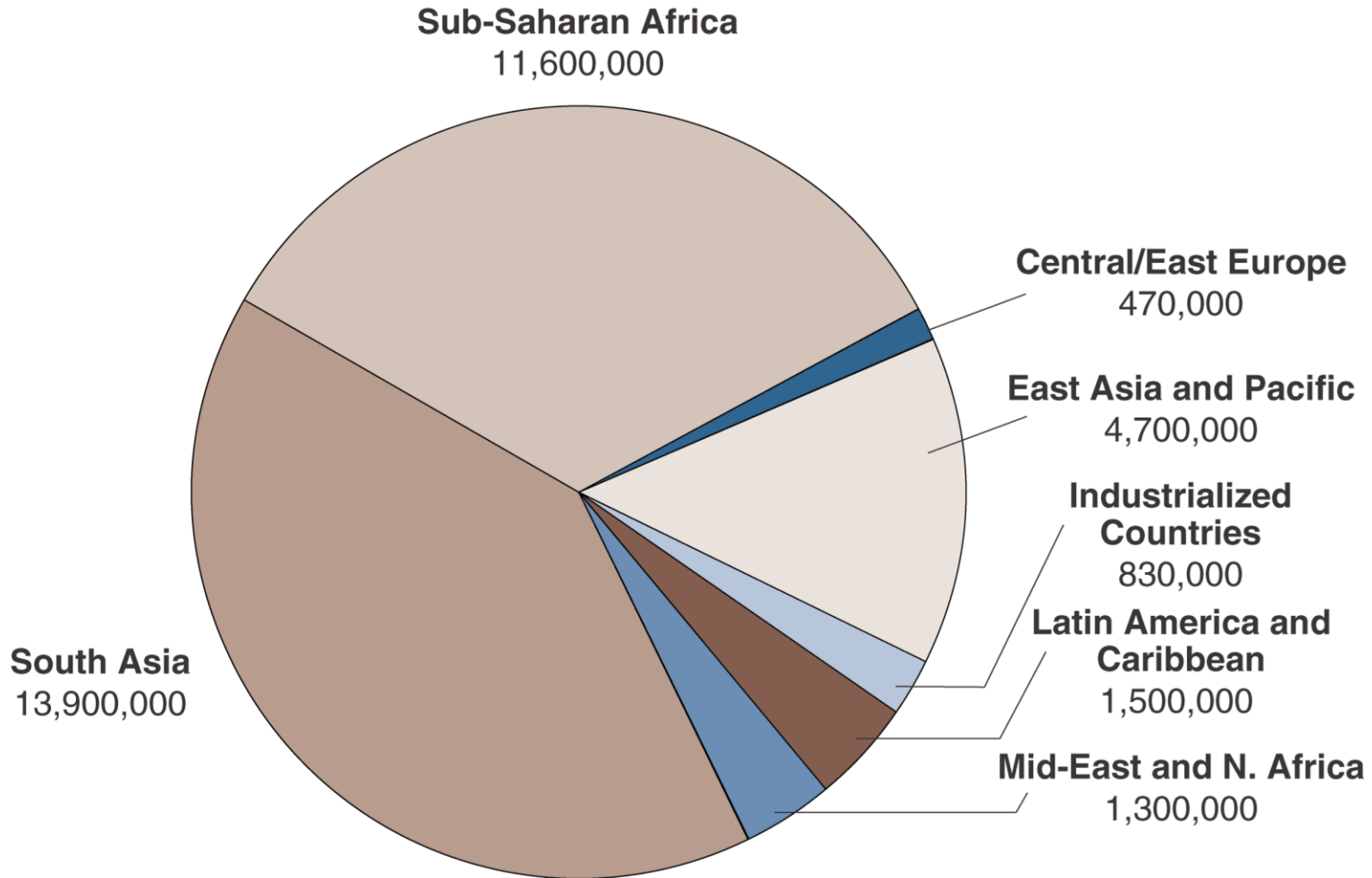
Areas infested with *Aedes aegypti*

Areas with *Aedes aegypti* and recent epidemic dengue



- Free from Malaria
- Malaria eliminated
- Malarious areas

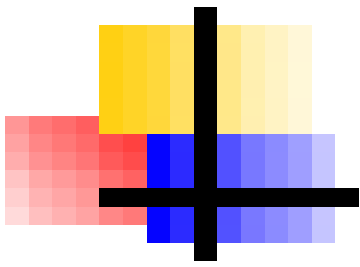
34 million children are not fully immunized



Source: WHO/UNICEF, 2001.

CBR and CDR in selected countries

Country	CBR Crud birth rate	CDR Crud death rate
India	21	9
Sri Lanka	17	7
China	15	7
UK	10	10
USA	15	8



Place Distribution

National Variation

Location of poliovirus, 2004* (68 cases)*



- ▲ Polio in contact
- Polio in AFP
- P3 type virus

Uttar Pradesh	47
Bihar	12
Maharashtra	2
Delhi	2
Andhra Pradesh	1
Karnataka	1
Tamil Nadu	1
West Bengal	1
Uttaranchal	1

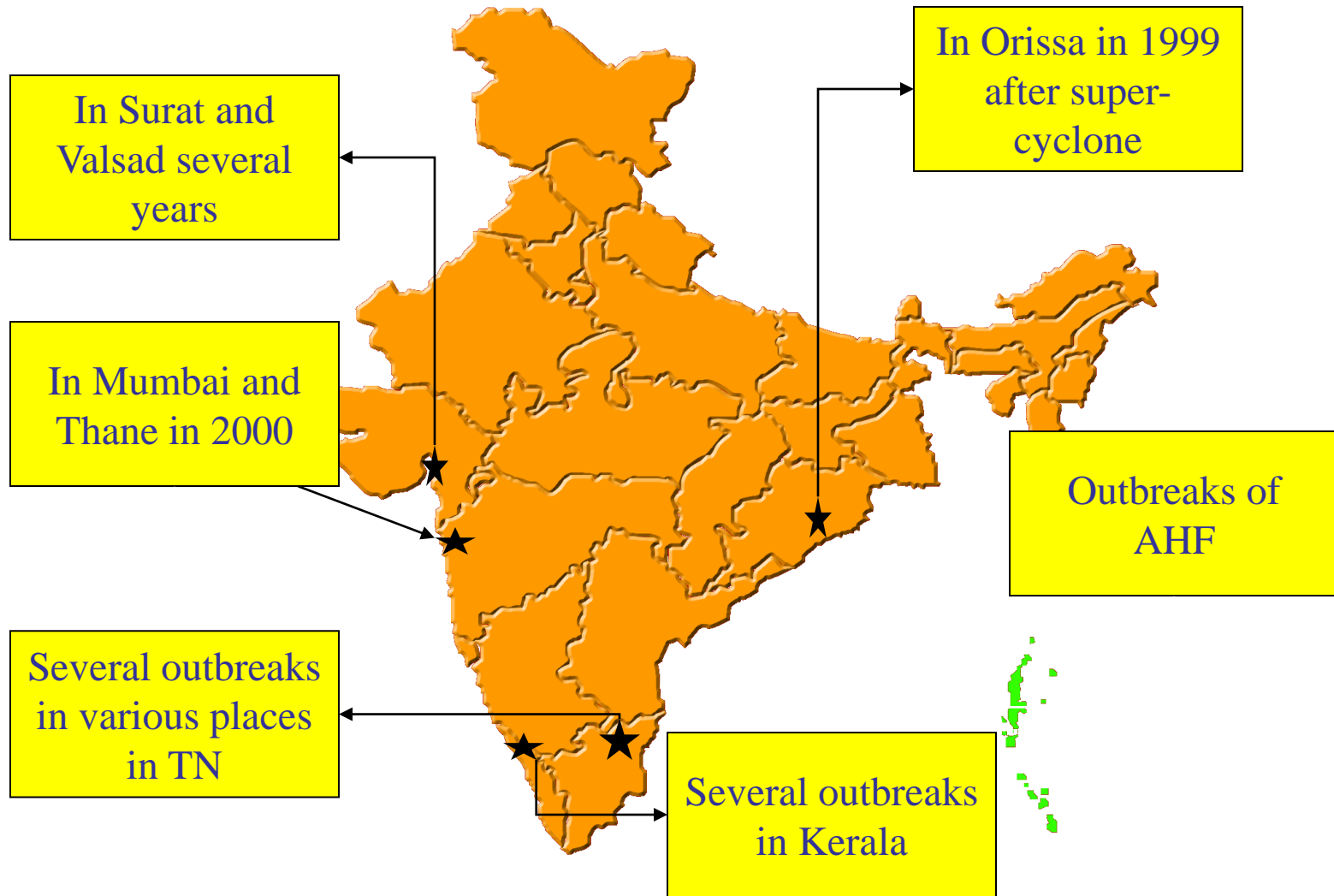
Maternal mortality ratio (MMR) per 100,000 live births

Source & Year	RGI
States	1998
Punjab	199
Haryana	103
Uttar Pradesh	707
Bihar	452
Rajasthan	670
Madhya Pradesh	498
Orissa	367
West Bengal	266

Source & Year	RGI
States	1998
Maharashtra	135
Gujarat	28
Andra pradesh	159
Karnataka	195
Tamil Nadu	79
Kerala	198
India	407

Outbreaks of leptospirosis

INDIA



National variation

- Helps in demarking affected areas- high risk areas



Provide appropriate health care services
(More resources for more affected area)

- Impact of local customs on health

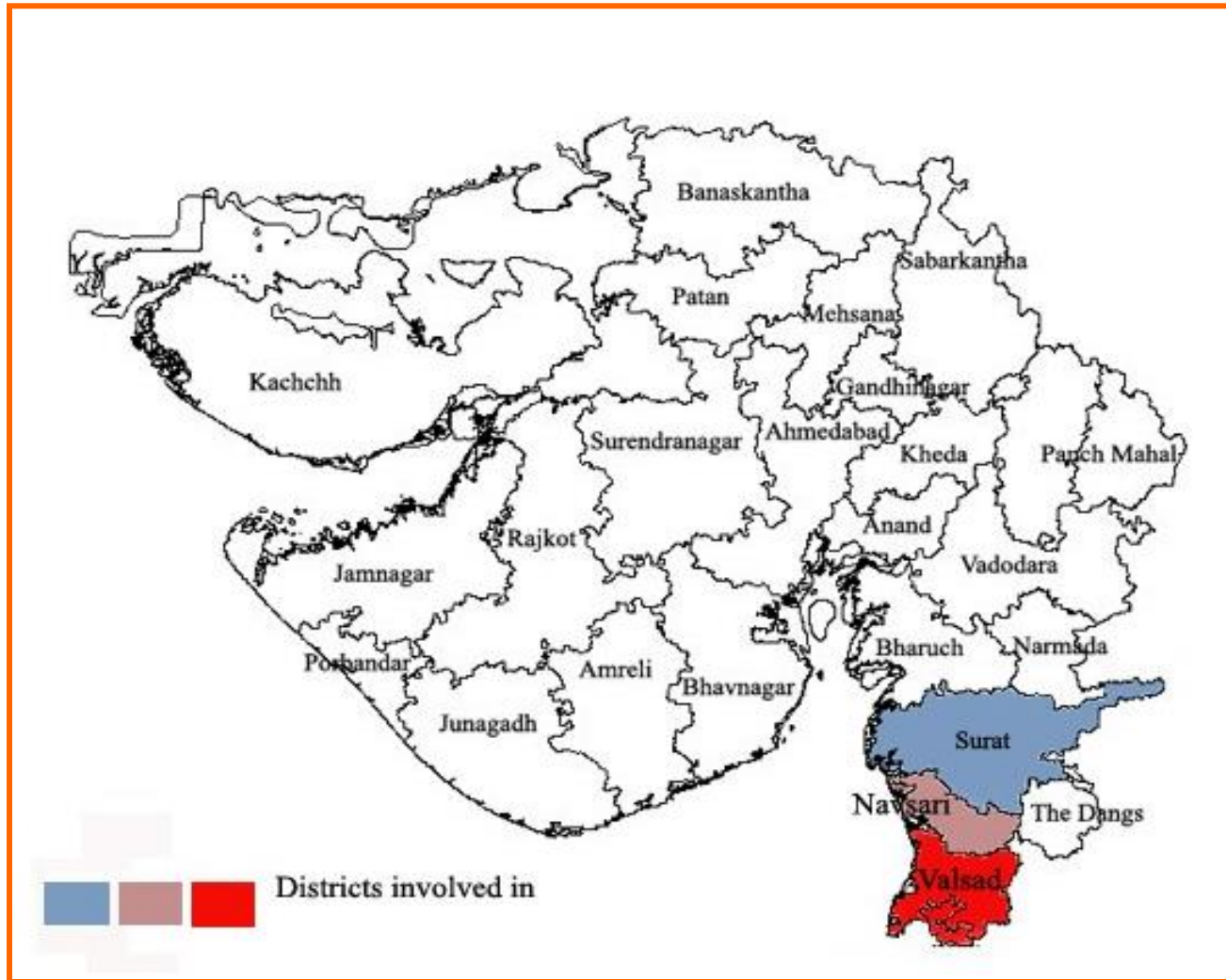


Programme planning

RURAL & URBAN VARIATION

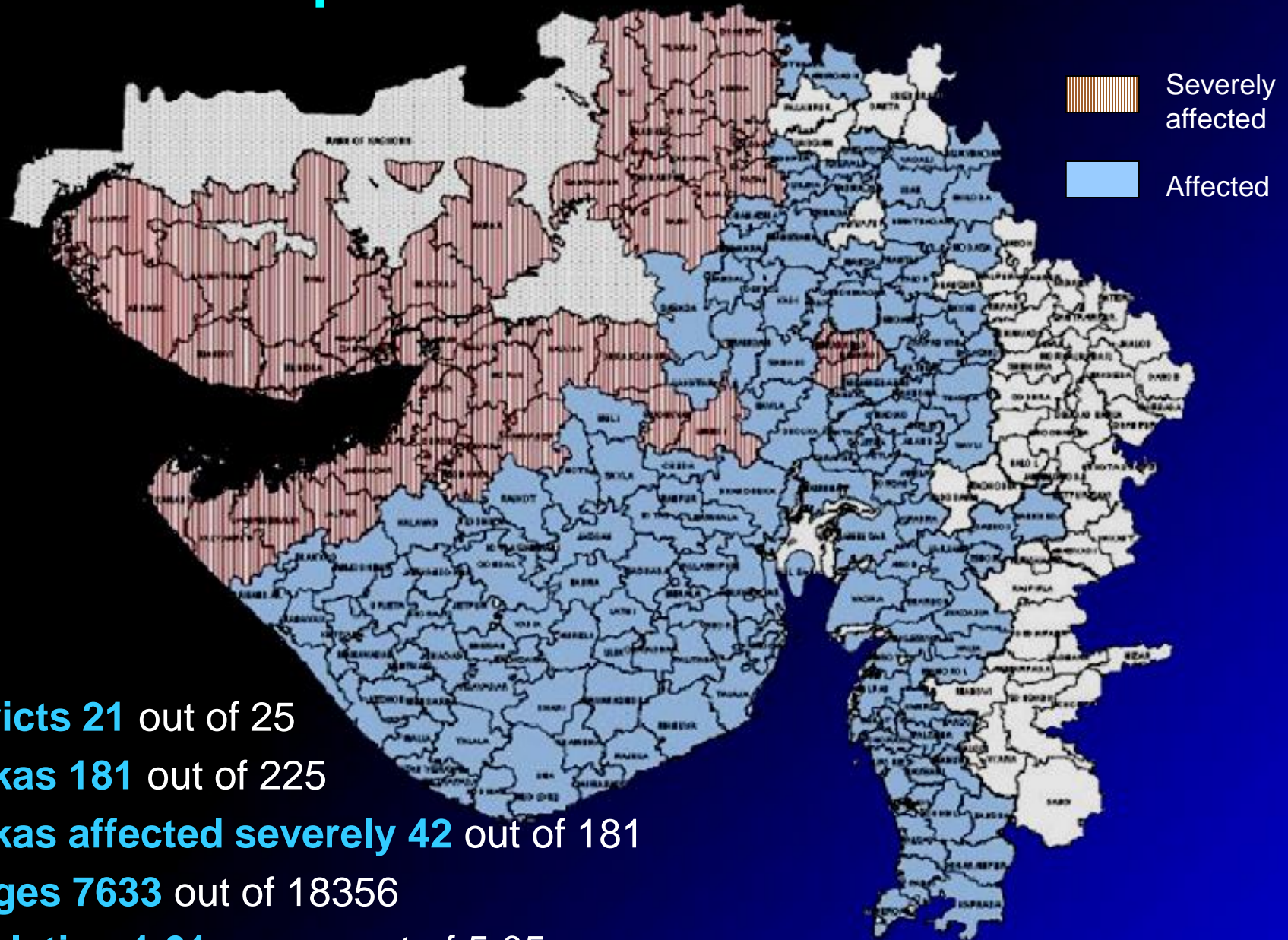
- URBAN---Chronic bronchitis, lung cancer, accidents. CVDs
- RURAL----Infant & maternal deaths, Zoonotic diseases.....

Leptospirosis Control Programme : Gujarat State



- The cases were reported from Valsad, Navsari and Surat – the districts of South Gujarat

Earthquake Affected Areas



Districts 21 out of 25

Talukas 181 out of 225

Talukas affected severely 42 out of 181

Villages 7633 out of 18356

Population 1.61 crores out of 5.05

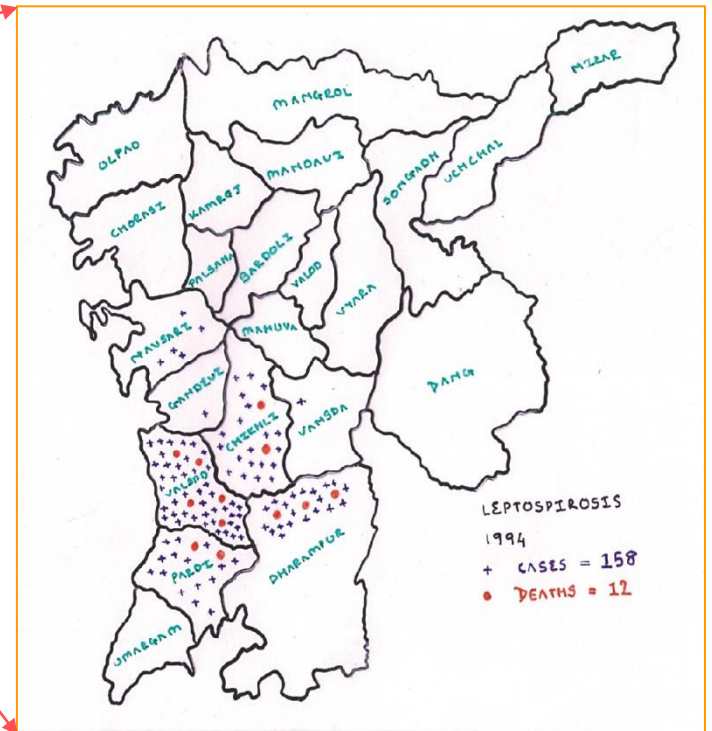
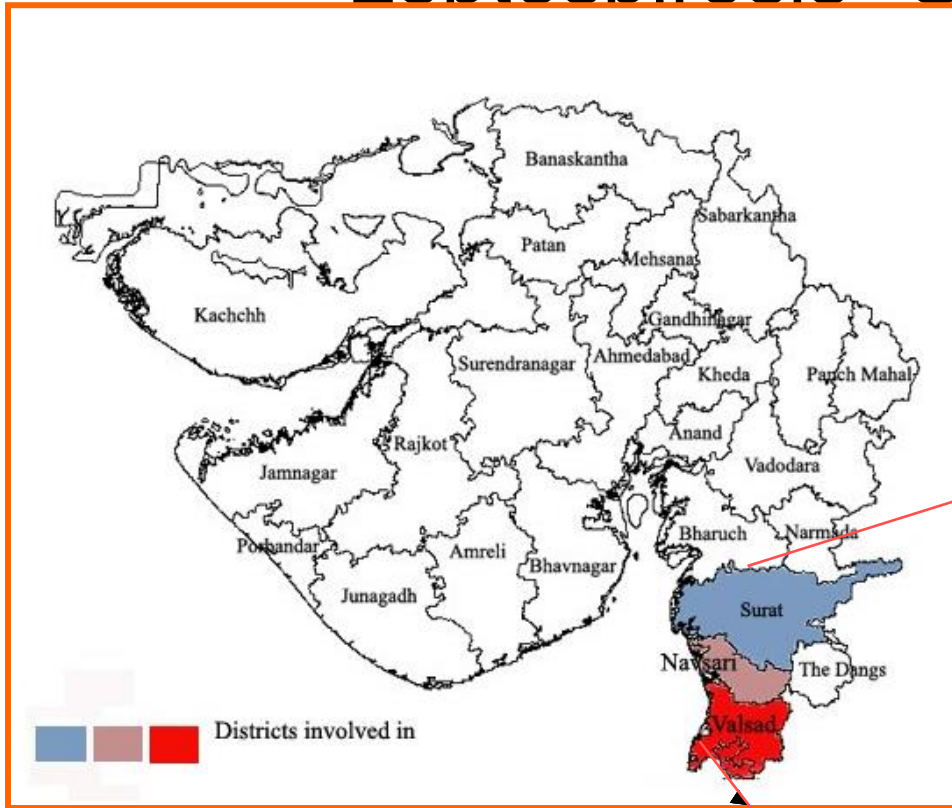
REASONS

Difference in population density, social class, medical care, levels of sanitation, education & environmental factors....

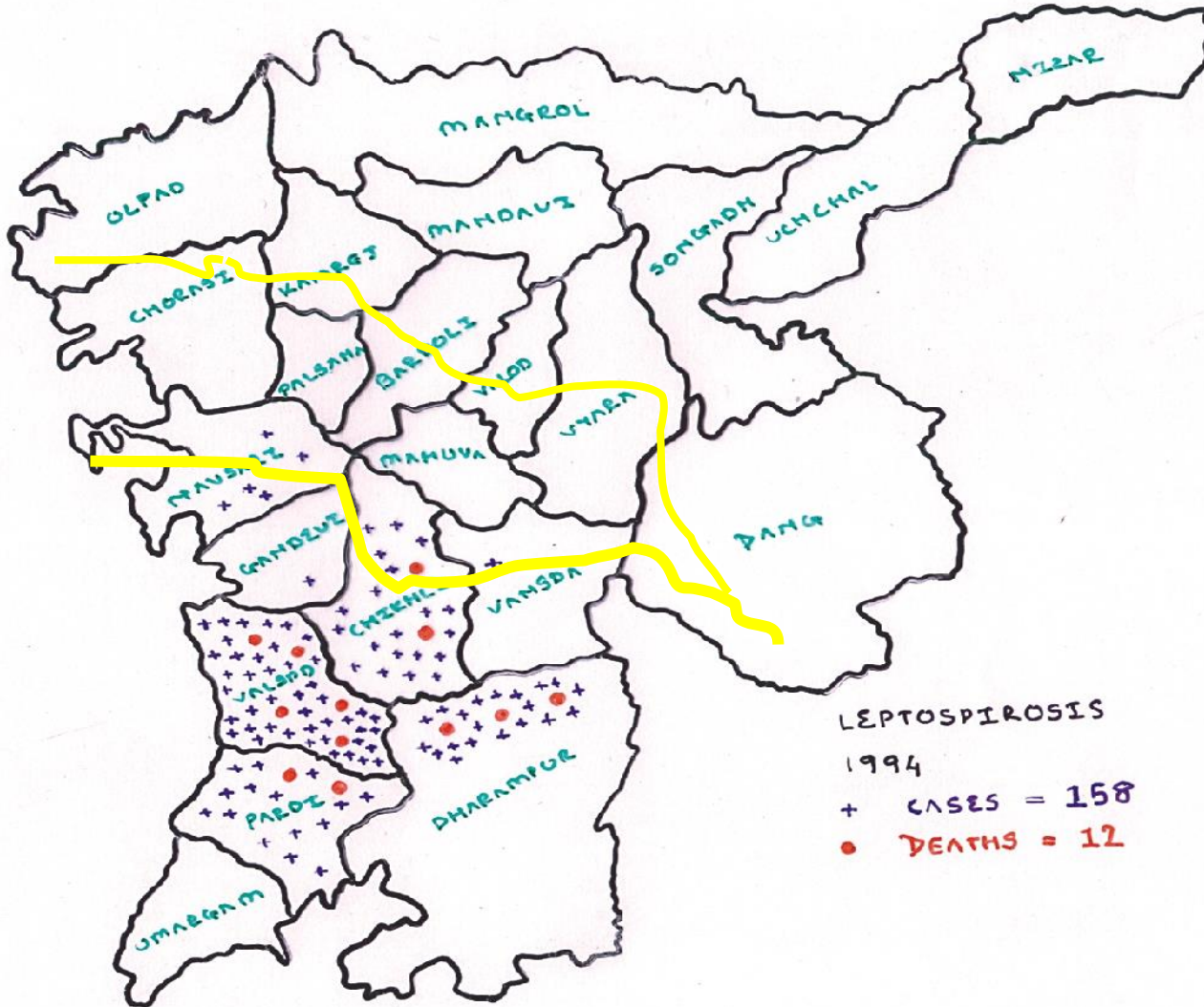
LOCAL DISTRIBUTION

- Best studied by spot map.
- It shows the areas of high or low frequencies, the pattern of disease distribution.
e.g.- clustering of cases- common source of infection\ common risk factors shared by all the cases.

Leptospirosis - Gujarat State



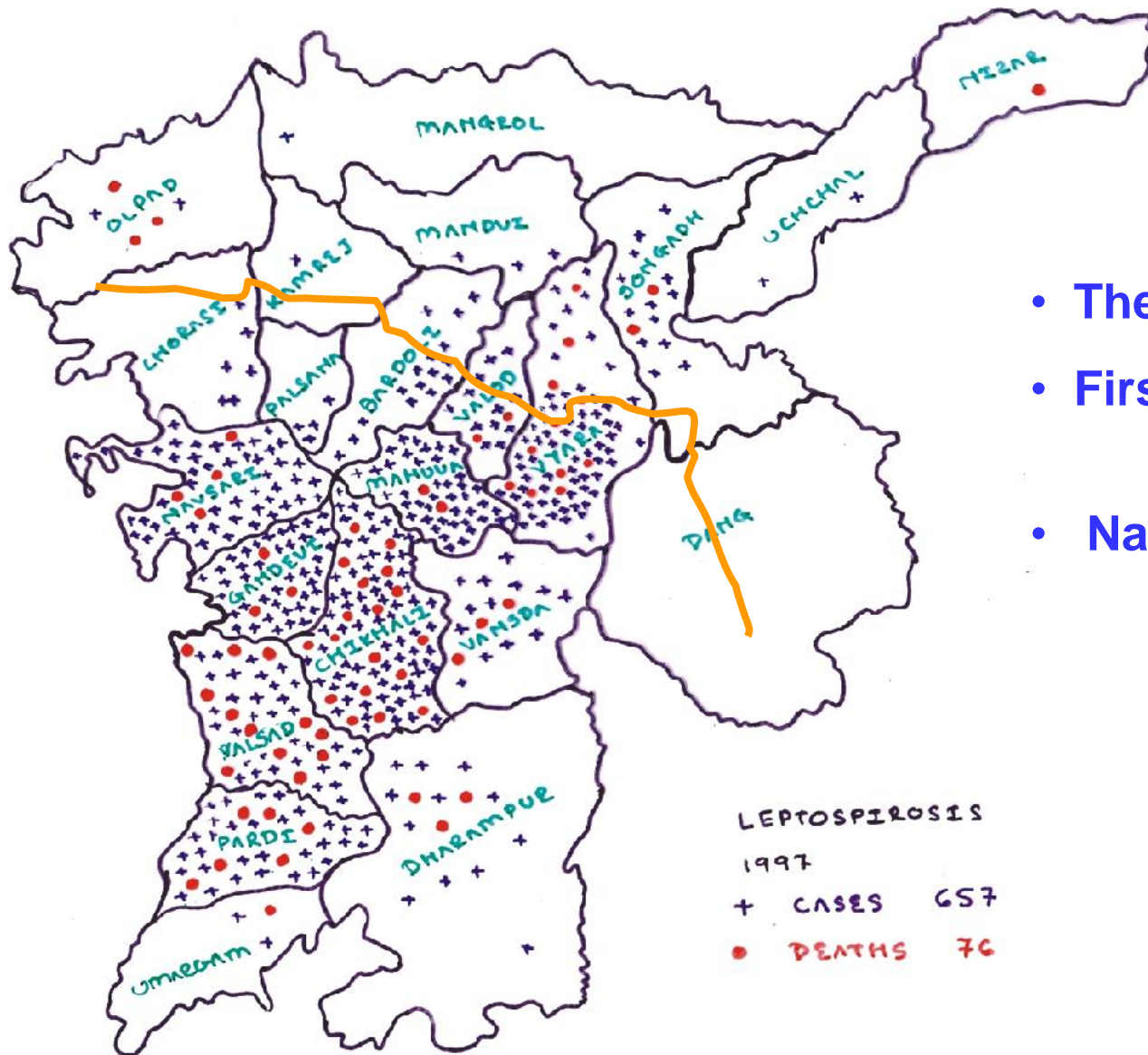
LEPTOSPIROSIS (year 1994)



- Situation of 1994
- Started from Valsad
- Navsari was part of Valsad

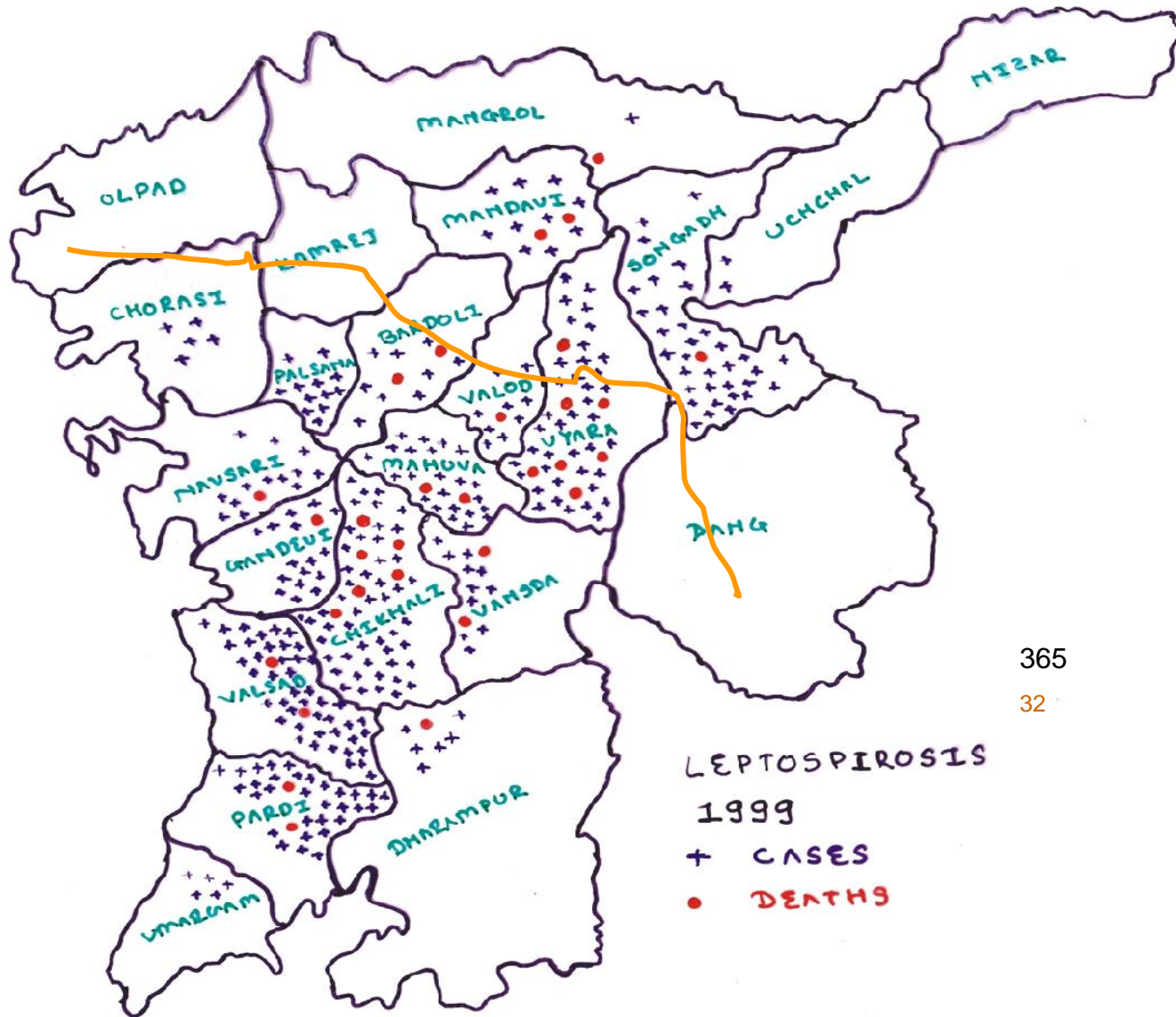
LEPTOSPIROSIS
1994
+ CASES = 158
• DEATHS = 12

LEPTOSPIROSIS (year 1997)



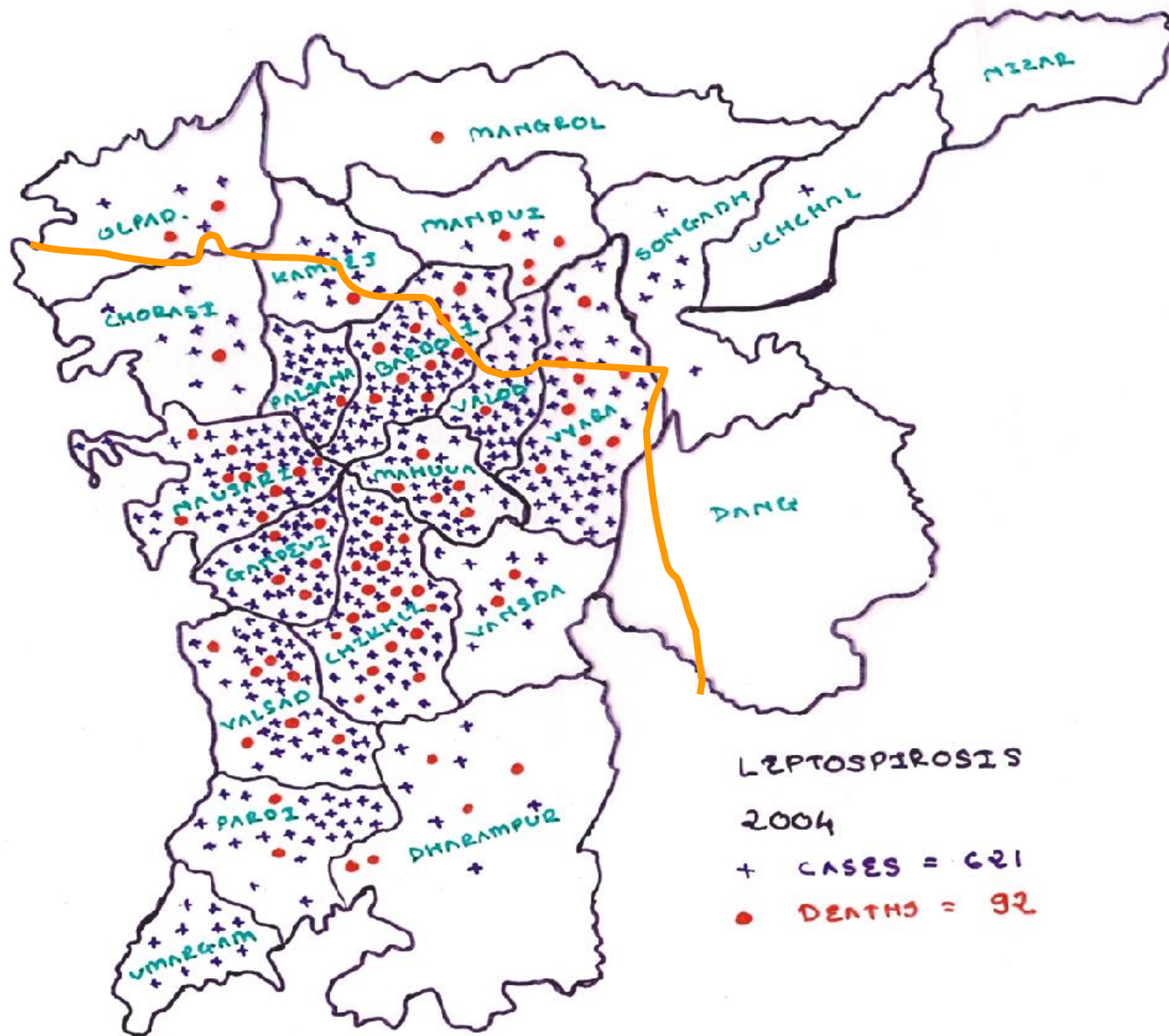
- The year 1997
- First time Surat was affected.
- Navsari was part of Valsad

LEPTOSPIROSIS (year 1999)

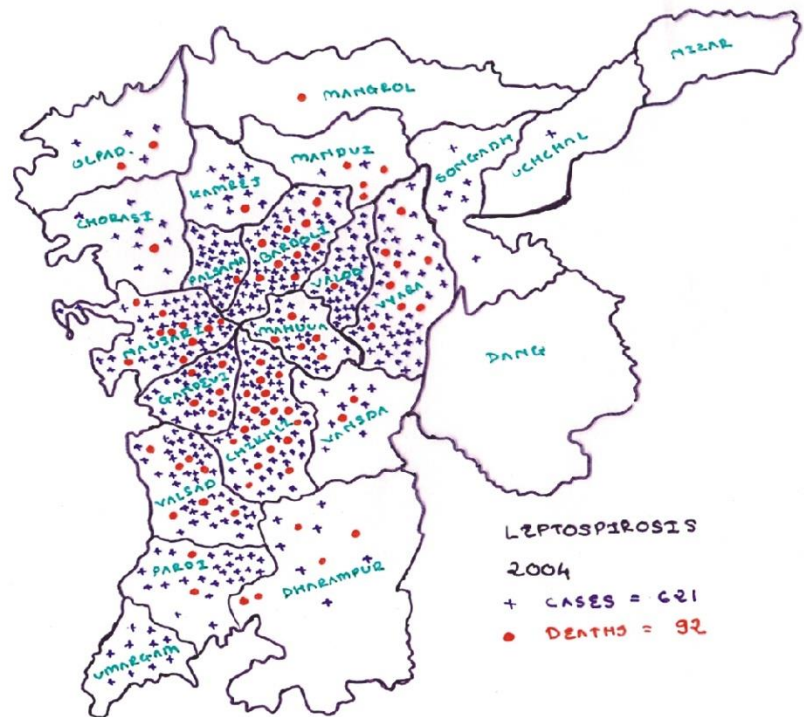
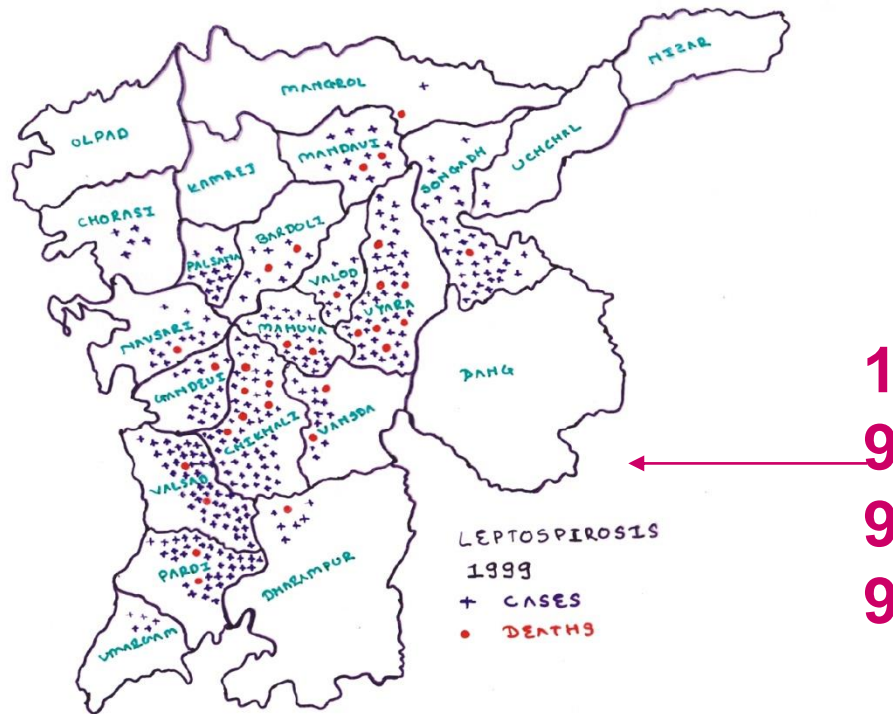
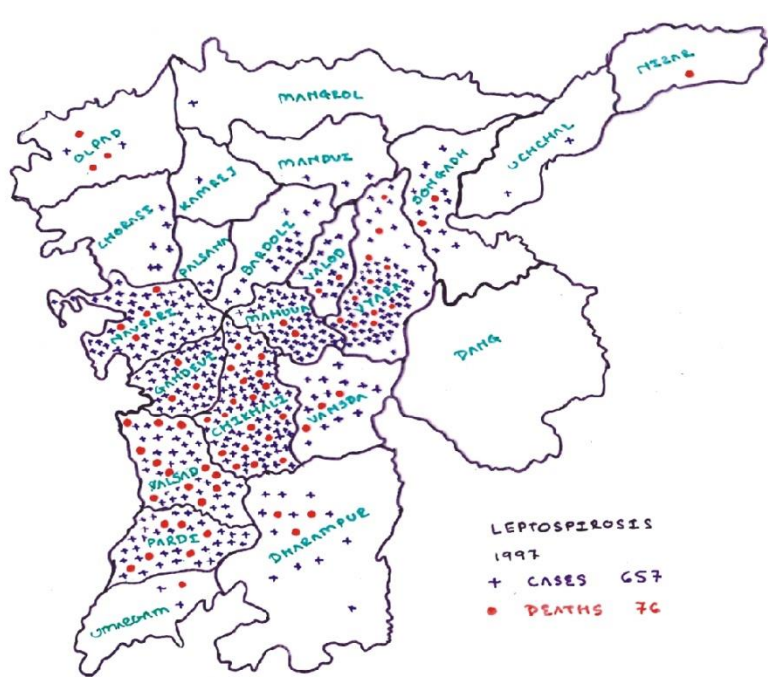
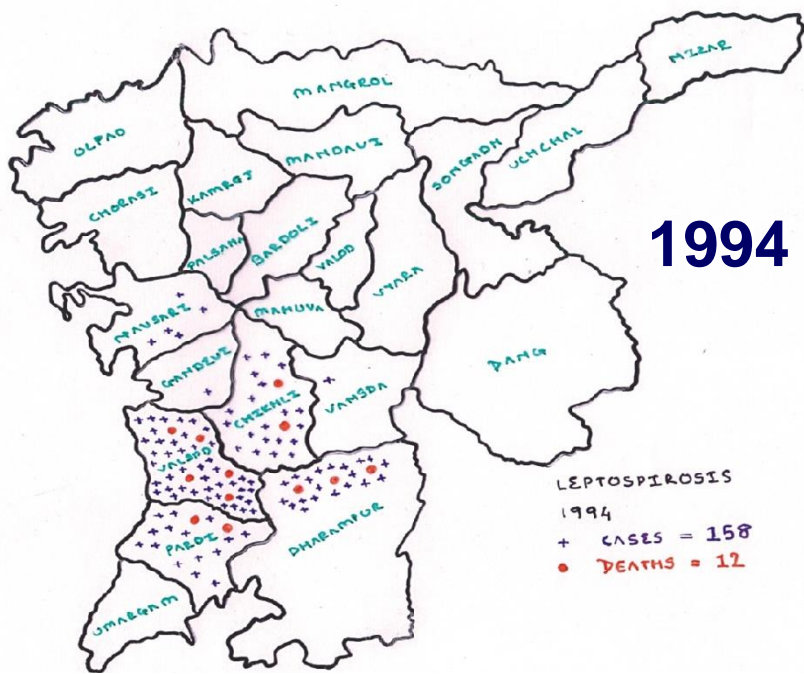


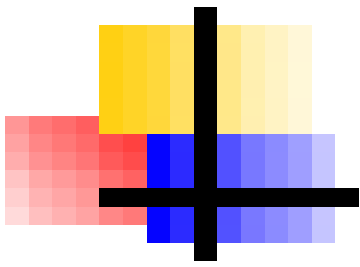
- The year 1999
- Cases were reported from Surat, Valsad and Navsari districts.
- Navsari was separated in the year 1998 from Valsad district.

LEPTOSPIROSIS (year 2004)



- The year 2004
- Shift of the epicenter of disease towards north-east direction.

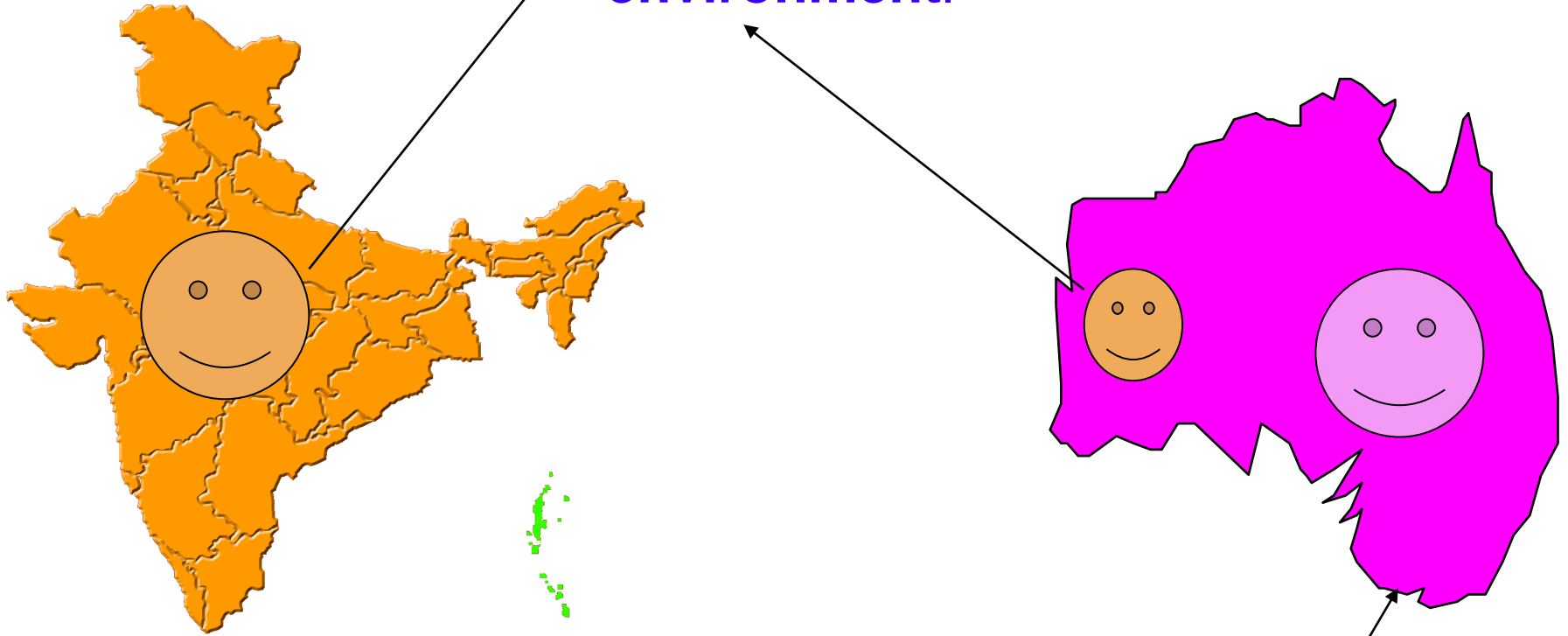




Migration Studies

It is the study of genetic & environmental factors in disease occurrence.

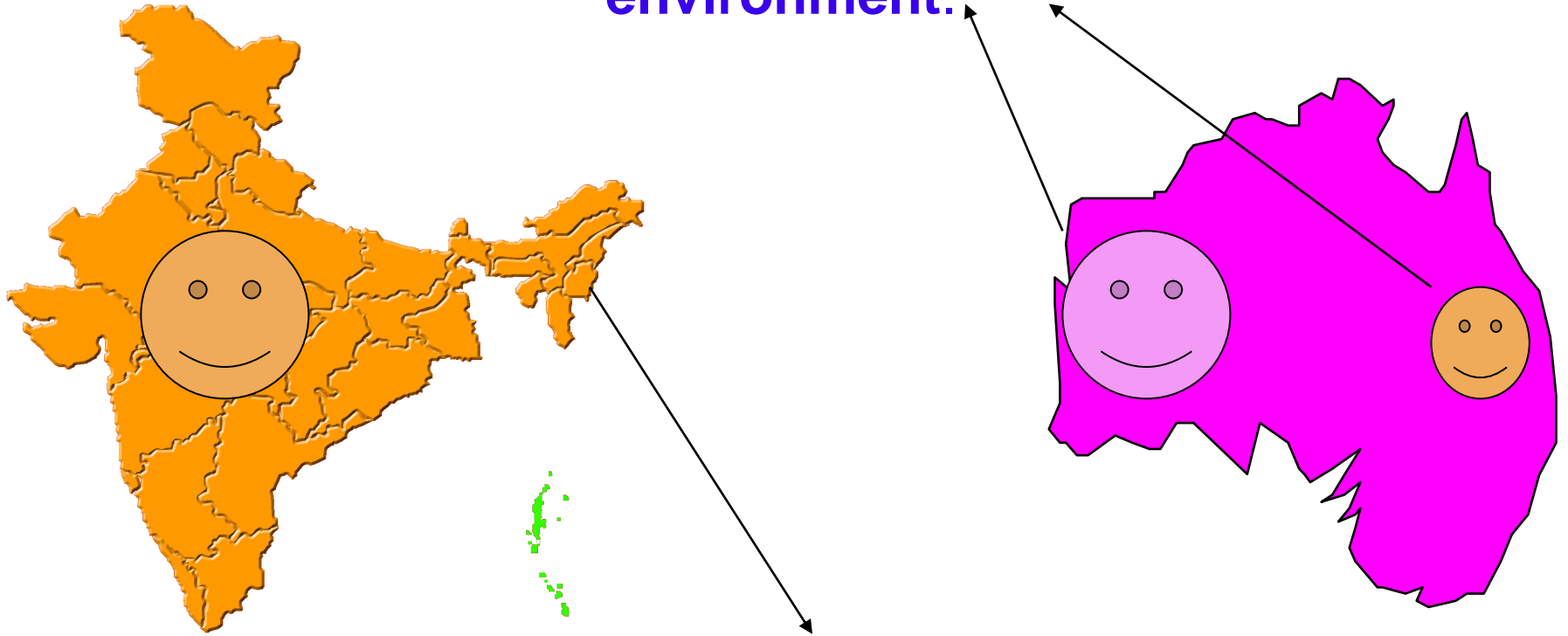
Comparison of disease & death rates for migrant
with those of their population of native country-
Genetically same group living in the different
environment.



If the rates are similar to the **country of adoption:**

ENVIRONMENTAL FACTOR

Comparison of migrant with local population of **host country**– Genetically different group living in the same environment.



If the rates are similar to the **country of origin**

GENETIC FACTOR

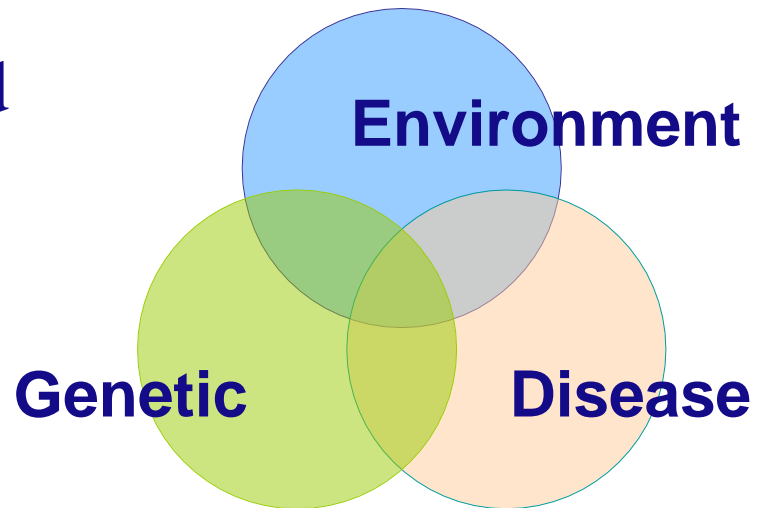
Methods

- A) Comparison of disease & death rates for migrant with those of their population of native country
If the rates are similar to the country of adoption: environmental factor

- B) Comparison of migrant with local population of host country– Genetically different group living in the same environment.
If rates are similar to the country of origin: Genetic factor

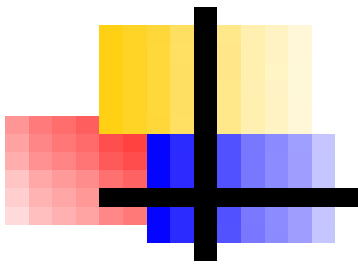
USES

- Role of Env. & Genetic factor in disease causation.
- To study time period required for Env. Factor to determine Ds.
- To find out which factor (env.\Gen.) strongly associated with disease.



Biases In Migrant Studies

- Difference in diagnostic, coding & reporting system--- access to medical facilities
- Stress of migration--- Mental health
- Inaccuracies in denominator--- age, sex, race
- Migrants are not representative samples of populations of home country (more migration in healthy & physically able, High I.Q.)



Person Distribution

Defining the persons who develop disease
(Host factor)

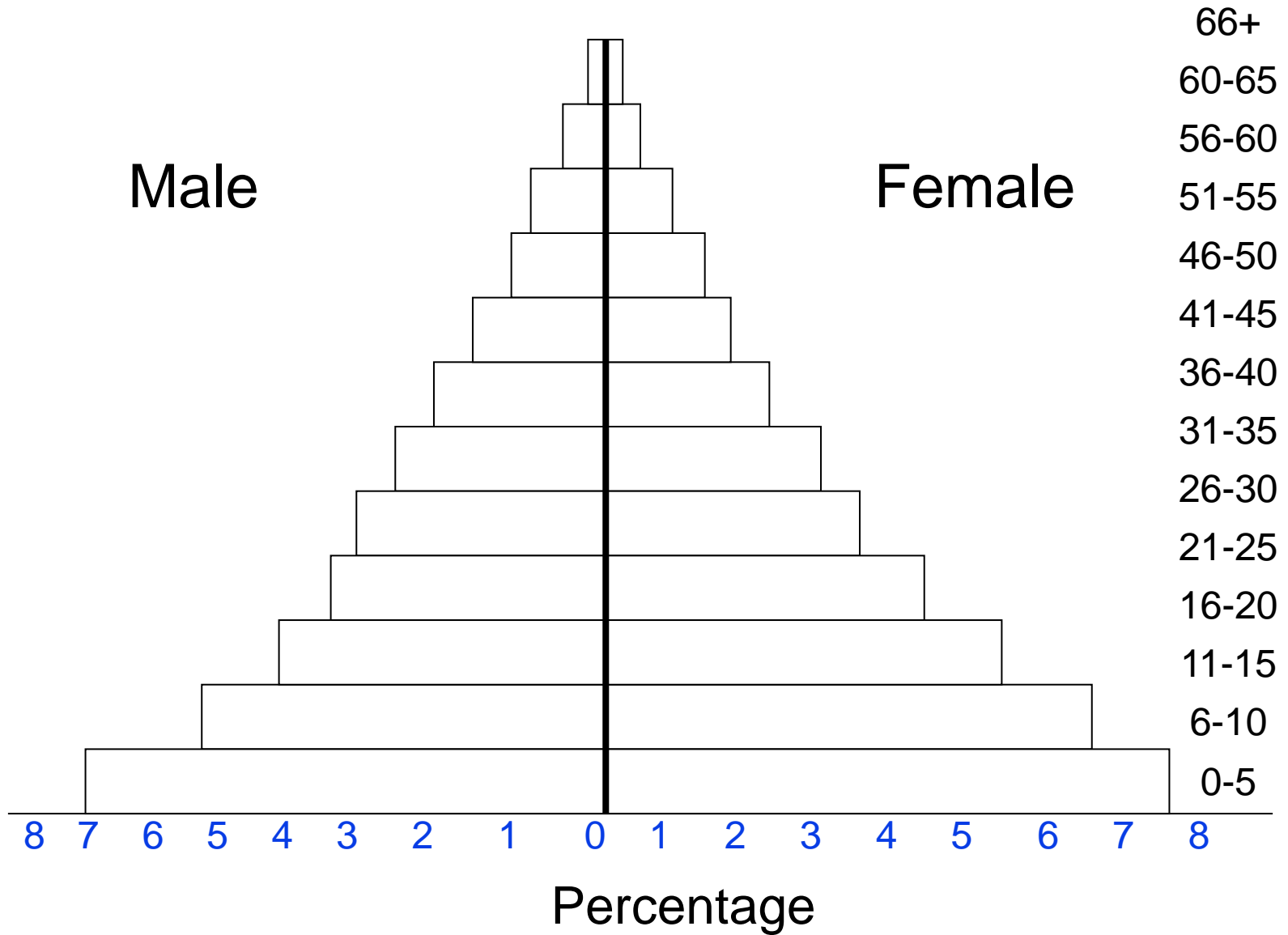
PERSON DISTRIBUTION

- Age, Sex, Occupation, Marital status , SE class.....
- These factors do not necessarily represent the aetiological factor but contribute in natural H\O disease-- precipitating factors

Age and Sex composition of population of India

Age (years)	% Male	% Female
0-9	24	23.5
10-19	22.5	22.1
20-29	16.3	18
30-39	13.3	13.5
40-49	9.6	8.9
50-59	6.0	6.4
60-69	4.9	5.0
70+	3.3	2.8
Total	100	100

India

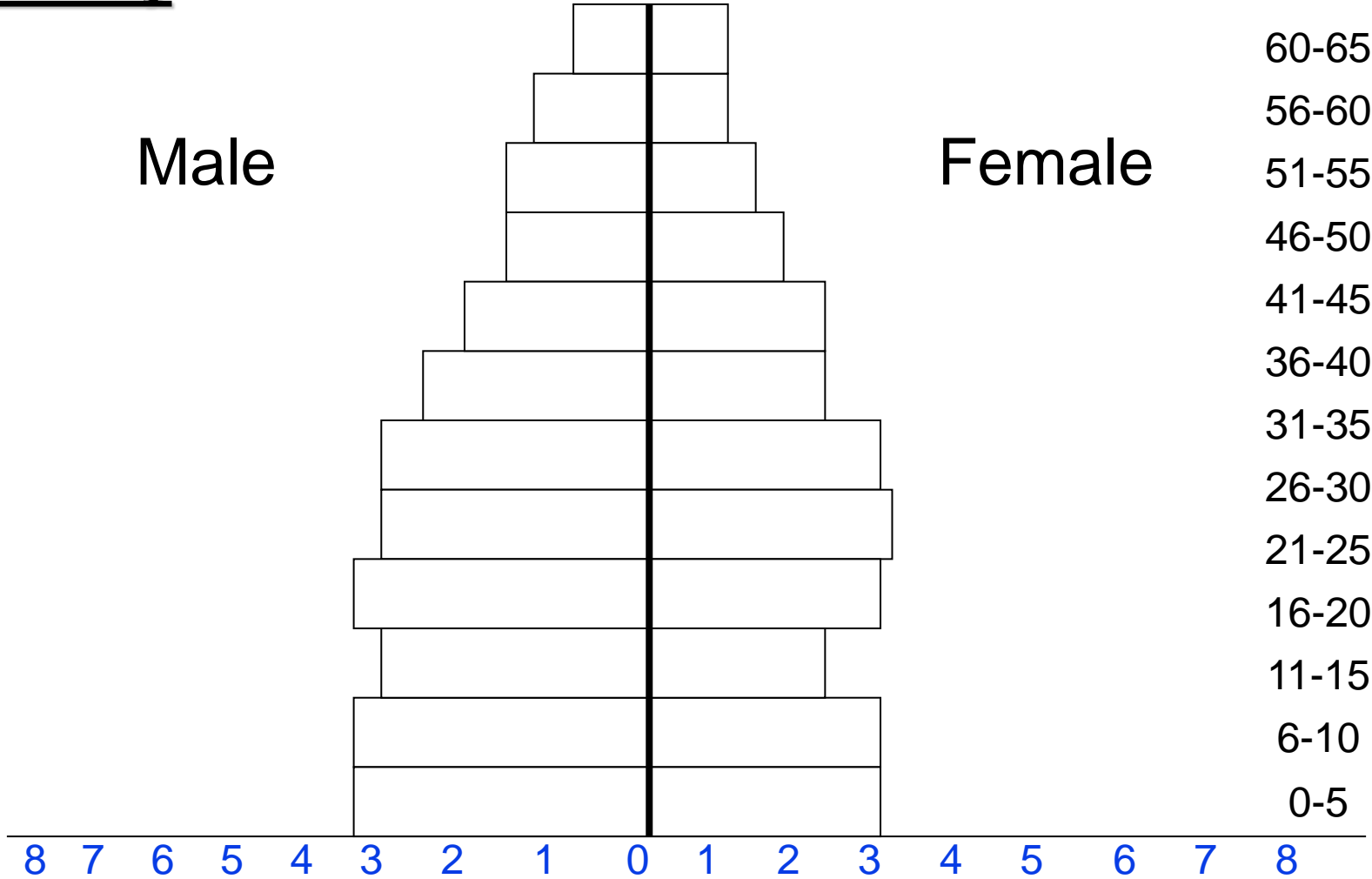


Developed
country

Male

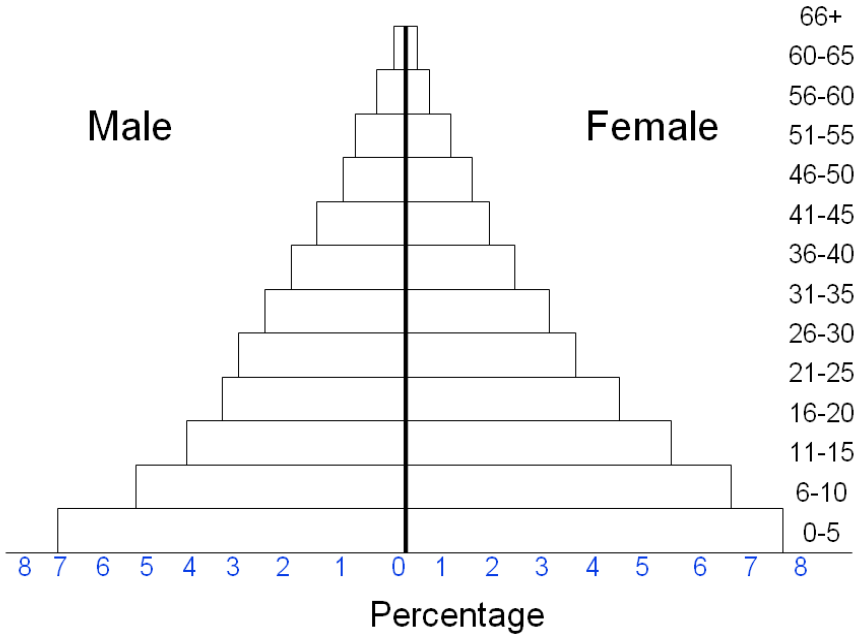
Female

66+
60-65
56-60
51-55
46-50
41-45
36-40
31-35
26-30
21-25
16-20
11-15
6-10
0-5

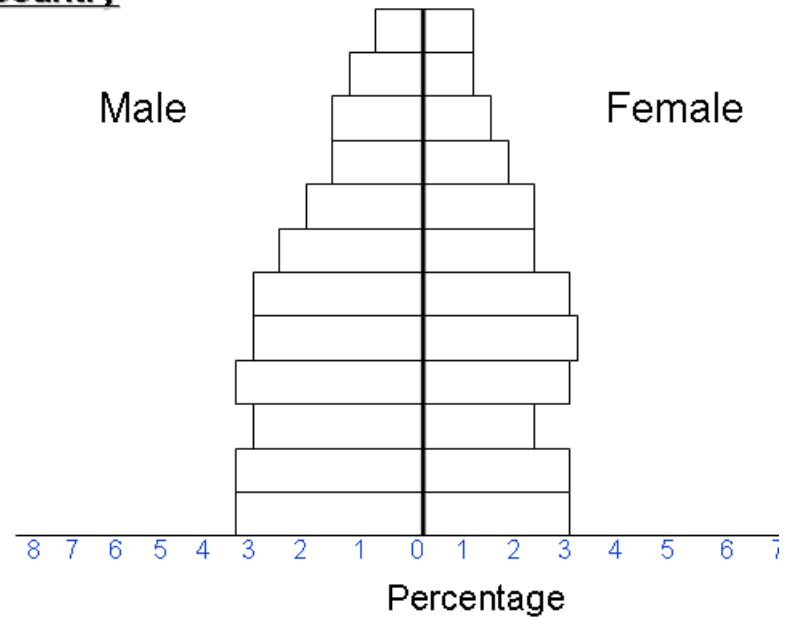


Percentage

India



Developed country



DENGUE CASES: AGE & SEX INFECTION

AGE GROUP (YEARS)	2003			2004		
	MALES	FEMALES	TOTAL(%)	MALES	FEMALES	TOTAL(%)
0-1	5	3	8 (6.0)	5	2	7 (22.6)
1-5	17	14	31 (23.3)	3	2	5 (16.1)
5-15	27	17	44 (33.1)	7	3	10 (32.3)
>15	32	18	50 (37.6)	5	4	9 (29.0)
TOTAL (%)	81 (60.9)	52 (39.1)	133 (10)	20 (64.5)	11 (35.5)	31 (100)

Adult males are more prone to infection, both at house and place of work; fatality rate 77% below 10 years of age.

AGE

- Strongly related to disease than any other host factor.
- Associated with maturity of organ systems, efficiency of Defence mechanism.
- Cumulative outcome of a life long agent-host interaction.

e.g.-

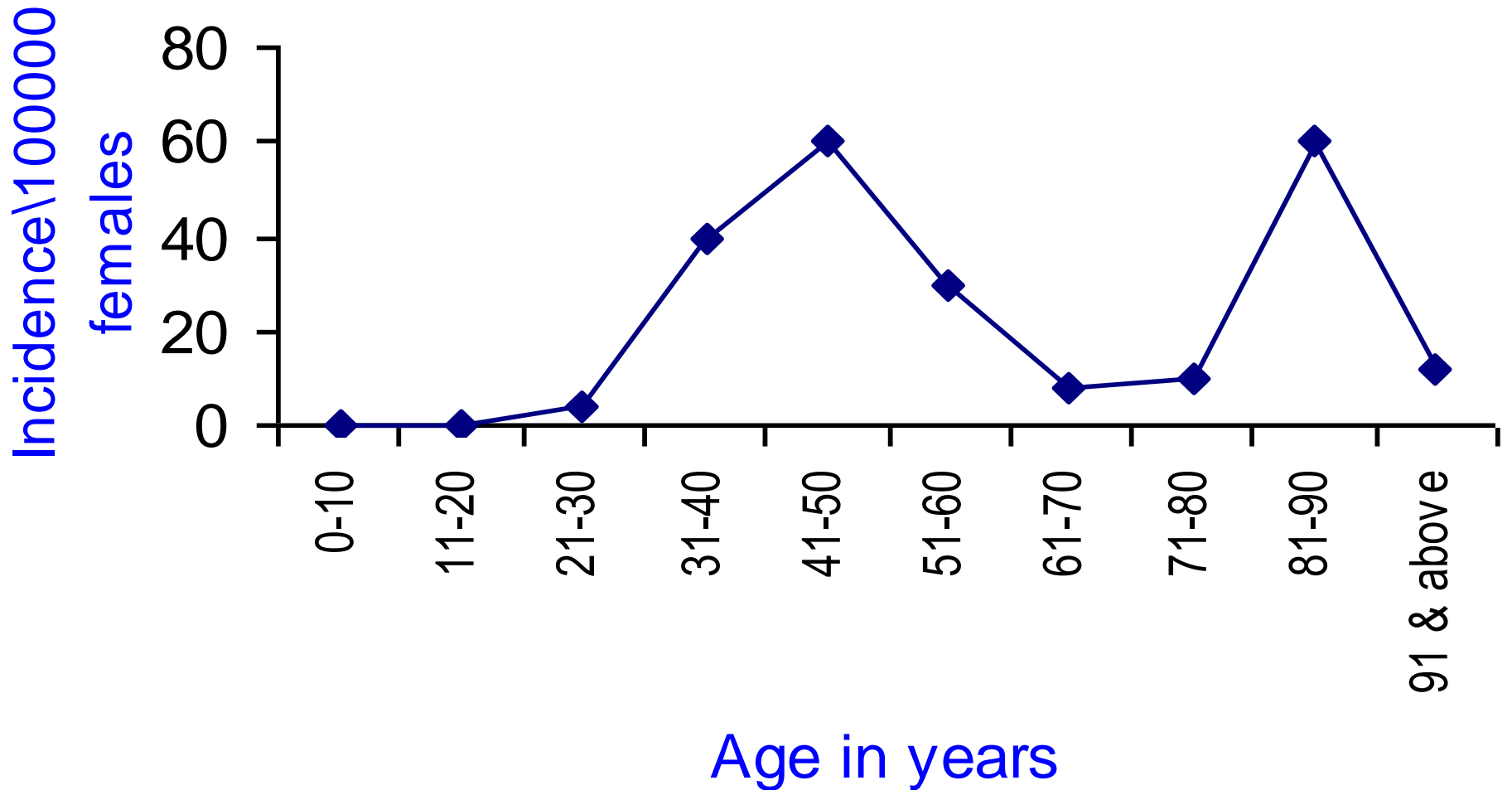
Childhood- Measles, Polio

Adult- STDs, TB

Middle age- Cancer, DM

Old age-Arthritis, Cataract, Psychosis....

Age wise incidence of breast cancer in females



AGE- Bimodality

- Two separate peaks in age incidence curve of disease.

e.g. Female breast cancer &
Hodgkin's lymphoma

Reasons- Distinct sets of causal agents
might be operative even though clinical
& pathological manifestations are same
at all ages

Gender

- Female- DM, Thyrotoxicosis, Cholecystitis
- Male- Oral cancers, Lung diseases, STDs, HIV accidents, Sex linked disorders
- Reasons-
 - Basic biological difference- genetic disorder
 - Cultural & behavioral differences
 - e.g. Smoking, Alcoholism, Occupation
 - Male dominance

RELIGION-ETHNICITY

Sickle cell anemia- Tribes in south Gujarat

Thalassemia- Lohana community

Infant mortality- Muslims (no contraception, birth spacing)

Anemia, Protein deficiency- Hindu (vegetarian)

Hydatid disease- Muslim, Christians (mixed diet)

MARITAL STATUS

- Mortality is lower in married males & females
Healthy more likely to get married, secure & protected
CA breast- nuns
CA cervix- rare in unmarried (multipara)
- Disruption of marriage-
Stress, Psychological problems....
Juvenile delinquency

OCCUPATION

- Physical, Chemical & Mechanical hazards,
Stress induce disorders

Night shifts-Disturb sleep--- Gastric ulcer

Sewage worker, sweepers – Alcoholism

Textile mill worker- Byssinosis

Coal mine, Cement industry- Asbestosis

Medical professionals- Radiation hazards, HIV,
Hep. B...

Socio-economic variation in Maternal Mortality Rate

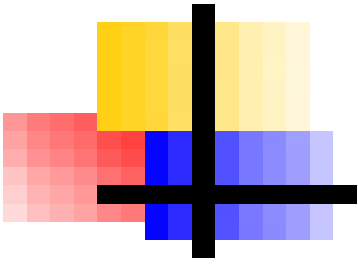
Background characteristics	Sub categories	MMR (per 100,000 live births)
Caste	S C	584
	S T	652
	Others	516
Religion	Hindu	573
	Muslim	384
	Others	428
Education	Illiterate	574
	Primary or less	492
	Middle or more	484
Socio Economic Status	Poor	555
	Lower middle	439
	Upper middle	611
Village development	Low	646
	Medium	501
	High	488
All India		544

SOCIAL CLASS

- Important demographic determinant of disease
- More important for first year of life
 - Lower class- Maternal, childhood mortality,
Infectious diseases,
Poor quality of life
 - Upper class- Problems related to sedentary life,
Obesity, better life expectancy
- Reasons- illiteracy, health awareness, poor utilization of health services in lower class

BEHAVIOR

- Cultural behavior- Misbelieves
- Sedentary life- Adoption of modern techniques
- Junk food- Modern Life style, media



Thank you...