Toppersnotes
Unleash the topper in you

NEET-PG

PART-B

VOLUME-IV

SOCIAL & PREVENTIVE MEDICINE

SIERRA INNOVATIONS
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SOCIAL & PREVENTIVE MEDICINE

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EPIDEMIOLOGY

among People study

Defn :- Epidemiology is the study of Diseases. [by John. M. Last]

Study of deseses.

- **DISTRIBUTION**
  - Time
  - Place
  - Person
- **DETERMINANTS**
  - Cause
  - eg:- ~~Swine flu~~ (H_1N_1 Type A Influ. pdm 09 (pandemic)) Maxico pigs.)
  - ↳No role in transmiss^n of ds.
  - ↳ man-to-man transmission
- **FREQUENCY**
  - Incidence ↳ New Cases
  - Prevalence ↳ New + Old cases.

DISTRIBUTION

SEASONAL / TIME DISTRIBUTION

MALARIA

DENGUE

Winter:
- MEASLES
- C. POX
- INFLUENZA → in India, common in summer season.
- H_1N_1., (H_5N_1, H_7N_9) ⇒ types of bird flu but not in India

TYPHOID / CHOLERA / FOOD POISONING.

POLIO ROTAVIRUS

DM HTN CHD, CANCER, HIV → occur any time in the year

- Chronic ds.
- occur any time in year

MALARIA

Rainy season.

by Anopheles [sophisticated mosquito as it require clear water for breading]

- Rural : An. culicifacies
- Urban : An. Stephensi

DENGUE

Rainy season.

Aedes Aegypti [Tiger mosquito]

* All resp. infection more common in ⇒ Winter
* Common diarrhoeal disease ⇒ Common throughout the year except polio, rota virus.

POLIO

Rainy season. [July, Aug, Sept]

ROTAVIRUS

Winter season.

Neonatal Tetanus → was last disease ⊆ was eliminated from India.

Rainy season.

HAY fever →

- spring / winter season

Asthma

Winter season.

size of droplet [in resp. infection] ⇒ $< 5\mu$ [5]

Inter-person distance to transmit infection ⇒ Distance < 1 mt.

PLACE DISTRIBUTION

KALA AZAR → Bihar, UP, W.B, Jharkhand ; sand fly (Phlebotamus)

FILARIASIS → coastal region ; Culex quinquefasciatus [C. Fatigans]

FLUOROSIS → d/t excess of 'F' ; central / west India [MP, Chhattisgarh, Andhra, Maharastra, Rajasthan, Gujrat]

J. ENCEPHALITIS → Last case reported on 13/1/2011 [HOWRAH]

GOITRE

MALARIA

DENGUE

MEASLES

C.POX, D, P, T, Mumps, Rubella, TB. ⇒ do not show place distribution.

TYPHOID, CHOLERA, FOOD POIS. ⇒ Everywhere ; not place distribution.

J.B ⇐ SCA, Thalassemia ⇒ in Punjab.

DM HIV Y.fever ⇒ Not show

POLIO

- India was declared Poliofree on 26/03/2014.
  Yet not eliminated in India.
- OPV [Sabin]
  very rarely, it causes 2 types of paralysis a/w OPV

VAPP	VDPV
[vaccine asso. paralytic polio]	[Vacc. derived polio virus]
P_3	cP_2
[m/c/c]	[m/c/c]

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Variety
Community
immuno def.
ambiguous.

J.E

- Caused by J.E. virus. [belongs to Arbovirus – B group

A	B.	others
Ch. gunea	all imp.. ds.	

- Vector → culex Tritenionhynchus [in India]
- Role of pigs in J.E → Amplifier host (⇒ organisms multiple; not affect the pigs)
- Actual host → Ardied birds [
- Accidental host → Man
- J.E. also requires → cattle & Horses [acts as mosquito attractants]
- Max^{m} cases reported → Eastern UP & WB
  [rice-growing states] [Gorakhpur]
  currently in 26 states

KFD

- Kyasanur forest, Karnataka
- Hemophysalis [Hard Tick] → vector
- also kpn as Monkey disease

GOITRE

- in Himalayan [earlier; not now]
- It is no longer a place distribution disease in India

- In 1994, Iodised salt distribution started

- m/c element def. in himalayan population ⇒ boron > selenium > zinc.

m/c/c of hypothyroidism in India ⇒ [Auto immune ds.] Hashimoto's ds.

m/c/c of MR → Down Synd.

MALARIA.

- max^{m} reported from → East & North-east India
  - East → DOC ⇒ ACT
  - North-east → DOC ⇒ Lumefantrin

- 90% from Africa & South Asia [Globally]

DENGUE

- Delhi / Gujrat / Kerala / WB
  [Hub]
  also Delhi is hub of chikenguinea fever

* Common - resp. infectn ⇒ do not show place distributn.

DM

- T. Nadu & Kerala [max^{m} reported]
  ie Southern Area ⇒ max^{m}
  Northern " ⇒ min^{m}
- Chennai → DM capital
- China > India

HIV

- Maxm in T. Nadu.
  Andhra
  Maharastra
  Karnataka
  Manipur.
  Nagaland.
  → • high risk prevalence
  • so good example of place distribution
- Country ī maxm cases of HIV ⇒
  S. Africa > Nigeria > India

Y. FEVER

- Causative agent → Flavivirus fibricus
- Vector in World → Aedes aegypti

D/t to +nce of Dengue Antibodies in Indian population ⊖⟹ Y-fever.

↳ this is kpn as cross-immunity

Cross-immunity

- Dengue Ab. ⊖→ Y. fever
- Duffy ⊖→ vivax
  -ve
- S.C.A ⟶ falciparum
  Thalass.
  G6PD
  Spherocytosis

NEW DISEASES - INDIA

[~ 130 Cr. ⇒ current population]

1. H_1N_1
2. NIPAH
3. CONGO fever
4. EBOLA ⇒ DELHI
5. LITCHI VIRUS DISEASE
6. ZIKA
7. PLASMODIUM OVALE

① H_1N_1

- 1st case - Pune.
- ~ 90% cases in Metros cities [d/t international air travel]
- Shows place distribution [but TB donot show]

② NIPAH

- W.B & Kerala
- caused by bat eaten fruits

③ CONGO fever

- only found in Gujrat but now in Delhi also.
- 'Hyalomma' - hard ticks [vector of transmission]
- caused by ⇒ Nairovirus
- DOC ⇒ Ribavirin

⑥ ZIKA

- Transmitted by → Aedes Aegypti
- Started from → T. Nadu & Gujrat
- Show place distributn

⑤ LITCHI VIRUS DISEASE

- WB
- it is d/t consumption of Litchi
  ↓
  in Empty stomach
  ⇓ causes
  Hypoglycemia ⟹ leads to Death [children]
- clinical responsible for hypoglycemia :-
  MCG [Methyl cyclopropyl Glycine]

⑦ PLASMODIUM OVALE

Baroda, Delhi, Mumbai, Kolkata

NEW DISEASES – WORLD. [6.5 billion]

① H_1N_1 → Mexico, S. Asia

② MERS → only in Middle east countries.

③ EBOLA
④ ZIKA
⇒ Africa.

⑤ H_7N_9 → in 2013 [China]

② MERS

- Variant of SARS [caused by Corona Virus] 11
  2002
- caused by MERS-CoV

PERSON DISTRIBUTION

AGE DISTRIBUTION

① Rh. fever
② Measles
③ Mumps
④ C. Pox
⑤ H_1N_1. ⇒ Not show age distribution.
⑥ Typhoid, cholera, food poisn. ⇒ donot show age distribution.
⑦ Malaria, Dengue. ⇒ donot show age distribution } Except in J.E.
⑧ DM HTN CHD Cancers
⑨ HIV, Polio, NNT
⑩ Rota virus.

① Rh. fever

- 5-15 yrs
- Non-communicable ds.

② Measles

- any age group.
- 99% occurs in 6 months – 3 yrs. of age.

③ Mumps

- any age group.
- more common in 5-9 yrs of age [school going]

④ C. Pox

- more common in 5-9 yrs. of age.
- affect any age.

Mid-day-meal food poisoning
↳ shows age distribution

DM

- shows age distribution
- ~ 30% Indian adults

HTN

- shows age distribution ; >40 yrs.
- ~ 50 % of Indian adults will have HTN.
- m/c non-communicable disease of India

m/c disease in India ⇒
Dental disorder > worm infestation
70-90%. (Round worm)
60-70%.

CHD.

- shows age distribution ; >40 yrs.

Cancer

- any age group.
- shows age distribution.

J.E

- age group → 1-15 yrs.
- never in infants

HIV

- show age distributⁿ (reported)
- maxᵐ in age 30-44 yrs. ; But max ᵐ transmissⁿ ⇒ 15-29 yrs.

* legal age of marriage in India ⇒ 18/21 yrs.

POLIO

- Still +nt in ⇒ Pakistan, Afganistan, Nigeria
- Not shows place distributⁿ in India.
- affect any age. ; maxᵐ in 0-5 yrs.

NNT

- maxᵐ in 0-28 days.

Rota virus.

- generally < 1 yrs. ; affects any age.

AGE-GROUPS

Child ⇒ 0-18 yrs.

Adolscent ⇒ 10-19 yrs.

Early - 10-13 yrs
mid - 14-16 yrs.
Late 17-19 yrs

Reprod. age ⇒ 15-49 yrs.

Infant ⇒ < 1 yrs.

Geriatric ⇒ >60 yrs. [developing country]

Perinatal pd. ⇒ 28 wks. POG ⟶ 7 days post delivery

Pd. of viability ⇒ ① POG > 28 wks.
↓
fetus able to survive of its own

Dead one POG. > 28 wks ⇒ Still birth
" " " < 28 wks ⇒ Abortion

(Or)
② ~~Dead one~~ Birth wt >1000 gms
↳ most sensitive / accurate criteria
(Or)
③ Birth length > 35 cm.

SEX - DISTRIBUTION.

CANCER.

Breast Ca ⇒ M : F = 1 : 99

SEX-restricted ds. ⇐ Cervical cancer ⇒ Not sex distribution ; as Only found in ♀

Lung Ca ⇒ M > F [d/t smoking]

Oral Ca. ⇒ M > F [d/t tobacco chewing]

DM ⇒ M

HTN ⇒ ≅ F [same reason as that of cataract]

CHD ⇒ M [Smoking, Alcohol]

~~MEASLES~~ ~~C.POX~~ ~~H1N1~~ ~~TYPHOID~~ ~~CHOLERA~~ ~~FOOD POISN.~~

~~MALARIA~~ ~~DENGUE~~ HIV IDA ↳F OP/OM ↳F

CATARACT ⇒ F [d/t the reason that female have higher life expectancy [6-8 yrs)]

HIV

- M:F = 1:7-10 [developed country]
- M:F = 3:2 [d/t lack of reporting of females] but definitely more cases in female.

ICTC [Integrated Counselling & testing centre]
↳ HIV testing occures here

RTA

- Male

m/c subtypes of Common diseases in India

TB ⇒ I-subtype (i) ; Pulmonary > Extrapulmonary
(Lungs) ⇓
LN > GIT [ileocaecal TB] > Bones [spine & long bones]

LEPROSY ⇒ BT-type Ridley-Jopling classification

MALARIA ⇒ Falciparum [in India as well as World]

HIV ⇒ Ic

CANCERS ⇒

Males :- ① Lung Ca. [India + World]
② Lip/oral cavity Ca.

Females :- ① Breast Ca. [India + World]
② Cervico-uterine ca.

Total :- ① Breast Ca. [India + World]
② Cervico-uterine Ca.
③ Lung Ca.

SMOKING leading to → LUNG CANCER.

also known as:
- ↳ Cause → Effect
- ↳ Risk factor [R/F] → disease
- ↳ Exposure → outcome.

India.
- 47% → ♂
- 21% → ♀
- 90% → Doctors

} Smokers.

CLASSIFICATION

Epidemiological study

OBSERVATIONAL

DESCRIPTIVE
by Hypothesis formulation
- Time
- Place
- Person

ANALYTICAL
by Hypothesis Testing

Eg:
- Cohort study
- Case-control study
- Cross-sectional study
- Ecological study

EXPERIMENTAL

INTERVENTIONAL
by Hypothesis Conformation

Eg:-
- RCT's
- Clinical trials
- Field "
- Community "

COHORT STUDY

People exposed to R/F; NON-EXPOSURE

2018 — 100 Smokers · 100 Non-Smoker

2033 — ⓑ 80 Lung Ca. ⓑ 80 Lung Ca. ⇒

Eg:- ~~ⓐ~~ 80 Lung Ca. ~~ⓐ~~ 10 Lung Ca ⇒

ⓒ 40 Lung Ca. ⓒ 80 Lung Ca.

2 groups → Exposure, Non-Exposure

& wait for occurance of same disease in BOTH and then compare.

LMR **Strength of Association in cohort study :-**

① Relative risk [RR] ② Attributable risk [AR] ③ population AR [PAR]

Best overall ① **RR / RISK RATIO**

$$RR = \frac{Ie}{Ine}$$

Ie → incidence of disease in exposed

Ine → " " non "

Eg. from above ⓐ $RR = \frac{80/100}{10/100} = 8$

Non-Exp. can also develop Lung ca but Exp. relatively 8 times higher risk of having Lung cancer

ⓑ $RR = \frac{80/100}{80/100} = 1$.

ⓒ $RR = \frac{40/100}{80/100} = \frac{1}{2}$

Interpretation

RR > 1 ⇒ Association present

RR = 1 ⇒ No association

RR < 1 ⇒ Risk factor is protective

-ve / inverse association

② AR

$$AR = \frac{Ie - Ine}{Ie} \times 100$$

Eg ⓐ $$AR = \frac{\frac{80}{100} - \frac{10}{100}}{\frac{80}{100}} \times 100 = 88\%.$$

here, 88% of Lung cancer is attributed d/t Smoking.

③ PAR

$$PAR = \frac{I_T - Ine}{I_T} \times 100$$

I_T = incidence in Total

Eg ⓐ $$PAR = \frac{\frac{90}{200} - \frac{10}{100}}{\frac{90}{200}} \times 100 = 77\%.$$