

First ever book designed for giving last-minute touch to **Community Medicine**



ONE Touch

Preventive & Social Medicine (PSM)

For NEET PG/FMGE/INI-CET/CMS Aspirants/Undergraduates



Special Features

- Written & Compiled by the Leading Faculties & Subject Experts of Community Medicine
- Enriched with Latest Updates up to Jan 2023
- Entire theory covered in just **38** pages in Table and One-liner format
- Latest Demographic data included
- **100+** Important MCQs of Recent Exams covered up to 2023 (FMGE Jan 2023)
- PSM spotters table and formulas covered extensively



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Mukhmohit Singh
Shveta Saini

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Mukhmohit Singh

MBBS, MD (Community Medicine), PGDHS
Gold Sp Award (2012) ERS

Ex Assistant Professor

Community Medicine and Public Health
Preventive Medicine and Public Health Specialist

Formerly

Epidemiologist – IDSP, UT Administration, Chandigarh
Research Officer, PGIMER, Chandigarh

Member

Indian Public Health Association
Indian Association of Preventive and Social Medicine
Research Society for Study of Diabetes
European Respiratory Society

Shveta Saini

MBBS, MD (Community Medicine)

Ex Assistant Professor

Community Medicine and Public Health
Preventive Medicine and Public Health Specialist

Member

Indian Public Health Association
Indian Association of Preventive and Social Medicine



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DEMOGRAPHY

4 topics – Demographic stages, Fertility rates, Survey indicators, Family planning

Topic 1.1: Demographic Stages

	Name	Birth rate	Death rate	Remarks
Phase 1	High stationary	High	High	-
Phase 2	Early expanding	High	Starts declining	<ul style="list-style-type: none"> Explosive growth DG starts increasing Maximum DG toward late part of stage 2 High fertility rate
Phase 3	Late expanding	Starts declining	Slow decline	<ul style="list-style-type: none"> Increasing population, but growth rate is lower than stage 2 DG starts decreasing Demographic Gift, bonus Dependency ratio is lower
Phase 4	Low stationary	Slow decline	Slow decline	Ideal stage, low liabilities, Developing countries
Phase 5	Declining	Slow decline	Very low/stable	<ul style="list-style-type: none"> Declining, dying population Minimum (negative) DG, demographic liability

Topic 1.2: Fertility Rates

GFR	Total number of children a female will bear during her reproductive years
TFR	Total number of children a female will bear during her reproductive years assuming the current Age specific Fertility rates
GRR	Total number of daughters a female will bear during her reproductive years assuming the current Age specific Fertility rates
NRR	Total number of daughters a newborn girl child will bear during her entire life assuming the fixed age specific fertility rates and age specific death rates

Demographic Gift-

- higher number of reproductive age group population
- lower dependancy ratio
- because of higher birth rates in the previous demogrpahic phase
- seen from stage III onwards

Demographic liability-

- higher number of older age group population
- higher dependancy ratio
- because of declining death rates
- seen typically in Stage 5

HEALTH SYSTEMS IN INDIA

<p>Village level</p> <ul style="list-style-type: none"> ASHA, LHV's, Trained Dai <p>Subcenter</p> <ul style="list-style-type: none"> 2 MPW – (Male and female) Upgraded to HWC – with post of CHO <p>PHC</p> <ul style="list-style-type: none"> Medical officer – incharge, AYUSH, Dental + ANM + HA (supervisory functions) Best level of integrated health services – preventive, curative, rehabilitative) 	<p>CHC</p> <ul style="list-style-type: none"> Specialist – medical, surgical, ob/gy, pediatrics, ophthal, anesthesia, X-ray technician, OT-Assistants Functional – X-ray, lab, OT Upgraded to FRU with 24 x 7 Blood bank facility <p>District Hospital</p> <ul style="list-style-type: none"> All Clinical specialities, nurses, specialized labs Program officers for national health programs
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Population norms, beds

HWC (2-4 staff) – maintained by center govt.	PHC (Staff – 13-14 basic, 20 desirable)	CHC (Staff – 45 basic, 50 desirable)
<p>Health and wellness center</p> <ul style="list-style-type: none"> Rural hilly – 3000 Rural plain – 5000 Urban HWC – 15-20,000 population 	<ul style="list-style-type: none"> Rural hilly – 20,000 Rural plain – 30,000 Urban PHC – 50,000 Urban polyclinic – 2.5-3 Lac 	<ul style="list-style-type: none"> Rural hilly – 80,000 Rural plain – 1,20,000 Non-metro city – 2,50,000 Metropolitan city – 5,00,000 population
<p>BEDS</p> <ul style="list-style-type: none"> Type A SC: 1-2 beds Type B SC: 2-3 beds 	<p>BEDS</p> <ul style="list-style-type: none"> Type A – 4-6 beds Type B – 6-10 beds 	<p>BEDS</p> <ul style="list-style-type: none"> CHC – 30-50 (FRU) beds UCHC 50-100 (FRU) beds
Drug Kit A, B, C	Drug Kit D	Drug Kit E, F, G, H

District Hospital: One bed per 1000 population is an 'Essential' norm for every district while two beds per 1000 is a target they should aspire toward 'Desirable level'.

Dedicated to Education

Functions:

ASHA worker	MPW (male)	MPW (female)
<ul style="list-style-type: none"> Home visits Health care of community Depot holder for essential drugs Care for mother and child Integrated functions with Anganwadi, ANM, Village health sanitation and nutrition committee 	<ul style="list-style-type: none"> Malaria slides, diagnosis, treatment Insecticide spray, vector control Chlorination, water quality Records and registers Subcenter maintenance OPD and family survey 	<ul style="list-style-type: none"> ANC, PNC, Mother and child care Conduct normal deliveries, emergency mother and child care Immunization Family planning, contraception OPD and family survey

MOTHER AND CHILD HEALTH

Target:

MMR < 70 per lac live births

NNMR < 12 per 1000 live births

USMR < 25 per 1000 live births

(refer to demographic data for current values, Table 1, pg 41)

Classical definitions:

1. Neonate – from birth till 28 days of life
2. Early neonate – birth till seven days of life
3. Late neonate – from 8th day till 28 days of life
4. Infant – from birth till one year of life
5. Perinatal period – From 28 weeks of gestation till first 7 days of life
6. Still birth – classified as a fetal death which is:
 - a. more than 28 weeks of gestation
 - b. more than 1000 g
 - c. more than 35 cm in crown rump length

NOTE: As per WHO, the perinatal period is from 22 weeks till 7 days, but in India, we take it from 28 weeks onwards under the RCH program

Most common cause of death in:

- Neonatal mortality (and infant mortality) is – low birth rate, prematurity (single best answer)
- Infant mortality (as per Medical certificate cause of death – survey report 2020) – perinatal conditions as hypoxia, birth asphyxia and other respiratory conditions
- USMR – septicemia > Pneumonia > diarrhea
- Maternal mortality – postpartum hemorrhage due to uterine atony due to multiple risk factors as traumatic delivery, prolonged delivery, anemia

Points to remember:

- Child mortality rate (under five mortality rate) – death of children age under five years
- Child death rate (1-4 years death rate) – death of children age 1 year to 4 years of age
- Perinatal mortality includes still births and early neonatal deaths
- Still birth rate is number of still births out of total births (still + Live births)

See formulas on page 70.

Best indicator:

- Overall development of country and population health – IMR
- United Nations (UN) indicator for country development – USMR
- Quality of delivery services – MMR
- Health facilities availability and service utilization indicator – Perinatal mortality rate

ANC Visits –

As per National health mission, India – 4 visits → < 12 weeks, 14-26 weeks, 28-32 weeks, 36 weeks till term

As per WHO – Total 8 visits

1st trimester – 1 visit, 2nd trimester – 2 visits and in 3rd trimester – 5 visits

ANC screening:

Rural areas – Hb, Urine (protein, sugar), malaria test

Urban area – Hb, urine, Malaria test + HIV + HepB + VDRL + GDM testing

GDM screening guidelines:

- two times – < 12 weeks and 20-24 weeks
- criteria is one step testing > 140 mg/dL is positive for GDM
- fasting is not required
- testing at 2 hours, post glucose load – 75 g anhydrous glucose
- trial with medical nutrition therapy (MNT) for 2 weeks to all positive GDM cases

ANC Care

- Two doses of Td vaccine with gap of 4 weeks.
- In case of complete immunization within last three years, then only ONE booster to be given
- Early pregnancy (<12 weeks or 1st Trimester) – only folic acid supplements @ 400 mcg/day
- From 4th month onwards – Iron folic acid supplement (60mg elemental iron + 500 mcg folic acid), daily tablets to be given till delivery and also up till 180 days after delivery

IMPORTANT TABLES

Table 1: Country data, survey report

<ul style="list-style-type: none"> • Birth rate – 19.5 per 1000 population • Death rate – 6.0 per 1000 population • Infant mortality rate – 28 per 1000 live births • Neonatal mortality rate – 20 per 1000 live births • Maternal mortality ratio – 97 per lac live births • Maternal mortality rate – 6 per lac females in 15-49 yrs • Lifetime maternal risk – 0.21% in WRA 15-49 yrs 	<p>Dependency ratio – 48.27%</p>
<ul style="list-style-type: none"> • Sex ratio – 1020 • Sex ratio birth – 929 • Total fertility rate – 2% • Couple protection rate – 67% • Annual growth rate – 0.9% • %age children with Exclusive breastfeed – 64% • Institutional deliveries – 89% 	<ul style="list-style-type: none"> • TB incidence – 188 per lac • Leprosy prevalence – 0.5 per 10,000 • ANCDR – 8.13 per lac • Grade 2 disability – 1.96 per million population • HIV prevalence – 0.2%

Table 2: Health indicators for country comparisons

INDEX	PQLI	HDI	HIHD	MPI	GHI
	Physical Quality of Life Index	Human development index	Historical Index of Human development	Multidimensional Poverty Index	Global Hunger Index
Sub-indicators	<ul style="list-style-type: none"> • LE at 1 year • Literacy rate • IMR 	<ul style="list-style-type: none"> • LE at birth • Mean school years • Expected school years • Gross national income 	<ul style="list-style-type: none"> • LE at birth • Adult literacy rate • School Enrolment rate • Gross domestic product 	<ul style="list-style-type: none"> • Death <18 years • <6 years of school • No education till 8th class • Low standard of living (6) 	<ul style="list-style-type: none"> • US MR • Undernutrition • Inadequate food supply
Current level	Old indicator, not used	0.64, Rank 132	–	<ul style="list-style-type: none"> • National 0.118 • Urban 0.04 • R = Rural 0.155 • highest Bihar, lowest Kerala 	29.1 (serious Hunger). Rank 107 (out of 122 countries)

PQLI—Physical quality of life index

HDI—Human development index

HIHD—Historical index of human development

MPI—Multidimensional poverty index

GHI—Global hunger index

IMPORTANT IMAGES AND LOGOS

1. Demography



Fig. 1.1: Birth and Death Registrar of India



Fig. 1.2: Digital India Campaign



Fig. 1.3: National Vector Borne Disease Control Program



Fig. 1.4: IDSP—Integrated Disease Surveillance Project



Fig. 1.5: NLEP—National Leprosy Eradication Program



Fig. 1.6: NPCBVI—National Program for Control of Blindness and Visual Impairment

Dedicated to Education

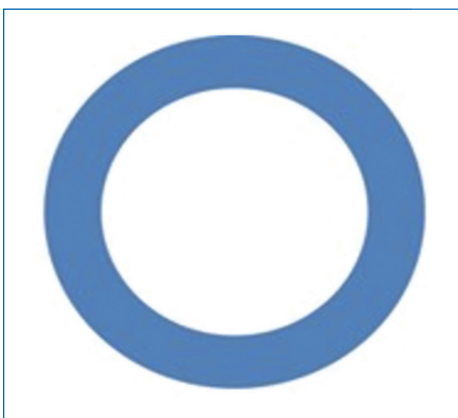


Fig. 1.7: Unite for Diabetes—Logo



Fig. 1.8: MBI kits for iodine testing in household salt



Fig. 1.9: National Program for Control and Prevention of Cancer, Diabetes, Cardiovascular Disease and Stroke

4. Graphs and Charts



Fig. 4.1: Venn diagram

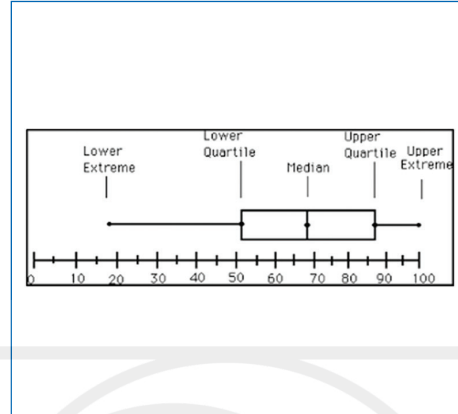


Fig. 4.2: Box and whisker plot with Quartile distribution

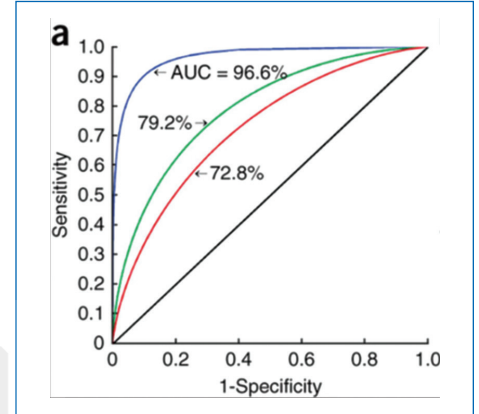


Fig. 4.3: ROC - Receiver operator characteristic curve

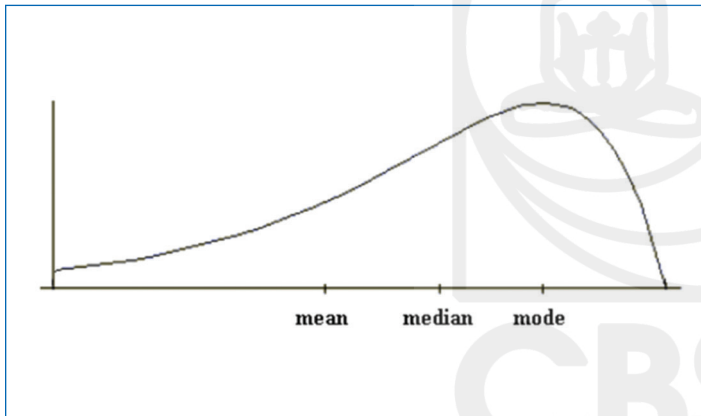


Fig. 4.4: Left Skew

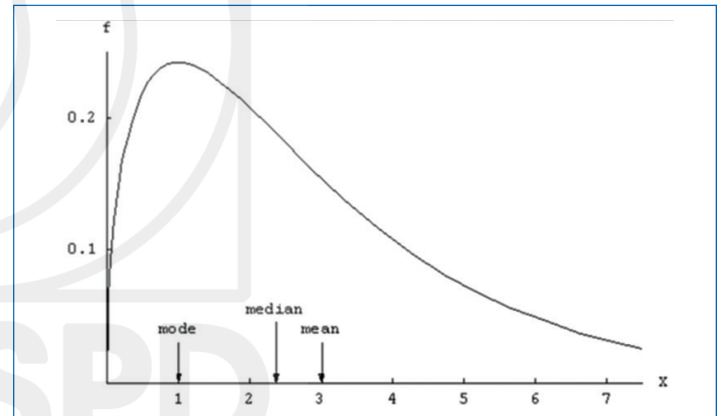


Fig. 4.5: Right Skew

Dedicated to Education

Infant Mortality Rates in Western Africa	
Stem	Leaf
5	1
6	
7	
8	4 6 8
9	2 9
10	
11	3 4
12	1 2 4
13	8
14	4 7 8
15	1

Fig. 4.6: Stem and leaf plot

DEMOGRAPHY

FMGE DECEMBER 2021

1. In a population of 10,000; what does it mean that sex ratio is more than 1000.
- Male population less than 500
 - Male population less than 5000
 - Female population less than 500
 - Female population less than 5000

Ans. b

CRPSM/3rd ed/Page 392

Sex ratio is number of females per 1000 males. So, if the sex ratio is more than 1000, means more females compared to males.

2. Couple has given birth to their first child, the family is entering in which phase:
- Formation
 - Expansion/Extension
 - Contraction
 - Dissolution

Ans. b

CRPSM/3rd ed/Page 378

Family cycle:

Formation—marriage of couple

Extension—birth of first child

Complete extension—birth of second child

Contraction—first child is adult, and lives away from family

Complete contraction: second child is adult, and lives away from family

Dissolution—death of a spouse

Extinction—death of remaining partner

3. Registration of birth and death rate in National level by:
- Civil registration
 - SRS
 - NFHS
 - Census

Ans. a

CRPSM/3rd ed/Page 396

Birth and death registration is done as vital survey or the civil registration survey

4. All are true for vasectomy; except:
- Immediate sterilization
 - Permanent method
 - Contraceptive result after 3 months
 - No sutures are required

Ans. a

CRPSM/3rd ed/Page 408

The male need to use alternate method (condoms) for 8–9 weeks or 30 ejaculations after vasectomy. Hence, does not offer immediate sterilization.

INI-CET/NEET 2022

1. In a European country continuous deaths are happening but no new births is reported, the country is in which phase?
- High stationary
 - Low stationary
 - Decline
 - Late expansion

Ans. c

CRPSM/3rd ed/Page 389

If the births are not there, but there are more deaths, means the population size is decreasing and hence, option c.

2. Comparison of development and quality of health and life between two countries is done by?
- Human development index
 - Human poverty Index
 - Disability adjusted life years
 - Quality adjusted life years

Ans. a

CRPSM/3rd ed/Page 152

Human development index measures the standard of living, and healthy life (life expectancy at birth).

- Human poverty Index – measures the poverty rate in country.
- Disability adjusted life years – measures the burden of a disease.
- Quality adjusted life years – measures the effectiveness of an intervention.

3. Correct statement about population pyramid.
- The base denotes fertility
 - Higher height, if age pyramid means low life expectancy
 - If the middle part is bulging means more males compared to females
 - A broad apex of age pyramid means more working population.

Pearls Index =

$$\frac{\text{Number of accidental pregnancies}}{\text{Total number of women months of exposure}} \times 1200$$

- Sullivan index – marker for disability free life years
- Abortion rates – for number of MTPs
- Total fertility rate (TFR) – indicator or complete family size, it is also an epidemiological indicator for evaluation of the national family planning program.

3. Long acting reversible contraception (LARC) is:

- OC pills
- Implants
- Sterilization
- IUCD
- Chhaya

Ans. b and d

The intrauterine device (IUD) and the birth control implant are long-acting reversible contraception (LARC) methods. Both are highly effective in preventing pregnancy and have good return to fertility.

HEALTH SYSTEMS IN INDIA

FMGE DECEMBER 2021

- A worker is posted in the same village, who is 8th pass and age is 25–45 years. She is a widow and has good communication skills. Identify the worker:
 - MPW
 - Accredited social health activist
 - Anganwadi worker
 - Dai or trained birth assistant

Ans. b

CRPSM/3rd ed/Page 459

This is ASHA worker. She is a resident of the same village; age 25–45 years and 8th pass (recent update: minimum education 10th pass). She should be preferably a mother.

Ans. a

CRPSM/3rd ed/Page 457

The first contact of community toward health care is done at a health center. Subcenters are located for a population of 3000 (hilly areas) to 5000 (plain area) and serve as first point of contact.

Primary health center is the best level of health care for integrated services – involve preventive, promotive and curative health care to community

3. Which of the following is true for PHC; except?

- Caters to population of up to 30,000
- Provides 24 x 7 Delivery services
- Provides specialized health care for referral
- Integrated health care services

Ans. c

CRPSM/3rd ed/Page 455

PHC provides an integral and important health care functionary system. It provides all levels of health care (preventive, promotive, curative, rehabilitative) to community along with delivery services.

Specialized health care (option c) is provided at a community health center, CHC (and not at PHC), which may also be upgraded to a FRU (first referral unit) for emergency and specialized OBGY care.

4. The following health staff/services is available at a CHC; except:

- Surgical facility
- First referral units
- Congenital malformations/genetic care interventions
- Blood storage facility

FMGE JUNE 2022

- All of the following health workers are available at the village level; except:
 - Trained birth assistant
 - Accredited social health activist
 - Anganwadi worker
 - Auxiliary nurse midwife

Ans. d

CRPSM/3rd ed/Page 458

ANMs are available at PHC level or above. ANM courses are accredited courses, regulated under the Indian nursing council.

- First contact of people to health care is done at:
 - Subcenter
 - Primary health center
 - Polyclinic
 - District hospital



ONE Touch

Preventive & Social Medicine (PSM)

Salient Features

- **Theory** – a concise form of text (in 38 pages) and most important points to remember are given for the examination point of view. The text is designed in accordance with the recent CBME and NEXT exam curriculum.
- **Latest demographic data** (NFHS-5, SRS 2022) and recent updates included: 2022 updates as new COVID, typhoid, cervical cancer, fIPV vaccines are highlighted in respective chapters for quick reference and long-term memory.
- **High Yield Tables** – Frequently asked points and clinical correlates are tabulated for easy learning and more visual impact for long-term memory.
- **Images and Logos** – Illustrations are given along with their descriptions. They have been arranged as per the chapters.
- **Formula Page** – 30 formulas have been provided for the benefit of the students. These formulas frequently asked in entrance and UG exams.
- **Previous Years Questions** – Last 3 years Exam Question papers up to Jan 2023 with solution, explanations and discussions are provided to develop an idea about the trend of questions and also to know about the recently asked topics. The answers are given with references from standard resources.

About the Authors

Mukhmohit Singh, MBBS, MD (Community Medicine) PGDHS has been working as a faculty for training the students of PSM subject for various entrance exams across and outside India with a very high success rate. He has clinical-cum-research experience of working as Medical Officer in corporate hospitals as well as research fellow for projects in PGIMER, Chandigarh. He is associated with Smt. Vidyavati Trust which is providing care and innovations in health care. He also has vast array of field and community experience while working as an Epidemiologist for UT Administration, Chandigarh and as Assistant Professor (Epidemiology) in the Department of Community Medicine for teaching and training of the undergraduate MBBS students.



The author has been awarded Gold Sponsorship Award for work on COPD at the prestigious European Respiratory Society. He has also been awarded the certificates for successful completion of Diploma course for Advancements and Management Plans for Diabetes in India for Thyroid Disorders and Advance Epidemiology programs. The author has contributed to research in the field of pulmonary medicine, and has various papers published in national and international journals. He is also an active member of various organizations such as ERS, RSSDI, IAPSM, IPHA. He is also an international faculty for Epidemiology and Public Health and has been teaching medical doctors in USA and Canada for Licensing Exams.

Shveta Saini, MBBS, MD (Community Medicine) has been working as an Assistant Professor, Community Medicine and Public Health, Preventive Medicine and Public Health Specialist. She is very dynamic and enthusiastic in her field and has been duly recognized for her active contributions to the field of community medicine. She is a member of several institutions, like Indian Public Health Association and Indian Association of Preventive and Social Medicine. Her flawless delivery of lectures and clarity in the concepts make her very popular amongst the students. She along with Dr Mukhmohit Singh has authored several books, viz. Review of PGI Chandigarh (PGMEE) 2015–2016 and 2016–2017, Biostatistics Review for PGME and PSM Trends for PGME.



CBS Publishers & Distributors Pvt. Ltd.

4819/XI, Prahlad Street, 24 Ansari Road, Daryaganj, New Delhi 110 002, India
E-mail: feedback@cbspd.com, Website: www.cbspd.com
New Delhi | Bengaluru | Chennai | Kochi | Kolkata | Lucknow | Mumbai | Pune
Hyderabad | Nagpur | Patna | Vijayawada

ISBN: 978-93-94525-00-9

