

Handicapped

Health Promotion

Institutional Care

Mortality

Morbidity

Nursing Assessment

National Policy

Paediatrics

Prevalence Rate

Restoration

Vital Statistics

Voluntary Health Agency

WHO

- : Children who are physically, mentally and socially disturbed are known as handicapped children.
- : Health promotion is a process that involves individuals taking control of their own health and governs dealing with economic, political and environmental threats to national and international well-being.
- : It is new paediatric medical speciality developed in mid 1800. Children are cared like adults in the hospitals.
- : The state of being subject to death.
- : The condition of being diseased, within a given population, the number of sick persons or cases of disease recorded in a stated period.
- : It is the gathering of information about a patient's physiological, psychological, sociological and spiritual status.
- : It is a policy of the state which provides services to children before and after birth, through the period of growth for the purpose of comprehensive development.
- : The branch of medicine concerned with children both in illness and wellness.
- : The number of new and old cases of a disease present in a specified population at a given time.
- : The action of returning something to a condition.
- : Quantitative data concerning a population, such as the number of births, marriages and deaths.
- : An organization that is administered by an autonomous board which holds meetings and collects funds for health services.
- : World Health Organisation.

## INTRODUCTION

Paediatrics which is synonymous with child health is the branch of medical science that deals with the care of children from conception to adolescence, in health and disease. Similarly, paediatric nursing or child health nursing is an important branch of nursing which deals with the care of children from conception to adolescence in health and disease. Recent years witnessed system specialization within the broad field of child health nursing, social paediatric nursing, neonatal nursing. Perinatal nursing,

developmental paediatrics, paediatric medical surgical nursing etc.

## CONCEPT OF CHILD HEALTH

The term 'paediatrics' is defined from the Greek word '*pedia*' which means child, '*iatic*' means treatment and '*ics*' means branch of science. Thus, Paediatrics means the science of child care and scientific treatment of childhood diseases. Paediatrics is synonymous with child health.

## Unit-1 :: Introduction



• Fig.1.1

"Paediatrics can be defined as the branch of medical science that deals with the care of the children from conception to adolescence, in health and illness. It is concerned with preventive, promotion, curative and rehabilitative care of children".

Children are major consumers of health care. In India about 35 per cent of total population are children below 15 years of age. They are not only large in number but also vulnerable to various health problems and considered as special risk group. Majority of the childhood sickness and death are preventable by simple low cost measures. Disease patterns and management of childhood illness are different than that of adult. Good health of these previous members of society should be ensured as prime importance in all countries. As said by Karl Meninger "what is done to children, they will do to the society" Children are the wealth of tomorrow.

## PAEDIATRIC NURSING

Paediatric Nursing is the specialized area of the nursing practice concerning the care of children during wellness and illness, which includes preventive, promotive, curative and rehabilitative care of children.

## HISTORICAL BACKGROUND OF CHILD HEALTH

Historically, in all the regions of the world, the emphasis on the concept of paediatrics has been limited to the curative aspects of diseases particular to the child.

- \* **Abraham Jacob** is known as father of paediatrics because of his contribution to paediatrics.
- \* **Hippocrates (370-460 BC)**: The father of modern medicine has made significant observations on diseases found in children.
- \* **Galen (1200-1300 AD)**: Wrote extensively in Greek on the care of infants and children.
- \* **Soraneus**: He wrote the first known manuscript devoted to paediatrics and incidentally, was the first author, who advocated the famous fingernail test for the purity of milk.
- \* The Arab physician Rhazes (850-923 AD) devoted much of his treatise to the subject of childhood illness.
- \* The first printed book on paediatrics was in Italian (1472), Bagallarder's little book on diseases in children.
- \* The first English book on children's diseases called 'Book of Children' was written by Thomas Phaer in 1545 AD. In this context, it is interesting to note that India with its long history of civilisation produced the Rigveda which carries the earliest medical information on man, and the Atharvaveda (1500 BC) contained the first document on Indian medical herbs.



- \* The world's first paediatrician *Kashyapa and Jeevaka* worked on child care and children's disease and child care.

- \* The chapter on Kumaramitra (i.e., service to children) in his Sushruta Samhita, the classical encyclopedia of ayurvedic medicine, was perhaps the first record of paediatrics anywhere in the world.

- \* *Charaka*, the court physician in Peshawar, wrote at length on the care and management of the newborn, in his *Sarna Sthana* and *Ashtanga-Hridaya* in the 4th century A.D. All these treatises and monumental works emphasized the modern WHO definition of health as "A state of complete physical, mental and social well-being and not merely the absence of disease and infirmities."

They agree on "Dharmar thakama mokshanam arogyam moolam uttama" which means health at the root of ethical living, livelihood, family life and spiritual striving.

- \* The siddha system of medicine in south India developed paripasu with Ayurveda and their section on paediatrics held the

modern concept that service to the child starts from the moment of conception. Their materia medica of herbs is rich in its repertoire of cures.

### 1.1. MODERN CONCEPT IN CHILD HEALTH CARE

Child health nursing is undergoing tremendous advancement just like paediatric medicine and surgery. The current trends in the practice are based on researches that have taken place in the field of paediatric nursing.

Now a days the child care is very much improved. It includes:

- \* Hospital environment for a sick child.
- \* Advanced changes in medical and nursing care.
- \* Expansion in independent role of the paediatric nurse.
- \* Paediatric nurse practitioner.
- \* Paediatric clinic nurse specialist.
- \* Paediatric nurse master clinicians.

Table: New/Modern concepts of Child Health Care

OLD CONCEPTS	NEW CONCEPTS
Disease (centered care)	Child centered care
Discourage the families on neglect of the female child.	Take care of female child with Immunization of tetanus.
Care of the women after becoming pregnant	Health education on planned parenthoods and doing the maternal health.
Special care during the last trimester and the postnatal period to the child born with congenital anomalies and hereditary disorders.	Early identification and family counselling based on bio-chemical screening and chromosomal studies. It helps to prevent congenital anomalies and hereditary disorders in children.

Caring of child after the birth only.	Caring the health of the child from the day of conception.
Care of the sick children in the hospital	Participate in the prevention of illness and health promotion activities.
Care the physical condition of the child in hospital only.	Comprehensive cares of child in his home community health centres.
Not allowed the parent to be with the child in the hospital and reducing the visiting hours ward.	Ensuring that the children must have stay with them and participate in the care, flexible visiting hours in paediatric.
One of illness oriented.	One of health oriented.
Curative and rehabilitative care to the children in hospital only.	Health promotion activities by ensuring environmental stimulation and intelligent manipulation of the environment, adequate play activities service related to the fertility, sex, education and counselling.
Adopt the indifferent attitude to child neglect and abuse by family and society.	Safe guarding and protect the children rights by health providing, cultural practice and laws encouraging.

### 1.2. TRENDS IN PAEDIATRIC NURSING

Remarkable changes have occurred in the field of paediatric nursing in recent years due to changing needs of society, medical and technological advancing, political interests and changing trends within the nursing profession.

#### CURRENT TRENDS

1. Family centered care
2. High technology care
3. Evidence-based practice
4. Primary nursing
5. Case management
6. Child-oriented environment
7. Atraumatic care

8. Cost containment
9. Nursing process application
10. Ethics in paediatric nursing

**1. Family-centered Care:** It is based on the philosophy that quality care can be provided in an environment that Promotes family integrity and promotes psychological and physiological health of the family. It provides a holistic approach as parents know about their child's needs, more aware of their child's behaviour and habits.

**2. High Technology Care:** The advancement in the diagnostic technology has made detection of many disorders even in the foetal period. Laboratory methods to assess foetal maturity and health of the foetus in the womb.



3. **Evidence-based Practice:** Nurse need to make decision on the best available Evidence. EBP in nursing provides a systematic approach to enable nurses to effectively use, the best solution related to nursing practice.



• Fig.1.2 Flow chart depicts the Process of using evidence-based practice in nursing.

4. **Primary Nursing:** The system of primary nursing provides extreme commitment to patient accountability. 24 hour responsibility and Accountability by one nurse for the care of a small group of patients is possible with primary nursing.
5. **Case Management:** It is considered as an extension of primary nursing. It is usually used in outpatient setting by assigning a case management to a patient or a group of patients.
6. **Child-oriented Environment:** A child-friendly environment should be provided to a child who is admitted to hospital.
7. **Atraumatic Care:** It is an provision of therapeutic care by personnel and with intervention eliminates or minimizes the psychological and physical distress experienced by child and their families in health care system.
8. **Cost Containmnet:** It is providing care with minimal costs. It reduces the cost of hospitalization.
9. **Nursing Process Application:** Nursing process or critial thinking mainly plans care through sequence of assement nursing diagnosis plannig implementation and evaluation. These five steps are followed in focusing the care of the child.

#### 10. Ethics in Paediatric Nursing Practice:

- \* **Non-maleficence:** Do not harm.
- \* **Beneficence:** Do good.
- \* **Justice:** There are three aspects as legal justice, respect for right and fair distribution of resources, even the nurse time and attention.
- \* **Respect for Autonomy:** Respect the individual's right to make informed and thought out decisions for themselves.
- \* **Truth Telling:** The latest trends in paediatric nursing are flexible visiting hours, Rooming-in, Parents' support group, School teachers involved in care of hospitalized child, play in school and hospital, prevention of disease and promotion of health.

### 1.3. ROLE OF PEDIATRIC NURSES IN CHILD CARE

The role of the paediatric nurse is constantly changing. These changes are as a result of expanding medical and nursing practice, emerging challenges in different aspects of child care, consumer demands and technological advancements.

#### ROLES OF CHILD HEALTH NURSE

The role of the paediatric nurse may vary from one institution to other, but basic responsibilities remain the same. Role of child health nurse can be broadly divided into two types. They are:

#### Roles of Child Health Nurse / Paediatric Nurse

##### 1. Extended Roles

- a. Primary Care Giver
- b. Co-ordinator and collaborator
- c. Nurse Advocate
- d. Health Educator
- e. Nurse Consultant
- f. Nurse Counsellor
- g. Case Manager
- h. Recreationist
- i. Social worker
- j. Nurse Researcher

##### 2. Expanded Roles

- a. Nurse Practitioner
- b. Clinical Nurse specialist
- c. Case Manager
- d. Nurse executive / administrator
- e. Nurse educator
- f. Nurse mid wife
- g. Nurse Anesthetist

• Fig.1.3 Roles of Child Health Nurse.

#### I. EXTENDED ROLES

a. **Primary Care Giver:** Paediatric nurse should provide preventive, promotive, curative and rehabilitative care in all levels of health services.

- \* In hospital, care of sick children includes comfort, feeding, bathing, safety etc. At community set up, basic responsibilities include health assessment, immunization, primary health care and referral etc.



**b. Co-ordinator and Collaborator:**

\* The nurse plays an extremely important role with the combination of health care team members. Nurse maintains good interpersonal communication with the child, family and health team members.

\* The nurse coordinates nursing care with other services for meeting the needs of child. e.g. physician, social worker, surgeon, physiotherapist, dietician etc.

**c. Nurse Advocate:** The paediatric nurse acts as an advocate to safeguard the child's right, to assist and to provide best care from the health care team and other health care providers. e.g. it can range from consulting dietary department for special foods to arrange team meeting to discuss plan of care with other health team members.

**d. Health Educator:** The nurse's goal of health teaching is to provide information to the child parents and significant other about prevention of illness, promotion or health maintenance.

Characteristics of nurse teacher includes 4 C's:

- C – Confidence
- C – Competence
- C – Communication
- C – Caring and empathy

**e. Nurse Consultant:** The paediatric nurse can act as consultant to guide parents for maintenance and promotion of health. e.g. Guiding parents about feeding practices, accident prevention.

**f. Nurse Counsellor:** Providing guidance to parents in health hazards of children and helps them for own decision making in different situations.

**g. Case Manager:** The paediatric nurse should organize care, monitor and evaluate patient treatment for successful outcome. She/he acts as a manager of paediatric care units in hospitals, clinics and community.

**h. Recreationist:** The paediatric nurse plays supportive role for the child to provide play facilities for recreation and diversion. It helps to decrease crisis imposed by illness or hospitalization.

**i. Social Worker:** Paediatric nurse can participate in social services or refer child and family to child welfare agencies for necessary support.

**j. Nurse Researcher:** Research is an integral part of professional nursing. Paediatric nurse should participate or perform research activities.

It helps to provide basis for changes in nursing practice, improvement in the child health care and evaluate the care.

## II. EXPANDED ROLE

Expanded roles are filled by individuals who pursue and demonstrate an increased scope of practice, in depth range of knowledge and skills and domain of service. Expanded Roles Include the Following:

**a. Nurse practitioner:** Nurse Practitioner is a registered nurse who has completed organized programme of study for nurse practitioner preparation offered in schools of nursing and usually as a part of the masters in nursing degree programme.

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**Clinical Nurse Specialist:** In paediatric medicine there has been a growing awareness of the need for specialization, driven by the rapidly expanding knowledge base in children's health care.

**Case Manager:** The fastest emerging role in all practice areas of nursing is that of case manager. The nurse is optimally suited for this role, as the approach is generally more holistic in nature and the nurse's clinical experiences provide a strong foundation to help co-ordinate and direct the care delivery by the interdisciplinary team.

**d. Nurse Executive / Administrator:** The activities of nurse-administrator are serving as a role model, Teacher, Facilitator, Change agent, Managing human and capital resources, Participating in self-development, Staff and client or community education, Participating in research activities (joining in clinical practice activities as needed).

**e. Nurse Educator:** The nurse can serve as an educator for students, that is, those entering the professional areas or the nurse can serve as an educator to nursing staff.

**f. Nurse Midwife:** In the United States, a Certified Nurse-Midwife ("CNM") is an Advanced Practice Nurse who has specialized education and training in both Nursing and Midwifery. CNM's function as primary healthcare providers for women and most often provide medical care for relatively healthy women, whose birth is considered uncomplicated and not "high risk," as well as their neonate.

**g. Nurse Anesthetist:** A nurse anesthetist is a nurse who specializes in the administration of anesthesia.

## 1.4. EMERGING CHALLENGES, NURSING PROCESS RELATED TO PAEDIATRIC NURSING

Paediatric nursing is the specialized skill to provide nursing care to the child to meet the age appropriate needs. Paediatric nursing is growing and new sub specialities are arising in it, where the nurse needs specialized education and training. Family-centered care is the current emerging concept in paediatric nursing. Various challenges arise like ethical issues, moral dilemmas and legal issues. These are challenges to nursing practice related to child care.

### Emerging Challenges in Paediatric Nursing:

In the changing trends and changing attitude towards care of children, the paediatric nurse has to face various challenges on the following aspects.

- \* Emergence of medical speciality and superspeciality of paediatric care need specialized education and training of paediatric nurse.
- \* Nurses required to be up-to-date in the field of specialized care to be at par with their coworker and team members, especially medical counterpart in intensive care, neonatology and in any special care system.
- \* Increasing numbers of HIV-infected innocent children create problems in paediatric care and nursing practices which need for specialized approach.
- \* Increasing numbers of psychological problems among children due to unhealthy competition, comparison, single parent and family disruption call for special attention of paediatric nurse in child care.



\* Ethical decision-making in ethical dilemmas about issues like refusal of treatment (discontinuing life support system, withholding or withdrawing nutrition and fluids), euthanasia, prolongation of life, prenatal genetic screening, abortion, in vitro fertilization, allocation of scarce medical resources and rights of children in health care research, etc. are the new challenges in paediatric nursing.

\* Moral dilemmas for paediatric nurses arise from power conflicts about treatments in which the nurse may need to decide whether to continue to co-operate with the health team and follow the physician's directions or not to follow them.

\* Legal issues related to consumer protection Act, malpractice and negligence are great challenges in all areas of nursing practice and also in child care.

\* Poverty and illiteracy are two big obstacles need to overcome to improve child health. Nurse must be confident and engaged to advocate for the child's protection in these situations in hospital and community.

\* Childhood illness leads to frustrating and stressful situations. Nurses also need to adjust and cope with the situations and develop tolerance of own feelings.

\* Emphasis on 'quality care' and increased complexity of medical and nursing practices, is required for highly specialized, expert and competent practitioners, with special preparation for superspecialty areas. It calls for better education in paediatric nursing for

specialized knowledge and skill of motivated paediatric nurse for better contribution as health team members towards improvement of child health.

### NURSING PROCESS RELATED TO PAEDIATRIC NURSING

Nursing process is the core and essential for all areas of nursing practice. It is series of organised steps designed for nurses to provide excellent care. The five steps includes Assessing, diagnosing, planning, Implementing and Evaluating.

#### Definition of Nursing Process:

\* Nursing process is a systematic, rational method of planning and providing individualized nursing care.

\* Nursing process is an orderly, systematic manner of identifying patients' problems, making plans to solve the problem, provide care and evaluate the outcome.

#### Purposes:

\* It helps in delivering optimum and need-based nursing care to the children effectively and intelligently

\* It guides nurse to identify clients' problems.

\* It encourages for identification and utilization of clients' strengths.

\* It enhances communication with clients and team members.

\* It provides continuity of care by reducing omissions and duplications of actions.

#### Steps in the Nursing Process:

Paediatric nurses use the nursing process to identify and solve problems and to plan patient care. The same process is used for other patients. Consider how the five steps of the nursing process relate to children.

1. Nursing assessment

2. Nursing diagnosis

3. Planning

4. Implementation

5. Evaluation

1. **Nursing Assessment:** Assessment involves collecting patient and family data and performing physical examinations during community - based health services, at admission, periodically during the child's hospitalization, and when home care services are provided. The nurse analyzes and synthesizes data to make a judgement about the patient's problems.

2. **Nursing Diagnosis:** Nursing diagnoses describe the health promotion and health patterns that nurses can manage. Once health patterns have been identified, specific nursing actions can be planned. The North American Nursing Diagnosis Association (NANDA) has responsibility for endorsing the standard language for these nursing diagnoses to describe the health promotion and health patterns that nurses can independently manage. Each nursing diagnosis has defining characteristics and related factors or risk factors.

3. **Planning:** Nursing care plans are based on goals that will improve the child's or family's dysfunctional health patterns. Specific expected outcomes should be realistic. Nursing care plans have nursing intervention classifications (NIC) and nursing outcome classifications (NOC). NIC provides a standard language for general nursing actions that are specific for a nursing diagnosis. NOC provides a standard language for patient's states or behaviours that should be monitored in children and families with a specific nursing diagnosis.

Standard care plans for specific diagnoses are often used in the paediatric unit of the hospital and by home health agencies. The nurse is responsible for individualizing

standard care plans based on data collected from the child's assessment and from evaluation of the child's response to care. The family and the nurse (and the child, when old enough) should agree with the care plan goals. Individualized nursing action plans provide directions for nursing care.

4. **Implementation:** Implementation is the carrying out of interventions outlined in the nursing care plan. Interventions may be modified if the child's responses are undesirable.

5. **Evaluation:** Evaluation is the use of specific objective and subjective measures (often called outcome measures or criteria) to assess the child's and family's progress in reaching the goals defined in the nursing care plan. Following the evaluation of their progress toward the goals, the nursing care plan may be modified. For example, as the child's condition improves and goals are attained, new goals and nursing action plans must be defined. Data from ongoing assessments are collected to guide the revision of the care plan.



● Fig.1.4 Nursing Process



Assessment	Diagnosis	Inference	Planning	Intervention	Rationale	Evaluation
<b>Subjective data:</b> "Fatlong araw ng masakit and paghi ko" (I have had painful urination for the past 3 days) as verbalized by the patient. <b>Objective data:</b> * Guarding/distracting behaviors. * Self focusing follows: T: 37.6 P: 90 R: 19 BP: 120/80	Acute pain related to acute inflammation of renal tissues.	Pyelonephritis is an inflammation of the kidney and upper urinary tract that usually results from noncontagious bacterial infection of the bladder (cystitis). It presents with dysuria (painful voiding of urine), abdominal pain (radiating to the back on the affected side) and tenderness of the bladder area and the side of the involved kidney ("renal angle tenderness"). In many cases there are systemic symptoms in the form of fever, rigors (violent shivering while the temperature rises), headache and	* After 8 hours of nursing interventions, the patient will verbalize relief or control of pain.	<b>Independent:</b> * Assess pain, note location, characteristics, intensity (0-10 scale). * Note urine flow and characteristics. * Encourage patient to verbalize concerns. Active listen these concerns and provide support by acceptance, remaining with patient and giving appropriate information. * Provide comfort measure like back rub or deep breathing exercises. * Assist with range of motion exercises.	* Helps evaluate degree of discomfort and may reveal developing complications. * Decreased flow may reflect urinary retention with increased pressure in upper urinary tract. * Reduction of anxiety or fear that can promote relaxation and comfort. * Reduces muscle tension, promotes relaxation, and may enhance coping abilities. * Reduces muscle or joint stiffness.	* After 8 hours of nursing interventions, the patient was able to verbalize relief or control of pain.

## 1.5. CONCEPT OF PREVENTIVE PAEDIATRICS

Child health depends upon preventive care. Majority of the child health problems are preventable. Preventive paediatric is a specialized area of child health comprising efforts to avert rather than cure disease and disabilities.

### MEANING OF PREVENTIVE PAEDIATRICS

Preventive paediatrics is defined as the 'prevention of disease and promotion of physical, mental and social well-being of children with the aim of attaining a positive health. It comprises efforts to avert rather than cure disease and disabilities.

### AIMS OF PREVENTIVE PAEDIATRICS

- \* Preventive paediatrics aims at the prevention of disease in children rather than focusing on cure of disease.
- \* By preventing disease, the child can attain its genetic potential.

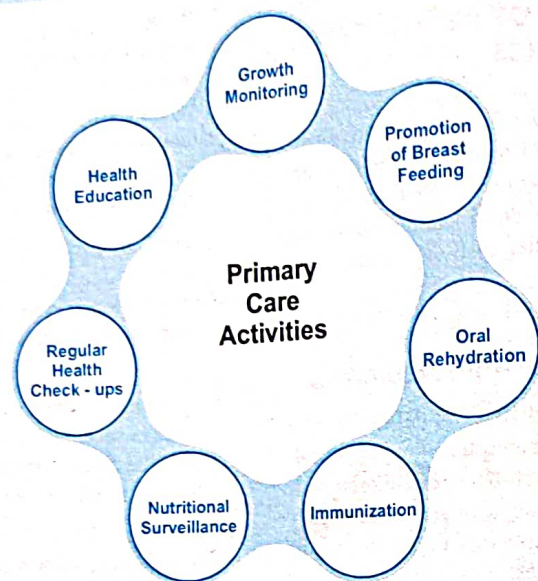
### ACTIVITIES

Prevention of disease can be best achieved through primary care activities such as

- \* **Growth Monitoring:** Periodically height and weight of the child has to be recorded on the growth chart of every child by the mother or healthcare professional, which will help to detect early onset of growth failure and its cause. Remedial measures will be followed.

- \* **Promotion of Breastfeeding:** Breast milk is the best food available and is tailor-made to suit the child's needs. Breastfed babies get the most notoriously balanced diet and are less susceptible to infections. Exclusive breastfeeding is essential for the healthy growth of the child.
- \* **Oral Rehydration:** To prevent child's mortality due to diarrhoeal diseases, oral rehydration therapy (ORT) has to be supplemented in mild dehydration cases itself.
- \* **Immunization:** Primary and booster doses of vaccination will be given against six killer diseases for under-five children to achieve full immunization status.
- \* **Nutritional Surveillance:** To identify subclinical nutritional deficiency disorders 'Road to Health Chart' has to be maintained. If any children were identified as malnourished, food has to be supplemented (through integrated child development service (ICDS), Anganwadi workers) to overcome malnutrition.
- \* **Regular Health Check-ups:** Physical examination, appropriate laboratory tests will be done in regular health check-ups and child health cards will be issued. Regular health check-ups will be useful for identifying 'high risk children' and the children who need care.
- \* **Health Education:** Around the whole symbol is a border that touches all the areas. In clinics, health education related to child-rearing practices has to be given to the mother or caregiver.





● Fig.1.5 Primary Care Activities

### CLASSIFICATION

Preventive paediatrics is broadly divided into Antenatal preventive paediatrics, postnatal preventive paediatrics, Community paediatrics and social paediatrics.

#### 1. Antenatal Preventive Paediatrics:

- \* Care of Antenatal mothers.
- \* Adequate nutrition of the pregnant mother
- \* Preparation and education of the mother for delivery
- \* Prevention of communicable diseases
- \* Mother craft Training.

#### 2. Postnatal Preventive Paediatrics:

- \* Promotion of breast feeding.
- \* Introduction of complimentary feeding in appropriate age.

- \* Immunization
- \* Prevention of accidents
- \* Growth monitoring and paediatric health check - up.

**3. Community Paediatrics:** A concept rather than a branch of paediatrics, implying that "health is determined by interaction between the child, his environment and the society in which he lives." The objective is to carry the health care to the doorstep of the needy.

*The two essential areas of study in community paediatrics are:*

- \* The health of the child population in relation to its social environment, i.e. the total community that constitutes part of social medicine.

- \* The health of the individual child as a result of multitude of social influences (both positive and negative) that constitutes part of clinical medicine.
  - Health care goes to the susceptible population, thus ensuring protection to those who may not otherwise seek advice.
  - The concept ensures community participation at all stages.
  - A community based project can be started in a simple mud-walled/tiled structure. The equipment and manpower, locally available is relatively cheap.
  - Monitor the health and nutritional status of infants and children on a continuous basis; this brings down the mortality and morbidity considerably.
  - Contributes to family welfare by ensuring survival of the child and convincing the parents of the advisability, to "restrict the number of children to 1-2".

**4. Social Paediatrics:** Social paediatrics refers to application of the principles of social medicine to paediatrics in order to obtain a more complete understanding of the problems of children, in order to prevent and treat disease, and promote adequate growth.

*Concerned with the delivery of comprehensive and continuing child health needs (total health needs):*

- \* Healthy and happy parents
- \* Balanced and nutritious diet
- \* Clean, healthful house and environments
- \* Developmental needs like play, amusement, love, affection, security, recognition, recreation, company with other children.
- \* Educational provision/opportunities.

### 1.6. VITAL STATISTICS RELATED TO PAEDIATRICS

Vital statistics are statistics on live births, death, fetal deaths, marriages and divorce. The most common way of collecting information on these events is through civil registration, an administrative system used by governments to record vital events which occur in their population. Child health status is assessed through measurements of mortality, morbidity, growth and development.



**MORTALITY RATES****DEFINITION**

Mortality describes the incidence or number of individuals who have died over a specific period of time.

$$\text{Death Rate} = \frac{\text{Total number of deaths in population at a specified time period}}{\text{Total population at that specified time}} \times 1000$$

**1. MATERNAL MORTALITY RATE (MMR)**

According to WHO, maternal death is defined as "the death of woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of pregnancy from any cause related to or aggravated by pregnancy or its management", but not from accidental or incidental causes.

$$\text{MMR} = \frac{\text{Total number of female deaths due to complication of pregnancy, child birth or within 42 days of delivery from puerperal causes in an area during a given year}}{\text{Total number of live births in the same area and year}} \times 1000$$

**2. PERINATAL MORTALITY RATE (PMR)**

"Perinatal mortality" includes both late fetal deaths (deaths after 20<sup>th</sup> or 28<sup>th</sup> weeks of gestation) and early neonatal deaths weighing over 1000 gms at birth expressed as a ratio per 1000 live births.

$$\text{PMR} = \frac{\text{Late fetal deaths (28 weeks gestation or more) + Early neonatal deaths (first week) in one year}}{\text{Live births in the same year}} \times 1000$$

**3. NEONATAL MORTALITY RATE (NMR)**

Neonatal deaths are deaths occurring in neonatal period that begins at birth and ends at 28<sup>th</sup> day after birth.

$$\text{NMR} = \frac{\text{Number of deaths of children under 28 days of age in a given year}}{\text{Total live births in the same year}} \times 1000$$

**Post Neonatal Mortality Rate (PNMR):** Post Neonatal deaths are deaths occurring from 28 days of life to under one year.

$$\text{PNMR} = \frac{\text{Number of deaths of children between 28 days to one year of age in a given year}}{\text{Total live births in the same year}} \times 1000$$

**4. INFANT MORTALITY RATE**

It is defined as "the ratio of death of infants under one year of age in a given year per 1000 live births in same year."

$$\text{IMR} = \frac{\text{Number of deaths of children under 1 year of age in a year}}{\text{Number of live births in the same year}} \times 1000$$

**Preventive measures to reduce infant mortality:**

- Prenatal Nutrition:** Supplementation of mother's diet helps in improving the birth weight of babies thereby helping in reducing neonatal mortality.
- Prevention of Infection:** Immunization is the best way of preventing infectious diseases which take a heavy toll of life in children. The vaccine-preventable diseases are - TB, Diphtheria, Pertussis, tetanus, polio, measles, hepatitis, meningitis etc.
- Breast Feeding:** The most effective measure of lowering infant mortality is breast feeding which provides passive immunity to infants.
- Family Planning:** Infant mortality increases as birth order increases. Limiting the family size and spacing of children is effective in lowering infant mortality rate.
- Sanitation:** Adequate sanitation and safe drinking water facilities have significant positive impact on health of society including mothers and children. It helps in lowering mortality due to diarrhoea, vomiting, respiratory infections, hepatitis, dengue, etc.
- Primary Health Care:** Provision of primary health care for high risk pregnant females and babies will help in lowering mortality and morbidity rates.
- Socio-Economic Development:** IMR and PMR can be effectively lowered by uplifting the socio-economic condition of the country that includes increasing female literacy.
- National Health Programmes:** Major measure undertaken by the Government to get over the problem of high infant mortality rate is implementation of Integrated Management of Neonatal and Childhood Illness (IMNCI) strategy which adopts a holistic approach to the management of the common causes of neonatal and childhood mortality - sepsis, acute respiratory infections, diarrhoea, measles and malaria, all compounded by malnutrition. Under immunization programme, government is providing vaccination against six killer diseases. Under RCH programme, emphasis is on institutional deliveries and essential newborn care. Also infant and young child's nutrition is being stressed. The National Rural Health Mission, launched in April 2005, is an intervention with a mission of reducing IMR to 30/1000 by 2012.



**5. UNDER-FIVE MORTALITY RATE**

It is defined as "annual number of deaths of children under 5 years of age, per 1000 live births".

$$\text{Under - 5 Mortality Rate} = \frac{\text{Number of deaths of children less than 5 years of age in a given year}}{\text{Total number of live births in the same year}} \times 1000$$

**Preventive Measures for Under-five Mortality Rate:** Two-thirds of child deaths are preventable. Most of the children who die each year could be saved by low-tech, evidence-based, cost-effective measures such as vaccines, antibiotics, micronutrient supplementation, insecticide-treated bed nets, improved family care and breastfeeding practices and oral rehydration therapy.

Empowering women, removing financial and social barriers to accessing basic services, developing innovations that make the supply of critical services more available to the poor and increasing local accountability of health systems are policy interventions that have allowed health systems to improve equity and reduce mortality.

**MORBIDITY**

It is the state of being diseased. Morbidity rate is a figure that shows the susceptibility of a population to a certain disease. The morbidity rates are higher than the mortality rate for children in each group. The main reasons for morbidity are respiratory conditions, perinatal conditions, digestive disorders, diseases of nervous system and sense organs, injury and poisonings etc.

**Definition:**

Morbidity has been defined as "any departure, subjective or objective, from a state of physiological well-being. The term is used equivalent to such terms as sickness, illness, disability etc. Morbidity could be measured in terms of 3 units:

- \* Persons who were ill.
- \* The illnesses (periods or spells of illness) that these persons experienced; and
- \* The duration (days, weeks, etc.) of these illnesses.

$$\text{Morbidity} = \frac{\text{Number of new cases of specific diseases during a given time period}}{\text{Population at risk during that period}} \times 1000$$

**INCIDENCE RATE**

Incidence rate is defined as "the number of new cases occurring in a defined population during a specified period of time". It is given by the formula:

$$\text{Incidence} = \frac{\text{Number of new cases of specific disease during a given time period}}{\text{Population at risk during that period}} \times 1000$$

**PREVALENCE**

**Definition:** The term "disease prevalence" refers specifically to all current cases (old and new) existing at a given point in time, or over a period of time in a given population. "The total number of all individuals who have an attribute or disease at a particular time (or during a particular period) divided by the population at risk of having the attribute or disease at this point in time or midway through the period."

$$\text{Prevalence Rate} = \frac{\text{Number of new and old cases found during a specific period}}{\text{Population at risk during that period}} \times 1000$$

Prevalence is of two types: a. Point prevalence, b. Period prevalence

**a. Point Prevalence:** Point prevalence is given by the formula:

$$\text{Point Prevalence} = \frac{\text{Number of all current cases (old and new) of a specified disease existing at a given point in time}}{\text{Estimated population at the same point in time}} \times 100$$

**b. Period Prevalence:** Period prevalence is given by the formula:

$$\text{Period Prevalence} = \frac{\text{Number of existing cases (old and new) of a specified disease during a given period of time interval}}{\text{Estimated mid - interval population at risk}} \times 100$$