ROLE OF INTEGRATED CHILD DEVELOPMENT SERVICE (ICDS) IN THE PHYSICAL DEVELOPMENT OF PRE-SCHOOL CHILDREN

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Place: Allahabad

Date 10 .01. 0 5 Anupma Mehrotra

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INTRODUCTION

INTRODUCTION

India has often been referred to as "A" nation of the young" and not without reason, since India has the second largest child population in the world. About 40% of its population 319.3 million are children under 14 years of age. Children under 5 constitute about 14% of the population.

Any national development strategy that emphasizes human development essentially begins with the welfare of children. Investments made in children's health, nutrition and education help in reducing hunger and malnutrition, extending life expectancy and lowering death rates and school dropout rate among them. Planners all our the world recognized is that access to minimum services to children is likely to ensure their optimal development and world help in shaping them into adults capable of contributing to economic and social development of the nation.

CHILD IN INDIA

India has 170 million children who are bwlow the 6 years of age. Majority of them are raised in the families living in extreme condtions of poverty Consequently important indicators of social development. India still ranks low infant mortality rate. One of the crucial indicators of child survival continues to be as high as 74 (1993); 30% new born and low birth weight babies and about $2/5^{th}$ of deaths occur in the age group 0 – 6 years, further we have not been able to adhere to the target of universal primary education and control dropout rate at primary level the continues to be as high as 36.27% (1994 – 95)

Due to the interlocking problems of the grinding poverty of families children grew in uncongenial environment characterized by non availability of civic amenities, health care and lack of access to cognitive stimulation, skills and knowledge these remain as the Major unmet needs of children in India. Several intervention programs and services therefore, have emerged during the last few decades. In order to safeguard survival and development of disadvantaged children. Both in government and voluntary sectors This goal is like a mountain from the vantage point of distance as ascent looks like a single climbing task. Yet once embarked upon, the ascent becomes a succession of climbing tasks, each one revealed by success with its procedures spock, steg.

EVOLUTION CHILD – CARE SERVICES

Independence ushered in a new era in the field of child welfare/development. It is marked with event which are a testimony to the commitment we have towards our children. Adequately provision were made for the care and protection of children in the constitution. In order to meet these obligations welfare services have been provided at the national level as an integral part of the country's development plans. The first three five years plans placed the major responsibility of child welfare services on voluntary organizations. The central Social Welfare Board (CSWB) were set up as early as in 1953 to promote child welfare/development programs by providing assistance to voluntary organization. Besides this, the then development of social welfare initiated several and education interventions for child welfare and development.

The experience of implementing various programs sector were, however indicated that the impact of these on children remained at the best marginal. The isolated and fragmented services failed in providing solutions to the problems of children. As pointed out by the **Pundit Jawahar Lal Nehru,** the prime minister of India "……. Individual acts to services performed here and there …….. never solve great and stupendous problems on a countrywide scale."

A high powered committee under the chairmanship of Shri Ganga Sharan Sinha recommended at that juncture that a comprehensive National Policy for child welfare was necessary to take an integrated view of the different needs of child and assign priorities. As a result of this, the national policy for children was evaluated and adopted in 1974. It describes the country's children as a supremely important asset and enjoys on the state the responsibility of their nurture and solicitude.

In order to provide focus and ensure continuous planning/monitoring and coordination of child welfare services, the national children board was constituted in December 1974. Subsequent year witnessed more coordinated efforts and the concept of integrated approach to child welfare was evolved. It advocated a holistic approach in providing services to children by integrating inputs of health, nutrition, preserved education in one program, focusing on the family unit.

Eight inter – ministerial teams were constituted by the planning commission to review the scheme of ICDS. The steering group setup by the planning commission for formulation of the Fifth five year plan also recommended the adoption of the integrated approach. The

concept was translated into a program called ICDS and was including in the fifth five year plan under social welfare sector giving a different focus to the services for the young child.

Children together with women in child bearing age constitute a large and important segment of India's population. Despite the spectacular progress achieved since independence the quality of life of most of there children unfortunately remained below the standards envisaged by the national policy makers, this is reflected in the key heath, and development indicators like high infant mortality rate, high level of morbidity, higher incidence of malnutrition and nutritional related diseases, lower literacy rates and higher school dropout rates

lndia is home to 21 percent of the developing world's young children under the six years of age, constituting 17.5% of India's' population. The young child population is larger than the total population size of many countries i.e. 150 million as listed in 1991 census. The census figures also reveal the disturbing phenomenon of "missing girls" -only 73 million girls under 77 million boys in the same age group. An intergenerational cycle of discrimination against girls and women is captured by this stark difference in early childhood, demanding an integrated package of interventions.

To break this cycle of discrimination it is crucial to intervene as early as possible to improve this situation of the "yet to be born" child. Also because one of the three child in India are born with low birth weight thirty five percent of the developing world low birth weight children were found in India denied the best possible start in life.

The high incidence of low birth weight compared with inadequate tare and means to health services. ii an unsanitary environment translates into high rates of young child malnutrition (53 percent, Milt/134993) and threatens the process of healthy child development. One in every two young children under four years of age in india is malnourished with malnutrition being one of the risks that can limit the development potentials and active learning capacity of young children.

The constitution of india directive principles of state policy, and national policy for children 1974, have recognized the priority and are addressing the holistic needs of young children as the foundation of national human resources development effort. The national policy for children 1974 acknowledged that since majority of lndia's children live in economic and social environment which can impede their physical, social and mental

development special interventions are required to provide equality of opportunity to these children. Impeding conditions includes poverty, poor environmental sanitation, diseases/infections inadequate access to primary health care, inappropriate child caring and feeding practices. The policy centered interventions were required to stressed that while poverty alleviation and community development programmes must continue, focused child centered interventions were required to address the interrelated needs of children and women from disadvantaged community groups.

Founded on this conviction, Integrated Child Development services"ICDS'programme was launched on 2 October 1975 in 33 blocks nearlyof a quarter of a century ago.

Today, ICDS represents one of the worlds largest and most unique programmes for early childhood development --an initiative unpararelled in history. ICDS is foremost symbol of India's commitment to her children. India's response to the challenge of breaking the vicious cycle of malnutrition, morbidity, reduced learning capacity and mortality.

The early years are the most crucial period in life, when the foundations for physical/motor, social cognitive emotional, language development and life long learning are laid. Recognizing that early childhood development continues the foundation of human development, ICDS is designed to promote holistic development of children under 6 years of age, though the strengthened capacity of care givers and communities and improved access to basic services, at the community level. Within this group, priority in prenatalunder three years age group, the period of most rapid growth and development. The program is especially designed to reach disadvantaged and low income groups for effective disparity reduction.

The program provides an integrated approach for covering basic services for improved child cares, early stimulation and learning, health and nutrition, water and environmental sanitationtargeting young children, expectant and nursing mothers and women's/adolescent girls groups. They are reaches through nearly 5,00,000 trained community structured/women's groups through the Anganwadi centers, the health system and in the community MP ICDS offers a powerful community based outreach system that functions as the convergent.

Interface between disadvantage community and government programs such as primary health care and education. it contributes to the achievement

of major nutrition and health goals, embodied in the natural plan of action for children 1992 and the National Plan of Action on Nutrition 1995.

ICDS is also the foundation of the National effort for universalization of primary education. It provides increased opportunities for promoting early development, associated with empowered cognitive and social skills, enrolment and retention in the early primary stage. By releasing girls from the disadvantaged care, it also enables them to participate in primary education ICDS is a major programme channel for addressing the rights of young children, as defined in the UN convention on the rights of child, to which India acceded in 1992.

ICDS uniquely addresses the interrelated needs of growing children, girls and women (especially during pregnancy lactation) across the life cycle. It provides the young girls child with equal opportunities for early care for survival, growth and deveIOpment and reduce the girl child from sibling care, to go to school. It also provides the adolescent girl and pregnant and nursing mothers with health, nutrition and self development interventions and crucial child care support. The community education component targeting women in the reproductive age group also supports community action to improve care for girls and women.

Poised for near universal coverage at the turn of the century, ICDS today reaches out to 4.8 million expectant and nursing mothers and 22.9million children (under six years of age) of disadvantaged groups of these 12.5 million children (3 to 6 years of age) participate in the Centre based preschool education activities the network consist of 4,200 project, covering, nearly 75 percent of the country's community development blocks and 273 urban slums pockets. The experience of the past two and a half decades and effectively tab the potential of this unique integrated programme, as it moves towards universalisation.

Today ICDS has many meanings for the community a homely child care centre, a play/learning entire, a peripheral health centre, a meeting place for women/mothers' a source of support during calamitya means to fulfill aspirations for million of young children. But mistry all it is seen as the means to fulfill the rights of young childrento survival, development, protection and participation in the families and communities in which children live, grow and develop. This is the reality of today on which lndia's vision for the new millinery is founded.

ICDS is a holistic early childcare and development programme that addresses the interrelated needs of children, adolescent girls and women from disadvantaged communities, across the life cycle.

In addition to children below six years of age, ICDS also takes care of essentials also takes care of the essentials needs of pregnant women and nursing mothers residing in the socially backward villages and urban slums, while selecting the location for the project, preference is given to those area which are predominately inhabited by vulnerable and weaker sections of the society i.e. schedule castes, schedule tribe and low income families found in economically backward areas, draught prone areas and areas in which deteIOpment of social services requires strengthening.

OBJECTIVES

1. Lay the foundation for proper psychological, physical and social development of the child.
2. Improve the nutritional and health status of children below the age of six years.
3. Reduce the incidence of mortality, morbidity, malnutrition and school dropouts.
4. Achieve effective coordination of policy and implementation among various department.
5. Enhance the capacity of the mother to look after the normal health, nutritional and development needs of the child, through proper community education

ICDS provides the Following Service :

Health

* Immunization

* Health check ups

* Referral services

* Treatment of minor illness

Nutrition

* Supplementary feeding " Growth of monitoring and promotion

*Nutrition and health education

Early child pre-school Education

* Early care and stimulate for younger children under three years.

* Early joyful learning opportunity to children in the three to six years age group.

Convergence

* Of other supportive services such as safe drinking water, environmental sanitation, women's employment programme, non formal education and adult literacy.

COVERAGE AND OUT REACH:

The ICDS services programme was launched an 2 October 1975, the 106th birth anniversary of Mahatma Gandhi 'the father of nation'. This signifies commitment to the Gandhian vision of addressing socioeconomic inequities by reaching the most disadvantaged under served and the most vulnerable. As Gandhiji saw India's development in the employment of its people, so does ICDS seek to empower communities for care and deveIOpment of their children and women to shape the countries' present future.

Started on an experimental based in 33 projects, the programme, by march 1999 covered 4,200 projects covering urban poor packets.

Anganwadi

The anganwadi group (AW), literally a courtyard play centre is a child care centre, located within the village or the slums area itself. It is the focal point for the delivery of services at the community level, to the children below six years of age, pregnant women nursing mothers' and adolescent girls. Besides this the anganwadi centre is a meeting ground where woman/mother's groups can come together, with

other front-line workers, to promote awareness and joint action for child development and women's employment.

All the ICDS services are provided through the anganwadi in an integrated manner to enhance their impact on childcare. Each anganwadi is run by an anganwadi workers (AWW) supported by an anganwadi hialperin service delivery, and improved linkages with health systemthus increasing the capacity of communities and women, especially mothers-for child care, survival and development.

The population coverage through anganwadi worker is approximately l,000 in rural and urban areas and 700 in tribal areas. Details of intended population courage are given in lCDS, there are on an average 125-150 anganwadi centres (awcs) per project/block. since additional anganwadi centres have been sanction based on increased block pepulation.

Some lCDS, services for example immunization aim at universal coverage while some others, for example, supplementary feeding aim at 40 percent coverage in tribal projects.

Services for children are limited to those below six years of age. This is because the early years are the most vulnerable and critical. They contribute to the unfolding of almost three fourth of the total potential for physical social and mental development of adult personality. In fact by the end of the second years of life most of the growth of the human brain is already complete and critical brain structures are in place. The mother plays I big role in the overall development of the child and women between 15 to 45 years have been brought within ICDS ambit.

Any programme that aims at the holistic development of the child also includes increased opportunities for promoting health, nutritional welling, care and self development of women, and particularly pregnant and nursing mothers.

SERVICES AND PARTICIPANTS

ICDS is an unique because all basic sectoral services related to early childhood care, preschool education, nutritional and health courage, through a community based child-care under i.e., the anganwadi worker on the same group of children, adolescent girls, pregnant and nursing mothers. Couragence of services is essential to address the

iner-related needs of children and cost-effective manner the child centre of approach of ICDS is based on the rationales that care, cognitue and psychological development and the child's health and nutritional well being mutually reinforce each other.

The principal participants of the scheme i.e., children below six years expectant and nursing mothers and women in the age group of 15 to 45 years revive supplementary feeding growth monitoring and promotion immunization, health check-ups, reffered services, nutrition and health education and early childhood care and pro-school education as specified in the diagram.

In addition, there is courage by other important supportive services like safe drinking water, environmental sanitation, women's, development and education programmes.

In order to enhance the outreach of these services, particularly to the disadvantaged groups and ensure their better utilization the anganwadi worker mobilizes support from the community. The anganwadi workers survey all families in the community to identity pregnant and mothers adolescent girls and children below six years of age from the low income families and deprived sections of the society. This assures early registration of pregnant women leading to better utilization of by health services, as well as better cure and concealing for improved internal nutrition. It also promotes a healthy prenatal and postnatial environmental for the young child, and is likely to reduce the incidence of low birth weight thereby promoting child survival and development.

HEALTH

The health component of ICDS composes health check ups, Immunization and referred services.

HEALTH CHECK UPS

This includes health care of children under six years of age, anti natal care of expectant mothers and postnatal care of nursing mothers. The various health services provided for children by anganwadi workers and PnC staff include regular health

check-ups, record of weight, immunization, management of malnutrition, treatment of diarrhea demurring and distribution of simple medicines.

At the anganwadi, children, adolescent girls, pregnant women and nursing mothers are examined at regular intervals by the lady Health Visitors(LHV) and auxiliary Nurse Mid-wife (ANM) who also diagnose minor elements and distribute simple in discuss. They provide a link between the villages and Primary Health Care Sub-Centre. Maternal and child health facilities are years towards providing adequate medicinal care during pregnancy, at the time of childbirth and subsequently. It is aimed at promoting safe motherhood and healthy child developmentvredueing maternal and infant mortality.

IMMUNIZATION

Immunization of pregnant women and infant protects children from six vaccine preventable discuss poliomyelitis, diphtheria, pertussis, tetanus, tuberculosis and measles. These are major preventable causes of child mortality, disability, morbidity and related malnutrition.

Immunization of pregnant women against tetanus also reduces maternal and neonatal mortality.

PHC and its subordinate health infrastructure carryout immunization of infants and expectant mothers as per the national immunization schedule. Children are also given buster doses. The anganwadi worker assists the health functionaries in courage of the target population for immunization. She helps in the organisation of f1xed day immunization. ”Mother Child Protection Day”, she maintains immunization records of ICDS beneficiaries and follows up to ensure full coverage.

REFERRAL SERVICES

During health check pus and growth monitoring, sick or malnourished children, in need of prompt medical attention, are provided referred services through ICDS. The anganwadi worker has also been oriented to defect disabilities in young children. She enlists all such care in a special register and referred them to the medical ofiicer. The effectiveness of this service depends on timely action, cooperation from

health functionaries and willingly of families to avail these services. Health departments in the states UTs identify one hospital at the district level, which attends to the referral cases coming from ICDS areas.

NUTRITION

This includes supplementary feeding, growth monitoring and promotion, nutrition and health education; and prophylactics against vitamin A deficiency and control of nutritional anemia.

SUPPLEMENTARY FEEDING

All families in the community are surveyed to identify low income families and deprived children below the age of six, pregnant and nursing mothers and adolescent girls. They avail of supplementary feeding support for 300 days in a year. By providing supplementary feeding, the Anganwadi attend to bridge the choleric gap between the national recommended and average intake of children and women's in low income and disadvantage communities. This patterns of feeding aims only supplementing not substituting for family food. It also provides an important contact opportunity with a pregnant mothers and mothers of infants and young children to promote and improved behavioral action for care of pregnant women's and young children.

BAL AHAR

The food developed in CFIRI Mysore is a blend of wheat flour (70 parts) ground nuts flour (20 parts) roasted bringal gram flour (10 parts). A daily supplement of 50 grams provides 10 grams protein and subtantional amounts of Vitamin A, Ca & reboftlavin, and thus help to make up the deficiencies in the diet.

SUPPLEMENTARY NUTRITION PROVIDED AT ANGANWADI

Benificiaries	caloris	infant
200	8-10	children

201	1-6yrs	
202	300	
203	15	
204	severly malnourished	
205	600	20
Pregnant and nursing mothers	500	25

The type of food varies from state to state but usually consists of a hot meals cooked at the anganwadi containing a varied combination of pulses, carrots, oil, vegetables and sugar , iodized salt . Some states provide really to eat meal, containing the same basic ingredients. There is flexibility in the selection of food items, to respond to local needs. The expenditure towards supplementary feeding is met by the state under the plan budget,
available for the minimum needs programme.

Food supplements are provided nursing mothers (upto six months of nursing) to help to meet the increased requirement during this periods. This movides a crucial opportunity to counsel pregnant women enabling utilization of key services i.e., internal care. immunization, iron folic acid supplementation and improved care. adequate extra family food and rest during pregnancy. Pregnant women and nursing mothers are also counseled to promote exclusive breast feeding of infant upto about six month of age they are encouraged to seek time immunization and commence

approximate and timely complementary feeding when their infants area around six months of age, so that by the time the baby is a year old, she or he receive a complete wholesome diet daily. This is accompanied by continued breast feeding up to two years.

Special care is also taken reach to children below the age of two years, and to encourage parents and subleasing to either to take relation home or the bring them to the anganwadi for supplementary feeding. This provides a contact opportunity for growth monitoring of children, under two years of age and nutrition counseling of mothers, for improved child care

and development practices.

National Prophylactics Programme for prevention of blindness caused by vitamin A Deficiency, and control of nutritional anemia among mothers and children are two direct nutrition inventions integrated in ICDS. Diet any promotion of folic acid and vitamin C is an important part of nutrition and health education and targeted supplementation is also provided. At nine months of age. 1,00,000 IU of vitamin A solution is administrated to infants along with immunization against meals. Children in the age group of l5 years receive 2,00,000 IU of vitamin A solution every six months, with priority given to children under three years of age. Tablets of iron and folic acid are administered to expectant mothers for prophylactics and treatment and to children with anemia. The anganwadi worker/auaxilary nurse midwife dispenses these supplements and they monitor their utilization the usage of only iodized salt is promoted, especially in the food supplement provided towards preventing iodine deficiency diseases.

GROWTH, MONITORING AND PROMOTION

Evaluation includes periodic assessment of the effectiveness of the services and monitoring is a continuous process which point out th progress and efficiency with which the services are being carried out or implemented Miglan 1986. Growth monitoring and nutrition surveillance are thaw important activities that are in operation at the field level in ICDS. Both are important for the assuring the impact of health and nutrition related services and enabling communities to improve the same. Children below the age of three years of age are weighted once a month and children 3-6 years of age are weighted quarterly. Fixed day immunization serious or day when mothers of children under two years collect take ~home ration are opportunities for growth monitoring and promotion of younger children weight for age growth cards are maintained for all children below six years. This helps to detect both growth faltering and also in assessing nutritional status.

Growth monitoring and promotion helps the mother/family and anganwadi worker/auxiliary nurse midwife in taking theme cost elTective preventive action to assets any

stagnancy or slipping down in weight, through early detection of growth flatting. Through discussion and counseling, growth monitoring also increases the participation and capability of mothers in understanding and improving child care and feeding protection, for promoting child growth and development. It helps families understand better the linkage between dietary intake health care, safe drinking water and environmental sanitation and child growth.

Growth monitoring and promotion can also be effective entry point for primary health care. Identified severely malnourished children (these placed in grade III and W), are given special supplementary feeding which may he therapeutic in nature, or just double ration, and are also referred to medical services.

The concept of community based nutrition surveillance has also been introduced in ICDS. A community chart for nutrition status monitoring is maintained at each anganwadi: This chart reflects the nutritional status of all children righted with the anganwadi, at any given point of time. This helps the community in understanding, what the nutrition status of its children is , why it is so, and what can be done to improve the same. This helps mobilize community support in promoting and enabling better child care practices, in contributing local resources and improving services deliverer and utilization.

NUTRITION AND HEALTH EDUCATION

Nutrition, Heath and Education (NHE) is a pay element of the mark of anganwadi worker. This has a long term goal of capacity building of womenespecially in the age group of 15-45 years so that they can look after their own health, nutrition and development needs as well as that of their children and families. All women in this age group and expected to be covered by this component. NHED compresses basic health, nutrition and development information related to child care and development, infant feeding practices, utilization of health services, family planning and environmental sanitation. Community counseling serious, home units and demonstrations.

Anganwadi workers use fixed day immunization sessions, mothers child protection days, growth monitoring days, small group meetings of mother/Manila mandals community and home units, villages contact drives and other women's groups meeting (DWCPA mahila samakhya etc.) local festivals/gatherings for nutrition, health and development cognition.

Presently there are nearly 10,000 Mahila Mandala which are actively involved in the extending community education activities.

All efforts are made to reach out to women, including pregnant women and nursing mothers, to promote improved behavioral actions for care of pregnant women, young children and adolescent girls at household and community levels, and to improve service utilization.

Sustained support and guidance has to be provided in the period Opening pregnancy and early childhood, to mothers/families of young children, building upon local knowledge, attitude and practices. This helps to promote early childhood care for survival growth, development and protection.

EARLY CHILDHOOD CARE AND PRESCHOOL EDUCATION

The early childhood care and preschool education (ECCE) component of ICDS may will be considered the backbone of the ICDS programme, since all its, services essentially courage at the anganwadi. This is also the most joyful plenary daily actively wising sustained for three hour a days. It brings and keeps your children at the anganwadi centre an actively that motivates parents and communities. ECCE, as envisaged in the ICDS, focuses on total development of the child, in the age of six years from the underprivileged groups. its' includes promotion of early stimulatory of the antler threes through intervention with mothers/caregivers. Its programme for the three to six years old children in the anganwadi is directed towards providing and ensuring a nature, joyful and stimulating environment, with emphasis on necessary inputs for optimal growth and development child centered playway activities, which build on local culture and practices, using local supportnativals developed by the anganwadi workers, through enrichment training and promoted. The early childhood preschool education programme conducted through the medium of play, aims at providing a learning environment for promotion of social, emotional, cognitive, physical and aesthetic development of the child. Through ICDS 12.5 million children (three to six years of age), from disadvantaged groups, are centre based early learning activities.

The early learning component of the ICDS is a significant input for providing a sound foundation for cumulative life long learning and development. It also contributes to the universalization of primary education, by providing to the child the necessary preparation for

primary schooling and offering substitute care to younger sibling, thus freeing the older onesEspecially girls to attend the school.

For this, improved local level co-ordination between the anganwadi centre and primary school in terms of timings, locating and supportive linkages between the anganwadi worker and primary school teacherare being promoted.

INTEGRATION OF I.C.D.S.WITH OTHER ESSENTIAL SERVICES

I.C.D.S. is a intersectoral programme. It's own sources apart, it utilises the existing services available at the grass roots, Block and district levels with other development departments as well as voluntary agencies. Ce.-ordination at all levels is its SINE-QUA-NON

I) **SAFE WATER SUPPLY AND SANITATION**:

Safe drinking water and proper sanitation will prevent many major illnesses of children. In fact no programme for preschool
children can be successful without supply of safe drinking water and proper sanitary measures.

2) FAMILY WELFARE SERVICES IN ICDS:

Rural Anganwadi is a effective focal point in project areas, wherein the Health & Family Welfare Services could be implemented effectively. Anganwadi worker being in close contact with community can effectively emphasize upon the importance of family welfare services and child health.

3) ECONOMIC DEVELOPMENT IN RURAL AREAS:

Rural reconstruction ministry is implementing the programmes directed towards economic upliftment of the community. Similarly integrated tribal development projects have got off the ground for upliftment of tribal population. ICDS should be complementary to their functions.

ADMINISTRATION AND ORGANISATION:

ICDS is a multisectoral programme. Administrative unit for a ICDS project is a community development block. The focal point for operation of ICDS activities is a anganwadi.

ANGANWADI:

It serves the population of about 1000 in urban and rural area and about 700 in tribal area. Anganwadi worker is a local woman. She is not a govt. servant. She gets token honorarium Rs. 500/months for her Voluntary services. The Supervisor and the Child Development Project officer guide her.

MUKHYA SEVIKA (SUPERVISOR):

She is a graduate with 4 month's training, supervises the Anganwadi worker. Every 25 anganwadies will have one supervisor.

CHILD DEVELOPMENT PROJECT OFFICER (CDPO):

She implements the ICDS programme. in projecrareas under the guidance of Block Development Officer. Through periodical field visits and staff meeting, he guides the Anganwadi workers and supervisors. She is directly incharge of the scheme. At district level, the district officer is responsible for co-ordination and implementation of the scheme. At state level the Secretary of social welfare department is over all responsible for implementation of this scheme.

At Central level, the ministry of social welfare is responsible for budgetary control and implementation of scheme.

All the functionaries of ICDS-CDPO, Supervisors and Anganwadi workers are given appropriate training.

NATIONAL INSTITUTE OF PUBLIC CO-OPERATION AND CHILD DEVELOPMENT (NIPCCD):

NIPCCD is the Apex body for training of ICDS functionaries. CDPOs are trained at its head quarters are regional centres like Bangalore and Lucknow. NIPCCD monitors the

training programmes for CDPOs and supervisors. The training syllabus is disigned for all ICDS functioonaries by NIPCCD.

The All India Institute of Medical Sciences, Delhi monitors health and nutrition component of ICDS as also training of medical officers through a chain of medical colleges and health consultants.

UNICEF AID:

The UNICEF Assistance to ICDS includes Technical expertise, equipment, transports, cash assistance for pre~and~in services training of all levels of staff, educational materials, strengthening the technical and management capacity of trainting institutions and government departments, provision of basic drugs and vitamins support to monitoring and evaluation, introduction of water and sanitation, cash support for research and innovative plot project.

HEALTH DEPARTMENT AND HEALTH FUNCTIONARIES:

The ministry of health and Family Welfare service has indicated the norms of health services to be attained in project area. The PHC and the subordinate health infrastructure will deliver the health checkup, referral services and immunization to the beneficiaries prior to 1982-83, the health personnel's (ANM, LHV, MO etc.,) were provided out of ICDS budget, but after 1982 l00% medical assistance is provided by the ministry of health and F W services to suit the upgraded norms at national level.

SYSTEMS OF STATE COORDINATOR, SENIOR ADVISOR ADVISERS AND CONSULTANTS IN ICDS:

Every state is provided with a state coordinator who will ensure smooth flow of health component of theservices of I.C.D.S..Every state will have a senior advisor with immense experience in nutrition and A thild develOpment and I.C.D.S..His duty is to guide the advisers to discharge their functions effectively and advice the state coordinator to implementation of ICDS sehmes in the states.

Each state will have 2 to 3 training cunsultants from medical colleges with some experience of I.C.D.S. and will impart traing to medical officers and district health officers (advisors) and also to anganwadi workers

Each state will have 2 to3 survey consultants to conduct detailed survey under guidance of AIIMS. The data collected by survey consultants would be analysed by themselves and forwarded to data analysis cell and the central committee AIIMS.

The research consultant will attend to specific problems related to ICDS which will help in future for any alteration in ICDS scheme.The DHOs (advisors) will monitor

And provide continuing education at block level . They will also receive continuing education at block level. They will also receive continuous guidance ‘ from senior advisors .All the appointments are honorary with admissible travelling allowance to project areas.

ADMINISTRATIVE SET UP 0F ICDS SCHEME CHART

Union Ministry of Social Welfare at the Centre Department of Social Welfare in the State Social Welfare Officer or Development/Planning Officer in District Project/Block/Ward

Primary Health	Child Development
BlockDevelopment	Centre[PHC)
Project orncemcnrm	OfficedBDO)
Lady Health	Supervisor
Visitor(LHV)	(Mukhya Sevika)
Public Health	
Nurse(PHN)	
Sub-centre-Auxiliary	(AWW) Anganwadi Worker
Nurse and Mid Wife (ANM)	
Helper	

CITY CORPORATION

Health Officer	Project Coordination Committee
Medical College	District Cell ICDS
Doctors	Child Development Project Officer
Auxiliary	Supervisor
Nurse	(Mukhya Sevika)
Mid wives	Anganwadi works
Helpers	
Urban Project	
(Organizational	

The ICDS team comprises the anganwadi healpers langanwadi workors ,supervisors and the child development project officer (CDPOs)lnlarger sized rural and tribal projects, an additional Child Development Project Officers (ACDPOs)are also a part of the team .

The Medical Officers (Mos),the lady health visitors (LHVs)and female health workers from nearby primary health centers (PHCs)and sub ‘ men! centers from steam with social welfare lwomen and child develop department functionaries to implement ICDS

The Anganwadi worker is a community based frontline voluntworker of the ICDS programme. Selected from the community, she assumes a pivotal role due to her close and comtinuous contact with the people, especially women ,she works with .

As a crutial link between village population and government administration, she becomes a central figure in healping the community support for better care of young children, girls and women . The anganwadi worker is expected to monitor and promote the growth and development .She is also an agent of social change mobilising community support For better care of young children, girls and women .

The anganwadi worker is expected to monitor and promote the growth of children, with the active participation of communities /families.She enhances their capability for preventive and promotive actions for child growth and development .She also enables them to prevent

diseases /infections. The anganwadi workor organisessupplimentary feeding, helps organise immunisation sessions, distributes vitamin A suppliments iron and folic acid tablets, treats minor injuries and ailments, and refers cases to medical services .The more visible aspect of her role is making the anganwadi litraily a courtyard play center a-nurturing the joyful bwith playway activities attracting and sustaining the participation of children and families .She strengthens the capacity of caregivers ~the mother, family and the community for childcare and development, by building upon local knowledge and practices . This creates a nurturing physical and social enviornment for we child, not only at the anganwadi center but also in the famin and the community .

The supervisor (mukhya sevika) is responcible for 17 to 25 anganwadies, depending upon the nature of the project. She support and guide the anganwadi workors.

The CDPO provides the link between ICDS functionaries and the government administration. This officer is also responcible for securing anganwadi premices, identifying participation, and ensuring supply of food to centers and flow of health services, conduct of playway activities, monitoring of programme and reporting to the state government. The CDPO also ensures convergence of services by networking with other government department 3 and voluntry agencies.

At the community level other frontline workors including the gram sevika ,primary school teachers, also link with the anganwadi workor Local women;s groups, Mahila Mandals, youth clubs local organisations panchayat samitimembers also provide support to the anganwadi workor. Examples include DWCRA/Mahila Samakhya groups and total litracy campaign volunteers.

The ICDS team can help create pamerships between frontline workors and community women's groups facilitating an integrated approach for improved child care, health, nutritional well being and women's development. The training is the most crucial eliment in ICDS, since the achievement of programme goals depends upon the effectiveness of frontline workors in empowering communities for improved child care practices as well as effective intersectoral service delivery. Recognising this, from the inception of the programme itself, the government of India formulated a comprihensive training stretigy.

UDISHA -THE NEW DAWN FOR YOUNG CHILDREN AND WOMEN

Udisha, in sanskrit means the first rays of the new dawn. Udisha is litrally the new dawn for ICDS traing and for ICDS itself. The nationwide training component of the World Bank assisted Women and Child Development Project, Udisha has been cleared with an outlay of about Rs 600 crores for five years. UNICEF is also a technical collaborator in the project.

Udisha will cover about six lakh anganwadi healpers, about thirty thousand supervisors, about five thousand CDPOs around two thousand ACDPOs and equally large numbers of community /women's groups, as wellas functionaries from related departments such as health, education and other partners.

An outcome of a series of participatory national regional and state level consultations organized by DWCD, 001 and states in collaboration with UNICEF and NIPCCD Udisha in a milestone towards achieving the vision for young children for the 21" century. It envisages a spectrum of locally relevant training interventions for achieving women and child development goalsrather than training of only ICDS functionaries. It has a new emphasis on decentralized quality improvement processes, through State and district training plans of action, guided by intersections! national/state training task forces. These are now constituted in all states and union territories, including partners, trainers, NGOs and functionaries themselves as members.

The functionaries trained in the programme, include the anganwadi workers, Supervisors, Additional Child Development Project Officers (ACDPOs), Child Development Project Officers (CDPOs), Medicai Officers (M03) and paramedics! staff. Training institutions include the National Institute of Public Cooperation and Child Development (NIPCCD), Its three Regional Centers, Meddle Level Training Centers (MLTCs) and Anganwadi Workers Training Centers (AWTCs), run by voluntary organizations in cooperation with State Government.

NIPCCD is the training resource unit in the Government of India and it provides training to state and district level officials, CDOPs and trainers.

A PERSPECTIVE

ICDS, is probably one of the world's largest programmes or early child development, involving training of functionaries on a scale which is unparalleled. The proposed universalisation of ICDS will only add to the tremendous challenge ahead. The challenge includes creation of decentralised training capability, through district training teams, linking different sectors and realization of the rich potential role of CDPOs/LS and anganwadi workers themselves as trainers.

The challenge is also to mobilisatise and orient new partners for achieving goals of women and child development. These include community representatives of panchayatiraj institution nagarpalikas, women's groups, mahila mandals, voluntary agencies and functionaries from other sectors, Udisha-the new comprehensive training approach-is the response to this challenge.

MANAGEMENT INFORMATION SYSTEMS

The ICDS programme is characterized by a built in monitoring system for nrometing assessment, analysis and action at different levels at which data is generated. The Department of Women and Child Development (DWCD), Ministry of Human Resource Development (MHRD), has the overall responsibility of monitoring, using its extensive network for gathering community level information on programme implementation. A central cell established in the Department collects and analyses periodic work reports. Based on this, programme strategies are refined and timely interventions made ensuring effective programme planning, implementation and monitoring. A national ICDS Management Information Systems (MIS) working group facilitates this process. Major partners in the monitoring efforts are represented in the group. Each State Government also has 3 M18 coordinating cell. Districts having more than five projects also have an ICDS monitoring cell, at the District level, to facilitate programme monitoring. '

The Management Information System ensures a regular flow of information and feedback between each anaganwadi and the project, between the ICDS project and the State Government and between the State Government and the Government of India. The How of information is not only upwards, It is a two-way process and constitutes the basis for discussion and improved action for promoting child growth and development, at the level at which information is generated. This is done through 3 Monthly Progress Report (MFR).

Under the national plan to monitor ICDS, anganwadi workers compile standardized monthly and half~ yearly reports, based on their register data. These reports are forwarded through Supervisors to Child Development Project Officers (CDPOs) who are responsible for forwarding the reports (MPRs) to the State and Central ICDS Cell at the Department of Women and Child Development. A state and district unit consolidates information received from their projects and analyses the same in order to determine follow up action. MPRs quantify the which data is generated. The Department of Women and Child Development (DWCD), Ministry of Human Resource Development (MHRD), has the overall responsibility of monitoring, using its extensive network for gathering community level information on programme implementation. A central cell established in the Department collects and analyses periodic work reports. Based on this, programme strategies are refined and timely interventions made ensuring effective programme planning, implementation and monitoring. A national ICDS Management Information Systems (MIS) working group facilitates this process. Major partners in the monitoring efforts are represented in the group. Each State Government also has 3 M18 coordinating cell. Districts having more than five projects also have an ICDS monitoring cell, at the District level, to facilitate programme monitoring. ‘ The Management Information System ensures a regular flow of information and feedback between each anaganwadi and the project, between the ICDS project and the State Government and between the State Government and the Government of India. The How of information is not only upwards, It is a two-way process and constitutes the basis for discussion and improved action for promoting child growth and development, at the level at which information is generated. This is done through 3 Monthly Progress Report (MFR). Under the national plan to monitor ICDS, anganwadi workers compile standardized monthly and half~ yearly reports, based on their register data. These reports are forwarded through Supervisors to Child Development Project Officers (CDPOs) who are responsible for forwarding the reports (MPRs) to the State and Central ICDS Cell at the Department of Women and Child Development. A state and district unit consolidates information received from their projects and analyses the same in order to determine follow up action. MPRs quantify the 31 status of key input, process and output indicators-pertaining to the major components of ICDS service delivery, which is used to manage operations.

These indications include the status of operationalisation, staffing and training status, feeding days, beneficiary coverage and inventory of supplies and equipment. The

MPR also includes impact or lead programme indicators for example, the percentage of severely and moderately malnourished children in different age groups, Percentage of fully immunized infants, etc. Increased usage of data for action at all levels, especially at community level also leads to improved data quality and relevance.

Efforts are underway to make monitoring more community based through structures like Bal Vikas Mahila Samitis and mechanisms like community charts for nutrition status monitoring. Only then will assessment and analysis effectively lead to action to promote child growth and development outcomes, in a sustained manner. With adequate data quality assurance measures, MPRs constitute a rich data source especially for trend analysis of impact indicators and area specific planning.

ASSESSEMEN T FOR ANA YSIS AND ACTION

NCAER is currently engaged in a major concurrent evaluation of ICDS, covering 4000 blocks in all States/Union Territories. This is seen as a tool for promoting continuous analysis and action, based on concurrent assessment for improving the quality of early childhood development interventions. Interesting findings have emerged from the pilot survey, which highlight the need to strengthen community ownership of ICDS to address the survival,growth and development needs of younger children more effectively. Forty-five learning interventions which was viewed as the priority input, contributing to improved school participation and better tearing outcomes in the primary years.

The basic report on health aspects, the MMR also originates at the anganwadi level. The report relates to nutrition and health outcomes as well as health services, for example, staff in position, orientation and training in the health sector supplies of medical and health items. The MMR is also a tool for motivating health functionaries for improved linkages and supportive supervision of health and nutrition aspects of ICDS. The Central Technical Committee for Integrated Mother and Child Development consolidates these. The national cell forwards the points of importance to health and State nodal departments of ICDS.

Through monthly review meetings of ICDS and health functionaries at various levels both MMRs and MPRs are discussed, for promoting joint action. Efforts are underway to strengthen joint action for young child survival, growth and development.

DWCD compiles computerized quarterly monitoring reports from the CDPOs. A State level performance statement is prepared on eight indicators, comparing the performance. Copies of these reports are also sent to the Planning Commission Prime Minister's Secretariat, Central Technical Committee, National Institute of Public Cooperation and Child Derelopment (NIPCCD) and other Ministries and organizations involved in the ICDS programme. Quarterly status reports and performance reports are sent to the States' nodal departments for taking necessary corrective action.

EVALUATION AND RESEARCH

Since is inception, the programme has generated interest among academicians, planners, administrators and those responsible for implementation. Consequently, a large number of research studies have been conducted to evaluate and assess the impact of the programme. The Programme Evaluation Organization (PEO) of the Planning Commission conducted a baseline survey of ICDS in 1976 and a repeat survey during 1977-78, Subsequent expansion of ICDS was based on the positive results of these evaluations.

A major chunk of the available ICDS research is focused on the health and nutrition components of the scheme. The Central Technical Committee has carried out most of these studies. A joint multicentric study by the National Institute of Nutrition and CTC (1995) highlights the impact of ICDS on psychosocial development. In addition to the above large-scale studies, several micro-level researches, surveys as well as postgraduate and doctoral dissertations have attempted to study the implementation of the programme and evaluate its impact on the beneficiaries. A review of these research studies indicated that ICDS has had a positive impact on participants and has the potential of enchanting child survival and development. Definite improvement has been reported in major indicators of

health and nutrition like IMR, nutritional status, morbidity pattern, immunization coverage and utilization of health services.

NATIONAL EVALUATION

The DWCD, ministry of Human Resource Development of the Government of India, in 1992, entrusted NIPCCD with the task of undertaking an evaluation of ICDS at the national level, covering 98 districts in 25 states and one Union Territory. The studies were aimed at ascertaining the impact of the scheme on children and women, identifying problems and bottlenecks in the implementation of the programme, and evolving strategies for further improvement. The data was collected from ICDS projects spread over 98 districts, 25 states and one Union Territory. The findings indicated the positive impact of health, nutrition and pre» school education services, and led to several recommendations to further improve the implementation of ICDS.

HIGLIGHTS OF THE NATIONAL EVALUATION OFICDS

- The Profile of households was in line with the guidelines prescribed in the ICDS scheme for selection of beneficiaries.
- There was a definite improvement in the educational qualifications of women appointed as anganwadi workers. '
- Higher percentage of babies had low birth weight in nonICDS areas as compared to ICDS areas. In tribal areas the dijj‘erence was even more marked. ‘
- The coverage of children for immunization was found to be higher in ICDS areas as compared to non-ICDS areas. '
- The utilization of health services was also better indicating the effective role played by ICDS in mobilizing the health system and linking the community and the health system. ,
- The nutritional status of children in ICDS areas was better than that of children in nonJCDS areas. A decline in percentage of severely malnourished children was reported. .

- Twenty five percent nursing mothers in ICDS areas had introduced semi-solids to their infants at around six months of age; indicating a positive effect on complementary feeding practices.
- Fiftypercent mothers in ICDS areas got their children (below three years) medically examined as against 38 percent of their counterparts in non-ICDS areas.
- Infant Mortality Rate (IMR) recorded for ICDS samples were 81,4; 740 and 66.6 for urban, tribal and rural projects respectively. These figures were lower than the national SRS estimates for the year 1 989.
- The finding clearly indicated the positive role played by Early Childcare and Preschool Education in promoting enrolment in primary schools, reduction in dropout rate and greater retention.

MOBILISING COMMUNITY SUPPORT :

PANCHAYATI RAJ INSTITUTIONS

The 73rd and the 74rth Constitutional amendments have created vibrant new partnership to reach the most disadvantaged and undeserved~ and the most vulnerable the young child. Elections for Panchayati Raj bodies have taken place in a majority of states. It is estimated that there will be approximately three million elected people's representatives in the country, when all the bodies are in place. Of these, 33 percent will be women. In come states devolution of powers to Panchayati Raj Institutions has also involved transfer of some functions for managing and monitoring tCDS to district Zila Parishads, Block Panchayat Samitis and Gram Yanchayats.

This constitutes a major opportunity for rooting development programmes, more firmly in the community, with the active participation of women. The Gram Panchayat will help create a supportive environment for childcare, by enlisting better teamwork from frontline workers, (ANMs, AWWs, school teachers) to ensure convergence of services. It will also help promote the participation of communities, in understanding the needs of children and women and finding local ways to respond to the same.

The department has initiated steps for the constitutin of Bal Vikas Mahila Samitis at village, block and district levels, with representation of women panchayat members, NGOs and ICDS functionaries. This is for promoting integrated communitybased monitoring of all programmes fro women and children epecilly ICDS. It is envisaged that the Gram Panchayats and Ba] Vikas Mahila Samitis would play an important role in ICDS. Similarly in the urban setting people's representatives of urban local bodies' play an important role.

Beginnings have been made in some States like Karnataka, West Bengal and Madhya Pradesh where members of Panchayati Raj Institutions ire being oriented and almost all the States are in the process of setting Bal Vikas Mahila Samitist

COMMUNITY PRARICIPA TION IN ICDS

- Pre-Project activities: This includes identification of volunteers, potential anganwadi workers, locating possible anganwadi center sites.
- Start up activities: Such as village mapping community self-survey to identify most disadvantaged groups and mobilizing community resources for anganwadi centers.
- Identification and follow up of vulnerable groups.
- Tying up vulnerable groups/ women with other development programmes (DWCRA, IRDP other thrift and credit schemes etc.)
- Volunteer arrangements to care for or bring children from scattered hamlets, based on women's work pattern.
- Ensuring early registration of pregnancies/ births and tracking of girl children.
- Help organization of fixed day of the month immunization sessions or mother-child protection days, for growth monitoring promotion and development counseling focussed on children under two years of age.
- Following up dropouts and those needing special care.

- Organisation of community nutrition and health education essions. (Mahila/ Balika Shrivirs) especially for women/ adolescent girls.
- Promoting better childcare and feeding practices.
- Improving environmental sanitation and availability of safe drinking water.
- Ensuring that Oral Rehydratin Salts (0R3) package is available in the village. .
- Covering other sectoral services at the anganwadi center. .
- Contribution of community resources to anganwadi centers. This could include;
- Local material for making toys and conducting playway activities.
- Local nutritious foods and developing kitchen gardens around the centers.
- Transporting pregnant women urgently requiring medical care to hospitals.
- Transporting sick children for timely referral.
- Contributing during crisis like floods/droughts.Promoting consumption of only iodized salt.
- Community based monitoring using a simple checklist and community charts for nutrition status monitoring.
- Community based promotion and monitoring of fulfillment of rights of young children especially girls, to survival development, protection and participation.

PROMOTING COMMUNITY BASED APPROACHES

Efforts to increase the participation of voluntary agencies in ICDS have been undemay to identify and replicate innovative, community-based sustainabk approaches. Presently over 150 NGOs have been entrusted with the implementation of ICDS Projects, with a distinct increase since end 1993. Demonstration models using different types of community based support structures. NGOs Mahila Mandals/other women's groups and Panchayati Raj institutions are also being developed in some states such as Madhya Pradesh and Rajasthan. Al states are being encouraged to experiment with new approaches especially to reach younger children. the project level plans of action are being developed through consultation with community groups. Other emerging support structures include youth clubs. Nehquuvak

Kendras in Utter Pradesh, where division/district specific tagging is being attempted, total literacy campaign volunteers e.g. in Karnataka and women's groups from programmes like WDR Mahila Samakhya DWCRA. In future, yet another community support structure model could emerge-the Indira Mahila Kendra.

Experience sharing documentation and dissemination of innovative strategies, is being promoted, through an NGO networking project, coordinated by NIPCCD.

- **Reaching the Unreached**

  New community based locally relevant approaches developed, e.g., Poriyasadis in Madhya Pradesh; urban day care for migrant construction workers in Rajasthan, mini anganwadi centers to reach scattered tribal hamlets '

- **Decentralization to flexibly respond to needs of women and child care**

  State specific programme strategies developed to ahcieve National Plan of Action for Children goals and fulfill young children's rights to survival, growth, development and protection.

- **Foseting Innovation**

  Enhanced support for piloting and experimentation, with new approaches to care of women and children, focussing on the prenatal under three years age group. .

- **Addressing gender disparities across the life cycle**

  Redesign of ICDS training to address gender issue, reaching out to communities and other partners and use of child friendly techniques such as 'Meena'.

  NEW INITIATIVE

- **Focus on preventing low birth weight and malnutrition as early as possible, across the life cycle**.

Village contact drives and other community mobilization efforts in many states including Rajasthan. Orissa, West Bengal, Bihar, Madhya Pradesh, Tamil Nadu and Andhra Pradesh. **An integrated approach to promoting early childhood care for survival growth nad development**.

A major nationwide quality improvement initiative being designed for the new millennium.

WORLD BANK ASSISTED WOMEN & CHILD DEVELOPMENT PROJECT

A major opportunity for promoting early child development in the 21" century opens upwith the recent clearance of the World Bank assisted Women and Child Development Project for Rs.1600 crore for five "a", declared efecttve on 4 October 1999. The project covers ICDS service quality improvement in five states-Tamil Nada, Kerala, Maharashtra, Rajasthan and Utter Pradesh. It includes a nationwide Training Component-Udisha which focused on improving the equality of training of [CBS childcare functionaries, partners and caregivers. UNICEF i5 also a technical and financial collaborator in the project which seeks to improve the quality and cost effectiveness of ICDS. Main project benefits would be.

- Better nutrition, health, cognitive and psychosocial development for children less than six year of age and better health and nutrition for women especially pregnant and nursing mothers.
- More the 8,000,000 households with direct participants will benefit through better learning nad improved productivity of other members.
- More than 12,000,000 households of indirect participants would benefit through project outreach to women aged 15-45 years, through behavior change as a result of improved social communication.
- Improved primary school enrolment, retention and learning achievement of children of disadvantaged groups.
- Improved participation of girls of disadvantaged group in primary education by releasing them from the burden of sibling care.
- Poverty alleviation : the project would focus predominantly on the poor, scheduled caste nd scheduled tribal papulations.
- Gender equity, through special efforts to include girl children in the programme; support for the education or girls by releasing them from the burned of sibling care

recruitment. of women community child care workers and other women porgramme staff} and development of women's empowerment and adolescent girls' schemes.

- Adult women from poor households, through efforts to organize them to improve their access to information and economic opportunities. Also by providing child care support services to women in their multiple roses, allowing women in the reproductive age group to participate in civic, political, institutional and collective life.
- Improved impact and cost effectiveness of the ICDS programme.
- Development of institutional capacity to improve programme quality on a continuing basis.
- **Emphasizing quality in early childhood development interventions.**

The Women and Child Development Project for Rs.1600 Crore designed and declared effective on. 4 October 1999. World Bank and UNICEF are partners in the project. The project design for service quality improvement in five states (Tamil Nadu, Kerala, Maharashtra, Utter Pradesh and Rajasthan) is based on social assessment studies.

- **Improving training quality**

Udisha is the Rs.600 Crore national wide training components of the Women and Child Development Project. .

- **Promoting early joyful learning**

Enhanced support for innovative training Of functionaries; early play/tearing support material in all anganwadi centers and onvergence with DPEP. .

- **Reaching the girl child and adolescent girls**

Strengthening the network to support kishori balika samoohs/mandals linked to women's development programmes.

- **Strengthening of basic infrastructure facilities.**
- **Management Information Systems**

MIS development to promote assessment analysis and action at different levels for improved young child growth and development outcomes.

"Today we search for your unwritten name : You seem to be just off the stage, Like an imminent star of the morning "Lats bring again and again 1 Message of reassuranceThey seem to Promise deliverance, Light, dawn." Rabtndranath Tagore, New Birth, 1994

The ICDS experience since 1995 has taught several valuable lessons with a larger applicability to programmes for the development of human community-based women workers can be effective and viable instruments of human resource development, if these workers are supported with training guidance and the necessary material inputs. An integrated approach, including a package of mutually supportive services, is more cost effective and efficient than individual services delivered separately. . Community ownership is fundamental to improved programme quality, impact and sustenance. W

Learning From Experience

- Flexibility in responding to local patterns of women's work and time is critical for reaching younger children more effectively.
- The ICDS type of network makes it feasible and easier to apply new, simple technology on a larger scale.
- The flow of human and material inputs has to be planned in detail and monitored very carefully, with community participation.
- Collaboration of academic/research institutions is very useful in providing low cost objective feedback on the programme and continuing education to workers. The educational process in academic institutions is also enriched with the field experience of the programme.
- Field experience needs to be continuously reviewed and utilized for strengthening training.
- Need for continuous enrichment of training and development of standardized training modules with focus on core items.

The experience of ICDS during there two and a half decades indicates that it has the potential of bringing about a silent revolution – a profound instrument of community and human resource development.

"Investment in child development will be viewed not only a desirable societal investment for the nation's future but also as fulfillment of the right of every child to 'survival' protection, and development' so as to achieve their full potential, In this context, the challenges are to correct the adverse sex ratio at birth and to reach every child without gender bias or any other social discrimination.

In this respect, priority will be accorded to focus attention on the child below 2 years. To achieve this, ICDS will continue to be the mainstay of the Ninth Plan to promote all round development of the young child."

Approach Paper to The Ninth Five Year Plan

ICDS has witnessed an expansion that is unprecedented and aims to reach every disadvantaged child and family in the new millennium. Over the years, it has responded flexible to different area-specific situations and local community needs, evolving State – specific programme strategies.

The commitment toachieve universal coverage of ICDS in the new millennium, is embodied in the National Plan of Action for Children 1992, and the National Nutrition Policy 1993. The National Plan of Action on Nutrition 1995 further indicated that 50 percent of the urban slum pockets would be covered. This commitment is also reflected in increased Central plan and State Government allocations for ICDS. The approved provision for the scheme during the Ninth Five – Year Plan (1997 – 98 to 2001 – 2002) is Rs. 4979.88 crores.

From 4,200 sanctioned ICDS projects (as of March 1999), it is proposed to scale up to more than 5,000 projects in a phased manner. Steps are also proposed to be taken to increase the numbers of sanctioned anganwadi centers, in older existing ICDS projects, based on block population estimates of the 1991 census.

During this period of expansion, the criteria for identification of projects will also include unfavorable female/male ratio, and concentration of child labor, particularly in hazardous occupations, responding to problems in the environment, in which children live,

grow and develop, Emerging trends of women's employment and the implications of changing women's work patterns on childcare, has led to efforts to establish crèches, through the National Creche Fund. Selectively in some areas, Creche services are to be extended in anganwadi centers, through Creche-cum-anganwadi centers.

PLAN FOR INTRODUCTIN OF SERVICES (PIS)

The importance of community preparation and consultation in ICDS, right from the beginning, in local situation and needs assessment, identification of disadvantaged groups and anganwadi center site locatins is recognized. This resulted in the formulation of the Plan For Introduction of Services (PIS), through which new ICS projects are to be initiated. This is aimed at improving the participation of communities – especially women, and improving intersectional coordination, right from the beginning. PIS is a management tool to facilitate effective planning scheduling and organizing of pre – project activities for initiating ICDS. Is emphasizes that two phases of activities have to precede operationalizaton of new ICDS projects. Firstly, administrative and community preparation and secondly training of frontline workers. The first phase of administrative and community preparation also includes block level planning exercises, to mobilize and involve other sectors (health, rural development, education) and joint block mapping exercises to improve outreach to inaccessible pockets. Community mobilization activities preceded selection of village, Anganwadi center locations, and identification of potential anganwadi workers.

The National Policy on Education 1986, National Programme of Action for Children 1992, have reinforced the priority to promoting early childhood care and education, through approaches for holistic child development. Emphasis has been laid on the use of child – centered developmentally appropriate activities, to nurture joy, curiosity and creativity in the young child. The early years are the crucial foundation for cumulative life long learning a time of opportunity in which even small positive changes can generate long – term social benefit. An opportunity that can make all the difference to the child from disadvantaged groups, the girl child and also to the child with disability. An opportunity that also results in increased cognitive and social skills, improved enrolment, retention and learning in critical early primary grades. An opportunity that determines both the present and the future.

LOOKING AHEAD : THE VISION

ICDS embodies a unique integrated cost effective approach for holistic development, converging basic sectoral services, where child survival, growth and development go hand in hand. ICDS also seeks to strengthen the capacity of caregivers and communities for childcare and early learning by building upon local knowledge and child care practices – to provide a nurturing physical and social environment for the young child in the family, community and at the anganwadi center.

The experience developed over the years has helped to strengthen early childhood care and learning processes and to forge stronger linkages with the education system. Emphasis is being laid on addressing both socio – economic and gender inequities by promoting development and learning opportunities for the young child for the older girl child – released from the burden of sibling care, and for adolescent girls and women's groups reached by the ICDS network.

Emerging from more than two decades of rich experience today the task ahead is not only that of tackling disease and malnutrition but of promoting every child's right to survival, development, protection and participation. The ICDS programme has also now reached a stage where it is essential to harmonies the expansion of the programme and its content enrichment. The spectrum of ICDS services has broadened with interventions related to the empowerment of women and communities and convergence of sectoral services. This emerging profile of ICDS rededicates itself to promoting early childhood care for survival, development, protection and participation the foundation of human resource development – India's vision for the 21th century.

PREVENTING LOW BIRTH WEIGHT AND MALNUTRITION IN YOUNG CHILDERN UNDER TWO YEARS OF AGE

- *Ensuring care of the young girl child, the adolescent girl and women, IFA supplementation of adolescent girls, delaying age of marriage and first pregnancy better interpregnancy recoupment.*

- *Universal early registration of pregnancy – enabling utilization of key services, that is Antenatal Care (ANC), immunization against Tetanus Toxoid (TT) and Iron Folic*

Acid (IFA) Supplementation, Improved care and counseling of pregnant women, to ensure appropriate adequate food and rest. This is also likely to reduce the incidence of low birth weight.

- *Promoting the practice of exclusive breast feeding of children from birth to around six months of age, timely immunization and counseling for appropriate care of low birth weight babies.*

- *Shared parenting and caring responsibilities and responsive interaction by both parents to stimulate active learning.*

- *Promoting timely and active complementary feeding with the use of local household resources starting among infants at around six months of age (with continued breast feeding up to two years)*

- *Improving coverage of nine – month old children with measles immunization and vitamin a supplementation. Also ensuring that each nine – month – old child receives at least four complementary feeds per day, in addition to breast – feeding.*

- *Care for childhood illnesses: Improving the management of diarrhoeal diseases (with ORT and continued feeding) and acute respiratory infections at home, through angnawadi centers and through health facilities.*

- *Strengthening growth monitoring promotion and caring practices for development of young children (especially under two years of age), with participation of mothers / parents and communities.*

- *Promoting consumption of only iodized salt and community based monitoring of the same.*

STATEMENT OF THE PROBLEM:-

The scene of the city was not different from other cities. Most of the children were from lower socio – economic group who were not able to go to school due to poverty illiteracy of parents, and ignorance. They were involved in child labour due to poor economic status and large size of families which were bringing deciterious effect on the mental physical

and all round development of the children and also enough nutritional food is not provided to meet their requirements so most of the children are victims of dreadful diseases.

Government has set up 100 no of anganwadi in city looking over such problems but due to ignorance of parents, improper guidance about the programmes, involvement in child labour and large family size they are not able to obtain benefits of these programmes. Another reason for their mismanagement of funds are resources of theses. Through this study I have tried to evolve whether enough facilities of ICDS for children of the city are benefited by this scheme.

JUSTIFICATION

Among children from 3-6 years high level of malnutrition, morbidity low growth rate anaemia is seen through the study I have tried to compare the nutritional status of ICDS beneficiaries and non ICDS beneficiaries by the use of anthropometry and clinical examination. To evaluate the nutritional status of the aforesaid children. The cross – sectional prevalence survey is taken up.

AIMS –

The aim of the present study is to gauze the various anthropometri measurement among non I.C.D.S. pre school children (3-6 years) residing in different locality of Bareilly. Predominately inhabitated by poor section of the society. This study reflects the comparative nutritional status of ICDS and non ICDS pre school children, the impact of supplementary nutrition on ICDS children and helps toplan nutritional programme aimed at improving their nutritional status and suggestions should be given in respect of non ICDS children with regards to their health and well being.

OBJECTIVES-

1. To access and compare the anthropometric measurements between ICDS and Non ICDS pre schhol children which refelects their nutrinational status

2. To assess the nutrinational status of ICDS and Non ICDS pre school children by means of Household survey, Diet survey, Ecological factors, Socio economic factors

and immunization status etc. as a supportive (complimentary evidences to anthropemetry)

3. To impart nutritional education to the parents specially to mothers and to make her to appreciate the importance of nutrition in the growth and development of her child

4. To suggest remediable measures to improve the nutritional and health status of pre school children in 0-6 years of age group

CHAPTER – II

REVIEW OF LITERATURE

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REVIEW OF LITERATURE

Review of Past Programmes:

In the past the voluntary organizations have played a significant role and made appreciable contributions towards child welfare services in India, such as Indian Red Cross Society, All India women' Conference, Indian Council for child welfare and the child and Society.

Since the dawn of independence the Union Govt. of India Assumed responsibility to give priority to the needs of children through planned approaches in "five year plan" regarding health and welfare of children. The programme were concentrated on education, health nutrition welfare and recreation some of them were especially designed to sent the pre-school children (0-6 year of age) such as :

1. Welfare Extension Programme
2. Co-Ordinate Welfare Extension Project.
3. Family and Child Welfare Project.
4. Applied Nutrition Programme.
5. Special Nutrition Programme.
6. Balwadi Nutrition Programme.

Special Nutrition Programme

The Special Nutrition Programme lunched in 1970-71 by Govt. of India with the objective to provide supplementary nutrition to pre school 53 children, pregnant women and nursing mothers belonging to the poet gection of the community in urban slums, tribal and backward rural areas.

The special nutrition program feeding centre provided supplementary nutrition to two hundred beneficiaries in urban areas and hundred beneficiaries in tribal areas. Other agencies to be involve in special gutrition program were Balwadies, Mahila mandal panchayats, Municipal bodies and voluntary

organizations. In fifth five years plan the special nutrition program has transferred to state sector under minimum needs program.

Manjrekar (1980-81) studied that the special nutrition programme in Mysore city which is meant to supply approximately 300 cal. to pre-school children. The observation of over two years in three feeding centres, those of one and a helf year were evaluated. The children of semi-urban village with comparable socio-economic group served as controls. The progress of height and weight of the supplemented children did not differ significantly from control group.

The concealed, the main reason for failure of Special Nutrition Programme to be :

l) Substitution instead of supplementation.

2) A wider calorie gap than the assumed 300 K.Cal.

Both these assumption were confirmed by subsequent diet any survey.

Balwadi Nutrition Programme was started in 1970-71 with the object 0f providing supplementary nutrition to children aged 3-5 years with 300 cal. and 10-12 years grams of protein per day.

The programme concerned about 6059 Balwadies and 2.29 lakhs I beneficiaries in 1980-81.

Chandra and Puri conducted anthropometric measurements of Balwadi children and control group at 3 stages over a period of 6 months the anthropometric measurements were found to be below third percentile of trained standard in all cases. Comparatively boys had higher mean values than girls, the increments in various anthropometric measurements were quite insignificant, indicating the important action of supplementary diet as failed to produce desired results.

NUTRITIONAL STATUS OF SCHOOL CHILDREN IN ICDS BLOCKS

Gupta evaluated the impact the ICDS by assessing growth and development, malnutrition using a suitable control population from NonICDS areas. Four hundred children in ICDS group and 357 in Non-ICDS group were surveyed weight for age was significant higher in ICDS group malcage 6 month-3 Year) and female children (2 -4 years). Severe degree of PEM (grade III and IV) was observed, 3.2 percent in the ICDS group and 14.8% in the non ICDS group. Over all prevalence of PEM was 42.2% in ICDS beneficiaries and 71.1% in non ICDS children.

Tandon analyzed base line date of 23 project in 1975. 27,554 children were surveyed from 15 rural and 8 tribal project by a team of consultants 66% house hold were found to be below poverty line, and illiteracy rate 60%, Severe I'EM was observed in 17.4% rural children and 19.4 % in tribal. Moderately severe PEM was 27.0% in rural and 21.3% in tribal about 23% ' rural and 27.43% were found to be normal 4% rural and 5% tribal children were marasrnic

.

Patel and Udhani (1977) conducted the period survey of lCDS beneficiaries in Mumbai slums for 4 years. The incidence of FEM was 74.9% in 1977 and 63.2% in 1980. Severe PEM declined from 15.7% to 4.6%.

Lal (1976) conducted base line survey in 1976 on 1233 (0-6 years) children, it was noticed that severe PEM declined from 17.5% to 8.3% within 3 years. No significant change was noticed in other degree of PEM declined to about 16%. Dynamics of nutritional stuatus revealed that improvement in the range of 7.4% and 68.5% in 1 & 4 degree of malnutrition respectively. Deterioration of Nutritional status ranging from 3% in grade 1, 8.6% in grade 2 and 5.4% in grade 4 was noticed 90% deaths occurred in severely malnourished children in the study.

Bhandari (1979) conducted base line survey of 420 children in Ghasi Block, Rajasthan and noticedas 23.8%, 24.47%, 10.05% and 2.85% in grade 1, 2, 3 and 4 respectively in base line survey, while it was 72.4%, 24.39%, 9.75% and 1.98% respectively in repeat survey after one yerar. it indicates no significant improvement in nutritional studies of children.

Bhandari (1979) surveyed 1040 children in 12 anganwadies in Ghasi tribal project and found 170 (16.34%) has severe PEM (Grade 3 and 4) in base line survey. These children were monitored for one year. Improvement in Nutritional status was significant impact as regards to the improvement in Nutritional status and reduction in morbidity and mortality.

Rao and Harnath analyzed the data of children collected from. randomly selected anganwadies (2 rural, l urban, l tribal % and 2 urban projects). In Andhra Pradesh found 366 children (6.34%) were severely malnourished, they were provided with therapeutic nutrition (500 calories and 16 gms fats). Improvement was significant in 53% in six weeks. 22.5% improved over a period of 12 weeks, 45.5% children showed no improvement in nutritional status in 6 weeks, 13.5% had no improvement even after 12 weeks.

The results were encouraging in view of low cost of nutritional interventions and obvious advantages to working parents whereas the severely malnourished children could be successfully treated in the house surroundings.

Lal observed in his studies that incidence of PEM was maximum in children about 93% during July to October. These months are considered to be unfvourable to the nutritional status of children, because this period coincides with malraial transmission, rainy season, and occurrence of skin infections and diarrhoeal diseases.

Anthropometric measurements are used to assess the growth and development and nutritional status of the children. It recognizes the growth failure and malnutrition long before the clinical examination could do so. There are two types of field investigation by which the nutritional \ssessment of the pre-school children (0~6 years) can be evaluated.

1) Long itudinal incidence studies and t)
2) 2) Cross sectional prevalence studies, Gordon (1963), Jelliffe (WHO monograph No. 53, 1966).

ln the longitudinal incidence studies, the selected members of the family in a community are kept under con tinuing systematic survey alliance {or at least one year, the advantge of this study is that, it not only precedes information about the true annual incidence of malnutrition, but also shows the changes caused by availability of food, climate, growth spurts and other factors. Further the ages of the children born during the course of study will be known with accuracy, it is an advantage of this study. It also helps in identification of localy important causes of malnutrition. Likewise there are certain disadvantages such as, it is expensive and difficult to organize and time consuming.

The cross-sectional prevalence study requires only one examination of the tragct population. It is further divided into two types.

1) Point prevalence survey, wherein the examination is conducted in a specified short interval of few days or a week.
2) Periodic prevalence survey, wherein the examination is repeated on the same group at prescribed intervals.

Aforesaid types of cross sectional studies are not time consuming and immnsive and easy to perform. The disadvantages are that they provide Informanon regarding relatively chronic conditions and may mislead with “Mr to acute conditions. According to senate (1966) there are three M“ horned: of assessing the nutritional status ofpre-schooi children.

a) Direct Assessment
b) Indirect Assessment
c) Assessment of Ecological factors.

In the longitudinal incidence studies, the selected members of the family in a community are kept under continuing systematic survey alliance for at least one year, the advantage of this study is that, it not only precedes information about the true annual incidence of malnutrition, but also shows the changes caused by availability of food, climate, growth spurts and other factors. Further the ages of the children born during the course of study will be known with accuracy, it is an

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Jellifl‘e (1966) Aforesaid types of cross sectional studies are not time consuming and inexpensive and easy to perform. The disadvantages are that they provide information regarding relatively chronic conditions and may mislead with regards to acute conditions. According to there are three main methods of assessing the nutritional status of pre/school children.

a) Direct Assessment
b) indirect Assessment
c) Assessment of Ecological factors.
d) Direct Assessment this is further sub-divided into four methods.

I. clinical Signs
II. Antnropometric measurements ill,
III. bioPhysical methods
IV. biochemical method-usually combination of these are advocated

ASSESSMENT OF AGE:

This is of paramount importance, because the parameters like height, weight, certain circumferences like chest, head and mid-arm and skin fold thickness are age depended.

CRITERION TO ASSESS THE AGE OF CHILD :

1) By documentary evidence-birth certificate, horoscope and Baptismal Certificates.
2) By decidous dental eruption-However the time of eruption may vary in different individuals. Marasmus may delay the eruption of teeth~ (Mclaren and Houri 1964) the effects of Kwashiorkar on eruption of teeth is not clear.
3) By combination of dental eruption and measurement of head circumference
4) By bone age) Not relevant to cross
5) By sexual maturation) sectional study.

6) By combination of dental eruption, head circumference, local calendar and presence of siblings.

ANTHROPOMETRIC MEASUREMENTS (NUTRITIONAL ANT HROPOMETRY)

Baldvin (1925) was the first person to use the term "Nutritionaj Anthropometry (Mehta et a1, UP 1975, Page 186). Anthropometry i; concerned with measurements (variations) of physical dimensions and th. gross composition of the body, which are although genetically determiner? but immensely influenced by the nutrition. Hence, selected Anthropometric measurements can therefore give valuable informations pertaining to types pf malnutrition in which body size and compositions are affected. It also helps in assessing growth failure and malnutrition principally from lack of palories and protein. Anthropometry has unique place among various (methods) techniques adopted for assessment of nutritional status of children. It. is rational and should be the case, since growth is the major characteristic of childhood and depends on as adequate supply of nutrition. Anthropometric measurements are easy of perform, inexpensive and uncomplicated, survey staff need not be highly qualified as for biochemical assessment. Equipment's are not complicated apart from accuracy and low cost, they are easily carried to field surveys.

A matter of considerable interest and importance is the roles played by the genetics and environmental factors in determining the demonstrablymarked differences in growth of children in develop and developing countries. Well nourished children of different ethnic origins differ little in their heights (about 3° 0) and weights (about 6%). But children belonging to low socioeconomic class in developing countries, average 12% less in height and 30% less in weight than children of developed countries and rich class children of their own country with similar ethnic background. Thus the environmental factors and especially nutrition, appears to play a much greater part than Genetics, as far as populations are concerned, and growth charts based on western standards may be used for most population. The tall Watusi and small pygmies of Africa are exceptional, but met: physical proximity does not mean similarity of environments and purel} genetic differences have not yet been shown to operate (Habitcht et a 1974);Tanner 1976).

STANDARDS OF ANTHROPOMETRY

The recommended anthropometric measurements in nutrition survey afc' 1) Weight 2) Linear dimensions aheight, circumference of chest and head. 3) Superficial soft tissues subcutaneous fat (thickness of Shin fold) Muscle (by circumference of arm and calf). All measurements are expressed in metric systems.

The standard reference values are not known with certainty. Hence, it is desirable to prepare a local standard from healthy, well-fed section of the community whose ages are known. Standard should be separate for each sex.

Stuart and Stevenson (1959) observed that in our country, 50th percentile of Harvard standard is considered as "Reference Standard" for height and weight measurements. The longitudinal studies, were conducted regarding growth pattern of Caucasian children in Boston from 1930-1956 to prepare the Harvard.

DATA (Nelson text book of Pediatrics, 12th Ed. **W.B.Saunders** 1983). For the nutritional status assessment of pre-school children; the most commonly used standards are those of DB. Jelliffe(1966)tabulated in WHO monograph No.53, in which data has been collected from different sources. Triceps skin fold of British children (Hammond 1959)(Tanner and White House 1962)

H.C. Stuart and Stevenson 1959 studied the weight and height from North American children Arm circumference standards from Poland **(Wolan Ski 1964),** but because of many errors H.J.L. Burgess and Burgess (1969) published “Smoothed” Wollanski standard for interpretation of field survey data.

The standards tabulated by D.B. Jelliffe as an international basis for comparison needs further rectification, and potential alternative Standards for that are those of Tanner & White house (1969) and Tanner White horse & Takaishi (1966) compiled from British children.

It is essential to have an international anthropometric standard to compare data from different parts of the world. It is not yet possible to produce data in any developing country as complete as that from Europe and America, partly because of monitory difficulty, time and

man power. However, never the less a number of countries have produced their own local standards.

The disadvantage of using an international standard for interpretation is that it has no account of ethnic difference and this can lead to a false assessment of nutritional status.

The local standards should be prepared from anthropometric measurements of well fed individuals having regards to ethnic variations in the community.

Local weight standards of some developing counties :-

Region	Age Rance
West Africa (Morley et al 1968)	Birth to 5 years
East Africa (Rutishauser 1965)	Birth to 7 years
South Africa (Robertson 1952)	1 – 7 years
New Guinea (Melcolm 1970)	Birth 24 years
India (Udani 1963)	1 – 11 years
Malaysia (Millis 1957)	3 months – 6 years
West Indies (Ashcroft et al 1965)	6 months – 9 years

INTERPRETATION :

The results of the Anthropometric measurement of population survey should be report as mean values, standard deviations, and in Centile forms, so that the data could be easily compared with that of international standards. In WHO monograph No. 53 (D.B. Jelliffe 1966) it has been recommended to express the results as percentage of subject falling below the 50^{th} Centile of Internatonal standard. Here the drawback is that the growth stunting or wasting are not readily comparable for example, the 3^{rd} centile which is the lower limit of normality, corresponds to 80% of standard for weight; 85% of standard for Mid-Arm circumference and 90% of standard for height (Committee Report 1970).

It has long been realized that the standardization of Anthropometric measurement methods are of utmost importance. In WHO monograph No. 53 (D.B. Jelliffe 1966) certaom stamdards/methods/techniques are suggested for height, weight, circumference of head, chest, mid-upper arm and mid-upper arm muscle, triceps skin rolled and sub-scapular skin rolled thickness. The Anthropometric measurements are easy to perform provided the surveyor has sound practical knowledge of using the equipment's with accuracy. Inspire of all out efforts, the anthropometrists are not satisfied with the standardization of techniques.

a) **WEIGHT :**

This is the 'key' anthropometric measurement, being simplest way of assessing the growth and nutritional status. It is a good index of child growth potential and a delicate measure of health of an individual. The weights for children can be expressed in terms of percentages in various percentiles standards. Weight of the healthy children should be between 10 the and 90^{th} percentile. Any weight deficit by 20% of the expected weight is considered as under nutrition (growth failure) and weight more than 20% of the expected, at a given height and age, may be considered as over weight or ob easily. It is important to note that the serial weight measurements of the child at successive ages should maintain almost the same percentile position.

Children should be weighed undressed. If spring balance is used, it is checked frequently against a known weight.

David Morley; King 1972 and Church and Stanfield (1971). It is useful to have regular sequential weighing of children to pin-point P.E.M. in early stages. Regular weighing constructions and following the weight charts is recommended.

Serial weighing is primarily applicable to child health clinic and nutritional surveillance programme (I.C.D.S.)

For weighing the pre-school children two types of machines are available. Beam balance scale and spring scale. The former is preferable but in field survey Salter's spring machine (accuracy 100 grams.) is used, the "Butcher's Steel Yard" Beam balance scale can also be used.

Interpretation of individuals in cross sectional studies is rather more difficult, the reason being, it is not possible to know whether a given value is part of an improving or Detroit acting situations. A value falling within normal range can itself may be quite abnormal if it comes from a child who has a high potential for growth.

The cross sectional studies should always be carried out at national level rather than for the individual.

Gomez (1957) classified malnutrition using 50^{th} percentile of Harvard Standard (as in WHO monograph No. 53) (D.B. Jelliffe 1966) into three degree I, II and III depending upon whether the body weight is between 90 – 61%; 75 – 61% or less than 60% respectively.

Table showing the average weight increase during pre-school age period (3-6 years) (Shanti Gosh Feeding & Care of young children, Ed. 2 Vol. of Health Association of India, 1977)

Age	Weight
1 – 2 years	2.5 kg per years
3 – 6 years	2.0 Kg.per year

The body weight is mainly made up of muscle, fat, bones and internal organs and in certain pathological conditions such as Oedema, ascots, massive organomegaly and even the weight of worms in severe ascariasis, accompanies the body weight. The interpretations of the weight below the standard has to take account of these various components and it can be critically analyzed only if a simultaneous estimation of (or measurement of) these tissues are also carried out, at selected sites especially subcutaneous fat and muscle mass.

LINEAR DIMENSIONS : Limber dimensions are of two types :-

a) Height of length of whole body
b) Certain circumference such as chest, head, mid arm and calf.

1) **HEIGHT OR LENGTH OF WHOLE BODY :-**

Under this heading, the sitting height, standing height and crown heel length in supine position is included. The height of an individual is made up of the sum of four components viz.., legs, pelvis, spinal column and skull. For detailed study of body proportions, all of these measurements are required. But in field survey only total height/length is measured. In case of pre- school children below 3 years of age recumbent (crown heel) length is measured to avoid postural errors.

Shanti Ghosh (1977). The biological bearing of height is that it is a measure of skeletal elongation. Relatively Femur grow faster than other bones, so that change in height (Crystal heighty) may provide a sensitive index of inadequate nutrition among pre-school children.

The growth rate in infancyis fast and by one year it is about 0.75 to 1.0 cm per month. By 4^{th} year, the height of the child is doubled (100 cms) that of at birth. 4^{th} year onwards the growth rate is less than 0.3 to 0.5 cms per month till 10 – 12 years of age.

Table showing the average height increment during pre – school age period (Shanti Ghosh Ed. 2)

Age	Height
During 3^{rd} year	9 cms/year
During 4^{th} year	7 cms/year
During 5^{th} year	6 cms/year
During 6^{th} year	4.5 cms/year

Generally it is believed that male children exceed the females in weight at all ages, but it does not hold good in the case of height.

Height should be recorded on percentile Charts like weight.

Infant to meter is used to record the crown heel length, where head board is fixed and food board is movable. Stadiometer is used to record the standing height of children above 3 years of age, wherein head piece is movable. Quack stick test can also be employed for measuring the height, but results are not accurate.

QUACK STICK TEST :-

This is a simple tool for measuring height. Mid arm circumference measurements in relation to height are marked on it. Value of 85% 80% and 75% of the expected arm circumference for specific height are marked directly on the stick. Height of the child can be read against the Quack Stick papers. The maximum left arm circumference is measured. Height against arm circumference on quack stick gives the percentage of expected weight and indirectly the grades of growth and any relardation there of.

Tanner (1996) Lack nutrition for a long time has definite adverse effects on height increment which could be demonstrated by long term nutritional surveillance. In cases of infants lack of calories proteins and nutrients from reduced breast milk outputs and lack of balanced weaning foods lead to considerable deviation in height but later growth veracities were essentially normal.

McGreger (1968); Gamble, Desai & Milli (1969) and Rea (1971) Similar observations were reported by from Jamaica. All workers unanimously agreed that severe type of height retardation occurs in later half of Ist year. Children effected in 2^{nd} year of life by malnutrition had pronounced height retardation.

Waterlow (1972-73); Seonne lathem (1971) and Waterlow (1972-73) The significance of height as a measure of malnutrition has been critically reviewed by who agrees with that height for age be looked up as indicating long-term previous dietary history as opposed to weight for height, which reflects the present nutritional status of the child. Extends this concept and suggests that the term under nutrition and malnutrition should be confined to cirumstances, when there has been a change in weight for height, while reduction in height for age should be described as retardation and a reduction in final stature as stunting.

Waterlow (1972) suggested that there are really four broad anthropometric categories of children (1) normal (2) malnourished but not retarded i.e., acute malnutrition's (3) malnourished and retarded, which would occur when an acute episode has been superimposed on chronic malnutrition and (4) retarded but not malnourished (nutritional dwarfs) or bonsai babies – Jalliffe 1966).

Relation between height, weight and age :

Certain indices are made from height, weight and age, etc., and are commonly used to assess the nutritional status of the pre-school children.

1) Age dependent indices
2) Age independent indices

Age dependent indices :-

a) Weight for age

b) Height for age.

Weight for age is an index of over – all malnutrition and height for age is an index of duration of malnutrition.

Overall malnutrition = Actual weight X 100

Expected weight for age

(the expected weight is 50^{th} percentile of Harvard Standard).

Chronic malnutrition = Actual height X 100

Expeced height for age

The expected height is the 50^{th} percentile of Harvard Standard.

Age independent standards :-

1) Weight for height
2) Weight for head circumference
3) Circumference of arm to height
4) Circumference of arm to circumference of head.

Weight for height :

This index reflects the current nutritional status.

Actual malnutrition = Actual weight X 100

Expected weight for height

It is rather difficult to interpret the weight on the basis of age, unless true age is known. Hence, often it is essential to rely on percentage weight for height or more precisely, weight as a ercentage of expected weight for height.

5) This is not such a serious limitation in acute severe malnutrition in which there is marked loss of weight, because repaid depletion of subcutaneous fat and muscle lead to a disproportion between weight and height. (Gurney, Jelliffe & Neil 1972)

Jelliffe (1959) In contrast, diets chronically deficient in energy and protein can lead to impaired growth in both weight and height, the result being what has called Nutritional Dwarfs or Bonsai babies. Such children can be essentially well proportioned and the fact that this growth has been severely affected by malnutrition is not evident unless age is known.

Formula for calculating percentage weight for height = Weight of child Weight of standard child of the same height.
(50^{th} centime of Harvard Standard is used).

Dugdale (1971) reported that the percentage weight formulation is not directly equated with the more simple ratio weight / height. It is an "partially age independent index". Comparatively the rate of weight gain is faster than the height. The ratio weight (Kg) / height (Cms) increases with age.

Waterlow (1972) Using the Boston Standards the ratio is 6.7 x 10-2 at birth; 14.3 x 10-2 at 2 years and 16.9 x 10-2 at 5 years. In an attempt to find a truly age independent Index.

Rao & Singh (1970) compared the heights and weights of apparently normal children with no sings of malnutrition coming from low income group in Hyderabad regions; Andhra Pradesh. They found that the ratio (weight/height)2 x 100 was remarkable constant over the age range 3-6 years, and was the same for both sexes. Their mean value for normal children is 0.15, and for those with signs of P.E.M. 0.12 – 0.14. The mean value for children of affluent sections of society is 0.16 Dugdale 1971 conducted similar type of study on wider range of children and concluded that weight/ height 1.6 provided the best index of anthropometric normality which is an age independent Index.

Dugdale and Waterlow (1972) reported that the opinion of biological validity of their indices need to be established and further Waterlow pointed out that Dugdale's index fits closely in practice with the less controversial percentage weight/ height formulation.

Urruti & Gordon (1967) It is a known fact that most of this nutrition Ist in developing countries believe that the weight defect is solely due to dietary inefficiency. To some extent it is true, but it should not be forgotten that environmental factors also play great role. Likewise episodes of infections also effect the nutritional status of child. It is of relevance when etiology and subsequent preventive measures.

WEIGHT FOR HEAD CIRCUMFERENCE

This should be expressed in four 10% levels below the standard.

CIRCUMFERENCE OF ARM TO HEIGHT :

This ratio gives the same information as weight for height, but it is less sensitive and inaccurate.

CIRCUMFERENCE OF ARM TO HEAD CIRCUMFERENCE

Kanawati & Mclaren (1970) noted in their study that this ratio is remarkably constant between the ages of 3 months and 48 months of age and sex independent. The normal value is 0.310.

INTERPRETATION GUIDELINES

0.310 = Nutritionally normal
Between 0.310 – 0.280 – mild PEM
Between 0.279 – 0.250 moderate PEM
0.250 = severe PEM.

CIRCUMFERENCE OF HEAD

The circumference of the head is measured by **UNICEF** tape, made up of fiber glass passing over the supra orbital ridges anteriorly, around the head at the same level on either side and laying it over maximum occipitial protuberance poteriorly.

The brain grows fast during infancy and at that time it reflects the age rather than nutritional status. However, the nutritional deficiency has its effect over the size of brain, soft tissue of scalp the skull, so that the head circumference is slightly effected in the second year of life in PEM although comparatively much less than the chest.

The circumference of the head mainly depends on the size of brain and to some extent on the thickness of the soft tissues of scalp and the skull.

The child celebrates its 1st birthday (one year) with 45 cms of head circumference. During the next two years the growth of brain is slow i.e., about 2-3 cms. There after it increases totally by 4-6 cms reach the adult size by 12-14 years of age.

CHEST CIRCUMFERENCE:

The chest circumference can be measured by **UNICEF** fiberglass tape putting around chest at the level of nipples. The practical use of this measurement will be during the second and perhaps the 3rd year of life. Because the circumference of head and chest are almost equal at one year of age. At birth the circumference of head is little more than the chest. After one year of age the chest circumference increase faster than head circumference. Therefore, between the age of three to six years the ratio of chest/head circumferences of less than one, may be due to failure to develop or to wasting of muscles and fat of chest wall and then this ratio can be used as an index of PEM of early childhood.

The chest circumference increases by 6-8 cms during infancy and 2-3 cms per year upto 6 years.

MID-ARM CIRCUMFERENCE:

Jelliffe (1966) It is one of the most important anthropometric measurement widely used for assessment of nutritional status of pre-school children. The circumference of mid-arm is the sum total of bone, muscle, sub-cutaneous fats including skin of upper arm. The measurement of mid arm circumference requires minimum instruments, just a fibre glass UNICEF tape.

The technique of measurement is described in detail in WHO monographs No. 53. Mid arm circumference is measured at a point mid-way between the acromion process of scapule and olecra-non-proces of ulna. It is fairly constant between 3-6 years of age varying only between 16.00/and 16.9 cms.

Jelliffe & Jelliffe (1969) Rutishauser (1968) in their monograph have dealt with the mid arm circumference as an index of P.E.M. and demonstrated a high degree of linear correlation between mid-arm circumference and weight, and weight for height from three different groups of populations from Uganda. Data and its results collected from various parts of the world such as Tunisia, Nigeria, Gambia, Tanzamia, Serra, Congo, Ethiopia and Lebanon.

As a nutritional measure it has gained popularity among various anthropometrics, yet it cannot be matched with more sensitive index of weight and height. It is more useful in mass screening as an index of marasmus rather than Kwashiorker. As the arm circumference denotes summation of bone, muscle and subcutaneous fat, It is possible the skin fold thickness and making some allowance for humorous by substracting an approximate standard value according to the age of the child. Assuming circumference of bone to be constant for a given age. (Standard, Wills & Waterlow).

MID-ARM MUSCLE CIRCUMFERENCE FORMULA BY JELLIFFE & JELLIFFE (1966)

C2 = C1 ITS

C2 = Muscle circumference IT = 227

C1 = Arm circumference S = thickness of triceps skin fold.

Klerks (1956); Rabinow and Jelliffe; Konda Kis (1969) In this way one can get an idea of the relative extent to which PEM has effected both fat and muscle. The simple arm-circumference correlates with the calculated muscle circumference in severe forms PEM reports malnutrition effects both fat and muscle in children.

Jelliffe & Jelliff (1969). Some malnourished children may have considerable subcutaneous fat which gives relatively high arm circumference.

Gurney (1969) and Konda Kis (1969) In case of Kawashiorker a close correlationship was noticed between calculated arm muscle circumference and weight than with the 'straight arm circumference' measurement.

Jelliffe (1969) The standards and interpretation guidelines regarding the formula of arm muscle circumference are given in WHO monograph No. 53 but it contains combined inaccuracies of arm circumference standards of polish children skin fold standards of British children.

Muscle mass may be assessed in different ways (Jelliffe 1966).

Total muscle mass

1) By soft tissue radiology – of leg or arm
2) By physical anthropometry (by measurement of arm)

For all practical purposes the physical anthropometry is the method of choice.

Kanawati & Mclaren (1970), Some workers thought of making arm circumference standard completely age independent, though it is highly constant between 3 to 6 years of age. To achieve this aim, arm circumference was compared with height and against head circumference.

Bangle test

Langesen M. 1975; Shanti Ghosh, Manmohan, T.Yajathi, (1976). For quiche nutritional survey, a bangle with internal diameter of 4.0 cms is being used. If it slides over elbow and upper arm, the child is said to be severely malnourished.

Quack Stick

Arnold (1969). The Quiche Stick is constructed by using mid arm circumference/height ratio.

The Quack stick :

The arm circumference standards (Wolanski) and height for age standards (Morley 1968) of West African children are used in the preparation of Quack Stick.

Table showing arm circumference and height value used in the construction and use of quick Stick (Arnold 1969)

Arm circumference (cm)	Height (cm)
16.50	133.0
16.0	129.0
15.5	125.0
14.75	118.5
14.50	116.0
14.25	113.5
14.00	110.0
13.75	106.5
13.50	103.0
13.25	97.5
13.00	90.0
12.75	80.00
12.50	70.00

Kanawati Haddad & Mclaren (1969). The Quack Stick is a height measuring rod on which the arm circumference measurements are calibrated for expected heights. Values of 80% of the expected arm circumference for height (3^{rd} centile is nearly 85%) are marked on the stick at the corresponding height. If the height of the child is more than his arm circumference, then he is said to be malnourished.

This method is more useful for screening the large number of children is short time, to assess the nutritional status, though Pre Kwashiorkar cases may be missed.

Lastly the mid arm/head ratio of Kanawati & Mclaren (1970) is said to be remarkably constant between 3 conths and 48 months and normal value is 0.310.

The weight for age ratio correlates well with this ratio.

SKIN FOLD MEASUREMENTS:

Superficial soft tissue or the subcutaneous fat is one of the soft tissues of the body which is effected greatly under the stress of malnutrition.

FORBES (1962) The distribution and measurements of subcutaneous fat (Annales of New York Academy of Science 1963) – gives clues about reserve calories of the body. Fat is the main source of energy in the body and is mobilized to maintain the body energy in times of energy crises in the food. The distribution of fat is not uniform throughout the body. Likewise it differs at different ages and in different sexes.

Mclaren and Read (1962); Robson (1964) The fat composition may vary with different types of foods has suggested genetic difference in distribution of subcutaneous fat.

METHOD OF MEASURING SUBCUTANEOUS FAT :

1) Physical anthropometry (by using skin fold caliper)
2) Physical and chemical analysis (WHO body analysis at autopsy).
3) Radiological anthropometry (by using soft tissue exposure Garn 1962)
4) Ultrasonic
5) Densitometry (by water displacement in a densitometer or under water uptake of fat soluble gases.

In field survey physical anthropometry is the only method of choice. There are three types of Calipers.

1) Harpenden Caliper (Edwards 1955)
2) Lange's Caliper (Lange 1961)
3) USAMRNL Caliper (United States Army Medical Research Nutrition Laboratory, Chigago, USA) (Best 1953) (Jhonson, Pecora 1963)

Another one is UNA skin fold Caliper, UNA & CO, India.

Rutishauser (1972) The Calipers must be reset to zero for everyday's work. Certain areas of the body are used for the measurement of skinfold thickness, usually in pre-scapular skinfold

are commonly used. Skingold measuremets are used in the assessment of sub-cutaneous fat depletion's (malnutrition). By convention, the triceps skinfold, of left arm is measured with the arm hanging relaxe at the side. The skinfold is picked up in between the thumb and index finger of left hand, parallel to the long axis of the arm, at a point, mid way between the acromion process of the scapula and olecranon process of Ulnar bone and skinfold is measured by mean of a Caliper (Committee on nutritional anthropometry 1956). The techniques of measurements is fully described in WHO monograph No. 53 D.B. Jelliffe 1966); but it requires lot of practical experience to standardize the "pinching effect" of Caliper. It is a difficult task in struggling and crying babies and also in pre-kwashiorkar conditions. The presence of edema may come in the way of accuracy. Moreover the distribution of fat is not uniform throughout the upper arm, so much care has to be excercised to perform the accurate measurement in all children at the same mid point between acromion process and olecranon process.

It is a common experience that the skinfold thickness is more reduced in marasmus than kwashiorkar.

As the distribution of fat varies at different age and sexes, so separate standards have to be used for males and females. Details of values are mentioned in WHO monograph No. 53 (D.B.Jelliffe 1966). If precise age assessment is not possible between 3-6 years of age, an useful approximation for booth boys and girls is triceps skinfold, which is about 10 mm (Hammond, Tanner & Whitehouse).

Jelliffe used biceps skinfold thickness to assess the growth the nutrition.

Visveswara Rao and Singh (1970) used tricepps skinfold and subscapular skinfold thickness to assess the growth and nutrition.

Gurney and Jelliffe (1973) Keeping in view the importance of body fat stores and limitations of skin fold thickness measurements, alternative methods are suggested such as a formula to drive the value for cross sectional fat area; the ultrasonic measurements and radiological anthropometry are also practicable which needs further approval.

CLINICAL SIGNS :

Though evaluations of clinical signs for assessing the nutritional status of children do not come under nutritional anthropometry but provide valuable information's. It is a simple,sound and fairly reliable methods based on examination of changes related to nutritional deficiencies seen or felt in epithelial tissues, hairs, skin, eyes, buccal nucosa and certain organs etc., under certain conditions the clinical signs of non nutritional disorders may nestled or confuse with that of nutritional deficiencies such as Bitot's spots pathognomonic of Vit. A deficiency can be due to conjuntival trauma from dust, eye infection and smoke. Angular stomatitis pathognomonic of Riboflavin deficiency can be seen in some persons chewing betel leaves (pan) preparations. Beading of ribs Persistent open anterior fontanelle Knock – knees Bow legs Diffuse or local skeletal deformities Deformaties of thorax Musculo skeletal haemorrhages.

FAO/WHO Committee prepared a table to show 'key signs' due to various nutritional deficiencies in which age of the child plays an important role.

COMPOSITE CLASSIFICATION SYSTEM

Bengos's (1970) No single technique for assessing nutritional status has yet been developed, which is applicable and sensitive to all the situations P.E.M. is a variable syndrome and methods of assessing must be relevant to the type of malnutrition, which is occurring. It is for the reason that various workers have made efforts to develop composite classification system. A good example is the modification of goms classification, which isentirely based on weight deficit. The presence of odeama was an additional criteria for third degree malnutrition regardless of the weight deficit, the same consideration was the basis for welcome classification.

The system adopted was more complete children were classified.

Jelliffe (1969). As being cases of P.E.M. if they showed three or more of the listed signs, with the provision that at least one of the signs should be as anthropometric abnormality, either a chest / head ratio of less than I or mid arm circumference or a weight for height of less than 80% of the respective standards.

The three anthropometric criterions probably measured the same thing and they seemed little point in giving each a separate weightage.

COMPOSITE CLASSIFICATION SYSTEM

PARAMETERS	PERCENTAGE RANGE	SCORE
Weight	100 and above	50
99 to 100	1	
80 to 90	2	
70 to 80	3	
60 to 70	4	
60 and less	5	
Height	100 and above	0
90 to 100	1	
85 to 90	2	
80 to 85	3	
80 and less	4	
Head circumference	100 and above	0
90 to 100	1	
85 to 90	2	
80 to 85	3	
80 and less	4	
Mid arm circumference	100 and above	0
90 to 100	1	
90 to 80	2	
70 to 80	3	
60 to 70	4	
60% and less	5	

Kanwati, Haddard and Melaren (1969) Another composite system is entirely dependent on anthropometry is developed which is popularly called as index of thriving in this system weight height, head circumference and mid upper arm circumference are graded. The scoring system gave the same emphasis to weight and mid arm circumference and with the system of burgess (1969) one must question whether there is any advantage to be gained from the sum of measurement which are closely inter related.

Children with an index of 0 or one were considered normal and those with an index of 9 and above were placed in a failure to thrive category.

GENERAL CONCLUSION-

HAVING HIGH REGARDS to the importance of assessment of nutritional status, it is a very disappointing fact that no universal system has so far been developed which is completely accepted by all but certain conclusions and recommendations are certainly permissible. In a child clinic the most convincing method which provides valuable information is regular weighing and construction of weight charts. In a national cross sectional survey of nutritional status, weight and height should be measured invariably the mid arm circumference and triceps skin fold thickness provide additional information, if the survey is conducted in a country where kwashiorkor is predominant form of P.E.M.

INDIRECT ASSESSMENT OF NUTRITIONAL STATUS –

MALNUTRITION influence mortality and morbidity rates, two indicators of nutritional status of preschool children.

1) The mortality rates for 1 to 6 years (expressed as percentage of total mortality) cause specific (nutritionally relevant) mortality rates.

ASSESMENT OF ECOLOGICAL FACTORS –

Human malnutrition is always an ecological problem in that it is an end result of multiple overlapping and interacting factors in the community's physical biological and cultural environments.

Therefore, it is necessary to make an ecological diagnosis of the mvareous causative factors responsible for prevalence of under nutrition in the community.

The various ecological factors are –

a) Conditions influences
b) Food consumption
c) Cultural influences.
d) Socio economic factors.
e) Food production.
f) Medical (health) and educational services.

g) All these are intimately related to one another.

INFECTIOUS CONDITINO

Infections have a deleterious effect on the nutritional status of the child through physiological and anatomic changes. These change becomes evident in reactions like fever constipation etc.

The infections may be bacterial or viral the infections directly affect nutritional status and it may come out into malnutrition.

Infections not only affect nutritional status but also growth and development of the children.

Decrease intake – from anore
Xia, diminished absorption

Increased loss from dirrhoea and vomtting. Increased need – both for the host and the parasite.

FOOD CONSUMPTION – It is obvious that the nutritional status of the child depends mainly upon the quality and the quantity of the food eaten. Under nutrition with the with the lack of both proteins and calories results in the development of marasmus and a diet mainly deficient in protein with a relative excess of energy result in quashiorkor. Over nutrition of the child result in obacity Deficiency of specific nutriresults in conditions like blindness, rickets, berybery anaemia and other.

The food consumption of an individual can be assessed by doing a diet survey. The diet survey provides information on the nutrient intake levels, food habits and attitudes. It will also yield regarding the extent of dietary deficiency and the quality and type of food required for overcoming from them. The survey will also yield information regarding socio-economic factors influencing food production and consumption.

Family food consumption studies are conducted in the following successive. Assessment of food consuuption (by doing diet survey). Analysis of the data and calculation of food (to know the food and the nutrient intake).

Comparison with the nutritional requirements (to find out the deficiencies and to give recommendations if any).

DIET SURVEY –

Information may be collected by home visiting and recorded in the specified proformas. Home visit should be at least for 7 days. (called one dietry cycle or eating cycle) and the average taken for one day. The repetition of the survey in different season of the year is highly desirable as some foods are available only seasonally.

The different methods of diet survey their merits and demerits are as follows -

Oral Questionnaire Method – (Interview or dietary recall method) – The investigator has to collect the information from the housewife regarding the nature and quantity of foods eaten during the past 24 hours and makes necessary entries.

This method is useful in carrying out a survey of a large number of people in a short time. But it is not a very accurate method.

Questionnaire Method –

In this method the investigator will distribute proformas containing questions regarding the total number of persons of that family (to the head of the family) and requesting them for a period of one week. They are collected after one week. They are neither discussed nor interviewed. The disadvantage is that this method can only be used with literate people.

Food Inventory Or Log Book Method - (checking of stockinventory –

In this method, the quantity of food present in the house at the beginning of the survey, is weighed and recorded. An account should be kept, by the head of the family (or housewife) of the food that has been purchased during the period of enquiry and at the end and the quantity of food remaining unused is also weighed and recorded.

The disadvantage is that it can be implied in those families where head of the family is literate. It requires a good deal of reliance of the statement made by householder and also it requires cooperation from them another disadvantage is that the house wife may forget to record the purchase of food that is brought and consumed. So the result may not be authentic.

Food List Method –

As in questionnaire method the investigator will have a questionnaire, containing a list of food consumed by the family. The quantities of food consumed as stated by the housewife are entered by the investigator. This method differs from the inventory method, in inventory there is no measurement of the quantity of food present in the house at the beginning, quantity purchased and the quantity remaining unused.

Weighing of Raw Food –

The investigator will weigh the food before cooking. Since this is practicable and is carried out properly, this method is fairly accurate.

And reliable method. The disadvantage is that often the house wife may deliberately put the things out (or in) for weighing, whichare not likely (or unlikely) cooked.

Weighing of Cooked Food –

In this method, the cooked food is weighed. The cooked food left over consumption is also weighed, so the actual quantity of food consumed by the family members can be calculated. Plate waste should also be recorded. The draw back is that there may not be good cooperation from the householders. They may not allow the investigator to touch the cooked food.

Analysis Of The Cooked Food – (analysis of the replicate diets) -

This involves the actual analysis of the composite sample of each cooked food item, for the presence of various nutrients. About 10% by weight of the food, consumed by one individual can be taken as an example. All the items are mixed and mashed into a fine paste in a grinding machine. This method is most accurate method, but it is time consuming, costly and requires a well furnished laboratory.

POINTS TO BE REMEMBERED WHILE DOING DIET SURVEY –

Food used for feeding the children should be recorded separately. Foods given to neighbourers or friends should be deducted from the total food purchased because it has not been consumed. Snacks consumed out side the house should be recorded.

Absence of family members, during the period of survey should be recorded. Guest part taking in the family meals must be noted. Surveys should not be made during occasions like marriage, birthday and religious celebrations.

ADULT CONSUMPTION UNIT –

A family consists of several persons with different age and sex the calculations of the diet consumed per head is difficult. In order to overcome this difficulty, the results are expressed in terms of adult consumption unit for various age groups.

Adult consumption unit	
Adult male	1.0
Adult female	0.9
Adolescent boys and girls	1.0
Children 9 to 12 years	
Children from 9 to 12 years	0.8
Children from 7 to 9 years	0.7
Children from 5 to 7 year	0.6
Children from 3 to 5 years	0.5
Children from 1 to 3 years	0.4

ANALYSIS OF THE DATA –

The data that is collected by doing diet surveys, is analysed for the following things.

For the mean intake of foods in terms of cereals, pulses, vegetables, fruits milk, meat fish, oils eggs sugar and also for the mean intake of calories and nutrients like protein fats, vitamins, and minirals, per consumption unit. The nutritive value of raw foods can be calculated from the tables of food published by I.C.M.R. Nutrition expert committee.

COMPARISON –

The data so obtained, is compared with the recommended allowances (I.C.M.R., NUTRITIONAL EXPERT COMMITTEE, 1988) and the deficiencies are detected and recommended to make up the deficiencies.

CULTURAL INFLUENCES –

It is a cultural pattern, learned from parents and associates, which makes an individual, to eat a particular food item. These cultural patterns are -

1. **Food attitudes –**

Such as restricting a particular food for young children, (may be because a particular food may cause a disease for example – eggs and fish or sugar and jaggery cause worm infection) or feeding modern prestige foods such as milk powder, fruit jam, or squash juice etc.

DISEASE ORIENTATION –

As a particular food stuff is restricted for a particular disease.

CHILD REARING –

Such as discarding colostrum, prolonged breast feeding, artificial feeding, preferentiali feeding formale children and others.

SOCIO-ECONOMIC FACTORS –

The important socio-economic factors, which influence the nutritional status of a preschool child, are living conditions, family size and per capital income (i.e. poverty).

These factors are rather difficult to assess, specially in the income, because people are reluctant to reveal their income to the stranger, often fearing that these enquiries may lead to increased taxation.

All these factors are interreclated, main cause being poverty, as a result of which there will be poor living conditions and overcrowding (i.e., FAMILY SIZE). Bigger the family lessor will be the care taken about the health of the child. Overcrowding also accentuates cross infection and the interaction development of malnutrition.

Poverty has got a direct influence on the nutritional status of the child (O.D.A. Advisory committee on protein). It is said that "Wealth creates wealth and poverty breeds further poverty".

According to O.D.A. there is interrelationship among factors leading to malnutrition.

Failure of income To meet needs	Insufficient food intake	Infants and children with increased susceptibility to Disease.
Increased food require-ments by pregnant and Lactating women.	increased food requirements by child.	Ill children.
Compensating increase in pregnancies		dead children
Reduced earning capacity.		Less adequate adults.

FOOD PRODUCTION –

It is concerned with availability of food to the families, thus having an influence on the nutritional status of the children. The important factors which influence the food production are the area of the land, method of cultivation, number of agricultural workers, number of live stock, milk production, communications, storage, preservation, processing and marketing.

HEALTH AND EDUCATIONAL SERVICES –

The important preventive health services which has got an influence on the nutritional status of the preschool child, is immunization. Immunization with D.P.T. and Polio drops protect the child against four acute infectious disease such as diphtheria.

Whooping cough, tetanus and poliomelites, specially the last condition directly affects the nutritional status of the child and the child becomes handicapped, if not protected. The number of such protected children will be an useful index for evaluation of an immunization programme.

The important health educational service concern with the nutritional status of a preschool child is "The Nutritional education of the mother". His is carried out by the doctor when the mother visits the "under five clinic" with her child with the passport "Road to health" card. The growth failure of the child is recognized at a glance and

mother is educated about the quality and the quantity of feeding her child, so that the nutritional status of her pre school child improves.

CHAPTER – III

MATERIALS AND METHODS

CHAPTER – III

MATERIALS AND METHODS

ICDS scheme was implemented in Moradabad city. A total no. of 250 ICDS beneficiaties (3-6 years) from various anganwadies and 250 Non ICDS children (0-6 years) from the same localities in Bareilly city were surveyed in the present study, mainly to compare the various anthropometric measurements or nutritional status or physical development of both groups with each other, the signs evaluated by the immunization status, prevalence of diseases, living conditions, ecological factors the socio economical status and family planning status occupational status of parents were taken into consideration to assess the affect nutritional status on physical development of children.

SAMPLE DESIGN :

Stratified multistage random sampling technique have adopted for this study to select the utimate units of the samples. District of Uttar Pradesh state will purposively be selected, for the convenience of research words. The sampling stages have as follows-

Stage I selection of District
Stage II selection of wards
Stage III Selection of Anganwadies
Stage IV Selection of Respondents

SELECTION OF DISTRICT

Moradabad district of uttar Pradesh state will puposably selected due to the convineance of research worker, It is situated in western part of uttar Pradesh.

SELECTION OF WARDS

Wards were selected randomly for the study. A large number of children available in the anganwadis present in this area. The study was carried out in the district as a whole, the list if various wards of the district mordabad was obtained from CDO office Moradabad which was divided as per the rule given by nagare mahpalika Moradabad. Wards were arranged alphabetically.

SELECTION OF ANGANWADIES :

This section describes in detail the sample for the study tools and procedure of data collection inclusive of the analysis. The larger study has been conducted in two phases :

Phase – 1 : General monitoring of surroundings and enquiry about general information.

Phase – 2 : Specific enquiry regarding nutritional influence on physical development of children of ICDS and Non – ICDS children.

For both Phase 25 anganwadies were selected with DPO were selected by random sampling technique.

To cover total city area, further criteria for selection was :-

1- The selected anganwadi had a population of 1000.
2- The selected anganwadi represent every part (four majors) of total area of the city.
3- The selected anganwadi under all supervisors (6 anganwadies from each supervisor's area). As there was one supervisor over 25 anganwadies.
4- The selected anganwadi enough children falling under the age group of each from 0-3 and 4-6 years.

SELECTION OF RESPONDENTS

Sample A the sample of the stdy are in two parts Sample A and sample B

Sample A pertains to the pre school children of 0-6 years of age selected from 25 anganwadis

Sample B deals with children who were non beneficiaries or did not attended any other institution.

INDEPTH OF STUDY :

In order to assess the impact of specific nutritional status on physical health indepth study was carried out as per the objectives mentioned earlier.

CRITERIA OF SAMPLE SELECTION :

From the list of 500 respondents (250 from anganwadies and 250 from non – beneficiaries) covered under different categories for monitoring 5 respondents each from 0-3 and 4-6 years each anganwadi by random sampling technique.

The children ranged from 0-6 years were taken and divided into two groups 0-3 years and 4-6 years.

The income of the family ranged from 500-3000 per month, though the majority of them earned Rs. 600-1200 per month. The occupation of the father were daily wage worker to regular employees e.g. peons, factory workers, shop attendant etc.

Thus, the total of 500 children in the age range of 0-6 years 250 from anganwadies and 250 from non – ICDS group were selected. 10 children from each anganwadi was selected. The age range of these children was 0-3 and 4-6 years. The informations was gathered through mothers of these children.

SAMPLE – B

To study the performance of children with and without attending anganwadies a total sample of 250 children were selected from 25 anganwadies and from each anganwadi 10 respondents were selected.

CRITERIA FOR SAMPLE SELECTION :

STEP – 1 : List of 100 anganwadies was obtained from DPO of Moradabad district.

STEP – 2 : Selected 25 anganwadies from random sampling technique.

STEP – 3 : Selected 10 children from nearby area of each anganadi.

STEP – 4 : For both exposed and non – exposed group the minimum required sample size was decided as 10 children from each anganwadi and non – exposed group.

In each area list of exposed and non – exposed group of children was made on ET bases of list obtained from anganwadi workers and information obtained by nearby area.

SAMPLE DESCRIPTION :

The children ranged from 0-3 & 4-6 years of age. The income of the families ranged from 500-3000 per month. Though the majority of them earned Rs. 1000-1500 per month.

PERIOD OF ENQUIRY :

The period of inquiry was 2000 – 2001.

METHOD OF ENQUIRY

Tabular method of analysis was used for analysis and interpretation of results.

LIMITATIONAS OF THE STUDY :

1. The respondents were not interested in giving facts due to social pressures.
2. The respondents were not interested in giving facts due to ignorance and lack of literacy.
3. Hb culd not be tested due to practical problems of taking blood sample as children started crying and made it impossible.

MATERIALS USED IN

1. Spring weighing machine.
2. Measuring tape.
3. Thick and firm board to measure height.
4. Rubber Balls were used to observe throwing capacity.
5. Open ground was used to observe a running skill.
6. Wooden board was used to observe jumping skill.
7. Plastic and wooden blocks were used to observe block building skill.
8. Plain papers, news papers, different sizes of scissors to observe paper cutting and paper folding skill.
9. Clay to observe skill for clay modeling.
10. Different sizes of beads and thread to observe threading skill.
11. Different proforma to record observations.

METHOD ADOPTED FOR SURVEY :

Anthropometric Measurements and its techniques :

Anthropometric measurements of ICDS and Non ICDS pre school children (0-6 years) were carried out, exercising great care and high degree accuracy to obtain the correct readings. Every day the equipments were checked and readings were recorded. Children from 0-6 years age group under wears were permitted to keep up the modesty. The readings were recorded in the proformas in metric system in the following measurements.

1) Weight
2) Linear measurements
3) Tissue anthropometry

1- WEIGHT

The spring weighing machine was used to record the weight by suspending the child the machine was checked daily against a known weight before it is used.

2- Liner Measurements – The following linear measurements were recorded.

a) Recumbent length (0-3)

b) Standing height (3-6 years)

c) Circumference of chest.

d) Circumference of head.

a) The Recumbent Length / crown heel length –

The recumbent length was recorded on wooden table on which measurements were marked. The child was made to lie down on the table the head was positioned firmly against heard board with eyes looking vertically. The knees were extended under firm pressure and the feet were approximated and adjusted to right angle to legs. The foot piece was brought in firm contact with heels and sole and the crown heel length was recorded.

b) Standing height –

Wall with measurement markings on it was used to record the standing height of the children in three to six years of age group the child was made to stand without foot wears on.

The uniformly flat floor facing his back to the wall, with the heels approximated and the head, shoulders buttocks and heels touching the wall, eyes looking straightly forward and the arms hanging by the sides in a natural way. By this way the reading was recorded.

c) Tissue Anthropometry –

a) Middle and upper arm circumferences –

The mid arm circumference was recorded by measuring tape passing it firmly around the left mid arm while it is hanging by the side in a natural way, at a point mid way between the acromion process of scapula and olecranon process of ulnarbone.

HOUSE HOLD SURVEY AND DIET SURVEY –

House hold survey was done with a view to evaluate the living standards of pre school children. Every house belonging to ICDS and NON ICDS children was also conducted. In this regard mothers were contacted to provide information regarding the type and quantity of

food consumed by each child during the past 24 to 48 hours (oral questionnaire method) which gives a rough idea about the number of calories and amount of protein (gms) consumed by the children in past 24 to 48 hours. In case of ICDS children further enquiries were made at their respective anganwadies regarding the supplementary nutrition they receive daily.

During the course of general house hold survey enquiries were made regarding immunization status of Non ICDS children BCG scar was taken as a criteria for BCG vaccination, regarding DPT and POLIO vaccine mothers were asked whether during infancy.

Three injections and oral drops were given to their children sequentially thrice at a interval of 4-6 weeks. In case of ICDS children information about immunization status was collected from anganwadi registers and BCG scar was taen as criteria for BCG vaccinatin.

CHAPTER - IV

RESULTS AND DISCUSSIONS

CHAPTER - IV

RESULTS AND DISCUSSIONS

CHEST CIRCUMFERENCE

The circumference of the chest is less than head circumference at birth. During 2 or 3 year of life it measures more than the head circumference there after it grows more rapidly than head circumference if the ratio of chest to head circumference remains less than (1) between 1 to 6 year age it indicates early PEM.

Table 1 : Showing the chest and head circumference ratio among ICDS beneficiaries (0-6 years) by age and sex

Age in Years	MALE			FEMALE		
	C.O.H. (cms)	C.O.C. (cms)	CC/HC	C.O.H. (cms)	C.O.C. (cms)	CC/HC
1	50.25	48	0.95	49.25	48	0.97
2	42	42	1	47	49	1.04
3	49.12	47.25	0.96	49.5	45.11	0.91
4	42.09	49.81	1.18	49.37	50	1.01
5	47.12	50	1.06	47.77	49.88	1.04
6	41.92	55	1.31	40.5	55.6	1.37

Table 2 : Showing the chest and head circumference ratio among Non – ICDS beneficiaries (0-6 years) by age and sex

Age in Years	MALE			FEMALE		
	C.O.H. (cms)	C.O.C. (cms)	CC/HC	C.O.H. (cms)	C.O.C. (cms)	CC/HC
1	50.25	48	0.95	47.5	48	1.01

2	42	42	1	47	49	1.04
3	60.83	54.33	0.89	51.22	46.60	0.90
4	48.00	51.75	1.07	51.88	55.00	1.06
5	42.60	48.83	1.14	62.33	63.00	1.01
6	63.57	67.57	1.06	63.51	67.57	1.06

Table 3 : ICDS BENEFICIARIES (CHEST CIRCUMFERENCE IN CMS)

Table showing the mean chest circumference for the age and sex among ICDS beneficiaries (0-6 years) surveyed, with reference to the ICMR mean standard.

MALE		Age in year	FEMALE	
Present Study	ICMR mean		Present Study	ICMR mean
42	43.2	1	45.11	42.3
47.25	45.8	2	48	45.2
48.00	48.00	3	49.00	47.20
49.81	49.40	4	49.88	48.70
50.00	50.80	5	50	50.10
55.00	52.50	6	55.66	51.30

In the present study the above table indicates the mean chest circumference values by age and sex among ICDS beneficiaries is correlating with the mean standard values of ICMR it has been statistically observed that the P.value is more than 0.05.

Table 4 : NON – ICDS PRE-SCHOOL CHILDREN (CHEST CIRCUMFERENCE IN CMS)

Showing the mean chest circumference for the age and sex among none ICDS pre-School children (0-6 years) surveyed, with reference to ICMR mean standard.

MALE		Age in year	FEMALE	
Present Study	ICMR mean		Present Study	ICMR mean
42	43.3	1	46.66	42.3

48	45.8	2	48	45.2
48.83	48.00	3	49	47.2
51.75	49.4	4	55	48.7
54.33	50.8	5	63	50.1
63.67	52.5	6	67.57	51.3

It is evident from the above table that the mean MAC/HC circumference is less than ICMR mean values, among Non ICDS children particularly in Male is age group it is less than ICMR mean values among 1 & 3 years age group. Non – ICDS girls 3 and 5 years had less ratio than ICMR mean values. Among ICDS male it is less than ICMR mean values among 1 year age group and among female all age group were found normal in remaining children there is association to some extent between the ICMR mean values and computed value of chest circumference. Statistically it has been observed that the P. value is more than 0.05.

A comparison of above table reveals that three is non out-standing difference in mean chest circumference values between ICDS and Non – ICDS children.

Statistically P. value is more than 0.05 the mean chest circumference values among ICDS and Non – ICDS children correlate to some extent with 3^{rd} percentile of Harvard standard and 50^{th} percentile of ICMR reference standard study it has been observed that the chest circumference he increase steadily with advancing age in ICDS as well as Non – ICDS children. Further it is observed that the chest circumference is more among boys than girls at all age except 1-2 years of age.

The chest circumference has taken over the head circumference in the group of the 2, 4, 5 and 6 years among (ICDS grils) and 4, 5 and 6 year (ICDS boys) 5 and 6 year (Non - ICDS boys) 1,2,4,5 and 6 years age among (Non ICDS girls) among other group has taken over chest circumference.

ICMR study group (1971) nutritional atlas of India, ED2, ICMR, growth and physical development of Indian infants and children Tech. Rep. SE. no 18(1972) has observed that crossing over of chest and head circumference has taken place at 2 years of 9 month of age.

Weight for heigh index is considered as an age independent index, but criticized by D.B. Jelliffe (1996) that since both weight and height after with age, hence it cannot be an exclusively age independent index. Usually 50^{th} percentile of the Harvard standard is used as ICMR reference standard for Indian children.

Table 5 : Table showing the mean head circumference by age and sex among ICDS beneficiaries (0-6 years) survey : with reference to ICMR mean standard

MALE		Age in year	FEMALE	
Present Study Mean	ICMR mean		Present Study Mean	ICMR mean
41.92	44.4	1	40.5	43.6
42	45.9	2	47	45.2
42.09	47.3	3	47.77	46.2
47.12	48.0	4	49.25	47.1
49.12	48.5	5	49.37	47.8
50.25	49.0	6	49.77	48.3

The above table indicates that the mean head circumference by age and sex among ICDS beneficiaries is more or less correlates with ICMR mean standard in both sexes. Among Three to Six years age present study values are less than ICMR mean standards and among five and six years age present study mean value is more than ICMR mean standards. Statistically the P.value is more than 0.05

Table 6 : showing the mean head circumference for the age and sex among Non ICDS pre school children (0-6 yeas) surveyed, with reference to the ICMR mean standard.

Non – ICDS pre school children (head circumference)

(In Cms)

MALE		Age in year	FEMALE	
Present Study Mean	ICMR mean		Present Study Mean	ICMR mean
42	44.4	1	47	43.2
42.6	45.9	2	47.5	45.2
48	47.3	3	51.22	46.2
50.25	48.0	4	51.88	47.1

60.83	48.5	5	62.33	47.8
63.57	49.0	6	63.51	48.3

It has been observed from the above table that the mean head circumference among Non – ICDS children (male and female) is approximately correlating with ICMR mean standard by comparison of above tables it is observed that there is no much difference in mean head circumference between ICDS and Non ICDS children.

Statistically the P.value is more than 0.05. it can be inferred that ICDS services are providing better nutritional and health care to the beneficiaries.

The mean head circumference value of ICDS and Non – ICDS children (3-6 years) more or less correlating with 3rd percentile of Harvard standard and 50th percentile of ICMR reference standard.

MID ARM CIRCUMFERENCE

It is an age independent index. It is one of the most useful anthropometric measurements for assessing the nutritional status of pre school children at large scale in a community with reasonable rapidly in short duration as situation demands. It requires nothing but a none stretchable tape for measurements there is lack of suitable standered for with field survey data.

In normal (healthy) children the Mid – arm – Circumference was found to be reasonably constant between the age of 1-4 years, varying between 16.0 – 16.9 cms. Hence some workers thought of a making it completely a age independent index.

Klerks (1996) compared MAC against height, which have been found useful in quick stick, construction (Arnold 1979) kalawati and Mclaren (1970) have compared MAC with HC.

Table : 7 :Table showing the mean MAC value by age and sex among ICDS children (0-6 years) with reference to ICMR means standards

Age in years	**MALE**		**FEMALE**	
	Present Study	**ICMR mean**	**Present Study**	**ICMR mean**
1	**14**	**12.6**	**14**	**12.5**
2	**14**	**13.1**	**14**	**12.9**

3	**15.5**	**13.6**	**15.6**	**13.3**
4	**15.9**	**14.2**	**16.25**	**13.6**
5	**16.4**	**14.5**	**16.53**	**14.0**
6	**16.6**	**14.9**	**18.51**	**14.8**

For the table it is observed that the mean mid – arm – circumference by age and sex among ICDS beneficiaries from or less correlates with mean standards of ICMR. Though there is difference at higher side among ICDS children it is statistically observed that P is more than 0.05.

Table : 8 – Table showing the mean MAC values by age and sex among Non – ICDS children (0-6 years) with reference to ICMR mean standards

Age in years	**MALE**		**FEMALE**	
	Present Study	**ICMR mean**	**Present Study**	**ICMR mean**
1	**14**	**12.6**	**14.75**	**12.5**
2	**14**	**13.1**	**15**	**12.9**
3	**15.6**	**13.6**	**15.2**	**13.3**
4	**16.75**	**14.2**	**15.3**	**13.6**
5	**16.53**	**14.5**	**16.33**	**14.0**
6	**18.51**	**14.9**	**17.57**	**14.8**

From above table it is observed that the mean Mid – Arm – Circumference by age and sex is better than standard mean values of ICMR Further it has been found that the P. Value is more than 0.05.

A comparison of table No.7 and table no.8 reveals the fact there is no significant difference in the mean MAC value by age and sex among ICDS and Non – ICDS children statistically it has been found that the P. Value is more than 0.05.

In the present study the mean MAC values among males is less than females except is years of male in there respective age in ICDS and Non – ICDS children expect is Non – ICDS girls in 4 to 5 years age, where in is slightly more than boys. The MAC in both group (ICDS & Non ICDS) steadily increased, though insignificantly, with advancing age irrespective of sex.

A.C. Bhakshi and Bhandari (1977) observed in their study that in the age group of 3-6 years. The MAC of girls was more than boys. On the contrary in the age group 3-6 years it was more in boys than girls.

Vijaya Raghavan et al (1974) opined that the increase in the MAC with advancing age was not much significant in pre – school children. Children with less than 80% of the expected MAC are at risk of developing PEM, if property nutritional and health care is not taken.

The observations of the present study as already stated, correlate with the above mentioned study report Shanthi Ghosh et al (1976) conducted a survey to assess the nutritional status of the pre-school children, measuring MAC by means of a BANGLE with 4 cms. Internal diameter, and suggested that this type of MAC survey is quit good to survey large number of children in a community in short period, for planning special nutrition care and feeding programmes.

TRICEPSKIN FOLD THICKNESS :

Fat is the majour sorce of energy and the diet deficit to energy leads to depletion of fat, which is utilized to maintain the energy requirements of the body. Measurements of the skinfold thickness helps to determine the nutritional staus of the children Fat deposition in sub-cutaneous tissues occurs from 33 weeks of gestational period till nine months after birth (some author says upto 6 months and other says upto 12 to 15 months).

Generally it is upto 9 months J.O.FORRAF thereafter gradual depletion of fat takes place upto the age of 6 years. Then again it tends to increase usually more in girls than boys (textbook –paediatric by J.O.FORRAF & G.C.RNEIL)

In the present study it is ibserved that the skinfoldc thickness among all the pre scholl children irrespective of sex, is falling though insignificantly with upgoing age i.e. from 1-6 years og age majority of female have better index of skinfold thickness than boys skinfold thickness is reduced more in marasmus than kwashiorkor.

Table 9 : Table Showing the skinfold thickness by age and sex among ICDS beneficiaries (0-6 years) with reference to ICMR mean standards.

TRICEPS SKINFOLD THICKNESS ICDS BENEFICIARIES (IN mm.)

Age in years	MALE		FEMALE	
	Present Study	ICMR mean	Present Study	ICMR mean
1	9.8	10.0	9.6	9.6
2	9.6	9.8	9.3	9.8
3	9.4	9.5	9.7	9.9
4	8.9	8.7	9.1	9.1
5	8.3	8.3	8.6	8.7
6	7.6	7.9	8.1	8.2

From above table it I evident that the mean triceps skinfold thickness according to age and sex among ICDS beneficiaries is lower than that of ICMR mean standard. The computed value have not much deviated from ICMR mean standards further it has been found that the p value is more than 0.05.

Table 10. Table Showing the skinfold thickness by age and sex among NON - ICDS beneficiaries (0-6 years) with reference to ICMR mean standards.

TRICEPS SKINFOLD THICKNESS NON- ICDS BENEFICIARIES (IN mm.)

Age in years	MALE		FEMALE	
	Present Study	ICMR mean	Present Study	ICMR mean
1	9.6	10	9.3	9.6
2	9.3	9.8	9.1	9.8
3	9.3	9.5	9.6	9.9
4	8.7	8.7	8.8	9.1
5	7.9	8.3	8.2	8.7
6	7.2	7.9	7.8	8.2

From the above table it is noticed that the tricep skinfold thickness of non ICDS children (0-6 years) by age and sex differs from ICMR mean value The computed value have not much deviated from ICMR mean standards further it has been found that the p value is more than 0.05.

A comparison of table number 9 and 10 reviels that the ICDS benefiaciaries are better placed. In mean value than NON-ICDS children.

ICMR study group (1977) observed that the skinfold thickness tents to be more in girls than boys and did not fall with increasing age, but tents to be static in all age groups

In the present study the skin fold thickness is more among girls than boys in 3-6 years of age on the contrary it is more in boyas than girls in 1-2 years of age group. Among both groups irrespective of sex it is decreasing insignificantly with increasing age.

A.C. Bakshi and Bhandari (1977) observed that the skinfold thickness was ranged from 5 to 7.5 mm among pre school children generally girls scored over boys.

In the present study generally girls score over boys in majority of age groups, boys have insignificantly scored over girls in 1-2 years of age.

The range of skinfold thickness among ICDS boys is 9.8 to 7.6 and in ICDS girls is 9.6 to 8.1 The average is 9.7 to7.85mm

Table no. 11 mean weight for the age of ICDS children (0-6 years) according to age and sex with reference to ICMR mean standards (weight in Kgs.)

Age in years Value	MALE		FEMALE	
	ICMR mean Value	Present Study mean value	ICMR mean Value	Present Study mean value
1	8.4	6.7	7.8	6.7
2	10.1	10	9.6	10.5
3	11.8	10.71	11.2	10.46
4	13.5	12.31	12.9	12.31
5	14.8	12.72	14.5	13.68
6	16.3	14.61	16.0	15.0

From the above table it is observed that the mean weight for age is lower than that of ICMR standard in male (1,3,5,6) and almost correlates with ICMR mean standard for age 2 and 4 yeas.

For Female ICMR standards present study shows correlation among 3,4,and 5 years of age group in the age group of 2 years present study shows higher weight than ICMR standards and mean weight is lower among 1 and 6 years of age group.

Table : 12 – Table showing the mean weight for age according to sex among Non – ICDS children (3-6 years age) with reference to ICMR mean standards) (measures in kgs)

Age in years Value	MALE		FEMALE	
	ICMR mean Value	Present Study mean value	ICMR mean Value	Present Study mean value
1	8.4	8.7	7.8	8.65
2	10.1	10	9.6	10.5
3	11.8	12.3	11.2	10.8
4	13.5	14.82	12.9	12.5
5	14.8	11.58	14.5	13.5
6	16.3	15.95	16.0	15.95

From the above table it is evident that the mean weight for age among Non ICDS male children is lower among the age group of 5 and 6 years of age group correlates in the age group of 2 years and greater among the age group of 1,3 and 4 years of age group.

Among females it is greater than ICMR standards in the age group of 1 and 2 years, correlates in the age group of 3,4 and 6 is lower in the age group of 5 years. It is observed that among the age group of 5 years both male and female values are lower than ICMR standards. Non ICDS girls have better weight than boys. It is further observed that ICDS benifitiaries are not better placed in mean weight as compared to the Non ICDS children from 1,2,3,6 years among female sand 1,3,4,6 years among males. There is correlation in mean weight from 2 years of age, among ICDS and Non ICDS children.

More or less the mean weight for age among ICDS and Non ICDS children correlates with 50^{th} percentile of ICMR standard and 3^{rd} percentile of Harvard standard.

HEIGHT :

The height indicates the linear measurements or growth of the body. In cases of PEM height loss is not much compared to weight. Hence the index "height for age" (height deficit in relation to age) indicates the past nutritional affairs or duration of malnutrition. It is an age dependent index, more useful in longitudinal incidence studies rather than cross – sectional prevalence studies.

Table : 13- Table showing the mean height for the age and sex among ICDS beneficiaries (0-6 years) surveyed, with reference to ICMR mean standard –
ICDS BENEFICIARIES
(Height in Cms)

Age in years Value	**MALE**		**FEMALE**	
	ICMR mean Value	**Present Study mean value**	**ICMR mean Value**	**Present Study mean value**
1	**73.9**	**63.5**	**72.5**	**69.5**
2	**81.6**	**78**	**80.1**	**70**
3	88.8	79.25	87.2	74.48
4	96.0	86.63	94.5	91.37
5	102.1	91.37	101.4	94.36
6	108.5	103.83	107.4	106.8

It is clear from the table that the mean height for the age among ICDS beneficiaries is lower than the mean value of ICMR standards both in male and female boys appear to be taller than girls at all ages.

Table : 14 – Showing the mean height for the age and sex among Non ICDS pre school children (3-6 years) surveyed with reference to the ICMR mean standard.
NON ICDS PRE SCHOOL CHILDREN (Height in cms.)

Age in years Value	**MALE**		**FEMALE**	
	ICMR mean Value	**Present Study mean value**	**ICMR mean Value**	**Present Study mean value**
1	**73.9**	**63.5**	**72.5**	**69.5**

2	**81.6**	**78**	**80.1**	**70**
3	**88.8**	**88.00**	**87.2**	**75.33**
4	**96.0**	**89.50**	**94.5**	**88.55**
5	**102.1**	**98.00**	**101.4**	**92.33**
6	**108.5**	**98.57**	**107.4**	**99.57**

From the above table it is evident that mean height for age among (non ICDS children) is lower than the mean ICMR value for both sexes in all ages Boys appear to be taller than girls in all age groups except 1 years of age where girls are taller than boys.

It is observed by comparing these two tables that Non ICDS children are better placed in mean height for age than ICDS children.

WEIGHT FOR HEIGHT –

It is an independent criteria to judge the magnitude of malnutrition or to classify the PEM.

Index= weight of the child/Expected weight for height x 100.

(standard weight for that height) it indicates the % of standard weight for a given height .50th percentile of harvard standard is used as reference standard.

GUIDE – LINES :

Following are the interpretation guidelines.

More than 90% normal

80-90% mild PEM

70-80% moderate PEM

Less than 70% severe PEM

The criteria weight for height shows the current nutritional status (shakir 1972)

In a study conducted by A.C. Bakshi and Bhandari observed that children at two year of age were below 3rd percentile of Harvard standard and at 5 years age the weight of the children was at par with 50th percentile of ICMR reference standard. In the present study the measurements of ICDS and Non ICDS children in 3-6 years of age group more or less corrllates with 50th percentile of Harvard standard.

P. Chandra et al surveyed pre school children in Tamilnadu and their anthropometry results reveald the degree of malnutrition as, 1st degree 24.9% 2nd degree 47.6% 3rd and 4th degree 21.7%. about 5.7% were normal. In the present study according to IAP classification of PEM, taking percentage of expected weight for age, following were the results of nutritional status among ICDS and NON ICDS pre school children.

Types of Children	Normal	Malnourished	1st	2nd	3rd	4th
ICDS	200 80%	50 20%	26 10.4	24 9.6	------ ------	------ ------
Non ICDS	68 27.2%	182 72.8%	180 72%	0.2 .8%	------ ------	------ ------

As majority of children belong to normal nutritional status, few falls under 1st degree malnutrition and very few 2nd and 3rd degree or severe malnutrition. It indicates that the nutritional status of the children in the present study correlates with the above study.

Athavale V.B. et al conducted an anthropometric survey of pre school children and reported that the weight and heights were less than 25th percentile of ICMR standard. In the present study it has been observed that the weight and height of the ICDS and Non ICDS children are more than 25th percentile of ICMR reference standard.

More or less they correlate with 50th percentile of ICMR reference standard. It reflects the better nutritional status among the children surveyed in the present study, when compared to above study report.

A study conducted by V.K. Srivastava showed that 43% of the pre school children were malnourished out of which 29.5% belongs to first degree malnutrition. In the present study from the malnourished children in ICDS group 33% were severe cause 50% were moderate and 16% were mild nourished. Among Non ICDS children 8.3% severe, 41% moderate and 50% were mild cases of malnutrition. The percentage of severe malnourished children was found surprisingly more among ICDS children than Non ICDS.

The % of 3rd degree malnutrition is greater among Non ICDS children than ICDS children and the % of 3rd degree malnutrition was found again greater among ICDS group. These facts reveals that the nutritional status of the children belongs to present study is quit

lower than the above study. It also speaks successful implementation of ICDS scheme's services in Mysore City.

Ajay K. Sood et al in their study, Anthropomtry in detection of PEM, AIIMS, New Delhi observed that 53.7% children were malnourished, further the degree of PEM was noticed as 71.5 (mild) 24.7% (moderate, and 3.8% severe) among malnourished children.

In the present study it has been noticed that among Non ICDS children 72.8% were malnourished and out of them 72% belonged to 1st degree and .8 degree to 2nd degree.

Among ICDS group 20% were malnourished, out of them 10.4 belonged to 1st degree and 9.6 to 2nd degree. It shows comparatively better health status among ICDS group and indicates the general awareness among anganwadi people regarding child health care and availability of better health services.

The index weight/ height square indicates early PEM among ICDS boys

Table : 15 – Table showing the percentage distribution of ICDS and Non ICDS children according to nutritional status using the index height for age i.e. Actual height / Expected height for age x 100.

Type of Children	Total	Normal	Malnou-rished	Mild	Moderate	Severe
ICDS	250	Nil	250	41.5	33	41.5
NON ICDS	250	Nil	250	25	25	49.5

HEIGHT FOR AGE (SHAKIR 1972)

GUIDELINES –
More than 95% Normal
90-95% mild PEM
85-90% moderate PEM
Less than 85% severe PEM

Table : 15B – Table showing the percentage distribution of Nutrional status among ICDS and Non ICDS children according to IAP classification of PEM.

Types of Children	Normal	Malnourished	1st	2nd	3rd	4th
ICDS	200 80%	50 20%	26 10.4	24 9.6	------ ------	------ ------
Non ICDS	68 27.2%	182 2.8%	180 72%	0.2 .8%	------ ------	------ ------

Table : 16 – Over all malnutrition

Index = actual weight of age/expected weight x 100

Reference weight BOYS	Present study weight % ICDS	Reference weight GIRLS	Present weight
10	6.7(67)	9.7	6.7(69)
12.5	10(80)	12.2	10.5(86)
14.6	10.71(73)	14.2	10.46(73)
16.5	12.31(74)	16.4	12.31(75)
18.3	12.72(69)	18.3	13.68(74)
21.9	14.61(66)	21.0	15(71)

NON ICDS

Reference weight BOYS	Present study weight % ICDS	Reference weight GIRLS	Present weight
10	8.7(87)	9.7	8.65(89)
12.5	10(80)	12.2	10.5(86)
14.6	12.3 (84)	14.2	10.8 (76)
16.5	14.82 (89)	16.4	12.05 (73)
18.3	11.58 (63)	18.3	13.5 (73)
21.9	15.95 (72)	21.0	15.95 (75)

50th percentile of harvard standard is used as reference standard.

It is observed from table that except Non – ICDS children aged 3-4 (male) and 4, 5 years female all are suffering from 1st and 2nd degree of malnutrition Male children falls under 5 years of age were suffering from severe malnutrition.

From ICDS table the result comes out that except 3 years male and female all other group are suffering from 1st and 2nd degree of malnutrition. Male children aged 1,5and 6 female aged 1 year were suffering from severe malnutrition.

More or less the present study's values of height for age among ICDS and Non ICDS children correlate with 50th percentile of ICMR reference standard and 3rd percentile of Harvard standard.

The index "height for age" or chronic malnutrition = actual height / Expected height for age x 100 is used to view the magnitude or problem of chronic malnutrition among ICDS and Non ICDS children.

Table : 17 – The table showing the magnitude of chronic Malnutrition among ICDS and Non ICDS children (0-6 years) according to age and sex. (50th percentile of Harvard standard is used as reference standard).

ICDS (Boys)		Age in Years	Non ICDS (boys)	
Harvard Standard	**Present Study %**		**Harvard Standard**	**Present Study %**
75.2	**63.5(84)**	**1**	**75.2**	**63.5(84)**
87.5	**78(89)**	**2**	**87.5**	**78(89)**
96.2	**79(82)**	**3**	**96.2**	**88(91)**
103.4	**86.6(83)**	**4**	**103.4**	**89.5(86)**
108.7	**91.3(83)**	**5**	**108.7**	**98(90)**
117.5	**103.8(88)**	**6**	**117.5**	**98.57(83)**

Table : 18 – The table showing the magnitude of chronic Malnutrition among ICDS and Non ICDS children (0-6 years) according to age and sex. (50th percentile of Harvard standard is used as reference standard).

ICDS (Girls)		Age in Years	Non ICDS (Girls)	
Harvard Standard	**Present Study %**		**Harvard Standard**	**Present Study %**
75.2	**69.5(92)**	**1**	**75.2**	**69.5(92)**
87.5	**70(80)**	**2**	**87.5**	**70(80)**
96.2	**88(91)**	**3**	**96.2**	**75.33 (78)**
103.4	**91.3(88)**	**4**	**103.4**	**88.55 (85)**
108.7	**94(86)**	**5**	**108.7**	**92.33 (84)**
117.5	**106.8(90)**	**6**	**117.5**	**99.57 (84)**

It is observed from the above table that none of the ICDS or Non ICDS group is normal. Among ICDS group 41.5% children are suffering from mild malnutrition 33% are from moderate and 41.5% are suffering from severe malnutrition.

According to the age among ICDS group girls comes under 1,3,6 years were suffering from mild malnutrition 4 and 5 years of age from moderate and 2 years of age from severe malnutrition.

Among boys in the age group of 1,3,4, 5 were cases of severe malnutrition and 2 and 6 were the cases of moderate malnutrition.

In the Non ICDS group girls falls under 1 years were mild cases of malnutrition, 4 years are moderate 2,3,5,6 years of age group were suffering from severe malnutrition.

It is observed that among Non ICDS boys who falls under 1 and 6 years were suffering from severe 2 and 4 years from moderate and 3 and 5 years were suffering from moderate degree of malnutrition.

Among boys Non ICDS group is better than ICDS group and among girls ICDS group is better placed in mean value of height for age than Non ICDS group.

A.C. Bakhshi and Bhandari observed in their study that boys were taller than girls in all age except in 5 years age group where in girls took over the boys in the present study it has been observed that the boys are taller than girls in 3and 6 years among Non ICDS group and shorter than girls in the age group of 3 and 6 years among ICDS group.

A.C. Bakshi and Bhandari stated that we cannot rely much upon height as an index of nutrition without supportive evidences. It is a useful index in longitudinal incidence surveillance than cross – sectional prevalence studies (Assessment of preschool children, Bhopal, JIP vol 14(8) p.615. 1977). The views expressed by A.C. Bakhsi and Bhandari are generally accepted.

In the present cross-sectional study the results of anthropometric measurements have been viewed in the light of supportive evidences, such as clinical examination, diet survey and ecological factors etc.

Ajay K. Sood et. Al. studied and reported that 59.2% as malnourished and 40.8 as normal. Percentage distribution of PEM among malnourished was 49.4% (moderate) and 1.8% (severe). In the present it has been observed among non ICDS children that the percentage of normal children was 18.4 and malnourished 81.6, all of them belong to mild degree of malnutrition and among ICDS 68% mild and 32% moderately malnourished. None of the children suffered from severe degree of malnutrition. The degree of severity of malnutrition seems to be more in the present study than the above study.

AGE INDEPENDENT INDICES –

In the developing county like India where the illiteracy rate is more and ignorance is common, the date of birth is usually not recorded or remembered by the parents. It poses difficulties in the interpretation of age dependent indices (standards) in field survey.

Table : 19 – Showing nutritional status of ICDS & Non ICDS children (0-6 years) by age and sex, using the Index weight/Height

FEMALE

ICDS				Age in Years	Non ICDS			
Ht. (cm.)	Wt. (kgs.)	Mean Height	Weight/ Height		Ht. (cm.)	Wt. (kgs.)	Mean Height	Weight/ Height
69.5	6.7	4830.25	0.001387	1	69.5	8.65	4830.25	0.001791
70	10.5	4900	0.002143	2	70	10.5	4900	0.002143
74.48	10.46	5547.27	0.001886	3	75.33	10.80	5674.609	0.001903
91.37	12.31	8348.477	0.001475	4	88.55	12.05	7841.103	0.001537

84.36	**13.68**	**7116.61**	**0.001922**	**5**	**92.33**	**13.5**	**8524.829**	**0.001584**
106.80	**15.00**	**11406.24**	**0.001315**	**6**	**89.57**	**15.95**	**8022.785**	**0.001988**

MALE

ICDS				**Age in Years**	**Non ICDS**			
Ht. (cm.)	**Wt. (kgs.)**	**Mean Height**	**Weight/ Height**		**Ht. (cm.)**	**Wt. (kgs.)**	**Mean Height**	**Weight/ Height**
63.5	**6.7**	**4032.25**	**0.001662**	**1**	**63.5**	**8.7**	**4032.25**	**0.002158**
78	**10**	**6084**	**0.001644**	**2**	**78**	**10**	**6084**	**0.001644**
47.25	**10.71**	**2232.563**	**0.004797**	**3**	**88**	**12.3**	**7744**	**0.001588**
86.63	**12.31**	**7504.757**	**0.00164**	**4**	**89.5**	**14.82**	**8010.25**	**0.00185**
91.37	**12.72**	**8348.477**	**0.001524**	**5**	**88**	**11.58**	**7744**	**0.001495**
103.83	**14.61**	**10780.67**	**0.001355**	**6**	**89.57**	**15.95**	**8022.78**	**0.001988**

Hence the general trend is towards the use of age independent Indices in the evelotation of anthropometric stusdies in the community in the countries @ The ration = weight/ height^2 x 100 (Rao & Singh 1970) is generally constent from 1-6 years of age for boys and girls. To indicate early malnutrition (PEM) a value of less than 0.15 is suggested.

S.K. Ayaram (1980) formulated certain indices regarding malnutrition, as follows :-

1. Overall Malnutrition = Actual Weight/Expected weight for age x 100.
2. Actual Malnutrition = Actual Weight/Expected weight for heightx10
3. Chronic Malnutrition = Actual Weight/Expected Weight for height x100

From the avobe indices the expected weight and height are the 50th percentile of Harvard standard and he expected weight for height is taken from a monograph published by waterlow (1972) Wishdesware et al (1981) suggested and index weight/height^2 with a ratio of 0.015, to be used as cut off point.

Dugdal (1971) Stated that the index weight/height 1.6 is good. He has suggested another index/ weight/height 1.6x10^4, where in a value of less than (88) indicates PEM.

Prasad and Ranga Swamy (1970) suggested an index 3 weight / height x 100, where in the normal value range in from 7.5 to 8.0.

Wolson and Widdowson introduced a nutritional index = weight in Ibs/height in inches x 100. there are several other age independent. Indices being used by many workers in the field of anthropometric servey.

The circumference of the head is least effected in PEM, so it has importance, in infancy, where in it indicates age rather then nutritional status, also in case of hydrocepha ius and microcephaly, it is an important clinical parameter.

Kanawati and Mclaren (1970) compared the midarm circumference and found that the ratio is virtually constant between 3rd and 48 month and is sex independent. They suggested the following nutritional interpretation guidelines.

More than 0.31 – healthy
0.310-0.250 Mild PEM
0.279 – 0.250 servere PEM

In the present study according to the guidelines suggested by Kanawati and Mclaren or ICDS and Non-ICDS children will foll under mild and moderate degrees of malnutrition except 2,3, and 4 and 6 year male 2 to 6 years girls among ICDS groups 2, 4 years boys and 2 years girls in Non – ICDS group. There group foll under healthy category.

ICDS Healthy : 2,3,4 and 6 years boys and 2 to 6 year girls
Mild : 5 years boys and 1 year girls
Moderate : 1 year boy
Non ICDS healthy : 2 and 4 years boys and 2 years girls
Mild : 5 and 6 years boys 1,4 and 6 years girls
Moderate : 1 and 3 years boys 1,3,and 5 years girls
Shanthi Ghosh, Manmohan et al (assessment of malnutrition by MAC and HC ratio, IP vlo. 17 june 1980 P. 503) used the ratio.
Mac/HC as either equal or more than 0.31 and nutritionally healthy
0.309 – 0.28 (Mild PEM) 0.279 – 0.25 (moderate PEM)
Less than 0.25 – (severe PEM)

And they were of the opinion that the ratio 0.280 of MAC/HC would be reasonably normal for screening the Indian Pre – school, as Kanawati and Mclaren have taken 90% for weight by age as normal.

In the present study if .28 ratio is considered as normal, except 3 year female and male among Non – ICDS group all other in both group will be counted as normal.

ICDS – normal all male and female or Non- ICDS to expect 3 years Mild – 3 years male and female.

Comparing the figure of the present study with the guide lines suggested by Kanawati and Mclaren and Shanthi Ghosh and Manmohan, it is observed that majority of children just miss the immediate upper (Ratio) class by very thin marginal scores.

This is to say that the present study of nutritional status of the children (ICDS and Non ICDS) is fairly satisfactory as per MAC/HC ratio. According to MAC/HC ratio, the ICDS group is better than Non ICDS group.

In a study conducted by Ajay K. Sood et al, the percentage of normal and malnourished was as follows :-

Normal (14.3%) and malnourished (85.7%) out of malnourished mild PEM was (66.3%) moderate PEM 30% and severe PEM (2.8%)

In the present study according to the criteria and guidelines laid down by Kanawati and Mclaren the percentage distribution of malnutrition was as follows :-

In ICDS children malnourished (25) mild (16.66) and moderate (16.66) severe PEM and normal nil.

In Non ICDS children malnourished (100%) mild (55.6%) and moderate (44.4%), severe PEM and normal-nil.

I feel the guidelines set by Kanawti and Mclaren are not suitable to judge the nutritional status of our Indian children.

Ashraf Malik et al (age independent criteria for detection of PEM, Dept. of paediatric **J.N. Medical college, Aligarh, Muslim University, Aligarh I.P. March 1984.Vol 3 page no. 213)** observed that the percentage of normal children among 3-48 month was and percentage of malnourished was 90% (mild) 69.4 (moderate) and 28.8% (severe).

As per suggestions made by Shanti Ghosh et al considering 0.280 as an normal index for Indian children to evaluate their nutritional status, following are results.

In ICDS normal- female – 100% male – 83.33% mild PEM (16.66) moderate and severe PEM- nil (31-6 years age group)

In Non – ICDS normal Male 66.66 female – 66.66 mild PEM 33.33% among male female children moderate an severe PEM nil (1-6 years age group)

B.M Gupta and Bhandari B. (assessment of nutritional status of pre – school children by MAC/HC ratio IP 11:659. 1974) have observed that out of 220. Children suffering from 3 and 4 degree of malnutrition only 36.6% had a ratio either equal to or less than 0.250.

In the present study it has been observed that Only 3 years boys and girls were suffering.

From 3 degree malnutrition with the ratio of 0.25 and none the children were suffering from 4 degree malnutrition.

Prasad and Gupta (assessment of PEM MAC/HC ratio. IP 12:625, 1975) found that only 3 out of 5 children suffering from 3 degree malnutrition had the ratio of MAC/HC either equal to or less than 0.250.

In the present study only 3 years boys and girls showed 3rd degree malnutrition and no child suffering from IV degree malnutrition, and no child had a ratio less than 0.250.

From aforesaid studies it can be made out that, sum of the children were, suffering from severe malnutrition, which was not found in the present observations hence it is clear that the magnitude of severe malnutrition is insignificant in the children of present study

compared to above mentioned studies. Probably may be because of public awareness in nutrition and health care, good climate an effective services of ICDS.

Table : 20 – Table showing the percentage distribution of ICDS and Non – ICDS children according to nutritional status as per MAC/HC

Type of children	Criteria	Normal	Malnourised		Total
			Mild Modrate	Severe	
ICDS Non-ICDS	Kanawati Mclaren -do-		75% 66%	25% 33%	250 250
ICDS & Non-ICDS	Shanthi Ghosh	Same result as Kalawati and Mclaren			
ICDS More than 0.280 as Normal Suggested Shanthi Ghosh Non-ICDS (66.66%)	Considering (91.66%) - do - (33.33)	(8.33%)	(8.33%) (33.33)		

Table : 21 – Showing the MAC & HC Ratio among ICDS & Non ICDS Beneficiaries (0-6 years) by age and sex.

ICDS

Age in years	**MALE**			**FEMALE**		
	C.O.H. (cms.)	**C.O. M.A. (cms.)**	**MAC / HC**	**C.O.H. (cms.)**	**C.O. M.A. (cms.)**	**MAC / HC**
1	**50.25**	**14**	**0.27**	**49.25**	**14.25**	**0.28**
2	**42**	**14**	**0.33**	**47**	**16**	**0.34**
3	**49.12**	**15.5**	**0.31**	**49.5**	**15.33**	**0.30**
4	**42.09**	**16.90**	**0.40**	**49.37**	**17.00**	**0.34**

5	**47.12**	**14.04**	**0.29**	**47.77**	**15.5**	**0.32**
6	**41.92**	**16.66**	**0.39**	**40.5**	**17.2**	**0.42**

NON – ICDS

Age in years	**MALE**			**FEMALE**		
	C.O.H. (cms.)	**C.O. M.A. (cms.)**	**MAC / HC**	**C.O.H. (cms.)**	**C.O. M.A. (cms.)**	**MAC / HC**
1	**50.25**	**14**	**0.27**	**47.5**	**14.25**	**0.3**
2	**42**	**14**	**0.33**	**47**	**16**	**0.34**
3	**60.83**	**15.6**	**0.25**	**51.22**	**13.2**	**0.25**
4	**48**	**16.25**	**0.33**	**51.88**	**15.3**	**0.29**
5	**42.6**	**12.53**	**0.29**	**62.33**	**16.33**	**0.26**
6	**63.57**	**18.51**	**0.29**	**63.51**	**18.57**	**0.29**

It is an age independent index it is one of the most useful anthropometric measurements for assessing the nutritional status of Pre School children at large scale in a community with reasonable rapidly, in short duration, as situation demands. It requires nothing but a none stretchable tape for measurements There is lack of suitable standard for comparison with field survey data.

In normal (Healthy) children the Mid-Arm-Circumference was found to be reasonably constant between the age of 1 – 4 years, varying between 16.0 – 16.9 cms. Hence some workers thought of a making it completely a age independent index.

Klerks (1956) compared MAC against height, which have been found useful in quick stick construction (Arnold 1979). Kalawati and Mclaren (1970) have compared MAC with HC.

Table 22 showing the mean MAC value by age and sex among ICDS children (0-6 years) with re4ference to ICMR mean standards

Age in years	**MALE**	**FEMALE**

Value	ICMR mean Value	Present Study mean value	ICMR mean Value	Present Study mean value
1	**12.6**	**14**	**12.5**	**14**
2	**13.1**	**14**	**12.9**	**14**
3	**13.6**	**15.5**	**13.3**	**15.6**
4	**14.2**	**15.9**	**13.6**	**16.25**
5	**14.5**	**16.4**	**14**	**16.53**
6	**14.9**	**16.6**	**14.8**	**18.51**

From the table it is observed that the MAC by age and sex among ICDS beneficiaries more or less correlates with mean standards of ICMR though there is difference at higher side among ICDS chidren it is statistically observed that P is more than 0.05

Table 23 showing the mean MAC value by age and sex among Non-ICDS children (0-6 years) with reference to ICMR mean standards

Age in years Value	MALE		FEMALE	
	ICMR mean Value	Present Study mean value	ICMR mean Value	Present Study mean value
1	**12.6**	**14**	**12.5**	**14.75**
2	**13.1**	**14**	**12.9**	**15**
3	**13.6**	**15.6**	**13.3**	**15.2**
4	**14.2**	**16.75**	**13.6**	**15.3**
5	**14.5**	**16.53**	**14.0**	**16.33**
6	**14.9**	**18.51**	**14.8**	**17.57**

From the table it is observed that the MAC by age and sex among ICDS beneficiaries more or less correlates with mean standards of ICMR though there is difference at higher side among ICDS chidren it is statistically observed that P is more than 0.05

A comparision of table no. 22 and 23 reveils the facts that there is no significant difference in the mean MAC value by age and sex among ICDS and non ICDS children statistically it has been found that the P value is more than 0.05

In the present study the mean MAC value among males is less than females except is years of male is there respective age in ICDS and Non ICDS children except in Non ICDS girls of 4 to 5 years of age where it is slightly more than boys. The MAC in both groups ICDS and Non ICDS statistically increased though insignificantly with advancing age irrespective of sex.

A.C. Bakshi and Bhandari (1977) observed their study that in the age group of 1 to 3 years tha MAC of girls was more than boys on the contrary in the age group 3 to 6 years it was more in boys than girls

Vijaya Raghavan et al (1974) opined that the increase in the MAC with advancing age was not much significant in pre-school children. Children with less than 80% of expected MAC are at risk of developing PEM, If proper care of health and Nutrition is not taken.

The observations of the present study as already stated, correlated with the above mentioned study report Shanti Ghosh et al (1976) conducted a survey to assess the nutritional status of the pre-school children, measuring MAC by means of BANGLE with 4cms. Internal diameter. And suggested that this type of MAC survey is quite good to survey large number of children in a community in short period, for planning special nutrition care and feeding pregramms

Nutritional status of ICDS and Non-ICDS children according to **Shakir's criteria (1972)**

Normal PEM	Mild to moderate	Severe PEM
More than	12.5 – 13.5	Less than
	13.5	12.5

RESULT OF PRESENT STUDY :-

ICDS GROUP

Total	Normal	Malnourished
250	173(69.2%)	77(30.8%)

Among malnourished children the percentage distribution of malnutrition was, mild to moderate 7.2% and severe – 23.6%

The figures in the present study indicate that comparatively PEM is more prevalent among Non-ICDS than ICDS children, further it is observed that the PEM is confirmed to 1-3 years age among both group. II considering 16.5(cms) as 100% of expected Mid-Arm-circumference value.

GUIDE LINE - More than 85% normal

85-80% Mild PEM

80-75% Moderate PEM

Less than 75% severe PEM

PRESUNT STUDY RESULT ICDS GROUPS:

Total	Normal	Malnourished
250	89(66.66%)	161(33.33%)

Among malnourished the percentage distribution of malnutrition was, 33.6% mild PEM.

Non- ICDS:	Total	Normal	Malnourished
250	23(9.2%)	227(90.8%)	

Among Malnourished children the percentage distribution of malnutrition was 119 (47.6%) mild; 62(24.8%) moderate and 46(18.4%) severe.

The present survey regarding comparative study of anthropometric measurements between ICDS and Non-ICDS children which reflect their nutritional status, is further supported by the supportive evidences, such as, and more clear picture of nutritional status of pre-school children in 0-6 year age group.

CLINICAL EXAMINATION:

It is most important easy, simple and reliably sound method of assessment of nutritional status. Any condition to be recognized clinically, it should have advance sufficiently. For earliest detection of malnutrition, the bio chemical assessment of the blood is the prefred method.

The major problem of the pre-school age group children (0-6 years) is the malnutrition, which is wide spread all over the county in different forms such as marasmus,

kwashiorkor (accounts for 15% peadiatric IN-patients, Rao P. 1977) and subclinical forms of under weight cases.

ICMR servet report (1977) reveals that PEM is prevalent through out India ranking from 0.1% to 3.8% in the pre-school children.

Further it is observed that the ratio of servere mild malnutrition is 1:5 or 6.

MEAN VALUE OF CLINICAL EXAMINATION OF ICDS & NON-ICDS BENEFICIARIES ACCORDING TO AGE & SEX

NON – ICDS

MALE									**FEMALE**			
AGE IN YEARS	**1**	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	**6**
GENERAL APP.												
Healthy	75	--	33	75	50	71.42	75	100	44.44	100	56	71.42
Unhealthy	25	100	66	25	50	28.57	25	--	55.55	----	38	28.57
HAIR												
Discoloration No.	75	100	100	25	66.66	28.57	25	--	44.44	44.44	33.33	28.57
Yes	25	--	---	75	33.33	71.44	75	100	55.55	55.55	66.66	71.44
DISTRIBUTION												
Dense	100	--	66.66	100	33.33	42.85	75	--	44.44	55.55	33.33	42.85
Spear	--	100	33.33	----	66.66	57.14	25	100	66.66	33.33	66.66	57.14
TEXTURE												
Thin & Silky	50	--	33.33	22.22	33.33	----	50	--	66.66	50	66.66	----
Normal	50	100	66.66	77.77	66.66	100	50	100	44.44	50	44.44	100
FLAG SIGN No.	**25**	**100**	16.66	22.22	16.66	14.28	25	--	11.11	25	----	14.28
Yes	75	--	83.33	77.77	83.33	85.71	75	100	88.88	75	100	85.71
EAST PLUCABILITY No	**25**	**--**	83.33	75	66.66	42.85	50	--	33.33	33.33	33.33	42.85
Yes	75	100	16.66	25	33.33	57.14	50	100	66.66	66.66	66.66	57.14
FACE												
Moon Face	25	100	66.66	25	66.66	71.42	75	--	66.66	77.77	66.66	71.42

Monkey Face	75	--	33.33	75	43.33	28.57	25	100	33.33	22.22	33.33	28.57
Nasolabial	--	100	16.66	----	16.66	14.28	25	--	----	11.11	33.33	14.28
Dissabacia	100	--	66.66	100	83.33	85.71	75	--	100	88.88	33.33	85.71
EYES												
Conjunctive	25	100	50	50	66.66	71.42	25	--	55.55	22.22	66.66	71.42
Cornea	--	--	-----	----	----	----	--	--	----	----	----	----
Photophobia	--	--	16.66	----	----	----	--	--	----	----	----	----
LIPS												
Normal	100	100	83.33	100	66.66	85.71	100	--	100	88.88	100	85.71
Fissures	--	--	16.66	----	----	14.28	--	--	----	----	----	14.28
Scare	--	--	----	----	33.33	----	--	100	----	11.11	----	----
ANGLE OF MOUTH												
Normal	100	100-	83.33	100	83.33	85.7	100	--	88.88	88.88	66.66	85.7
Excoriations	--	--					--	--		11.11	33.33	14.28
Ulcers	--		16.66	----	16.66	14.28	--	100	11.11	----	----	----
TONGUE												
Normal	100	100	100	83.33	100	100	57.14	100	100	100	100	57.14
Atrophic	--	--	----	16.66	----	----	42.85	--	----	----	----	42.85
TEETH												
Caries	--	--	16.66	50	50	----	50	--	33.33	22.22	100	----
Mottled	50	--	50	----	----	57.14	--	--	11.11	11.11	----	57.14
Normal							50	100				

GUMS												
Normal	100	--	77.77	50	66.66	71.42	75	83.33	88.88	100	71.42	100
Spongy Bleeding	--	100	22.22	50	33.33	28.57	25	16.66	11.11	----	28.57	----
GLANDS												
Normal	75	100	100	75	100	71.42	100	100	100	100	100	71.42
Enlarged	25	--	----	25	----	28.57	--	--	----	----	----	28.57
SKIN												
Normal	75	100	66.66	50	28.57	100	75	100	100	77.77	100	100

Follicular hyper	--	--	16.66	----	----	----	--	--	----	11.11	----	----
Keratosis	25	--	16.66	50	71.42	----	25	--	----	11.11	----	----
NAILS												
Normal	50	100	33.33	25	83.33	14.28	100	100	66.66	88.88	66.66	14.28
Kolinochasia	50	--	66.66	75	16.66	71.42	--	--	33.33	----	33.33	71.42
Clubbing	--	--	----	----	----	14.28	--	--	----	11.11	----	14.28
CUTANEOUSS TISSUES												
Odema Yes	50	100	66.66	75	50	42.85	50	--	66.66	44.44	33.33	42.85
No	50	--	33.33	25	50	57.14	50	100	33.33	55.55	66.66	57.14
FATS												
Normal	25	--	----	33.33	83.33	----	25	--	22.22	25	----	----
Less	75	100	100	66.66	16.66	100	75	100	77.77	75	100	100
More	--	--	----	----	----	----	--	--	----	----	----	----
MUSCULO SKELETAL SYSTEM												
Epiphyseal Yes	25	100	83.33	77.77	33.33	71.42	75	--	44.44	----	33.33	71.42
Enlargement No	75	--	16.66	22.22	66.66	14.28	25	100	55.55	100	66.66	14.28
Beading of ribs Yes	--	--	50	25	----	14.28	25	--	22.22	22.22	----	14.28
No	100	100	50	75	100	85.71	75	100	77.77	77.77	100	85.71
Bossing of skull Yes	50	100	----	55.55	50	42.85	--	--	66.66	44.44	75	66.66
No	50	--	100	44.44	50	57.14	100	100	33.33	55.55	25	33.33
Open Anterior Yes	25	100	100	44.44	55.55	50	71.42	25	100	50	55.55	71.42
Fontenelle No	75	--	----	55.55	44.55	50	28.57	75	----	50	44.44	28.57
Harrision's Sulcus Yes	25	--	16.66	----	16.66	28.57	--	--	----	11.11	33.33	28.57
No	75	100	83.33	100	83.33	71.42	100	100	100	88.88	66.66	71.42
Knock knee Yes	75	--	66.66	75	50	14.28	25	--	22.22	66.66	----	14.28
No	25	100	33.33	25	50	85.71	75	100	77.77	33.33	100	85.71
Bow Legs Yes	75	--	50	66.66	33.33	42.85	50	--	22.22	50	66.66	42.85
No	25	100	50	33.33	66.66	57.14	50	100	77.77	50	33.33	57.14

Pigeon Chest Yes	50	--	66.66	----	16.66	28.57	75	--	22.22	33.33	----	28.57
No	50	100	33.33	100	83.33	71.42	25	100	77.77	66.66	100	71.42
SYSTAMIC EXAMINATION												
Liver Normal	--	100	66.66	----	50	28.57	25	--	77.77	22.22	33.33	28.57
Enlarged	100	--	33.33	100	50	71.42	75	100	22.22	77.77	66.66	71.42
Spleen Normal	--	--	44.44	25	50	28.57	--	--	50	22.22	66.66	28.57
Enlarged	100	100	55.55	75	50	71.42	100	100	50	77.77	33.33	71.42

ICDS

MALE							**FEMALE**					
AGE IN YEARS	**1**	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	**6**
GENERAL APP.												
Healthy	75	--	66.66	81.81	33.33	12.5	75	100	75	33.33	12.5	20
Unhealthy	25	100	33.33	18.18	66.66	87.5	25	--	25	66.66	88.5	80
HAIR												
Discoloration No.	25	100	87.5	45.45	75	83.33	25	--	75	37.52	66.66	80
Yes	75	--	12.5	54.54	25	16.66	75	100	25	62.5	33.33	20
DISTRIBUTION												
Dense	100	100	75	36.36	62.5	----	75	25	50	62.5	66.66	60
Spear	--	--	25	65.65	37.5	100	25	75	50	37.5	33.33	40
TEXTURE												
Thin & Silky	50	--	25	45.44	50	16.66	50	--	375	50	27.77	20
Normal	50	100	75	54.54	50	83.33	50	100	62.5	50	72.22	80
FLAG SIGN Yes	**25**	**100**	12.5	27.27	25	----	25	--	16.66	25	16.66	----
No	75	--	87.5	72.72	75	100	75	100	83.33	75	83.33	100
EASY PLUCABILITY Yes	**75**	**100**	100	50	54.54	50	50	--	58.33	37.5	44.44	40
No	25	--	----	50	45.45	50	50	--	41.66	62.5	55.55	60
FACE												
Moon Face	25	--	50	45.45	50	50	75	100	75	62.5	72.22	40

Monkey Face	75	100	50	54.54	50	50	25	--	25	37.5	27.71	60
Nasolabial	25	--	12.5	18.18	37.2	16.66	25	83.33	37.5	11.1	20	100
Dissabacia	75	100	87.5	81.81	62.50	83.33	75	16.66	62.5	88.88	80	----
EYES												
Conjunctive	25	100	37.5	16.66	18.18	50	75	--	----	37.5	38.88	100
Cornea	75	--	62.5	83.33	72.72	50	25	100	100	50	66.11	----
Photophobia	--	--	----	----	9.09	----	--	--	----	12.5	----	----
LIPS												
Normal	100	100	75	75	61.11	20	100	--	91.66	81.88	62.5	33.33
Fissures	--	--	25	12.5	5.55	60	--	--	8.33	9.09	12.5	16.66
Scare	--	--	----	12.5	33.33	20	--	100	----	9.09	25	50
ANGLE OF MOUTH												
Normal	100	100	87.5	81.81	75	50	100	--	91.66	75	83.33	40
Excoriations	--	--	12.5	9.09	----	33.33	----	100	8.33	12.5	16.66	40
Ulcers	--	--	----	9.09	25	16.66	--	--	----	12.5	----	20
TONGUE												
Normal	100	100	87.5	90.90	75	33.33	100	100	75	75	66.66	20
Pale	--	--	----	9.09	25	50	--	--	25	25	27.27	60
Atrophic Papillae	--	--	----	----	----	16.66	--	--	----	----	----	20
Apthous/Ulcers	--	--	12.5	----	----	----	--	--	----	----	5.55	----
TEETH												
Caries	--	--	12.5	18.18	37.5	33.33	50	--	25	12.5	16.66	40
Mottled	50	--	----	18.18	----	66.66	--	--	25	50	22.22	60
Normal	50	100	87.5	63.63	62.5	----	50	100	50	37.5	61.11	----
GUMS												
Normal	75	100	100	90.90	87.5	66.66	100	--	83.33	87.5	72.22	60
Spongy Bleeding	25	--	----	9.09	12.5	33.33	--	100	16.66	12.5	27.77	40
GLANDS												
Normal	75	100	100	81.81	100	83.33	100	100	100	62.5	94.44	80
Enlarged	25	-	----	18.18	----	16.66	--	--	----	37.5	5.55	20

SKIN												
Normal	75	100	87.5	81.81	87.5	50	75	100	66.66	87.5	66.66	60
Follicular hyperkeratosis	--	--	----	9.09	----	----	--	--	8.33	12.5	11.11	----
Pellagraes Dermatosiss	25	--	----	9.09	12.3	50	25	--	25	----	22.22	40
Ecchymosis Patechiac	--	--	12.5	----	----	----	--	--	----	----	----	----
NAILS												
Normal	50	100	----	75	72.72	75	100	--	75	83.33	50	50
Kolinochasia	50	--	100	25	18.18	12.5	--	100	25	16.66	37.5	33.33
Clubbing	--	--	----	----	9.09	12.5	--	--	----	----	12.5	16.66
CUTANEOUSS TISSUES												
Odema Yes	50	--	75	54.54	50	66.66	50	--	50	37.5	44.44	60
No	50	100	25	45.45	50	33.33	50	100	50	62.5	55.55	40
FATS												
Normal	25	--	37.5	54.54	37.5	50	25	--	33.33	37.5	33.33	60
Less	75	100	62.5	45.45	62.5	50	75	100	66.66	62.5	66.66	40
MUSCULO SKELETAL SYSTEM												
Epiphyseal Yes	75	100	50	25	54.54	50	25	--	50	33.33	37.5	20
Enlargement No	25	--	50	75	45.45	50	75	100	50	66.66	62.5	80
Beading of ribs Yes	25	--	37.5	27.27	37.5	50	--	---	----	25	27.77	40
No	75	100	62.5	72.7	62.5	50	100	100	100	75	72.22	60
Bossing of skull Yes	50	100	50	18.18	87.5	43.33	--	----	33.33	12.5	44.44	20
No	50	--	50	81.81	62.5	66.66	100	100	66.66	87.5	55.55	80
Open Anterior Yes	50	100	75	63.63	50	33.33	25	100	41.66	37.5	55.55	40

Fontenelle No	50	---	25	36.36	50	66.66	75	--	58.33	62.5	44.44	60
Harrision's Sulcus Yes	25	--	50	36.36	12.5	50	100	--	25	75	11.11	60
No	75	100	50	63.63	87.5	50	--	100	75	25	88.88	40
Knock knee Yes	75	--	37.5	45.45	50	33.33	25	--	50	50	50	40
No	25	100	62.5	54.54	50	66.66	75	100	50	50	50	60
Bow Legs Yes	75	--	58.33	50	63.33	50	16.16	50	----	62.5	27.77	20
No	25	100	41.66	50	36.36	50	83.33	50	100	37.5	72.22	80
Pigeon Chest Yes	50	--	37.5	18.18	----	33.33	75	--	83.33	12.5	27.77	20
No	50	100	62.5	81.81	100	66.66	25	100	9.66	87.5	72.22	80
SYSTAMIC EXAMINATION												
Liver Normal	100	100	50	27.27	33.33	25	25	--	41.66	12.5	22.22	40
Enlarged	--	--	50	72.77	66.66	75	75	100	58.32	87.5	77.77	60
Spleen Normal	100	100	100	12.5	33.33	16.66	100	12.5	100	16.66	----	20
Enlarged	--	--	----	87.5	66.66	83.33	100	87.5	----	83.33	100	80

Reddy and Vinodhini reported the ratio of PEM 1:10 for severe and mild from respectively in the present study the magnitude of severe malnutrition was 1.6% and 2.6% respectively clinically. Usually the incidence of marasmus is more among infants and Kwashiorkar in old infants and young children.

The ICMR study group (1977) observed the peak pre-balance of marasmus and Kwashiorkar in the age group of 1 – 2 years and 2 – 3 years respectively.

Kwashiorkar is mainly due to deficiency of protein accompanied by relatively excess of calories. Whereas marasmus is due to deficiency of both protein and calories. (water low 1972)

CLASSIFICATION OF PEM:

PEM has been classified various ways of different authors.

1) Cause wise

(a) Primary (exogenous) cause is dietary in origin

(b) Seondary (endogenous) cause is other than diet I.E., infections an dinfestations.

2) Type wise

(a) Over nutrition (Toxicity)

(b) Under nutrition (Inanition)

3) Degree wise

(a) Mild

(b) Moderate Quantitative classification

(c) Severe

4) Duration wise :

(a) Acute

(b) Sub – acute

(c) Chronic

5) Clinical wise

(a) Marasmu

(b) Kwashiorkar Quantitative classification

(c) Marasmic Kwashior

6) Out – come wise

(a) Reversibel

(b) Irreversible

An ideal classification of PEM is one which takes and account of atleast 3 factors in to consideration such as quality severity and duration of malnutrition (Water Low 1977)

Gomezetal (1956) classified PEM based on "Weight for Age" (expected weight for age is from 50^{th} percentile of Harvard standard, as reference standard) in to 3 drgee

I^0 (90-76%) II^0 (75-61%)

III^0(60% or less)

Well come classification (1970)

Based on the presence or absence of Edema and deficit in body weight.

Weight (% of standard)	**Present Oedema**	**Absent**
80-60%	Kwashiorkar	Under weight
Less than 60% (Kwashiorkar)	Marasmic	Marasmus

50^{th} percentile of Harvard stand-reference standard.

IAP CLASSIFICATION

Indian academy of paediatrics classified PEM as Follows

Up to 80%	Normal
80 – 71%	Grade II
70 – 61%	Grade II
60 – 51%	Grade III
< - 50%	Grade IV

Reference standard -50^{th} percentile of Harvard. Other authors like Jelliffe (1960), Mclaren (1967), Burgees et al (1969) Bengos (1970) also classified PEM,

ASSOCIATED SIGNS OF MALUTRITION HAIR CHANGES:

These are earliest and most and most striking clinical features of Kwashiorkar. It is not present in all cases and it reversible on recovery. The hairs may show wide range of abnormality. When the disease process is of long duration in contrast, there may not be any heir changes or it may be normal, when the malnutrition has occurred rapidly in a short duration. Abnormal hair changes my be of red brown colour, thin silky and easily pluckable. The hair change, the so called “Flag sigh” is characterized by alternating bands of light and dark colours along length of hair stem, reflecting episodes of protein energy malnutrition and cure (normal nutrition). Oedema is the characteristic clinical feature of Kwashiorkar.

In marasmus hairs are sparsely distributed, light colour and dry but wasting of muscles an dsub cutaneous fat is marked. The child appears emaciated with apparently large head and staring look.

VITAMIN DEFICIENCY SIGNS:

Chilld suffering from malnutrition will usually have some vitamin deficiency signs, such as signs of ricket (Vit. D deficiency), conjuctival Exerosis and Bitot's spots (Vit. A deficiency) bleeding gums (Vit. C deficiency), glossitis and angular stomatitis (Vit. B complex deficiency) and phrynoderma (essneitlal fatty acid deficiency) etc.

VITAMIN A DEFIFICENCY

Conjunctival xerosis and Bitot's sports are the usual signs noticed in the children suffering from Vit. A deficiency, where conjuctiva appears to be muddy and wrinkled.

Bitot's spots appear as grayish, Triangular formy, rough and raised patches on bulbar conjuctive which are usually bilateral.

Who expert committee suggested that when more than 2% of pre-school children devlop conjuctival xerosis and Bitot's spots. It should be deficiency. The total no of blind person in India is about 9 millions and the rate of blindness is 250 per 1000. Vit. A deficiency is predominate among, communities whose main diet is rice, diet lacking in carotene,

VIT. B. COMPLEX DEFICIENCY

The usual lesions due to Vit. B. complex Deficiency are glossitis, angular stomatitis and cheilosis.

Angular stomatitis due to deficiency or Vit. Riboflavin is characterized by excoriation and fissures at the amgles of mouth. Glossitis due to deficiency of Riboflavin and pyridoxine is charcterised by smooth tongue and atrophy of paplliae.

VIT. D. DEFICIENCY:

Ricket due to Vit. D. deficiency is characterized by deformities of bones in growing children such as, bossing of skull, beading of ribs, Epiphyseal enlargements. Bow legs and harrison's sulcus etc.,

Comparatively the percentage of Vit. A. deficiency was more than Vit. D. deficieny among both ICDS and Non-ICDS groups.

ICMR expert group (1977) observed in their study that the indicate of Vit. A. deficiency was more than Vit. D. deficiency in pre-school children.

ASSESSMENT OF ECOLOGICAL

Theoretical part of ecological factors have already been dealt in more detail under review of literature. Here description will be confined to the point of observation and discussion in brief, as I am mainly concerned with anthropometry.

The ecological factors have immense influence over nutritional status of pre-school children, therefore malnutrition could rightly be justified, partly, as a ecological problem reflecting the physical, biological; cultural and environmental factors of the communities. The effects of ecological factors differ from community to community, state to state and country to country at large.

1. CONDITIONING INFLUENCES:

These undermine (deteriorate) the nutritional status of pre-school children through pathological and biochemical processes.

ICDS children seems to be better palced than Non – ICDS children, illness point of view, may be because of regular and better health services rendered of available to them at anganwadies.

2. DIET

As a matter of fact, the nutritional status of children large extent depends upon the quality and quantity of food consumed. Lack of protein and calories leads to marasmic path way and lack of protein with relative excess of calories leads to Kwashiorkar pathway.

Diet survey is the most essential part and parcel of the assessment of nutritional status of pre-school children.

It provides information regarding food habits types of food consumed, and nutritional deficiencies, which can be corrected through better nutrition planning.

The weaning food was not of standard quality particularly among ICDS children, But it seems to be compensated by supplementary nutrition at Anganwadi for 6 month to 2 years age. Hence the health status of ICDS children seems to be better than Non – ICDS children.

In the present diet survey, mothers were asked to give information regarding food consumed at home daily, for the last one week, In both ICDS and Non – ICDS groups. On the

basis of this oral information given by mothers; protein and calories consumed in the past 24 hrs. By the pre – school children of ICDS and Non – ICDS groups was calculated. In the case of ICDS beneficiaries, the food taken at home and Anganwadi was taken in to account, file calculating protein and calories consumed.

For analysis of present study food survey data, the ICDS and Non – ICDS children are divided in to age groups i.e., 1-3 and 3-6 years. Because the food habits are almost alike in these age group with some insignificant differences. Moreover we may get clear results of interpretation of food data for the that age range.

Too much reliance can not be laid on the information provided by the mothers regarding consumption of food by the children. Because most of the mothers are illiterate, ignorant and belongs to working class, thereby care of the children is taken by other family members, some of them do not remember exactly what they fed to dheir children in last 24 hours. Any how, every effort is made to extract correct information regarding food consumption.

TABLE-24 : Table showing the coverage of supplementary food by ICDS children (0-6 years) at anganwadies.

No of days Received	**Total no of children**	**No of children Received**
50 – 100	250	13 (5.2)
101 – 150	250	16 (6.4)
151 – 200	250	72 (28.8)
201 – 250	250	111 (44.4)
251 – 300	250	38 (15.2)
Total	250 – 100%	

From the above table it has been observed that maximum number of ICDS children (44.4) have consumed supplementary food for more than 200 days, followed by (28.8) children enjoyed for more than 150 days, the least being (5.2) children took the supplementation food for more than 50 days.

As majority fo the ICDS children have utilized the supplementary food in the range of 150 – 250 days hence their nutritional status seems to be better as observed in the present survey.

SOCIO ECONOMIC FACTORS

The anthropometric measurements and indices which are usually considered, more or less to be the mirror image of the nutritional status of the pre – school children, are profoundly influenced by the socio – economic factors.

1) FAMILY SIZE

Small families can take better care of their children and avoid certain infection which occur due to over crowding. The national figure of the average size or family is 4.3 (1979) in the present study the average size of family in ICDS group is 3.21 as the total no of members was (804) in 250 familes and among Non – ICDS the family size is 3.36 total member were (840) in 250 Families. The present figures of family size are less than national figure, mostly it indicate a better implementation of family planning grogrammes.

2) TYPES OF FAMILIES

a) Nuclear Family:

Consists of married couples and their dependent children.

b) Joint Family:

Consists of blood related men, the married women are their wivers; the unmarried girls, boys and widows are Kinsmen of the family.

c) Three Generation family

Consists of there generations i.e., the couples living with their children and parents.

A family is called over – crowded,when the floor area per head is insufficient for the inmates as per established norms, since in the present study the average family size is small, so generally there was no over crowding and there by less incidence of contagious disease and droplet infections.

TABLE-25: Table Showing the distribution of families according to types

Type of familes	ICDS Famies		Non-ICDS Familes	
	Number	Percentage	Number	Percentage
Nuclear	189	75.6	174	69.6
Joint	26	10.4	39	15.6
Three generation	35	14	37	14.8
Total	250		250	

LIVING CONDITIONS:

Better living conditions are essential for better development of pre-school, children, physically socially, morally mentally and psychologically. Good living condition include, spacious house with sufficient floor area for inmates, cleanliness proper ventilation and light, satisfactory sanitary facilities like waste water drainage, septic tank toilet, bath room, kitchen room chimney and lastly facility to keep live – stock out side the hose with required sanitary arrangements.

TABLE-26: SHOWING THE LIVING STANDARDS OF FAMILIES OF ICDS AND NON – ICDS GROUPS BY SCORING METHODS.

Living Standard	ICDS		Non-ICDS	
	Number	Percentage	Number	Percentage
Poor (0 to 4)	3	1.16	-----	-----
Satisfactory (5 to 8)	57	22.09	20	9.09
Good (9 to 12)	198	76.74	200	90.90
Total	258	99.99	220	99.99

TABLE-27: MEAN VALUE PATTERN OF DISEASES SUFFER FROM BY ICDS & NON – ICDS BENEFICIARIES.

Name of the Disease	ICDS Group		Non-ICDS Group	
	Male	Female	Male	Female
Diarrhoea	90	82.97	96.42	92.10
Respiratory	40.5	39.58	66.66	60.60

Diseases				
Skin Disease	57.89	52.5	60.71	66.66
Measles	19.44	17.94	32.14	37.14

DIETARY PATTERN:

Most of the family adopted the pattern of takng meal any time of the day than others adopted a patter of taking meal four times a day very few families were obsereved to take meal twice or thrice a day.

TABLE-28: MEAN VALUE OF DIETARY PATTERN ADOPTED BY NON-ICDS 8 ICDS BENEFICIARIES.

Dietary Pattern	ICDS Group	Non – ICDS Group
Twice a Day	2.00	1.83
Thrice a Day	20	1.83
Four Times	33.28	24.16
Any Time	44.72	72.18

PER CAPITAL INCOME

Per capital income plays a major role in respect of nutritional status of pre-school children. Because poverty is the route cause for in adequate nutrition, sub standard living conditions and unsatisfactory health and educational care.

Mehta (1972) surveyed the children of high and low socio economic status and remarked that the growth potentialities in pre-school children is suppressed by nutritional factors and infections; the route cause for both being socio economic factors.

TABLE-29: ECONOMIC STATUS OF ICDS & NON – ICDS BENEFICIARIES ACCORDING TO MONTHLY FAMILY INCOME.

NON – ICDS (Male)

Age in Year	Up to 500	501 – 1000	1001 – 1500	1501 – 2000	> 2000

1	--	--	100	--	--
2	--	--	--	--	100
3	---	33.33	16.6	33.33	16.66
4	---	---	25	---	75
5	16.66	16.66	33.33	33.33	---
6	---	14.28	57.14	28.57	---

NON – ICDS (Female)

Age in Year	Up to 500	501 – 1000	1001 – 1500	1501 – 2000	> 2000
1	--	25	--	75	--
2	--	--	--	--	100
3	---	44.44	33.33	22.22	----
4	---	33.33	11.11	22.22	33.33
5	---	33.33	66.66	----	----
6	---	14.28	57.14	28.57	----

ICDS

MALE					**Age in Yrs**	**FEMALE**				
Up to 500	501 – 1000	1001 – 1500	1501 – 2000	>2000		Up to 500	501 – 1000	1001 – 1500	1501 – 2000	> 2000
--	--	25	75	--	1	--	--	100	--	--
--	--	--	--	100	2	--	--	--	--	100
12.5	62.5	12.5	---	12.5	3	---	75	8.33	8.33	8.33
---	45.45	18.18	9.09	27.28	4	---	37.5	25	---	37.5
---	50	50	---	--	5	---	55.55	27.27	5.55	11.11
---	66.66	33.33	---	--	6	---	60	40	---	---

TABLE:29B- EDUCATIONAL STATUS OF ICDS & NON – ICDS BENEFICIARIES

ICDS

Male(%)							**Female(%)**					
Age in years	**1**	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	**6**
IIliterate	25	--	16.66	---	---	---	25	--	11.11	44.44	66.66	---
Up to 8	50	100	50	25	66.66	---	75	--	44.44	33.33	33.33	85.71
Up to 10	25	--	33.33	---	16.66	---	--	--	22.22	22.22	---	14.27
Up to 12	--	--	---	75	16.66	---	--	--	---	---	---	---
Graduate	--	--	---	---	---	---	--	--	---	---	---	---
Post Graduate	--	--	---	---	---	---	--	100	22.22	---	---	---

NON ICDS

Male (%)							**Female (%)**					
Age in years	**1**	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	**6**
IIliterate	25	--	50	36.36	62.5	50	25	--	33.33	37.5	44.44.	60
Up to 8	75	--	25	36.36	37.5	33.33	50	--	16.66	25	33.33	20
Up to 10	--	100	25	18.18	---	16.66	25	--	33.33	37.5	16.66	20
Up to 12	--	--	---	9.09	---	---	--	--	8.33	---	5.55	---
Graduate	--	--	---	---	---	---	--	--	8.33	---	---	---
Post Graduate	--	--	---	---	---	---	--	100	---	---	---	---

In the present study due regards are given to mothers literacy level, while assessing the nutritional status of pre-school children in ICDS and Non-ICDS group. Because mother is the person, who first appears on the scene in the growth and development of the children by taking feeding care, health and hygiene care, and suggestions from medical personals to impart better health to her child.

It was observed that mothers were better educated than fathers in both group. 35% of Non – ICDS parents were found illiterate in comparison to 53% illiterate parent of ICDS group.

IMMUNIZATION STATUS

Immunization prevents many diseases of childhood, If given timely and methodically. Children are immunized against six disease, routinely such as, tuberculosis poliomyelitis, diphtheria, Tetanus, Pertussis (Whooping couth) and measles, further they are immunization against Mums, Rubbella and typhoid etc., but not routinely. Immunization plays a great role inmaintaining the health status of pre-school children.

TABLE-30: IMMUNIZATION STATUS ACHIEVED BY ICDS & NON – ICDS BENEFICIARIES.

ICDS

Male(%) age in years							**Female (%) age in years**					
Name of the caccine	1	2	3	4	5	6			3	4	5	6
BCG	100	100	100	100	87	83.3	75	0	91.6	100	88.8	88
Polio	100	100	100	100	100	100	75	100	100	100	94.8	100
Measels	100	100	100	100	62.5	83.3	75	0	83.3	100	88.8	80

NON ICDS

Male(%) age in years							**Female (%) age in years**					
Name of the caccine	1	2	3	4	5	6	1	2	3	4	5	6
BCG	75	0	100	77.7	66.3	86.7	100	100	83.3	77.7	75	85.6
Polio	75	100	100	100	100	85.71	100	100	83.3	88.8	100	100
Measels	75	0	77.7	66.6	66.6	85.7	100	100	83.3	83.3	85.7	85.7

From the above table it can be observed that the percentage coverage of immunization in more among the ICDS beneficiaries than Non – ICDS children.

One of the aims of the ICDS services is to immunize the children against various diseases probably this is the reason that the percentage coverage immunization is more among ICDS than Non – ICDS children.

Molly Philip et al (1976) observed that 25% of rural pre – school children were given DPT, BCG and Polio vaccine. The percentage of vaccinated children was 13.5% and un-immunized children were 52.2%

In the present study the percentage of immunized children is more then the above study, probably because of urban area and ICDS services.

Dharaman B. Sharma et al (1977) observed that immunization status among infants and pre-school children of Jammu & Kashmir Rural area was 5%, 10% and 15% for BCG, DPT and Polio respectively.

In the present study the ercentage coverage of immunization for BCG, DPT and Polio is far better than the above study with the difference rural and urban area, so there is difference in percentage coverage.

OCCUPATION OF HEAD OF THE FAMILY

Income depends on occupation and health status of pre-school children mostly depends on the income of the father (Head of family). Hence clear that better occupation yield better income, which leads better living condition and improvements in nutritional status of pre- school children.

Majority of the heads of the families were coolies autodrivers, beedi workers, skills labours such as Tailors, Mechanics carpenters, masons and others were private and govt. servants, petty shop keepers and hotel keepers.

MOTHER'S OCCUPATION

The occupation of the mothers has important bearings on the nutritional status of children.

It also influences the physical growth mental development, social and psychological_behaviours.

The occupation of working mother's, which comples them to remain away from house, will come in the way of mother care of her child hence care of young one is usually taken either by elderly siblings or other member of the family, having no experience of children, to fulfill the mother;s role, expose the child to adverse effects (Rawson I.G. & valverde V.) hence children of working class mother's usually suffer from malnutrition due to lack of parental care.

NUTRITIONAL EDUCATION:

Nutritional education of mothers is very important to impart to good health status to their children to have a better start in life.

Mothers must be made aware of nutrition values of different food, child rearing methods importance of immunization and over the all health care of the child. There are several established medias and method through which mothers can be taught nutrition education.

In the present survey study of anthropometric measurements among ICDS beneficiaries and Non ICDS children (0-6 years age) was taken up with view to review evaluate their nutritional status by comparing the anthropometric measurement and motor skills with each other.

A total no of 500 children out of which 250 ICDS beneficiaries and 250 Non – ICDS children from different Anganwadies and Non – ICDS areas respectively were surveyed in the Moradabad city.

Every effort was made to exercise high degree of accuracy while recording the anthropometrics measurements and the result was interpreted using various indices (Standards) in a meticulous way, added with supportive evidences. Though the mean anthropometrics values of present study are lower than ICMR mean standard but more and less correlate with 50 percentile of ICMR reference standard and 3rd percentile of Harvard

standard comparatively the nutritional status of the ICDS beneficiaries is better than Non-ICDS children.

Totally 500 houses (ICDS 250, Non-ICDS 250) were surveyed to evaluate living standard. Food consumption socioeconomic factors and ecological factors etc, majority of the families need to be improved their socio economic status and living standard are low.

Religion wise Hindus were maximum (73.56 & 71.93) Muslims (14.94 and 19.69) and Sikhs (11.49 an 8.92 in ICDS and Non-ICDS group of pre school children respectively comparatively male children were more than female and vegerarian were far more than Non-Vegetarian in both group.

The socioeconomic status and FP status, of Non-ICDS familes is better than ICDS families. Prevalence of infective and nutritional disorder are found in both group, but comparatively less among ICDS children.

Immunization status of ICDS children is better than Non-ICDS children.

Consumption of protein and parents are ignorant about nutritional values of, common and locally available foods and its proper use.

TABLE-31: PERCENTAGE OF FAMILIES ADOPTED BREAST FEEDING, BOTTLE FEEDING OR BOTH ACCORDING TO AGE AND SEX
(A COMPARISON BETWEEN ICDS AND NON-ICDS BENEFICIARIES)

ICDS												
Male							**Female**					
Age in year	**1**	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	**6**
Breast Feeding	25	100	75	54.54	87.5	100	75	--	91.66	75	83.33	100
Bottle Feeding	25	--	---	27.27	12.5	---	--	--	8.3	25	11.11	---
Both	50	--	25	18.18	---	---	25	100	---	---	5.55	---
Non – ICDS												
Breast Feeding	25	100	16	50	66.6	28.57	75	100	44.4	55.5	66.3	28.57
Bottle Feeding	25	--	50	50	16.6	14.2	--	--	11.11	22.22	---	14.2

Both	50	--	33.33	---	16.6	57.14	25	--	44.44	22.22	33.33	57.4

Breast feeding was continued for more than two year in most of the cases, but proper weaning food was not provided to the infants in both ICDS and Non-ICDS groups, because of ignorance and local traditions. Nutrition education should be imparted to the parnts, particularly the mothers, the importance of immunization should also be explained to them.

Breast feeding was found very commonly used practice by the women of both group. Bottle feeding was adopted in emergencies or by working mothers. Warning was found to be natural process at the artival of the other child. Among most of the cases the age of weaning hied between 1-6 years of age.

Chapter – 5

Summary and Conclusion

SUMMARY, CONCLUSION AND SUGGESTIONS

The present study entitled, "Role of ICDS in physical development of Pre School Children from (0 to 6) years in Moradabad District of U.P." was under taken to fiind out the nutritional status, socio-economic factors and immunization status of the pre-school children (0-6 years) in urban area of Moradabad District Uttar Pradesh during the year 1999 – 2000 and 2000 – 2001. The specific obectives of the studies were

1. To access and compare the anthropometric measurements between ICDS and Non ICDS pre schhol children which refelects their nutrinational status

2. To assess the nutrinational status of ICDS and Non ICDS pre school children by means of Household survey, Diet survey, Ecological factors, Socio economic factors and immunization status etc. as a supportive (complimentary evidences to anthropemetry)

3. To impart nutritional education to the parents specially to mothers and to make her to appreciate the importance of nutrition in the growth and development of her child

4. To suggest remediable measures to improve the nutritional and health status of pre school children in 0-6 years of age group

RESEARCH METHODOLOGY

Research methodology of the study consisted of multi stage specified random sampling Moradabad district of western uttar Pradesh was purposively selected for the study due to the conveyance of the research work. The sampling stage were, selection of wards, selection of Anganwadi and selection of respondents. From the District 100 Anganwadi were Anganwadi were selection randomly. Thereafter, a list of respondents or pre-school children for each of the selected Anganwadi was prepared and grouped into two categories i.e. ICDS and Non – ICDS then 500 respondents were selected and the basis of proportion of the respondents falling under selected Anganwadi and categories. Tabular methods of analysis were used to anlysis were used to analyse the data for the results.

A total number of 500 per- school children in the age group of 0 - 6 years i.e., 250 chidlren from ICDS and Non – ICDS respectively were surveyed at different Anganwadies and Non – ICDS area in Moradabad city by cross sectional studies. A comparative study of anthropometric measurements and motor skills between ICDS and Non – ICDS pre school

children was conducted and results are evaluated by using various indices (Standards) which reflects their nutritional status.

Anthropometric

The mean anthropometrics values of present study are compared with ICMR mean standard values and found to be lower than ICMR values in majority of children, but in few children their antahropometric values are more or less equal to ICMR mean standard. In the present study the antahropometric values account for 70 to 100% of ICMR mean standards.

The anthropometircs measurement of ICDS children are relatively better then Non – ICDS children with some fluctuation in certain age group.

The anthroometrics in measurements of Present Study correlate wth 50^{th} percentile of ICMR reference standard and 3^{rd} percentile of Harvard standards.

The results of present study are compared with the study report of other researchers. The nutritional status of the children in present study seems to be better compared to the study reports of other researchers Majority of ICDS and Non – ICDS children fall under mild degree of malnutritional and some under moderate degree of malnutritional but the magnitude of severe malnutritional problems is not significant among them. Different indices have been used to assess the grades of PEM. Such as weight/Height^2, MAC/HC, Weight for age height for age etc., the crossing of chest circumference over head circumference has taken place at the age of 2 years among boys (ICDS & Non – ICDS) at 3 years in girls (ICDS & Non – ICDS)

The incidences of infective and nutritional disorders and skin diseases etc, and deficiency of Vit. A, B,C,D, and Iron with folic acid are found in both group of children, comparatively percentage is more among Non – ICDS children. But these diseases are not severe enough to push majority of the children under the column of severe malnutrition. Though insignificant the malnutrition in its severe forms has made its appearance in the children of 1-3 years of age among ICDS as well as Non – ICDS children.

Though the socio – economic status, family planning status and educational status among Non – ICDS children is better than ICDS group, but generally the socio – economic stauts standard of living, food consumption, the family planning, education and Immunization status is not satisfactory among both group to the tune of established figures or norms. These needs to be improved further.

OBSERVATIONS

Observations are recorded during the study in the delivery y stem and the effect mode by ICDS on the target group. 5

1. To Anganwadi Workers : The honorarium of the angawadi workers was to less that is the prime reason for their problems they were engaged with some other part time jobs that a fact their health and lack of energy levels.

1. Many of them have their personal problems due to them they were found emotionaly disturbed that was affecting their work and behaviour with children.

2. The number of good anganwadi workers were also blemmed to sale the food provided by the Government for anganwadi that meet them unhappy as well as irritated during their work.

3. Parents also fight and querrel with quantity of foods for children as well as untimely or not providing food that makes anganwadi workers tensed. A number of time Government fails to provide food timely. Anganwadi workers also expected to look after another anganwadi when other workers on leave or go for training. Anganwadies are located at distances takes a lot of time as well as pains to walk to another anganwadi and work and efficiency of anganwadi workers. ‘

4.The lack of many skills necessary for conducting effective nonformal pre-school education some time they dont get cooperation from parents and community i.e. expected to obtain better results Anganwadi workers feels that Supervisor should visit more frequently in order to give support and guidance. They need better aids and materials for educating children as well as mothers for 17’ effective results.

SUPERVISORS

In the city four supervisors are appointed for east, west, south and north. 25 mganwadies per supervisors were devided for supervision.

Supervisors feels it difficult to provide that much this great number of anganwadi as it becomes difficult for them to give frequent visit to each and every anganwadi which is

needed to obtain expected results. They have to travel by rickshaw or on foot i.e. quite time and money consuming. Some anganwadies are located' in interior parts or ueclected part for the regon and being look after with a great difficulty due to larger number of anganwadies are alloted to them. They give main emphasis on checking the registers and to find out the records whether they are maintained properly or not. The number of children enrolled and practically come to anganwadi. They are new comers in this profession who are unaware of the procedure and requisite skills to supervise the anganwadi or she did this job just to secure of government jobs. Few of the supervisors were trully devoted to their work and were working with a proper managed systems. Supervisors are send for training aher a long time instead of immediately after i joining the jobs. Some times their nature also creates hinderence with their works as they are shy inhibitant and reluctant to do the job they are expected to do so. Supervisors have a lot of paper work that restrict them to do their work freely.

CDPO's

The over all administration of ICDS's projects is under the . CDFO'; there is one ISBN) is the city whose responsible for the project. Her job involves working with local leaders,supervisors, anganwadi workers and it takes time and efforts to establish tapered with all the people. Some times frequent transfer of CDPO's or administrative staff also cause problems during obtaining desirable results for a few months one posts falls vacant and it becomes difficult to manage work of so many anganwadies and obtaining expected results. It is really a time end energy consuming excercise to maintain and keep records due to shortage of staffs CDPO's face difficulties while getting required results. Lack of finances, conveyance, unavailability to distribute foods are also great problems that CDPO's face. Some political pressures are also theirto appoint their candidates and some times they support few irresponsible employees that create a great difficulty to obtain desired results. It also affect discipline and quality of work of anganwadies. Few other observation were :

- Mothers are not aware of diseases against which childred are immunized and the importance of providing immunization through accurate schedule.
- Children are immunized in irregular system causes failure of proper b immunization.
- Mothers don't take due precautions that again causes failure of immunization.
- Mothers are not well aware of the food materials supplied to them (how nutritive it is in which quantity it should should be provided to the children.

- Anganwadi workers don't have sufficient knowledge and skills to educate mothers about immunization, nutrition and health problems.
- Food was not supplied to children for months due to unavailability and transport problems.
- Promises of rewards for bringing family planning cases are not honoured.
- Children develop fewer and discomfort after some vaccinations that's why few mothers refuse to take their children for remaining doses.
- Some anganwadies complaints recurring lack of food material supplied to them.
- Parents complaints that anganwadies workers instead of providing food to children and mothers sale it to the market.

RECOMMENDATIONS

The essence or main aim of the recommendations is to find out ways and means to improve the Nutritional status of the pre-school children in the age group of 0-6 years and bring them up in a atmosphere, where in they are not depressed physically, socially, yorally, mentally and psychologically. Particularly those children elonging to scheduled castes, scheduled tribes, and other socially and economically vulnerable sections of the society, should preferably be taken care of nutritionally and health point of view.

All the recommendations in this regard will revolve around the aforesaid few lines.

Gererally to improve the nutritional status of pre-school children, the nutritionally adequate diet, made of locally available food stuffs, may be provided. The nutrition education should be imparted to the parents particularly the mothers.

The nutritional values of locally available different food stuffs and its proper use, should be made known to them. So that they offer a rational diet to infants, and children (weaning food). Female health workers and Anganwadi worker can act as guide to women community. Importance of immunization and consequences of non~immunization. Hygenic way of living, benefits of family planning, advantages of small size family, the glory of literacy and dreadful out comes of ignorance, illiteracy and wrongly conceived religious taboos and traditions regarding child rearing practices should be explained to the parents, particular to

the mothers. This can be accomplished through male and female health workers and Anganwadi workers, and also this can be explained to them through audio-visual media etc.

The healthy personnels should make regular visits upon children in the communities to cover immunization and to spot the infective and nutritional disorders and attended to it timely. For immunization cold chain should be maintained.

Dairies, Poultry and Fisheries to be increased to boost the availability of protein rich foods to the needy pre-school children of the needy community.

The per capita income of the ICDS and Non-ICDS families can be enhanced by providing job opportunity to the earning members of the families by engaging them in newly opened industries.

Living standard of the ICDS and Non-ICDS families should be improved and Food and Water born diseases should be prevented by .1 effective sanitary measures.

Infantile Diarrhoeas among ICDS and Non-ICDS infants can be prevented by promoting breast feeding among urban folks. The proper use of rehydration solution should be explained to the mother.

Anganwadies should be placed in well ventilated and lighted building,a s most of the present anganwadies are situated in either temples or ill ventilated single halls. Temples appear to be better comparatively. Sufficient non-formal education materials should be provided to the Anganwadies. Visits by the supervisory staff of ICDS services and health personnel should be regular to promote the health status of ICDS beneficiaries.

The supply of locally available food grains, vegetables and required medicines suchy as Vit. A, D, AB and Iron with folic acid should be regular, supply of vaccines and vaccination should be timely, maintaining a cold chain, to cover the immunizqation to the required extent.

Anganwadi workers should be sufficiently trained to possess the good knowledge of nutritional values of different locally available food stuffs and vaccinations.

The Referral services should be prompt to avoid Deleterious effects of the diseases on the nutritional status of the ICDS benecificiaries in the age groups of 0-6 years.

Every effort should be made to reduce the incidence of morbidity, mortality and malnutrition among pre-schcol children.

Efforts should be made to prevent and detect early childhood disabilities education, as it aims at integrated development of the child physically, intellectually, socially and emotionally. Integrated child development scheme services being highly dependent programme and coordination at all levels is its SINE QUA NON, hence every effort should be made to involve local voluntary organisation like Mahila Mandals and Panchayats etc., for its successful operation.

ICDS programme has made an impart on the health education of children and the outlook of mothers to some extent. Chidren looked reasonably healthy and were free from some of the dreaded childhood diseases. These were controlled by the timely immunization programmes for which AWWs deserve a major share of credit.

Most of the children were immunized. Mothers were also aware of the need of immunization. Mothers gave credit to immunization and feeding service of AW for the health of their children.

Medicines for common ailments are available with AWWs and the villagers take advantage of this service. For severe illnessess and complications, without second thought they contact PHS for necessary treatment. They no longer require persuation to take advantage of medical facilities. This is a welcome departure from their deep rooted superstitions, where medical facilities were shunned.

Due to efforts of AWW's more mothers over the years have been brought in the fold o family planning programme. It was reported to the ICDS that the block was able to meet thetarget of family planning cases allotted to them by the government of Maharashtra.

1. Concrete steps most be taken to improve the physical set up of the ICDS in terms of Hypomic outdoor space and surroundings, tollet facility and build in shelves for display and play toys and play materials.
2. Anganwadies must. be staffed only with teacher, who have recieved special training for their work.
3. The Anganwadi and the primary school teachers must be trained in the various means and methods of developing personal-social skills of young children.
4. Non formal pre-school children education in the ICDS must have a thrust on both structured and non structured cognitive oriented activities.
5. ICDS functionaries should take more efforts to educate mothers through different mass media as how best they can involve themselves in strengthening the non pre-school eduation component.
6. The training given to ICDS must stress that the pre-school years are potent period of life for social and language experience rather than formal instructions.
7. The special feature of the training for ICDS in all the training units must include integration of pre-school education with primary education and with mother's education.
8. Evaluation of the skills of the ICDS should be built into the continuous responsibility of the supervisor staff. This calls for an increased accent on developing appropriate skills in' the ICDS.
9. Education for mothers should comprehensively emphasize realistic principles and aspects of health, hygiene and nutrition for young children.
10. The strategies for new approach in pre-school children might include a sizeable programme within the limited resources available, mobilising community support and involvement, and maximum utilisation of existing institutions and facilities.
11. Provision of suitable building for housing the ICDS should be given priority. This shoud have adequate indoor and outdoor space to carry out the regular activities like feeding the supplement, non-formal education, health and nutrition education etc. In order to make the ICDS more accessible to the beneficiaries, particularly in tribal areas, there is a need to reorganize the ICDS by reducing the population covered by each centre and increasing the number of centres.

12. The ICDS need periodic reorientation and in service training to enhance and sustain their capabilities and skills in the vital areas like growth monitoring , treatment of minor ailments, health and nutrition education. The supervisory staff including those from health department should utilize opportunities provided during their visits to impart new knowledge and also reinforce existing awareness of ICDS.
13. All health personnel should be familar with the ICDS programme and also the role they are expected to play in it. To achieve this the aims, objectives and functioning of ICDS scheme should be included in the regular curriculae of all the health functionaries.
14. In order to achieve better supersion, provision of mopeds to the Mukhya Sevikas and‘ANMs should be considered. This will enable them to reach the villages early and stay for a longer period which can provide an opportunity for them to interact better with the community.
15. The food stocks should be supplied to the ICDS at regular intervals. The CDPO should make alternate arrangements to despatch stocks specially tothose ICDS which otherwise are not accessible by vehicle. Similarly the supply of medicines in the ICDS kit, particularly those useful for treating common ailments, should be enhanced. The health functionaries during their visits should reorient the ICDS on how to use these medicines and should oversee the extent of utilization of thse drugs every month.
16. ICDS must make it a point to use the growth charts to educate the mothers. Further, mothers of severely malnourished children (grades III & IV) should be personally contacted by the health staff during their visits to the Village. Progress of such children should be reviewed by the Medical Officer at least once in a month.
17. Though the coverage of expectant and nursing women under supplementary feeding is fairly good, they should be encouraged to consume the supplement on the spot. Regular weight monitoring of the pregnant women and recording of birth weights can provide valuable information on the impact of maternal component of the programme.
18. The quality of antenatal care requires improvement. To achieve this the mothers should be well informed about the need for various objective anternatal tests and also the ICDS should be provided with the necessary tools

so as to identify ‘at risk’ mothers. A viable system of referral services has to be established. As an incentive, special referral cards, which ensure prompt and preferrential services may be developed for the exclusive use of ICDS beneficiaries.

19. To enhance the quality of non-formal pre-school children, in addition the improvement in the physical facilities at the ICDS, the ICDS should use her own skills and aptitude to develop toys, games and charts using locally available materials. Further, the themes used in these sessions should be in tune with the local cultural practices.
20. Attempts are needed to enhance the coverage of infants especially with regard to Measals vaccination which affected the overall immunisation coverage to achieve the targets of UIP by the year 1990. The existing cold chain maintenance which is generally satisfactory, should continue.
21. Considering the educational background and honorary nature of work of the ICDS, it is necessary to limit the number of records and registeres maintained by her.

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ANNEXURE-NO. 1

Means and standard deviations for weight / height of children aged 0-6 years by sex.

Weight in Kgs				Age in years	Height in Cms			
Boys		Girls			Boys		Girls	
Mean	S.D.	Mean	S.D.		Mean	S.D.	Mean	S.D.
8.4	1.73	7.8	1.63	1	73.9	5.28	72.5	5.20
10.1	1.85	9.6	1.93	2	81.6	5.32	80.1	5.79
11.8	2.06	11.27	1.96	3	88.8	6.57	87.2	6.34
13.5	2.97	12.9	2.17	4	96.0	6.72	94.5	6.35
14.8	2.28	14.5	2.31	5	102.1	8.08	101.4	7.35
16.3	2.68	16.0	2.63	6	108.5	7.15	107.4	8.65

ICMR

ANNEXURE NO. 2

Means and standard deviations for HEAD and CHEST circumference of children aged 3-6 years by sex (HD and CC in cms) ICMR

Weight in Kgs				Age in years	Height in Cms			
Boys		Girls			Boys		Girls	
Mean	S.D.	Mean	S.D.		Mean	S.D.	Mean	S.D.
44.4	3.63	43.6	1.84	1	43.3	4.73	42.3	3.95
45.9	3.68	45.2	1.75	2	45.8	4.95	45.2	3.18
47.3	2.07	46.2	1.77	3	48.0	4.29	47.2	3.47
48.0	1.80	47.1	1.81	4	49.4	5.13	48.7	3.17
48.5	1.70	47.8	1.71	5	50.8	5.45	50.1	3.78
49.0	1.73	48.3	1.61	6	52.5	5.09	51.3	4.83

ANNEXURE NO. 3

Selected percentiles of HARWARD STANDDARDS for weight / height of children aged 3-6 years by sex

Weight in Kgs				Age in years	Height in Cms			
Boys		Girls			Boys		Girls	
Mean	S.D.	Mean	S.D.		Mean	S.D.	Mean	S.D.
8.3	10.0	7.6	9.7	1	71.3	75.2	68.9	74.2
10.5	12.5	9.8	12.2	2	82.7	87.5	82.7	87.5
12.2	14.6	11.6	14.2	3	90.6	96.2	96.6	96.2
13.6	16.5	13.2	16.4	4	97.5	103.4	97.5	103.4
15.2	18.3	14.5	18.3	5	102.0	108.7	102.0	108.4
17.4	21.9	16.8	21.0	6	108.5	117.5	108.5	117.5

ANNEXURE NO. 4

Selected percentiles of WEIGHT distribution among children aged 3-6 year by sex (ICMR) (Wight in Kgs.)

BOYS			Age in years	GIRLS		
5^{th}	50^{th}	95^{th}		5^{th}	50^{th}	95^{th}
6.2	8.3	11.0	1	5.6	7.7	11.6
7.2	10	12.9	2	7.0	9.4	12.7
9.0	11.8	15.5	3	8.6	11.2	14.2
10.6	13.4	17.0	4	10.0	12.8	16.2
11.8	15.2	20.5	5	11.4	14.3	18.5
12.7	16.7	22.4	6	12.0	15.8	20.5

ANNEXURE NO. 5

Selected percentiles of WEIGHT distribution among children aged 3-6 year by sex (ICMR) (Wight in Kgs.)

BOYS			Age in years	GIRLS		
5^{th}	50^{th}	95^{th}		5^{th}	50^{th}	95^{th}
6.2	8.3	11.0	1	5.6	7.7.	11.6

7.2	10.0	12.9	2	7.0	9.4	12.7
9.0	11.8	15.5	3	8.6	11.2	14.2
10.6	13.4	17.0	4	10.0	12.8	16.2
11.8	15.2	20.5	5	11.4	14.3	18.5
12.7	16.7	22.4	6	12.0	15.8	20.5

ANNEXURE NO. 6

Selected percentiles of HEIGHT distribution among children aged 3-6 year by sex (ICMR) (Hight in Cms.)

BOYS			Age in years	GIRLS		
5^{th}	50^{th}	95^{th}		5^{th}	50^{th}	95^{th}
66.7	73.5	82.3	1	64.5	72.4	80.9
73.3	81.8	90.4	2	71.2	79.9	89.4
79.1	88.6	98.8	3	76.5	87.1	97.4
85.5	95.9	106.4	4	84.5	94.5	104.9
92.0	102.2	112.2	5	91.0	101.3	112.8
98.2	108.4	120.5	6	97.3	107.3	118.9

ANNEXURE NO. 7

Table showing daily allowances of nutrients for pre-school children (ICMR nutrition expert group 1988)

Age Nutrients	1-3 years	4-6 years
1. Calories (Kcal)	1240	1690
2. Protien (Gms)	22	30
3. Calcium (Gms)	0.4	0.4
4. Iron (Mgms)	12	18
5. Retionol (Mgms)	400	400
6. Carotene (Ugm)	1600	1600
7. Thiamine (Mg)	0.6	0.9

8. Nicotinic acid (Mg)	8	11
9. Riboflavin (Mg)	0.7	0.8
10. Ascorbic acid (Mg)	30-50	30-50
11. Foloic Acid (Ugm)	35-100	55-100
12. Cyano cobalamine (Ugms)	0.5	0.5
13. Vit. D(I.U.)	200	200

ANNEXURE NO. 8

Balance diet for pre-school childnre (ICMR nutrition Expert group 1968)

Food items (in Gms)	**1-3 years**		**4 – 6 years**	
	Veg	**Non-Veg**	**Veg**	**Non-Veg**
Cereals	150	150	200	200
Pulses	50	40	60	50
Green leafy Vegetables	50	50	75	75
Other Veg.	30	30	50	50
Roots and Tubers	10		10	
Fruits	50	50	50	50
Milk	300	200	250	200
Fats and oils	20	20	25	25
Mutton, Fish & Egg		30		30
Sugger and jaggery	30	30	40	40

ANNEXURE NO. 9

Table shows approximate age for eruption of deciduous Teeth.

Teeth	Lower Jaw (Age in month)	Upper Jaw (Age month)
Central incisor	6 – 8	7 – 9
Lateral incisor	10 – 12	7 – 9
Cuspides	17 – 18	17 – 18
First molar	12 – 14	12 – 14
Second molar	20 – 30	20 – 30


समाकत बाल विकास सवा योजना
उद्देश्य
0 से 6 वर्ष की आयु के बच्चों के पोषण और स्वास्थ्य स्थिति में सुधार लाना।
बच्चों में शारीरिक, मानसिक और सामाजिक विकास की नींव डालना।
मृत्युदर, कुपोषण और स्कूल छोड़ने वाले बच्चों की दर कम करना।
सेवाएँ
अनुपूरक पोषाहार
टीकाकरण
स्वास्थ्य जाँच
SEPTEMBER


कार्यालय- जन विकास परियोजना अधिकारी, शहर-प
2
1

CODE BOOK

Sex	Male ---------- 1
	Female ---------- 2
Birth Place	Home ---------- 1
	Hospital ---------- 2
Feeding	Brest ---------- 1
	Bottle ---------- 2
	Both ---------- 3
Weaning	From 6 Months ---- 1
	6 months -1 year -2
	1 year to 2 years -3
	2 years to 3 years -4
	Than 3 years ------ 5
Family Planning	
	Adopted ---------- 1
	Not Adopted ---------- 2
Educational Status	
	II literate ---------- 1
	Up to 8^{th} ---------- 2
	Up to 10^{th} ---------- 3
	Up to 12^{th} ---------- 4
	Up to B.A. ---------- 5
	Up to M.A. ---------- 6
Income	Up to 500 ---------- 1

501 to 1000 ---------- 2

1001 to 1500 ---------- 3

1501 to 2000 ---------- 4

> 2000 ---------- 5

Religion Hindu ---------- 1

Muslims ---------- 2

Sikhs ---------- 3

Christians ---------- 4

Occupation Service ---------- 1

Business ---------- 2

Daily wages ---------- 3

Clinical Examination ----

General Appearance –

Healthy ---------- 1

Unhealthy ---------- 2

Hair

Discolouration Yes ---------- 1

No ---------- 2

Distribution Spare ---------- 1

Dense ---------- 2

Texture Thim & Silky – 1

Non Silky ---------- 2

Flag Sign Yes ---------- 1

No ---------- 2

Easy Pluckability Yes ---------- 1

No ---------- 2

Face appearance

Moon / Monkey Yes ---------- 1

No ---------- 2

Nasolabial / dissapacia yes ---------- 1

No ---------- 2

Eyes Healthy Yes ---------- 1

No ---------- 2

Lips Normal ---------- 1

		Fissure ---------- 2
		Ulcers ---------- 3
Angle of mouth		
		Normal ---------- 1
		Fissure ---------- 2
		Ulcers ---------- 3
Tounge		Normal ---------- 1
		Pale ---------- 2
		Atrophic ---------- 3
		Papillae ---------- 4
		Ulcers ---------- 5
Teeth		Caries ---------- 1
		Motted ---------- 2
		Normal ---------- 3
Gums		Normal ---------- 1
		Spongy/Bleeding ---------- 2
Glands		Normal ---------- 1
		Enlarged ---------- 2
Skin		Normal ---------- 1
		Follicular Hyperkeratosis ---------- 2
		Pellagraes Dermatosis ---------- 3
		Mosiac Dermatosis ---------- 4
		Flaky Paint Dermatosis ---------- 5
		Ecchymosis & Patchai ---------- 6
Nails		Normal ---------- 1
		Koilonycasia ---------- 2
		Clubbing ---------- 3
Sub cutaneous Tissues	Odema	Yes ---------- 1
		No ---------- 2
Subcutaneous Fat		Normal ---------- 1
		Less ---------- 2
		More ---------- 3

Musculo Skeltal System –

a. Epiphyseal Enlargement –

Yes ---------- 1

No ---------- 2

b. Beeding of Ribs Yes ---------- 1

No ---------- 2

c. Bossing of Skull Yes ---------- 1

No ---------- 2

d. Open anterior Frontelle Yes ---------- 1

No ---------- 2

e. Harrison's Sulcus Yes ---------- 1

No ---------- 2

f. Knock Knee Yes ---------- 1

No ---------- 2

g. Bow Legs Yes ---------- 1

No ---------- 2

h. Piggon Chest Yes ---------- 1

No ---------- 2

Systemic Examination (Internal System)

a. Liver ---------- Enlarged ---------- 1

b. Spleen ---------- Normal ---------- 2

Other Findings –

a. Congenital Deficits ---------- 1

b. Infectious Disease ---------- 2

Anthropometry –

Immunization Status –

a. B.C.G. – Yes ---------- 1

No ---------- 2

b. Oral Polio Yes ---------- 1

No ---------- 2

c. Measels - Yes ---------- 1

No ---------- 2

Therapeutic Coverage

Vitamin A – 1

Vitamin D – 2

Vitamin B,C – 3

Iron – 4

FOOD HABITS

Morning Milk & Eggs – 1

Veg. & Chaoaties –2

Others – 3

Afternoon

Dal Non Veg / Eggs – 1

Rice, Chapati, Veg. ----2

Other ----------3

Evening

Milk & Fruits ---------- 1

Snacs & Tea ---------- 2

Tea Only ---------- 3

Night

Dal Veg. Chapati ---------- 1

Veg. Chapati ---------- 2

Chapati with chatney ---------- 3

No. of Days in a month Received –

Food Habits Veg ---------- 1

Non Veg. ---------- 2

Veg with Egg. ---------- 3

Dietary pattern of children

Twice a day ---------- 1

Thrice a day ---------- 2

Four times a day ---------- 3

Any time ---------- 4

Milk Consumption

.5 Lt. ---------- 1 Twice ---------- 1

250 Ml ---------- 2 Once ---------- 2

100 ml ---------- 3 No ---------- 3

< 100 ml ---------- 4 Ocassionally ---------- 4

Green Veg.

100 gm. ---------- 1 Twice ---------- 1

75 – 100 ---------- 2 Once ---------- 2

	50 – 75 ---------- 3	Occassionally ---------- 3
	25 – 50 ---------- 4	
	< 25 ---------- 5	
	No ---------- 6	

Cereals

	Four times ---------- 1	250 gm. ---------- 1
	Thrice ---------- 2	200 – 249 ---------- 2
	Twice ---------- 3	150 – 199 ---------- 3
	Once ---------- 4	100 – 149 ---------- 4

Pattern of Disease Sufferred From

	Yes ---------- 1	Once ---------- 1
	No ---------- 2	Twice ---------- 2

Than Twice ---------- 3

Safe Water Supply

Hand Pump ---------- 1

Tap Supply ---------- 2

Both ---------- 3

House Hold Survey ----------

Joint family ---------- 1

Nuclear Family ---------- 2

Three Generational ---------- 3

STUDY OF NUTRITIONAL STATUS OF PRE-SCHOOL CHILDREN FROM 3-6 YEARS OF AGE INTEGRATED CHILD DEVELOPMENT SERVICES (ICDS) IN MORADABAD DISTRICT

Sl. No.	Date of Survey
Name :	Place of Survey
Age:	Village/Ward
Sex:	Block/City

D.O.B.:	Name of Anganwadi
Birth Order:	Total No. of Beneficiaries:
Birth Place:	Address:
Place of Delivery:	
Breast Feeding/Top Feedng	
Weaning Practice:	
Educational Status:	Income:
Father:	Religion:
Mother:	Occupation:
Family Plannin:	
Status:	
Father:	
Mother:	

1. CLINICAL EXAMINATINO:

1.	General Apearance			Healthy/Unhealthy
2.	Hair:			
	a) Discolouration:			Yes/No
	b) Distribution			Spare/Dense
	c) Texture			Thin & silky/non Silky (Normal)
	d) Flagsign			Yes/No
	e) Easy Pluckability			Yes/No
3.	Face:	a)	Apearance Moonface/ Monkey face	
		b)	Naso - labial dyssebacia	Yes/No
4.	Eyes	a)	Conjunctive	Xerosis/Bitor's Spots
		b)	Cornes	Xerosis/Kerato malacial/opacity
		c)	Photophobia	Yes/No
5.	Lips			Normal/Fissures/Scare
6.	Angle of mouth			Normal/Excoriations & fissures/ulcer
7.	Tongue			papillae/Apthous Uleers
8.	Teeth			Caries/Mottled/Normal
9.	Gums			Normal/Spongy bleeding

10.	Glands		Normal/enlarged (unilateral) Bilateral painless
11.	Skin	Normal/follicularhyper keratosis/ Pellagraes Dermatosis/Mosaic Dermatosis/Flaky paint Dermatosis/Eechymosis and Petechiae	
12.	Nails	Normal/Koilonychia/clubbing	
13.	Sub cutaneous tissues		
	Oedema		Yes/No
	Subcuttaneous Fat		Normal/Less/more
14.	Musculo skeletal system:		
	a) Epiphyseal Elargement		Yes/No
	b) Beading of Ribe		Yes/No
	c) Bossing of skull		Yes/No
	d) Open anterior fontenelle		Yes/No
	e) Harrison's Sulcus		Yes/No
	f) Knock – knee		Yes/No
	g) Bow legs		Yes/No
	h) Pigeon chest		Yes/No
15.	Systemic Examination (Internal system)		
	a) Liver		Enlarged/normal
	b) Spleen		Enlarged/normal
16.	Other findings		Congenital defects/infectous disenases
III.	Laboratory Investigation		Hb%
IV.	Anthropometry:		
	a)	Weight (kgs.)	
	b)	Height/Length (cms)	
	c)	Circumference of chest (cms)	
	d)	Circumference of chest (cms)	
	e)	Circumference of mid-arm (cms)	
	f)	Thickness of skin, fast subcutaneous fold at triceps (cms)	
	g)	Span	
V.	Immunization Status:		
	a)	BCG I II III	

b) Oral Polio Drops I II III Doses

c) Measles

VI. Prophyfactic/therapeutic coverage:

Month: Vit A Vit A/D Vit BC, Iron & Folic Acid

VII a) Suplementary Food/Therapeutic Diet

b) Food habits : Food Consumed by the Child in the past 24/48 hrs.

Morning Evening

Afternoon Night

No. of days in a month received :

Auantity Calories Proteins

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Food Habits : Vegetarian / Non vegetarian / Vegetarian with egg.

Dietary Pattern of children : Twice a day / Thrice a day/Four times a day/ Any time.

Milk consumption : How muck milk/How Many times

Green Vegetable : How much/How many times

Cereals : Wheat Rice Maize Jwar Pulses Any other

How much

How many times

VIll. Pattern of diseases suffered :

No. of Episodes Duration

In last 1 year

a) Diarrhoea

b) Respiratory diseases

c) Skin deseases

d) Otomhoea

e) Pyodermas

f) PUO

g) Measles

IX. Nutritional Status of child (IAP – Classifications)

Normal I II III IV Degrees

X. Safe water Supply - Source

XI. Anganwadi Recreation Materials

XII. Anganwadi Equipments : Cooking, Eating, Bathing

XIII. Referal Services :

HOUSE HOLD SURVEY

1. House No. Date of Survey:
2. No. of family members Place of Survey:
3. Name of the Head of family: Ward :
4. Religion/Caste: City :
5. Type of Family: Joining/Nuclear/3 Generation
6. Total Income of the Family (Per capital Income)
7. Food Habbits
   (Oral questionnaire method)
8. Living standard:
   (a) House – Kaccha/Kaccha-Pucca/Pucca
   (b) Floor area upto 50/51-100/more than 101 in sq. ft.
   (c) Lighting : Inadequate/adequate
   (d) Ventiations : Inadequate/adequate
   (e) Sanitation :
      i) Cleanliness of house : Yes/No
      ii) Drainage of waste water: Yes/No
      iii) Live-Stock No/inside/outside
      iv) Latrine arrangements: No/Yes/Butservice Type
      Yes Non-service type