



CATCH THEM YOUNG:
INTERVENE EARLY

SETTING UP DISTRICT EARLY INTERVENTION CENTRES

Operational Guidelines

RASHTRIYA BAL SWASTHYA KARYAKRAM

Child Health Screening and Early Intervention Services under NHM

Ministry of Health & Family Welfare

Government of India

May 2014

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FOREWORD ■

The Ministry of Health and Family Welfare, Government of India is committed to improve survival outcome through early identification and management of Defects at Birth, Deficiencies, Diseases, Developmental delays including disabilities– ‘4 Ds’, and assured link to care, support, and treatment to meet these challenges.

In this regard, the initial step of deputing trained and dedicated Mobile Health Teams for screening of children from birth to 18 years of age group for selected health conditions under Rashtriya Bal Swasthya Karkyakram (RBSK) has been treaded well by the implementing States/UTs.

For accelerated implementation of the programme, the next vital step is confirmation of preliminary findings, referral support, management & follow up of screened children for which early intervention centres are to be established at the District Hospital level across the country. DEIC will be the hub of all activities, will act as a clearing house and also provide referral linkages.

Guidelines on District Early intervention Centre is aimed at providing essential information about its operationalization, processes involved, convergence, support for capacity building for DEIC staff and linking children screened for 4 ‘D’s with necessary interventions that would be made available at the district level.

I am certain that these guidelines would prove to be useful in planning and making DEIC fully functional besides building capacity of staff. State and UTs on their part would ensure quality roll out of this center and monitor its progress closely.

I hope that the State and UTs would take up this programme in real earnest so that we together secure and promote the health of our children.

Anuradha Gupta

Additional Secretary & Mission Director

National Health Mission

Ministry of Health & Family Welfare

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New Delhi

May 2014

PREFACE ■

With an annual birth cohort of almost 27 million, India is expected to have the largest number of infants born with birth defects. However, uniform surveillance of birth defects was still unavailable. Common health problems such as hearing defects, visual impairments, respiratory disorders, micronutrient deficiency and development delay starting in early childhood years adversely affect a significant percentage of children.

Comprehensive Child Health screening and management as a public health approach assures a package of health services for all children from birth to 18 years of age under the Rashtriya Bal Swasthya Karyakram (RBSK) initiative. The programme will reach infants born at public health facilities and at home - a significant proportion of the annual birth cohort. Nearly 160 million preschool children till five years of age, 13.2% of total population, registered in Anganwari centres and sub centres have now been brought under this comprehensive programme. Further scope of the existing School Health programme is augmented to systematically reach 360 million children of 6-18 years. A higher proportion of children from the last group are now enrolled in Government and aided schools.

Early identification of various health conditions and assured link to care, support and treatment, under RBSK introduces an equitable child health care approach. In the long run the programme aims to reduce out of pocket expenditure of the poor and the marginalized, reduce burden of diseases, build health awareness among people and also improve the professionalism in service delivery. Finally this will also lead to promotion of health among children.

The Guideline on District Early Intervention Center (DEIC) is an instrument for operationalization of a center envisaged at the district level along with capacity building of staff posted at these centers for effective implementation of a programme of such magnitude. The guidelines dwell on various aspects required to make a DEIC fully functional and have been thoroughly reviewed by the expert group.

I am certain that States/UTs will accord adequate priority to effectively address Defect at Birth, Diseases, Deficiencies, Developmental delays including Disabilities – '4 Ds' among children for optimum health outcomes of this nation.

Dr. Rakesh Kumar

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May, 2014

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ABBREVIATIONS ■

ADL	Activities of Daily Living
AWC	Anganwadi Center
AWW	Anganwadi Worker
ANM	Auxillary Nurse Midwife
ASHA	Accredited Social Health Activist
CHC	Community Health Center
CHD	Congenital Heart Disease
CTEV	Congenital Talipes EquinoVarus
DDH	Developmental Dysplasia of the Hip
DEIC	District Early Intervention Center
DH	District Hospital
DLHS	District Level Household Survey
EI	Early Intervention
FRU	First Referral Unit
HBNC	Home Based Newborn Care
IEC	Information Education and Communication
IFA	Iron Folic Acid
IMNCI	Integrated Management of Neonatal and Childhood Illnesses
IMR	Infant Mortality Rate
JSSK	Janani Shishu Suraksha Karyakram
JSY	Janani Suraksha Yojana
LBW	Low Birth Weight
MHT	Mobile Health Team
MDG	Millennium Development Goal
MOHFW	Ministry of Health and Family Welfare
MOHRD	Ministry of Human Resource & Development

MOSJE	Ministry of Social Justice & Empowerment
MOWCD	Ministry of Women & Child Development
NBCC	Newborn Care Corner
NBSU	Newborn Stabilization Unit
NFHS	National Family Health Survey
NIPi	Norway India Partnership Initiative
NMR	Neonatal Mortality Rate
NRC	Nutrition Rehabilitation Center
NHM	National Health Mission
NSSK	Navjaat Shishu Suraksha Karyakram
PHC	Primary Health Center
PIP	Programme Implementation Plan
PNC	Post Natal Check-up
RBSK	Rashtriya Bal Swasthya Karyakram
RCH II	Reproductive and Child Health Programme Phase II
RHD	Rheumatic Heart Disease
ROP	Retinopathy of Prematurity
RSBY	Rashtriya Swasthya Bima Yojana
SAM	Severe Acute Malnutrition
SDH	Sub District Hospital
SNCU	Special Newborn Care Unit
SRS	Sample Registration System
SSA	Sarwa Shiksha Abhiyaan
TOT	Training of Trainers
VHND	Village Health and Nutrition Day

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DISTRICT EARLY INTERVENTION CENTER (DEIC)

(A novel concept for Early Childhood Intervention)

*‘It’s not a drug, it’s not a vaccine, and it’s not a device.
It is a group of therapists working together, solving problems
and enhancing capabilities’*

ADAPTATION FROM RICHARD HORTON, LANCET EDITOR

INTRODUCTION AND RATIONALE

1

Following the initial step of screening of children from birth to 18 years of age group for selected health conditions including **Defects at Birth, Deficiencies, Diseases & Developmental delays including disabilities** under Rashtriya Bal Swasthya Karkyakram (RBSK) through trained and dedicated Mobile Health Teams, the next vital step is confirmation of preliminary findings, referral support, management and follow up. Under RBSK, these activities viz. confirmation, management, referral, tracking & follow-up, needs to be planned according to the age group of the child.

The early intervention centers are to be established at the District Hospital level across the country as District Early Intervention Centers (DEIC). The purpose of DEIC is to provide referral support to children detected with health conditions during health screening, **primarily for children up to 6 years of age group.**

A team consisting of Pediatrician, Medical officer, Staff Nurses, Paramedics will be engaged to provide services. There is also a provision for engaging a manager who would carry out mapping of tertiary care facilities in Government institutions for ensuring adequate referral support. The funds will be provided under NHM for management at the tertiary level at the rates fixed by State Governments in consultation with Ministry of Health & Family Welfare.

Thus, the DEIC will be the hub of all activities, will act as a clearing house and also provide referral linkages.

The Referral and Management Matrix is as under:

HEALTH CONDITION	CONFIRMATION	REFERRAL FROM	MANAGEMENT	TRACKING & FOLLOW UP
Defect at Birth	DEIC	DEIC	Tertiary Hospital	DEIC
Deficiencies (upto 6 years)	PHC/CHC	*	CHC/DEIC	DEIC
Deficiencies (>6 years)	PHC/CHC	DEIC	DH/CHC/PHC	DEIC
Diseases (upto 6 years)	PHC/CHC	*	CHC/DEIC	DEIC
Diseases (>6 years)	PHC/CHC	DEIC	DH/CHC/PHC	DEIC
Developmental Delay (upto 6 years)	DEIC	*	DEIC	DEIC
Developmental Delay/Disabilities (> 6 yrs)	DEIC	DEIC	Rehabilitation Centers#	Rehabilitation Centers#
Learning Disabilities/ ADHD(between 6-9 years)	DEIC	-	DEIC	DEIC
Adolescent Specific Conditions (10-18 years)	CHC/AFHC	DEIC	AFHC/DH	AFHC

*Referred only if Surgical Intervention is required

District Rehabilitation centres or Rehabilitation units of Govt. Hospital or Govt. Aided Rehab. Centres under MoSJE for select cases (or as per the convenience of the families)

RATIONALE FOR ESTABLISHING DISTRICT AND BLOCK/ COMMUNITY EARLY INTERVENTION CENTER:

Developmental impairment is a common problem in children health that occurs in approximately 10% of the childhood population and even more among “at risk” children discharged from the sick newborn care unit. Children, disabled or non-disabled, under 6 years of age, represent a rapidly growing segment in India. Children with disabilities are often denied access to appropriate services. According to the National Sample Survey Organization (NSSO 2002), the total number of disabled population in India is approximately 1.85 crores (1.8% of the population), however the actual estimates may be higher.

The idea behind early intervention is to intervene early and minimize disability. Once the disability is already established then the intervention would include enhancement of child development for the child to reach the highest potential for the child possible and prevent progression to handicap that may arise from activity limitation.

Research has proved that the period from birth to 6 years are the most critical years for all children. This is especially true for children with developmental delay. Therefore, it stands that early identification and early intervention programs can significantly improve the quality of their lives. Such programs will work towards these children achieving their maximum potential and thereby promoting their early inclusion into the mainstream.

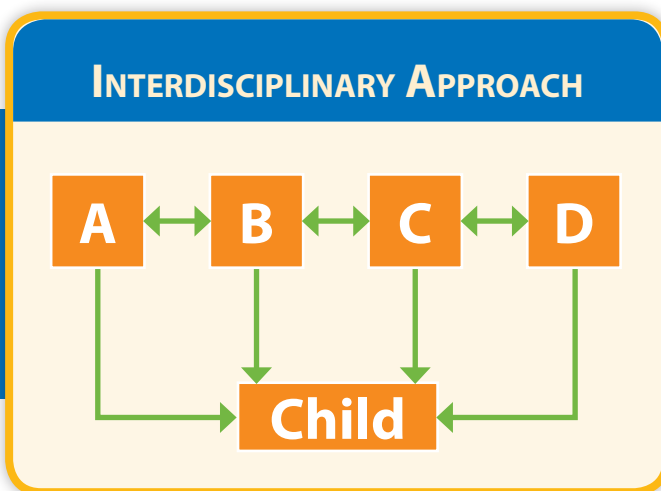
The importance of early intervention can never be over-emphasized. In the postnatal years, the growth and development of the child is at its greatest in the first two to three years. It is during this first phase of cognitive development when the underpinnings of intelligence and behavior begin to evolve. Additionally, plasticity, the ability of the brain to affect structural and functional changes caused by external and internal influences is at its peak in the birth-2 year period. The malleability of the developing brain at this stage makes it possible to bring about these changes. If the child misses this opportunity, further learning will be slow or inadequate.

Developmental intervention requires an **interdisciplinary approach** of a multidisciplinary team placed under one roof. However there are very few centers in India which provide such services but even most of these centers do not have all the components required for evaluation and intervention in a holistic way.

The medical colleges have EYE, ENT, Psychiatry, Physical medicine departments but neither the instruments nor the training of the specialist are available to address the problems of the most critical period of child development i.e. the first three years of life. The paramedical staffs like Optometrist, Audiologist, Clinical Psychologist, and Physiotherapist are not trained to handle the children from birth to 6 years in a comprehensive way. In a typical medical college the parents are forced to move from one place to another place to access the services. However in absence of quality services for such small children they are advised to come later when they become older, thus missing the critical period of development. The adverse effect of failing in early identification and early intervention can lead to irreversible developmental damage. This

adds to the existing stress of the family and even the diagnosis, evaluation and advices from various OPDs are at times conflicting, confusing and contradictory.

At this point of time, when India is making sincere efforts to strengthen Health Systems for Publicly provided care, we also have more SCNU survivors who are “at-risk” for developmental impairments, our aim is to have more accessible health facilities with infrastructure and resources for interdisciplinary evaluation and interventions to be delivered under one roof.



The need of the hour is to bring together trained professionals from different disciplines, who had been working in silos so far, in the intervention setting to learn from one another in meeting the needs of the children. The usual concern is the scarcity of such trained persons that have proper qualification recognized by the Rehabilitation Council of India (RCI)/Medical Council of India (MCI). The problem is not as such on the supply side of these experts but to connect the supply side to the demand side. (<http://www.rehabcouncil.nic.in/forms/Sublink2.aspx?lid=847>)

A pool of resource professionals and trained manpower can emerge from the several National Institutes with relevant courses for Early Intervention. The availability of domain specific experts at National level makes it feasible to address the shortage of qualified manpower through a multipronged approach which included: (a) short term, domain-specific, “training the trainer” courses (b) Refresher courses/continuing professional education for existing personnel (District Level & Medical College Hospitals) (c) Domain-specific technical training (d) Skill transfer and task sharing between cadres of supportive/paramedical personnel.

Ideally, capacity building exercises should be the focus of first phase of setting up of DEIC (apex centres at district level).

National institutions like National Institute for the Mentally Handicapped, Secunderabad which is running courses on “Masters in Early intervention” and “One year Diploma in Early Intervention” recognized by the RCI (Rehabilitation Council of India) for the trained manpower. Students from “All India Institute of Speech and Hearing” Mysore are available after their Graduate and Post-Graduate courses on Hearing /Speech and Language Pathology.

These institutions are also willing to impart short term training/refresher courses to those who are trained elsewhere. There are seven national institutes which have been established under the Ministry of Social Justice and Empowerment (MoSJE) which are imparting quality services to the children with developmental issues apart from creating these specialized human resources through running different level of professional courses.

Hence, keeping the above in view, there arises an acute need to establish a center at the district level with age appropriate and domain specific equipment's and with specific trained domain specialists such as Dentist, Optometrist, Audiologist, Psychologist, Physiotherapist etc. Such a center would act as the apex center of the district.

Considering the entire scenario, the Ministry of Health & Family Welfare launched the Rashtriya Bal Swasthya Karyakram (RBSK) which ensures the comprehensive services under one roof with a holistic approach to children with special needs. Under RBSK, Early intervention centers at district level will provide the much needed early intervention services which will be easily approachable, adaptable, user friendly and above all cost effective. After screening and identification of any of the 4Ds i.e. Defects at Birth, Deficiencies, Diseases and Developmental delays including disabilities, the cases referred to DEIC will be assessed, investigated, evaluated and EI planned and executed in a comprehensive manner. It is envisaged that the DEIC will be equipped with all dedicated health professionals, materials, tools, etc. to execute the activities. Besides this, plans are to be initiated to carry the intervention in the community with effective percolation of the services to the nearest community center. It is a vital understanding that this plan will be executed with linkages established with:

a. Ministry of Social Justice & Empowerment (MoSJE)

Special Education services:-

- School age groups from 6-16 years
- Pre-vocational (16-18 years)
- Vocational (18 and above)

b. Ministry of Human Resource & Development (MoHRD)

c. Ministry of Women & Child Development (MoWCD)

Thus, District Early Intervention Services are needed to support children in a holistic manner addressing Defects at Birth, Diseases, Deficiencies and those with developmental delays or Disabilities or Neuro-behavioral problems or children "at risk" for disabilities. These are common problem of child health occurring in 10 % of the childhood population and would require integrated services from birth to school entry, i.e. Birth to 6 years including also the evaluation and management of coexisting diseases and deficiencies all under the same roof.

DEIC would also act as the training center for multi-skilled community worker. The DEIC will also be the resource and center of training for different levels of HRD.

DEIC would also help in operationalization of Early Intervention Services at the blocks (Block-EIC)

with help of multi-skilled community workers and provide supportive supervision and thereby enhancing the service provision, creating awareness in the community and taking effective steps in prevention of developmental delays & disabilities in young children.

But firstly there is need to establish the DEIC with equipment's and specialists in each of the district headquarters so as to do justice to the referral cases from the periphery. It would be important to mention here that more than 600 districts in the country have functional SNCUs which are major supply side of the target group.

Children referred from periphery will be provided basic services at the block level. Multitasking community personnel trained in more than one developmental domain (multiple domains) will provide those services. This is an important approach but requires two fundamental things to run it effectively and safely:

1. The diagnosis needs to be reasonably established at first by medical experts.
2. If the Multi -tasking team is in doubt there should be a higher center with domain specific experts to allow expert advice in that domain. These professionals also must get periodic experience in a higher center to sharpen their skills but must serve the children near to their home with a family centered approach either at the community level or at the Block level.

GOALS AND SERVICES OF A DEIC

2

THE BROAD GOALS AND SERVICES FOR DEIC INCLUDE:

- A. SCREENING OF CHILDREN FROM BIRTH-18 YEARS FOR 4D'S
- B. EARLY IDENTIFICATION OF SELECTED HEALTH CONDITIONS
- C. HOLISTIC ASSESSMENT
- D. INVESTIGATIONS
- E. DIAGNOSIS
- F. INTERVENTION
- G. REFERRAL
- H. PREVENTION
- I. PSYCHO-SOCIAL INTERVENTIONS

DEIC should be aiming at *early detection and early intervention so as to minimize disabilities among growing children. WHO has stated that defect or developmental delay leads to functional disability and these functional disability in turn lead to handicap if not addressed adequately.* The burden of this handicap is borne by the family and also by society. DEIC should aim at detection of defect and minimize disability through intervention.

Medical services and professionals rendering such services are the best entry point for such activity because of general acceptance across section of society for such conditions. Social, educational, vocational and economic rehabilitation services should then work in tandem for maximizing the effect.

***For maximizing the efficacy of services to be provided by the DEIC, the States/UTs must carry out the resource mapping of all related services & service providers and should be made available at the DEIC.**

SERVICES TO BE PROVIDED BY A DEIC:

A. CORE SERVICES:

- **Medical services** – for diagnostic or evaluation purposes. Medical treatment of children suffering from diseases and deficiencies. (**Doctor: Pediatrician/ Medical officer**)
- **Dental services** – for problems of teeth, gums and oral hygiene in children from birth to 6 years esp. "Early Childhood Caries" (**Dentist**)

- **Occupational therapy & Physical therapy** – services that relate to self-help skills, adaptive behavior and play, sensory, motor, and postural development i.e. services to prevent or lessen movement's difficulties and related functional problems. Sensory Integration, oro-motor and feeding difficulties. **(Physiotherapist/Occupational therapist)**
- **Psychological services** – administering and interpreting psychological tests and evaluation of a child's behavior related to development, learning and mental health as well as planning services including counseling, consultation, parent training, behavior modification and knowledge of appropriate education programs. **(Rehabilitation Psychologist/Clinical Psychologist)**
- **Cognition services** – identifying cognitive delays and providing intervention to enhance cognitive development, adaptive and learning behaviors. **(Clinical Psychologist and Early Interventionist)**
- **Audiology** – identifying and providing services for children with hearing loss among children from birth to 6 years for both congenital deafness and also acquired deafness. **(Audiologist cum speech and language pathologist)**
- **Speech-language pathology** – services for children with delay in communication skills or with motor skills such as weakness of muscles around the mouth or swallowing. **(Audiologist cum speech and language pathologist)**
- **Vision services** – identification of children with visual disorders or delays and providing services and training to those children. **(Optometrist)**. Retinopathy of Prematurity (RoP) – for premature or preterm children. **(Optometrist and ophthalmologist)**
- **Health services** – health-related services necessary to enable a child to benefit from other early intervention services. **(Doctor)**
- **Lab services** – for routine blood investigations among children to begin with but slowly would develop services for confirming congenital hypothyroidism, Thalassemia and Sickle cell anemia or other inborn error of metabolism depending on the prevalence of such diseases. **(Lab technician)**
- **Nutrition services** – services that help address the nutritional needs of children that include identifying feeding skills, feeding problems, food habits, and food preferences. **(Nutritionist/ Dietician or Nursing staff)**
- **Social support services** – preparing an assessment of the social and emotional strengths and needs of a child and family, and providing individual or group services such as counseling. Socio economic evaluation of the family and linkages with the need based social services. **(Social Worker /Psychologist)**
- **Psycho-social services** – includes designing learning environments and activities that promote the child's development, providing families with information, skills, and support to enhance the child's development. **(Special Educator)**
- **Transportation and related costs** – providing or reimbursing the cost of travel necessary to enable a child and family to receive any tertiary level services. **(DEIC Manager)**
- **Service coordination** – **(DEIC Manager)**

- **Referral services following referral guidelines** – children who are diagnosed for any of the selected health conditions would receive follow-up referral support and treatment including surgical interventions at tertiary level. **(DEIC Manager)**
- **Documentation and maintenance of case records, data storage for service delivery, follow up and research.** **(Data entry operator)**
- **Training and enhancing capability** of multi-skilled community personnel in the district and helping in operationalizing of early intervention services at blocks and in the community and provide supportive supervision and domain specific referral services in the community. **(DEIC core Intervention team)**

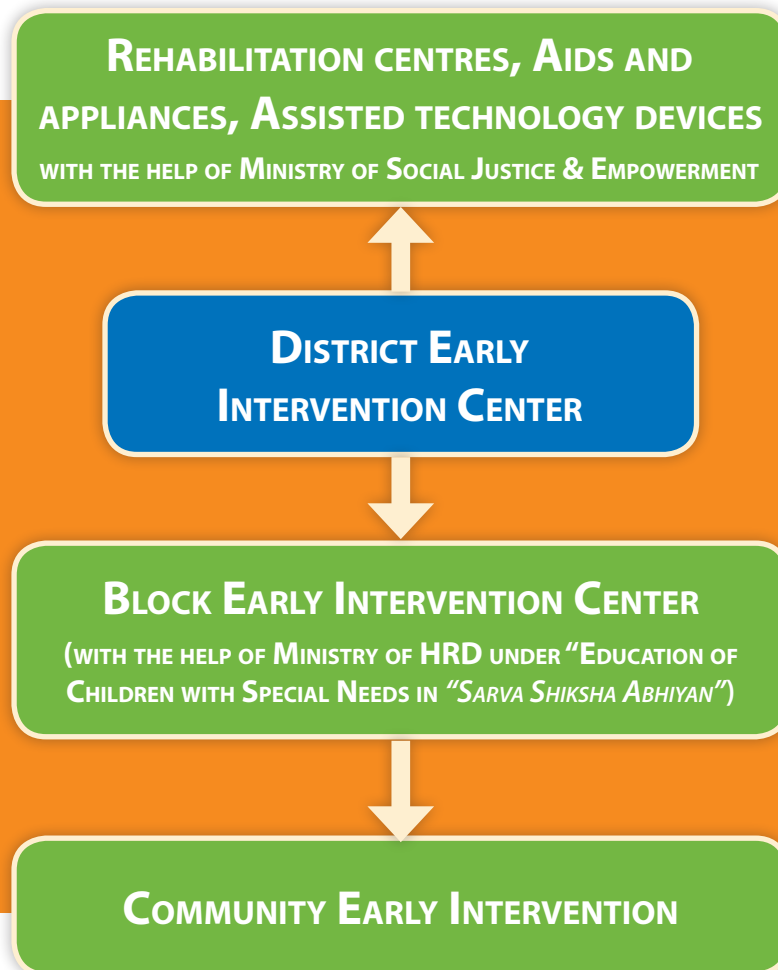
B. SUPPLEMENTARY SERVICES:

- **Disability certificates :** with other members of the disability board **(DEIC Manager)**
- **Liaison** with other departments under various ministries: **(DEIC Manager) e.g.**

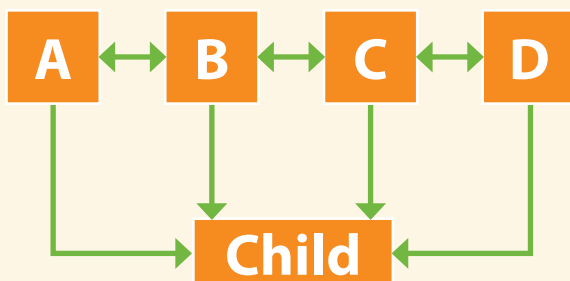
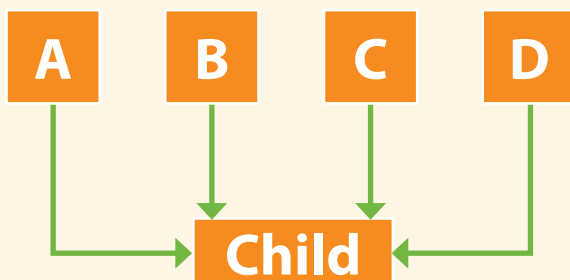
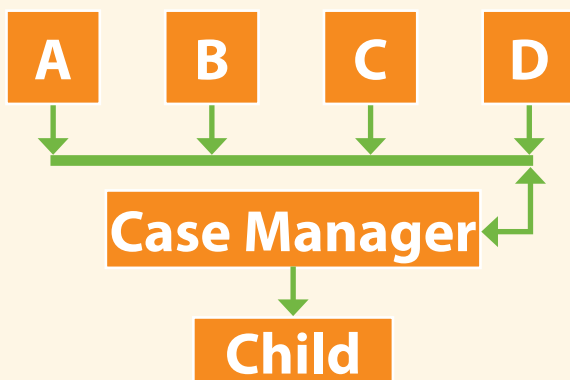
A) **Disability division of Ministry of Social Justice and Empowerment (MoSJE):**

- a) **Assistive technology devices and services** – equipment and services that are used to improve or maintain the abilities of a child to participate in such activities as Hearing, Seeing (Vision), Moving, Communication and learning to compensate with a specific biological limitation.
- b) **Special Education services** for School age groups from six to sixteen, Pre-Vocational training for age 16-18 years and Vocational training for the age of 18
- c) **Aids and appliances:** Assistance to Disabled Persons for Purchase / Fitting of Aids and Appliances under the “Assistance to Disabled Persons for Purchase/ Fitting of Aids/Appliances (ADIP)” Scheme, with the objective of assisting needy persons with disabilities in procuring durable, sophisticated and scientifically manufactured standard aids and appliances that can promote their physical, social and psychological rehabilitation.
- d) **Rehabilitation of the differently abled child above 6 years of age** at the Rehabilitation centers in that state e.g. District Disability Rehabilitation Centers (DDRCs) for the districts where they are functional or Composite Regional Centers (CRCs) or National Institutes/Regional Centers etc.
- e) **Family support services** esp. for children having Autism, Cerebral palsy, Mental retardation, multiple disabilities. These Services would be to support those children who would require long term support and would focus on supporting the child in their natural environments and in their everyday experiences and activities. All services would be provided using a family-centered approach, recognizing the importance of working in partnership with the family. However whenever a detailed domain specific management would be required they would be referred to the DEIC.
- f) **Guardianship**
- g) **Parent Associations**
- h) **Promoting advocacy for right-based society**

- i) **Social security's such as disability scholarship and disability pension**
- B. Linkages with **Ministry of Human Resource Development (MoHRD)**, Department of School Education & Literacy under "Education of Children with Special Needs in *"Sarva Shiksha Abhiyan"*"
 - a) Provide inclusive education and support to children from age of 6 -14 years
 - b) Provide Aids and appliances to school going children with special needs and support of trained special educators to these children.
 - c) To provide home based educational services to children with special needs on need basis.

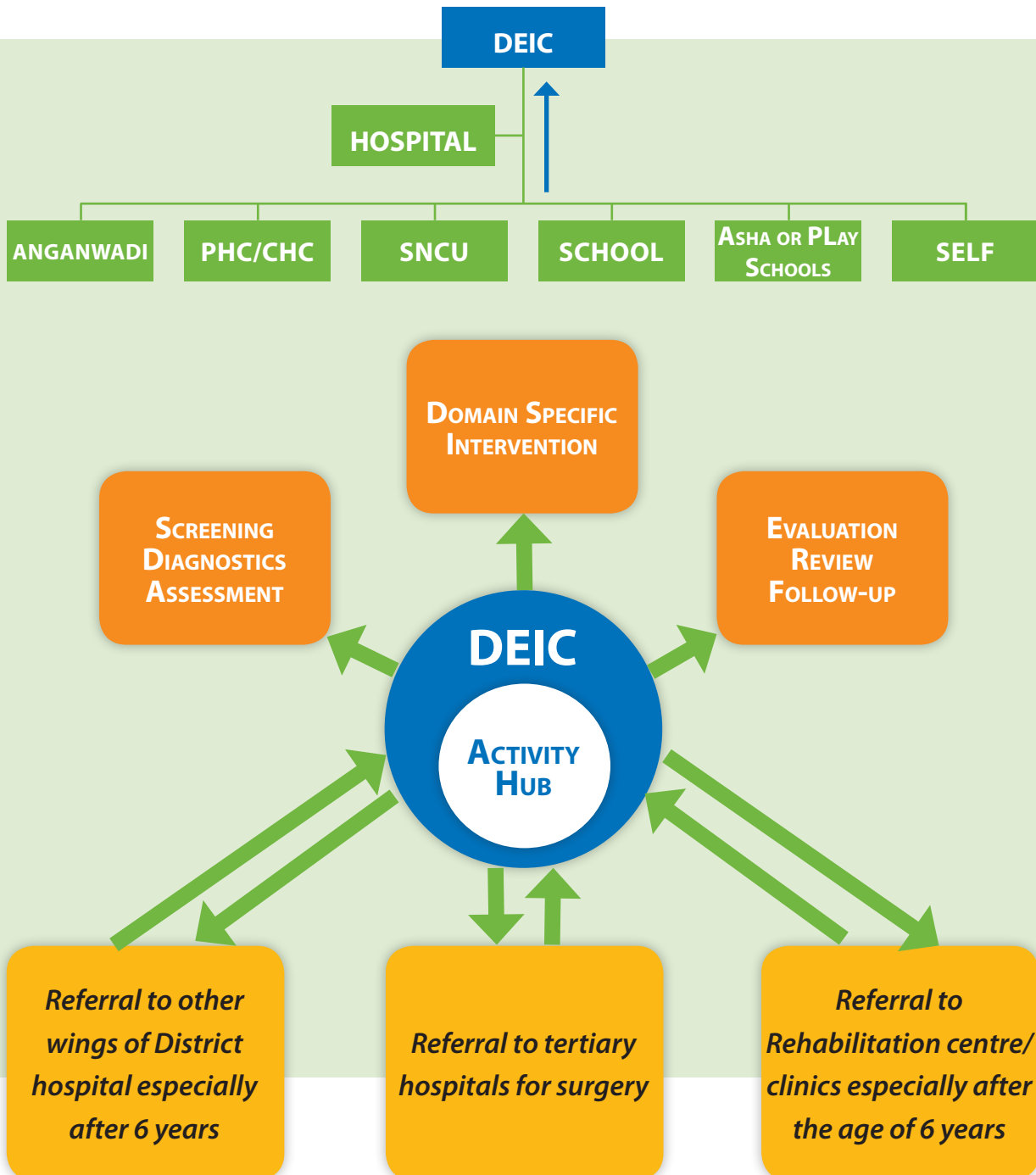


At DEIC it should be Interdisciplinary approach. At Block EIC, it should be Trans-disciplinary approach. One should not have the typical OPD model i.e. multidisciplinary approach esp. for children <6 years as it confuses the parents and the child would not cooperate. Further, the space and design for examining children up to 6 years is very different as compared to older children, hence we cannot share the same OPD space. These children require space to explore and move.

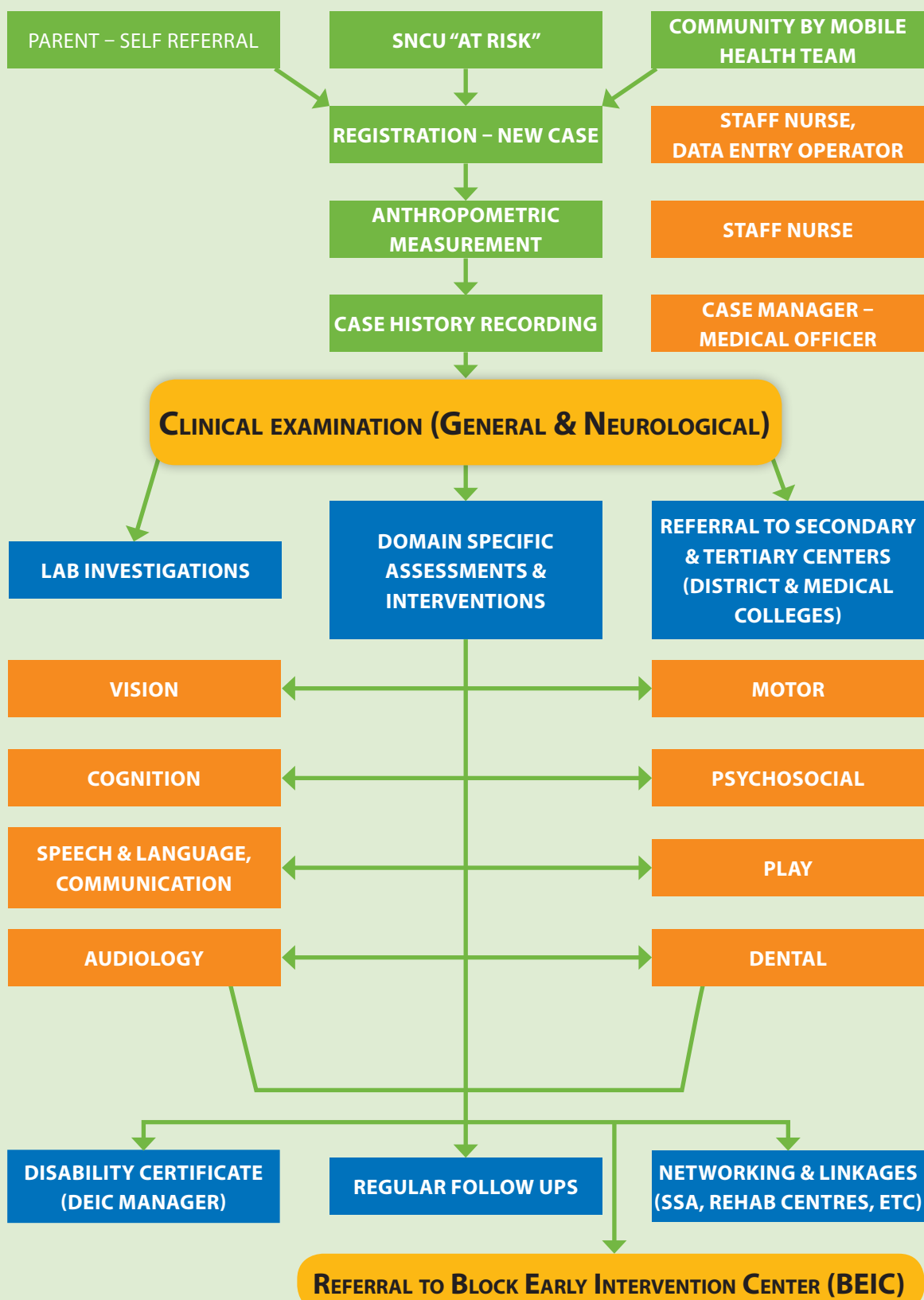
INTERDISCIPLINARY APPROACH**MULTIDISCIPLINARY APPROACH****TRANSDISCIPLINARY APPROACH**

PROCESS FLOW OF REFERRAL TO DISTRICT EARLY INTERVENTION CENTER

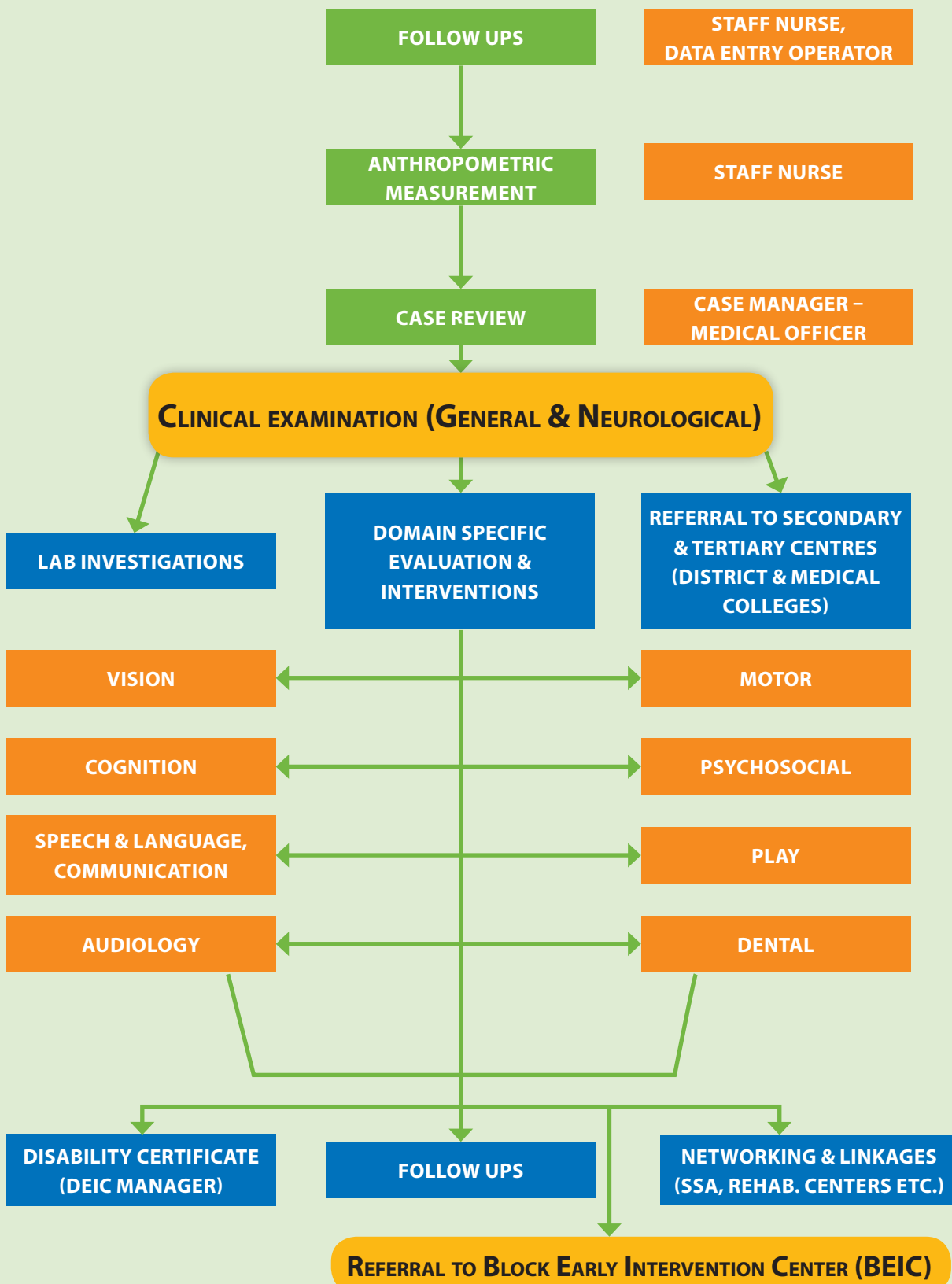
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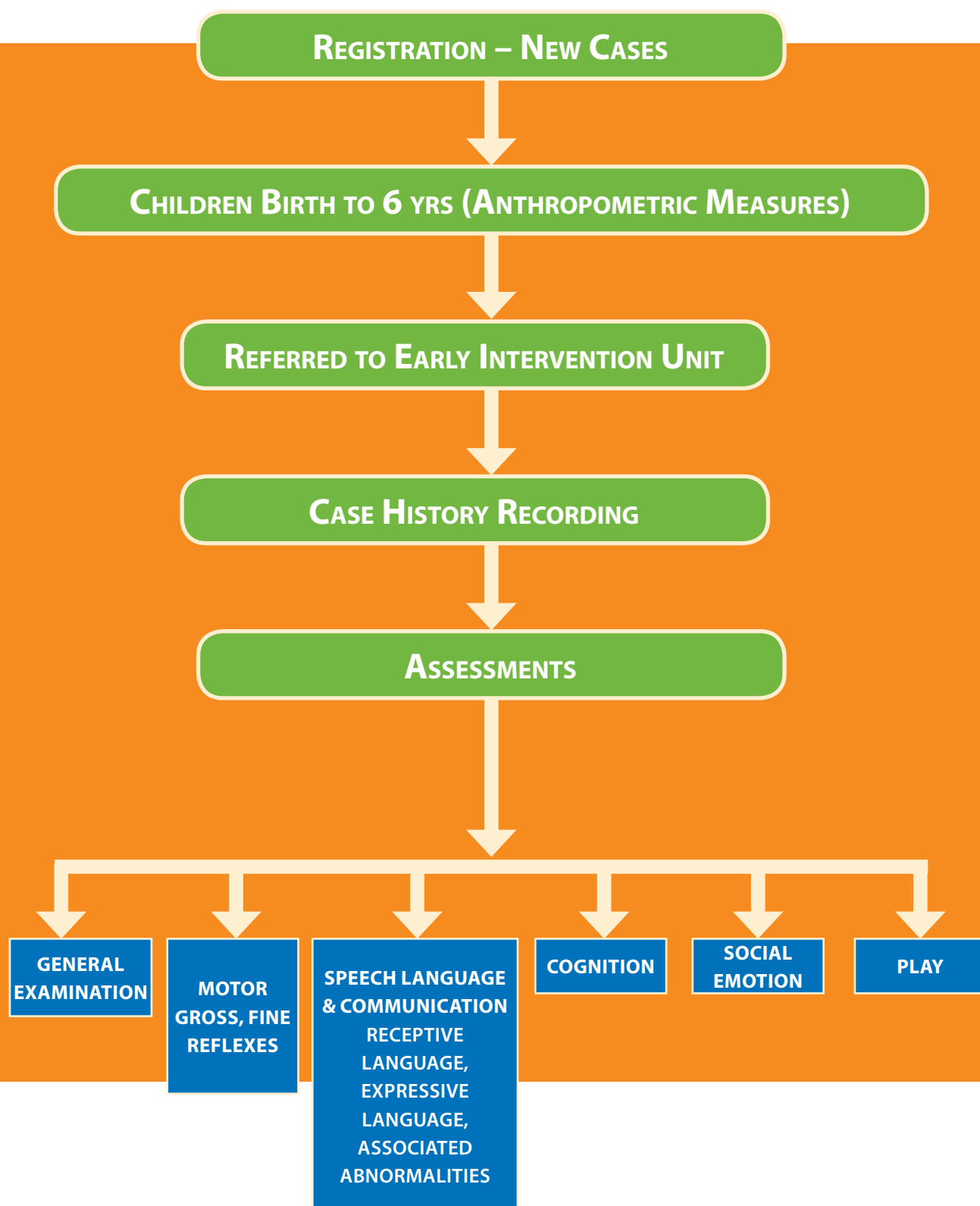
ORGANOGRAM FOR DEIC: NEW CASES



ORGANOGRAM FOR DEIC: FOLLOW-UP CASES



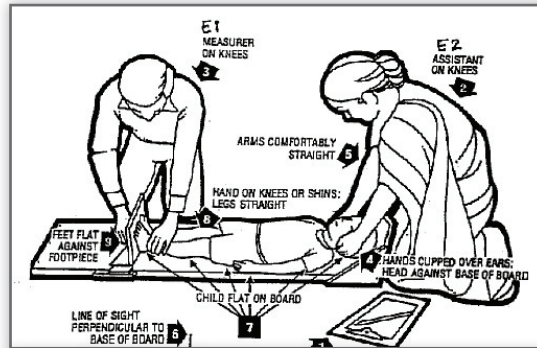
FLOW DIAGRAM OF ASSESSMENT OF CHILDREN AT DEIC



ACTIVITIES OF A DISTRICT EARLY INTERVENTION CENTER



REGISTRATION



ANTHROPOMETRY



MEDICAL EXAMINATION



DEVELOPMENT ASSESSMENT



MOTOR ASSESSMENT



SPEECH THERAPY

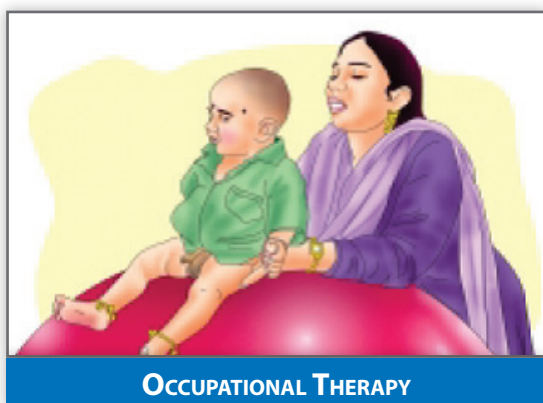


AUDIOLOGICAL TESTING

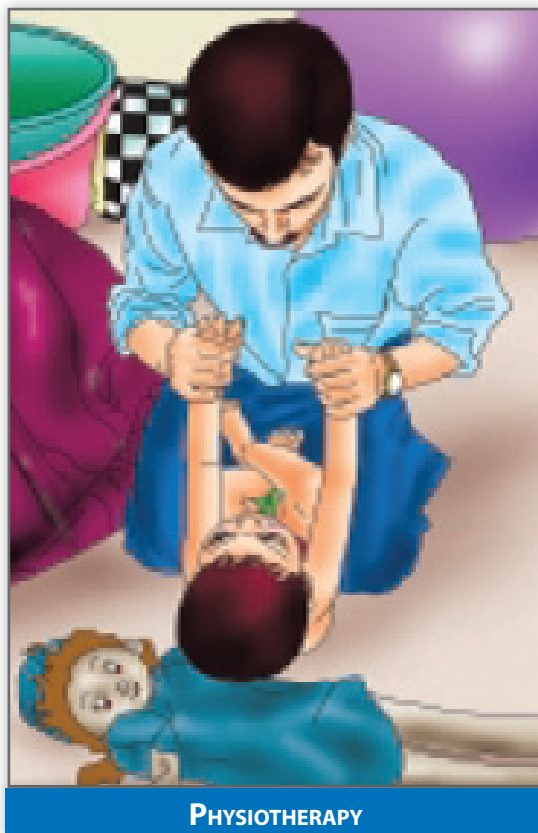
ACTIVITIES OF A DISTRICT EARLY INTERVENTION CENTER



VISION ASSESSMENT



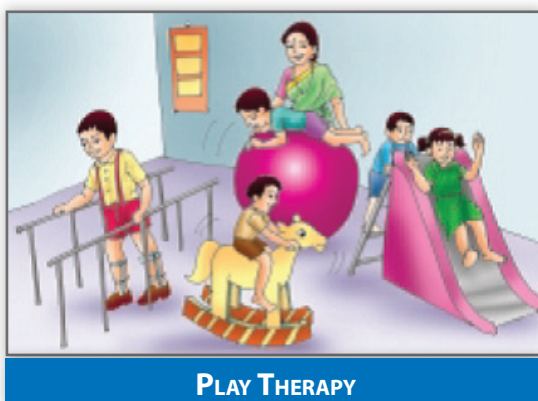
OCCUPATIONAL THERAPY



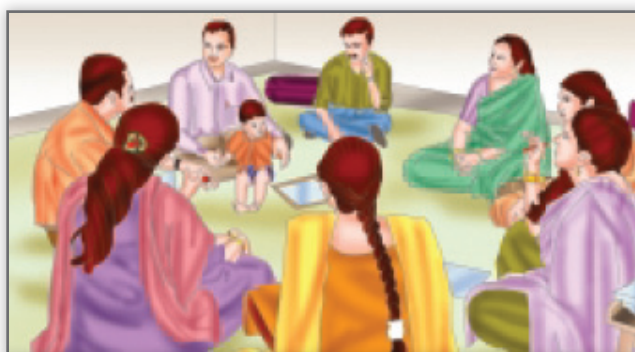
PHYSIOTHERAPY



BEHAVIOUR MODIFICATION



PLAY THERAPY



PARENT TRAINING PROGRAMMES

ACTIVITIES OF DISTRICT EARLY INTERVENTION CENTER

- i. Screening all infants discharged from Sick Newborn Care Units (SNCU) who are at-risk of developmental delays and Neuro-motor impairment
- ii. Monitor development of all infants discharged from the SNCUs to track whether their development trajectories are within normal limits up to the age of 2 years
- iii. To confirm diagnosis of the children referred for Defects at Birth, Deficiencies, Diseases & Developmental delays including disabilities, by the Mobile Health Teams, delivery points, ASHAs private medical practitioners and self-referral
- iv. To Coordinate tertiary level treatment
- v. To act as a resource center for Block Early Intervention Centers (BEIC)
- vi. Assessment, intervention and parent counseling for the children who have confirmed diagnosis of Neuro-motor impairment. Therapies will be provided here till 6 years. Any child within 6 years of age having Neuro-motor problem will be able to avail therapy services at DEICs (both referred and self-referral)
- vii. To maintain records of every child who will attend DEICs for therapies and education
- viii. Children beyond six years of age with Neuro-motor impairments will be referred for further continuation of therapy and education to the Rehabilitative and Educational institutions
- ix. To develop BCC materials and strategies for the purpose of creation of awareness of this new concept among the general public.
- x. Laboratory for the clinical and programmatic improvement through exercising evidence based approach

ESSENTIAL STEPS FOR ROLLING OUT A DEIC

4

- **I** DENTIFICATION OF SITE
- **E** STIMATION, LAYOUT AND **B** ILLING OF **Q** UANTITIES (**BOQ**)
- **I** NFRASTRUCTURE DEVELOPMENT BY NEW CONSTRUCTION/RENOVATION/ REPAIR
- **P** ROCUREMENT OF EQUIPMENT AND FURNITURE
- **P** RINTING OF GUIDELINES, TRAINING MANUAL AND STANDARD FORMS
- **R** ECRUITMENT OF **H** UMAN RESOURCES
- **C** APACITY BUILDING
- **L** IINKAGE OF SCREENING OF DEVELOPMENTAL MILESTONES THROUGH **ASHA**
- **L** IINKAGE OF SCREENING OF 4 “**Ds**” THROUGH **MOBILE** **H** EALTH TEAMS UNDER **RBSK**
- **O** PERATIONALIZATION OF **DEIC** COMPLEX AND STARTING SERVICES (**MEDICAL SERVICES, PREVENTIVE HEALTH AND IMMUNIZATION**), **GENERAL WOMEN AND CHILD SERVICES: NUTRITIONAL AND RELATED TO FEEDING OF BABIES, NEUROLOGICAL ASSESSMENT, PHYSIOTHERAPY, OCCUPATIONAL THERAPY, PSYCHOLOGICAL SERVICES, COGNITIVE DEVELOPMENT INCLUDING PLAY AND SOCIALIZATION, TESTING FOR SPEECH AND LANGUAGE, VISION AND HEARING**).
- **M** ONITORING AND SUPPORTIVE SUPERVISION THROUGH **IT** **ENABLES** SYSTEM
- **L** IINKAGE WITH TERTIARY CENTER IN A PUBLIC SECTOR
- **R** OLL OUT OF QUALITY MEDICAL AND SURGICAL TREATMENT
- **L** IINKAGE AND CONVERGENCE WITH DEPARTMENTS OF **SOCIAL JUSTICE AND EMPOWERMENT, WOMEN AND CHILD DEVELOPMENT AND HUMAN RESOURCE AND DEVELOPMENT.**

Construction rates can be accessed at

<http://cpwd.gov.in/newsitem/latestnewspdf/PAR2012.pdf>

TYPICAL DESIGN AND SECTIONS OF A DEIC

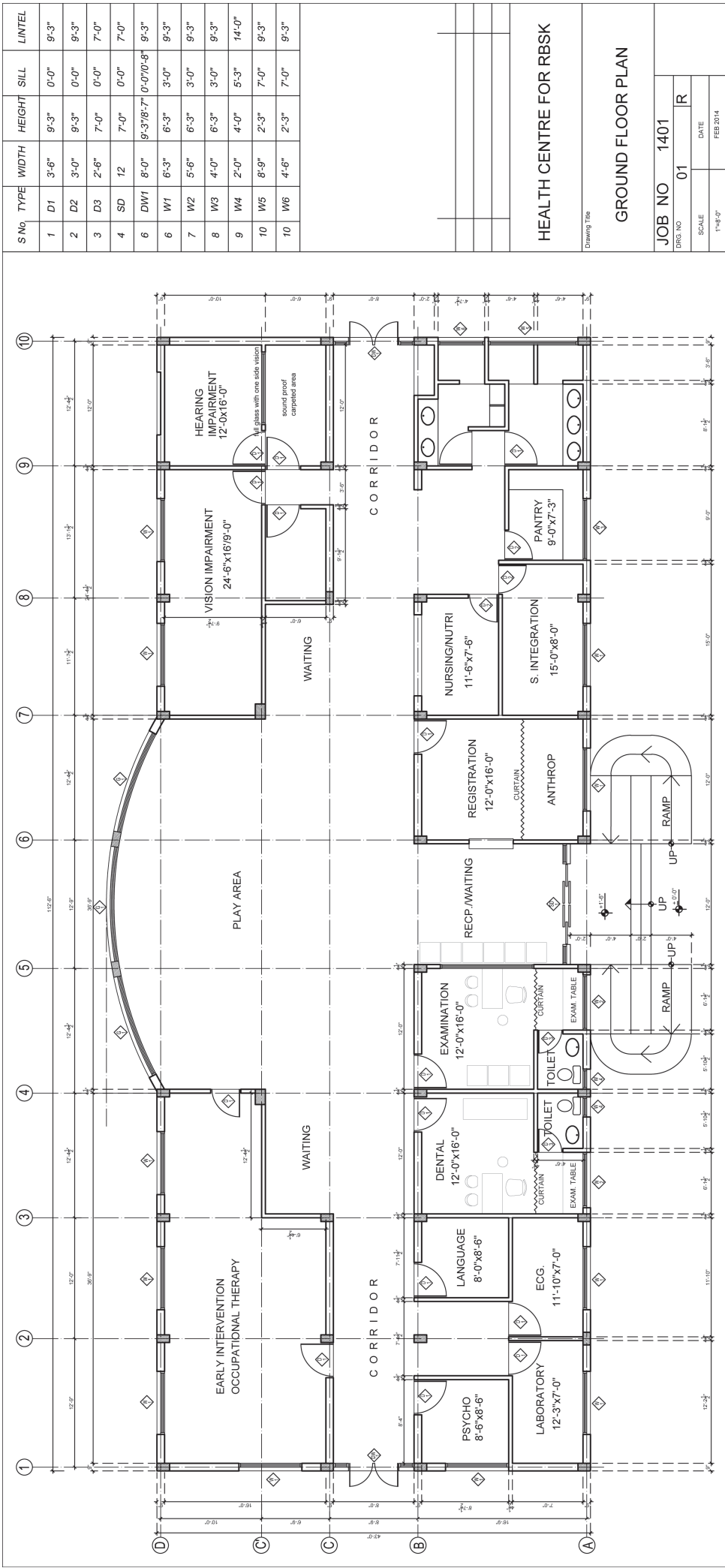
5

DEIC would comprise of the following space/ rooms (Ideal size of DEIC would be approx. 4900-5000 sq. feet):

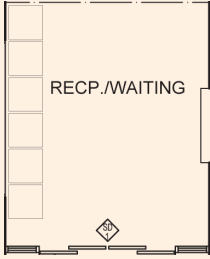
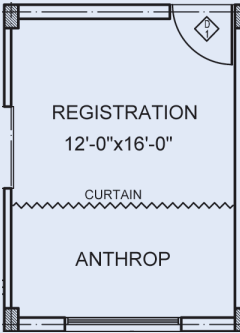
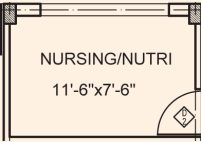
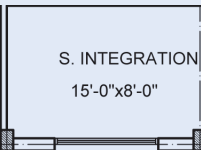
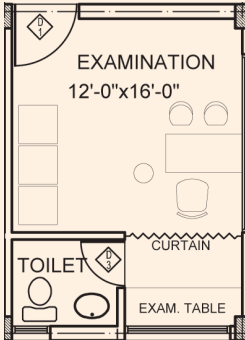
1. Waiting space
2. Play/ therapy area
3. Reception space for Registration including anthropometry
4. Pediatrician and Medical officer room
5. Dental examination room (Dental Doctor/ Dental technician)
6. Vision testing room
7. Hearing testing room: sound proof room with room having two partitions. One smaller one and separated by an one way looking glass with carpeted and double doors
8. Speech room with looking mirror extending from almost the floor to one and half feet above the level of the table
9. Early intervention room cum occupational therapy room
10. Psychological testing room
11. Laboratory (Lab tech)*
12. Nursing /nutrition room cum Feeding room
13. Sensory integration room
14. ECG cum Echo room
15. Computer room (Manager/ DEO) including Store
16. Pantry and space for drinking water and washing
17. Toilets (male, female, staff - all equipped with facilities for handicapped)
18. Open space/ corridor
19. Outer sensory garden (desirable)

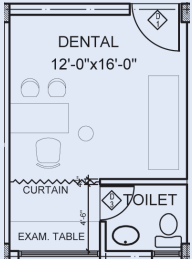
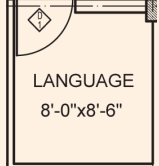
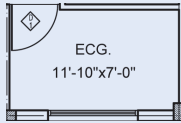
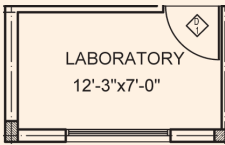
*Lab technician would be seated in the Special Newborn care Unit (SNCU) and support existing Lab tech provided under FBNC operational guidelines. All three would work to provide round the clock services to provide newborn screening services.

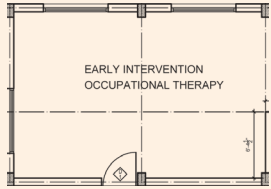
An ideal design will look as in the figure: (next page)

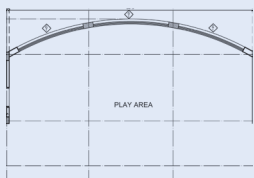
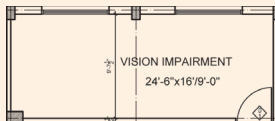
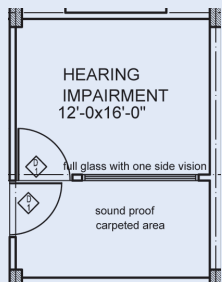
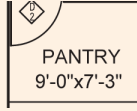
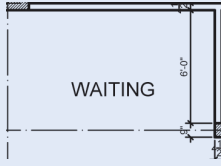
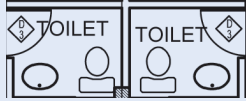
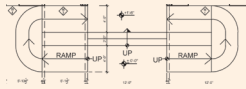


SECTIONS OF DEIC:

SECTIONS WITH DIMENSIONS	DRAWING	REQUIRED EQUIPMENT (ESSENTIAL)	REQUIRED EQUIPMENT (DESIRABLE)
Area 1– Reception/ Waiting 12'X16'		a. 6 Chairs for Patients & Attendants b. Fan c. Water Dispenser d. Speaker System	a. Air-conditioner b. TV c. Low standing bookshelf (for illustrated children's books), a toy corner/ play-zone
Area 2– Registration & Anthropometry 12'X16'		a. 1 Reception Table b. 1 Desktop c. Intercom System d. Registers e. 2 chairs for staff f. Anthropometry related equipment's g. Curtain h. Examination Table	a. Air-conditioner
Area 3 – Nursing Nutrition 11'6"X7'6"		a. Chair b. Table c. Toys d. Cupboard	a. Air-conditioner
Area 4 – Sensory Integration Unit 15'X8'		a. Refer to the Relevant chapter	a. Air-conditioner
Area 5 – Examination Room 12'X16'		a. Examination Table b. 4 Chairs c. Curtain Medical Equipment to be used by doctors: a. Stethoscope b. Sphygmomanometer c. Ophthalmoscope d. Weighing Machine/ Infantometer e. Height Scale f. Measuring tape g. Torch h. Knee Hammer i. X-Ray viewer	a. Air-conditioner

SECTIONS WITH DIMENSIONS	DRAWING	REQUIRED EQUIPMENT (ESSENTIAL)	REQUIRED EQUIPMENT (DESIRABLE)
Area 6 – Dental Room 12'X16'		a. Dental chair + Operator chair + Assistant stool b. Specified dental equipment's c. Dental X-ray	a. Air-conditioner
Area 7 – Speech & Language As- sessment Room 8'X8'6"		a. Receptive-Expressive Emergent Language Test—Third Edition (REEL-3) for 0-3 years b. LPT: Linguistic profile test for 3-9 years	a. Air-conditioner
Area 8 – ECG cum ECHO cum EEG room 11'10"X7'		a. ECG machine & leads b. Resting Table c. Air-conditioner	a. ECHO machine
Area 9 – Laboratory 12'3"X7'		a. Automated Blood cell Counter b. Microscope c. Semi-automated analyzer d. Digital Hemoglobinometer e. Lab reagents f. Testing kits g. Slides, beakers, test tubes etc h. Air-conditioner	a. ELISA Reader and Washer b. Hemoglobin HPLC system c. Fluorometer d. Hb Electrophoresis machine
Area 10 – Psychological Testing Room 8'6"X8'6"		a. Developmental assessment for Indian Infants (DASSI) b. Vineland Social Maturity Scale c. Vineland Adaptive Behavior Scales d. Bayley-III Screening Test Complete Kit Includes; Manual, Stim Book, Picture Book, Record Forms 25 Packs. e. . Developmental Screening Test (DST) by Bharat Raj f. Denver Developmental Screening Test II (DDST-II) g. Stanford Binet (Indian adaptation-Kulshreshta) h. Piagets Sensori-motor Intelligence Scale i. Piagetian Cognitive Tasks Autism Spectrum disorder: j. INCLen-ASD or Indian Scale for Assessment of Autism (ISAA) k. ADHD : Attention Deficit Hyperactivity: INCLen l. NIMHANS battery	a. Air-conditioner

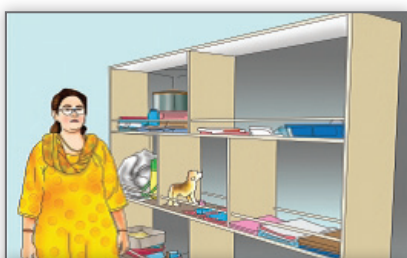
SECTIONS WITH DIMENSIONS	DRAWING	REQUIRED EQUIPMENT (ESSENTIAL)	REQUIRED EQUIPMENT (DESIRABLE)
		m. Dyslexia Early Screening Test 4-6 years (DEST) and Dyslexia Screening Test Junior (6-11 years) n. Childhood Behavioral Check-list CBCL o. Cerebral Palsy and Neuro-motor impairment: INCLIN (INDT-NMI) p. Adequate chair & tables	
Area 11 – Early Intervention Occupational Therapy 36'9"X16'		a. Therapy ball 65 cm 45cm b. Therapy mats- 6ft x3ft c. Bolster 2ft long, diameter- 8 inch 2ft long, diameter- 10 inch Small roll- 13 inch long, Diameter-3 inch d. Prone Wedge Big- Height-14 inch; Length- 31 inch, breadth 17 inches Small- Height-10 inch; Length- 26 inch, breadth 17 inches e. Balance Board f. Kaye-Walker (height-48-64 cm) g. Trampoline h. Bolster Swing i. Wooden Benches with cushion and Rexene cover j. Splints (Ankle Foot Orthosis) k. Special chairs with cut-out tray (Tailor made according to need of the child) l. Toys (for play and stimulation) Small rattles squeaky toys m. Puja bell (clapper bell) n. Soft toy o. Brush for tactile stimulation p. Theraputty q. Peg board r. Ball Pool with balls of different sizes s. Gaiters t. Thick handle spoon – straight and bent u. Plastic spoon with long handle (for babies) v. Plastic glass with rim cut on one side w. Stainless steel plates with high rim x. Spouted cups	a. Air conditioner

SECTIONS WITH DIMENSIONS	DRAWING	REQUIRED EQUIPMENT (ESSENTIAL)	REQUIRED EQUIPMENT (DESIRABLE)
Area 12 – Play Area 36'9"X16'		a. Swings b. Slides c. See Saw d. Tunnel e. Tricycle f. Locally available toys	
Area 13 – Vision Assessment Room 24'6"X16'10"		a. Torch-penlight b. Lea Symbols Visual Acuity Test & Conditioning Flash cards c. Lea puzzle d. Plastic colluder with lip e. Lea Grating Paddle f. Lang Fixation Stick or Lea g. Log mart chart or Snellen's chart h. Streak Retinoscope i. Hiding Heidi j. Near Vision Test with Lea symbol (Lea playing card set) and Near Vision Line test k. Distance Vision Test (Leas single symbols book)	a. RET cam or any other Camera to take photographs of the fundus of the newborn
Area 14 – Hearing Assessment Room 12'X16'		a. OAE screener b. ABR screener c. Audiometer d. Portable Tympanometry Instrument e. BERA with ASSR with both insert phone and head phone f. Otoscope	a. Air conditioner
Area 15 – Pantry 9'X7'3"		a. Induction cooker b. Set of Utensils	a. Refrigerator b. Microwave
Area 16 – Two Additional Waiting Area adjoining Play area 12.5'X6.5'		4 chairs for each corner	
Area 17 – Corridors			
Area 18 – Gender Specific and User-friendly toilets			
Area 19 – Ramp (disabled friendly)			

PICTORIAL DEPICTION OF AN EARLY INTERVENTION CENTER

REGISTRATION ROOM CUM ANTHROPOMETRY





RACKS FOR MATERIAL



RECORDS MAINTENANCE



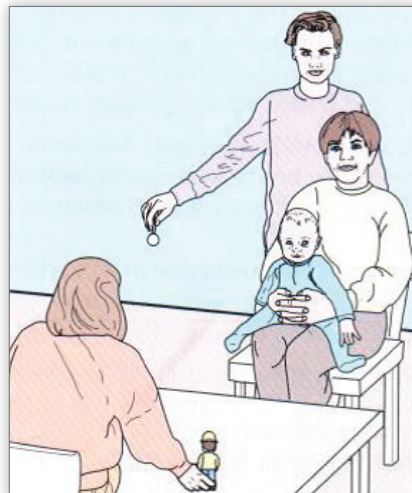
WELL VENTILATED ROOM

EARLY INTERVENTION ROOM FROM VARIOUS SIDES:
LONG MIRROR ALONG THE FLOOR TO A HEIGHT OF 4-5 FEET



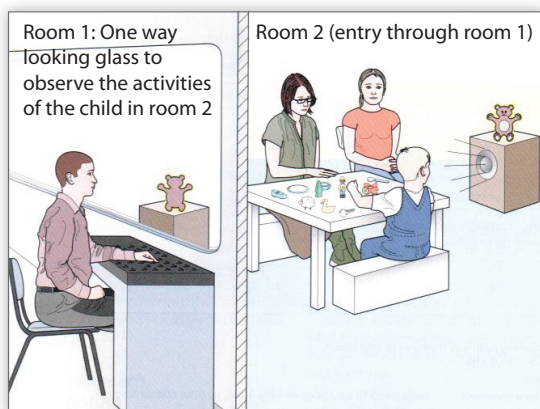


Speech discrimination testing using miniature toys to detect hearing loss in children between 18 months and 4 years of age



Distraction hearing test. The test is hard to perform reliably as babies with hearing difficulties learn to compensate by using shadows, smells and guesswork to locate the presenter. The test must be done by well-trained professionals

One way looking glass >

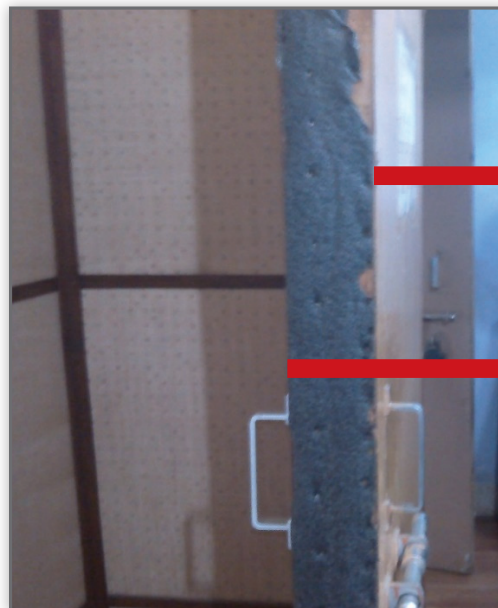


Visual reinforcement audiometry. While an assistant plays with the child, sounds of a specific frequency are emitted from a speaker. When the child turns to it, the tester lights up a toy by the speaker to reinforce the sound with a visual reward. This test is particularly useful at 10-18 months.



*Speech therapy table with attached mirror

*Sound Proof Room with carpet and with one way looking glass: View from the smaller room separated by an one way looking glass and a door from the larger room



The first door separating the corridor and the sound proof room.

The second door separating the small and the larger room with a one way looking glass at the window.

*The thick door with double handle separating the two rooms. Both are sound proof room.

*The larger room separated by a door from the smaller room. Once the door is closed one can look through the one way looking glass





PLAY AREA (HOSHANGABAD DEIC)



ROOM WITH PSYCHOLOGICAL TOOLS FOR PSYCHOLOGICAL EVALUATION





Leas symbol
Visual acuity
assessment
procedure. Child
identifies the
correct symbol
indicated at 10
feet leas chart

VISION TESTING ROOM



Doctor's
room for
neurological
examination
and general
examination:
glass mirror
fitted on the
wall at the
height above
the table

COMPOSITION OF TEAM AT DISTRICT EARLY INTERVENTION CENTER:

PROFESSIONALS	NUMBER	TO BE DEPUTED FROM THE EXISTING POOL
Paediatrician	One	
Medical Officer	One	
Dentist	One	
Physiotherapist / Occupational therapist / Early Interventionist with Physiotherapy/ Occupational therapy background	One	
Clinical Psychologist/ Rehabilitation Psychologist	One	
Paediatric Optometrist	One	
Paediatric Audiologist & Speech pathologist / Early Interventionist with Paediatric Audiology & Speech pathology background	One	
Special Educator	One	
Lab Technician	Two	
Dental Technician	One	
Manager	One	
Data entry operator	One	
Counsellor (optional)	One	
Nutritionist		One
Paediatrician trained for ECHO in smaller children		One
Nurses		Two on all days
Visiting Medical specialists- Will have to visit DEIC esp. for children from birth to 6 years. Do not ask younger children to attend specialist OPD along with older children		
a. ENT specialist		Twice a week
b. Ophthalmologist		Twice a week
c. Orthopaedic specialist		Twice a week
d. Neurologist		Once a week
e. Psychiatrist		Twice a week
Group D staff for cleaning		All days
Volunteers		All days

All the staff members should be dedicated to DEIC and should not be rotated or posted elsewhere (preferably for a minimum of 3 year period).

ROLES & RESPONSIBILITIES OF DEIC STAFF

7

*All the DEIC staff will have to work like a team focusing on children from birth to 6 years in a holistic manner. In case of any doubt about role clarity, the pediatrician or the Medical officer will delegate the tasks to appropriate professionals.

1) PHYSIOTHERAPIST / OCCUPATIONAL THERAPIST / EARLY INTERVENTIONIST WITH PHYSIOTHERAPY OR OCCUPATIONAL THERAPY BACKGROUND :

- a. Assess the child with motor delay/disabilities and identify the needs of the child.
- b. Formulate treatment goals on the basis of needs of the child.
- c. Provide services for sensory integration
- d. To counsel the parents on home therapy for the child with focus on Activities of Daily Living (ADL).
- e. Explain the parents and/ or caregivers the importance of physical management and demonstrate therapy to them so that they can carry out therapy at home in all the daily living activities.
- f. Maintain records of the follow-up of the child, note progress and doing reassessments wherever deemed necessary and at periodic intervals. The reports of the progress of the child and achievement of goals must be conveyed to the parents.
- g. Liaison with all the professionals involved in the intervention of the child to enhance the overall development of the child.
- h. Prescribe proper furniture depending on the special needs of the child in daily living activities aids and appliances such as orthoses e.g., Ankle- foot- orthoses (AFOs), gaiters etc.
- i. Guide and counsel the parents on therapies and use of aids and appliances that are prescribed to the child.
- j. Ensure functionality of equipment/toys/furniture in the DEICs.
- k. Inform the DEIC manager to track the child in case there is a drop-out in follow-up.
- l. To follow up and evaluate the sick newborns, including those within the SNCU.
- m. In case of referrals prepare detailed referral notes.

REQUIRED ACADEMIC QUALIFICATIONS:

Essential: Bachelor's degree in Physiotherapy from any recognized university in India

2) SPEECH-LANGUAGE PATHOLOGISTS AND AUDIOLOGIST/ EARLY INTERVENTIONIST WITH BACKGROUND OF SPEECH- LANGUAGE PATHOLOGY AND AUDIOLOGY:

- a. Perform audio logical assessments and advice on hearing aids depending upon the severity of the child. He/she has to refer to the institutes where such aids are available.
- b. Guide and counsel the parents about the auditory training.
- c. Assess the level of receptive and expressive language
- d. Formulate treatment goals on the basis of needs of the child.
- e. Explain the parents and/ or caregivers the importance of speech therapy and demonstrate therapy to them so that they can carry out therapy at home in all the daily living activities.
- f. Maintain records of the follow-up of the child, note progress and doing reassessments wherever deemed necessary and at periodic intervals. The reports of the progress of the child and achievement of goals must be conveyed to the parents.
- g. Assess for speech disorders
- h. Work as a part of the DEIC team and liaison with other team members in formulating a comprehensive and inclusive programme for the holistic approach
- i. Provide services that focus on verbal and non-verbal communication skill development
- j. Assess the oro- motor skills required for feeding problems (sucking and swallowing) for the children with Neuro-motor impairment.
- k. Facilitate speech clarity (ability to produce and combine speech sounds and use the voice), facial expression, body language and gestures, alternative or augmentative communication (e.g., sign language, picture symbols and verbal output devices, PECT), pre-literacy skills.
- l. Ensure functionality of equipment/toys/furniture.

REQUIRED ACADEMIC QUALIFICATIONS:

Essential: Bachelor's degree in Speech and language pathology from any recognized university in India

3) CLINICAL PSYCHOLOGIST:

- a. Perform the developmental assessment.
- b. Administer the scales/tools to diagnose the developmental disabilities.
- c. Guide and counsel the family.
- d. Work on behavior modification for the child and the family.

- e. Maintain records of each child in terms of what psychological tests are used, what programme suggested and the progress of the child.
- f. Maintain records of the follow-up of the child, note progress and doing reassessments wherever deemed necessary and at periodic intervals.

REQUIRED ACADEMIC QUALIFICATIONS:

ESSENTIAL: Master's degree in Child Psychology from any recognized university in India

4) DENTIST:

- a. Diagnose oral diseases for the children referred to the DEICs.
- b. Provide advice regarding oral health for the children with Neuromotor impairment who especially have chewing difficulties and unable cleanse teeth and oral cavity due to motor problem.
- c. Promote oral health and disease prevention.
- d. Interpret x-rays and diagnostic tests.
- e. Ensure the safe administration of anesthetics.
- f. Monitor growth and development of the teeth and jaws especially for the children who are on anti-epileptic drugs.
- g. Perform surgical procedures on the teeth.

REQUIRED ACADEMIC QUALIFICATIONS:

ESSENTIAL: BDS from any university recognized by Dental Council of India.

5) OPTOMETRIST:

- a. Work as a team along with other professionals and will help formulate an inclusive programme especially for the children with visual problems as a part of multiple disability
- b. Prescribe vision therapy, vision training or orthoptic treatment for children with learning problems or common binocular vision disorders, including strabismus and amblyopia
- c. Will detect or diagnose ocular conditions associated systemic health conditions, and refer them to appropriate health care professionals
- d. Offer counselling services to the families on preventive vision care.
- e. Prescribe the spectacle lenses including progressive, aspheric, and safety/protective spectacles based on the visual needs of the children.
- f. Referral to further genetic, neurological and endocrinal evaluation

REQUIRED ACADEMIC QUALIFICATIONS:**ESSENTIAL:** Bachelor in optometry or master in optometry from any recognized university**6) DEIC MANAGER:**

- a. Client relationship management
- b. Human resource management
- c. Financial management
- d. Liaising and networking
- e. Documentation
- f. Reporting
- g. Capacity building of the organization
- h. Client satisfaction and retention
- i. Office management
- j. Managing organizational performance, monitoring and evaluation
- k. Organizational diagnosis and intervention
- l. Research and development and IT

REQUIRED ACADEMIC QUALIFICATIONS:**ESSENTIAL:**

1. Masters in Disability Rehabilitation Administration (MDRA) approved by Rehabilitation Council of India (RCI). Basic qualification in BPT (Bachelor in Physiotherapy), BOT (Bachelor in Occupational Therapy), BPO (Bachelor in Prosthetic and orthotics), B. Sc Nursing and other RCI recognized degrees.
2. A post graduate degree /diploma in Hospital/health management from a recognized/ reputed Institution with 1 year relevant experience for diploma holders.
3. An MBA degree from a recognized institution with 2 years' experience in hospital /health programme.

7) DENTAL TECHNICIAN:

- a. Work with dentists to create tooth restorations and orthodontic devices for pediatric patients.
- b. Fill prescriptions for pediatric patients; make custom bridges, crowns, dentures and orthodontic appliances based on tooth molds and impressions.
- c. Correct dental irregularities by manufacturing fixed or removable appliances.
- d. Dental technician's specialization includes bridges and crowns, partial or complete dentures, ceramics, implants and orthodontic appliances, such as braces.

- e. Replace missing facial and body tissues due to developmental abnormality by fabricating maxillo-facial prostheses.
- f. Construct prostheses by following the dentist's prescription; making models of the mouth and teeth from impressions of the patient's mouth taken by the dentist; building-up wax replicas of part or all of the mouth and/or teeth on the model; encasing the wax in a mould material and melting away the wax; replacing the wax with plastic, metal, or ceramic materials to make the replacement appliance; polishing and finishing the appliance prior to its being placed in the patient's mouth by the dentist.
- g. Document actions by completing forms, reports, logs, and records.

REQUIRED ACADEMIC QUALIFICATIONS:

ESSENTIAL: Passed 1 or 2 years course on Dental technician from a recognized institution.

8) DATA ENTRY OPERATOR:

- a. Maintain all the data pertaining to the children referred to the DEICs.
- b. Maintain computer, printer, fax machine & other office instruments in proper running and safe condition.
- c. Perform any other work assigned by Chief Medical Superintendent.

REQUIRED ACADEMIC QUALIFICATION:

ESSENTIAL:

- 1. A Graduate Degree from a recognized University
- 2. Good communication skills.
- 3. Basic computer knowledge including data entry and data management.

9) LABORATORY TECHNICIAN:

- a. Collect blood or tissue samples from patients, observing principles of asepsis to obtain blood sample.
- b. Conduct chemical analyses of body fluids, such as blood and urine, using microscope or automatic analyzer to detect abnormalities or diseases, and enter findings into computer.
- c. Set up, adjust, maintain and clean medical laboratory equipment.
- d. Analyze the results of tests and experiments to ensure conformity to specifications, using special mechanical and electrical devices.
- e. Conduct blood tests to perform blood counts.
- f. Obtain specimens, cultivating, isolating and identifying microorganisms for Analysis
- g. Examine cells stained with dye to locate abnormalities.
- h. Consult with a pathologist to determine a final diagnosis when abnormal cells are

found.

- i. Inoculate fertilized eggs, broths, or other bacteriological media with organisms.
- j. Cut, stain and mount tissue samples for examination by pathologists.
- k. Prepare standard volumetric solutions and reagents to be combined with samples, following standardized formulas or experimental procedures
- l. Test raw materials, processes and finished products to determine quality and quantity of materials or characteristics of a substance.

REQUIRED ACADEMIC QUALIFICATION:

ESSENTIAL: Passed Diploma or a bachelor's degree in Medical Laboratory Technician from a recognized University.

10) EARLY INTERVENTIONIST:

He/she is a multi-competency professional with skills in a variety of areas in addition to his/her primary expertise (e.g. physiotherapy, occupational therapy, medical, speech therapy with additional skill at basic level in all other domains of development). Hence they are trans-disciplinary professionals who will:

- a. Do a comprehensive and holistic assessment in all the developmental domains of child development.
- b. Practice trans-disciplinary approach in Early intervention which addresses the holistic development of the child.
- c. In the absence of a team member in intervention Early Interventionist will be able to provide basic interventions without turning down the child for the specific services.
- d. Follow up cases, monitor the cases and evaluate the progress and make necessary adaptations in services.
- e. Acts as case manager and team leader and coordination of services.
- f. Meaningfully contribute in research.
- g. Can be utilized as a Master trainer at the district level with trans-disciplinary approach.
- h. Can contribute in organizing DEIC set-up.
- i. Can Help in Community- based Rehabilitation programs.
- j. Can be given the responsibility of maintenance of toys, therapy equipment and the cleanliness of the premises in the Early Intervention Centre.

REQUIRED ACADEMIC QUALIFICATIONS:

ESSENTIAL:

1. MSc in Disability studies (Early Intervention) with basic degree in physiotherapy (BPT)/ Occupational therapy (BOT)/ Speech Language pathologist (ASLP)/ MBBS/ BAMS/BHMS.
- OR
2. Post graduate Diploma in Early Intervention (PGDEI) with basic degree in physiotherapy (BPT)/ Occupational therapy (BOT)/ Speech Language pathologist (ASLP)/ MBBS.

OR

3. B.Ed Special Education/Bachelor in Rehabilitation Science/Bachelor in Mental Retardation (For the qualification mentioned at Sl. No.3 for early interventionist it would be necessary to pass an examination on early intervention domain to assess the basic knowledge of the child development process for continuation of services within 6 months of joining)

11) PEDIATRICIAN: HE/SHE SHOULD:

A) *Assess*

1. Growth and development
2. Nutrition
3. Detailed systematic Neurological examination
4. Detailed developmental assessments
5. Investigation
6. Diagnosis
7. Referral
8. Detailed neurological examination and investigations in case of children with special needs to focus on the causative and prognostic factors prior to undertaking individualized intervention programmes.

B) *Intervention*

1. Nutritional care plan
2. Composite health care services
3. Member of Early Intervention services for child development
4. Genetic counseling
5. Treatment of medical illnesses and associated abnormalities
6. Anticipatory guidance
7. Follow up and progress evaluation services
8. Referral

REQUIRED ACADEMIC QUALIFICATIONS:

Essential: MBBS with PG degree in Pediatrics recognized by Medical Council of India

12) MEDICAL OFFICER:

1. Case history including developmental history
2. General clinical examination
3. Nutritional assessment
4. Immunization
5. Monitoring of growth and Development
6. Coordination of services
7. Treatment of general ailments such as cough and cold, diarrhea etc

8. Act as member of Early Intervention Team
9. Give anticipatory guidance
10. Referral management

REQUIRED ACADEMIC QUALIFICATIONS:

MBBS degree recognized by Medical Council of India

13. SPECIAL EDUCATOR:

- a. Focus on development of pre-school children (3-6 years) with special needs.
- b. Focus on working with children up to the age of 6 years with profound & multiple disabilities including providing them with individualized intervention programs in consultation with the pediatrician and therapist. The pediatrician must have done a detailed neurological examination and investigations to focus on the causative and prognostic factors prior to undertaking individualized intervention programmes.
- c. Employ special educational strategies and techniques during instruction to improve the development of sensory- and perceptual-motor skills, language, cognition, and memory.
- d. Provide direct and indirect instructional guidelines for providing a positive and stimulating environment at home.
- e. Counsel parents about their children's development and to determine priorities for their children and their individualized needs.
- f. Maintain accurate and complete records and prepare reports on children's activities
- g. Maintain professional competence by participating in curriculum development activities, meetings, and other professional opportunities.
- h. Help in procuring disability certificate, wherever required.

REQUIRED ACADEMIC QUALIFICATIONS:

ESSENTIAL: B.Ed. in Special Education in the field of Mental Retardation/ Diploma in Early Childhood Special Education (Mental Retardation)/ B.Ed. Special Education (Locomotor and Neurological Disorder)/ P.G. Diploma in Special Education (Mult. Dis.:Physical and Neuro.) recognized by Rehabilitation Council of India.

**IT IS ESSENTIAL TO KNOW THE ROLES AND RESPONSIBILITIES OF
BLOCK MOBILE HEALTH TEAMS WHICH WOULD BE THE CONDUCTING
VISIT TO AWC AND SCHOOLS.**

**DEIC STAFF WOULD DO THE MENTORING AND SUPPORTIVE SUPERVISION
TO AVOID UNNECESSARY REFERRALS.**

I. FURNITURE:

There should be minimal furniture so that there is ample space for the child to move about. Things that are breakable, injurious/toxic should be out of reach of the children.

The space should be utilized to its fullest capacity by having brightly-colored toys for children, adequate play area and different kinds of posters.

The minimum requirement of furniture and logistics is as follows:

- Tables for consultation and examination for each room including reception
- Adequate Chairs for seating
- Cupboards for storage for each room
- Racks for material for each room
- Display boards for each room
- Computer Desktops for Reception/Registration and DEIC Manager room with internet facility
- Water Dispenser
- Television for the Waiting area
- Speaker System
- Intercom System for each room

II. EQUIPMENTS FOR PHYSIOTHERAPY/OCCUPATIONAL THERAPY

S.No	EQUIPMENT	SPECIFICATION	QUANTITY
1	Therapy ball		
a)	65 cm	Brightly colored, Inflatable by foot pump. Molded heavy duty vinyl ball can support weight up to 150 kg	1
b)	45cm		1
2	Therapy mats- 6ft x3ft	Length 6 ft and breadth 3ft, made up of Rubberized foam, vinyl coated cover, thickness 4 cm, can be wiped clean with a damp cloth	6
3	Bolster		
a)	2ft long, diameter- 8 inch	Sponge cover on wooden shaft, outer side is covered with rexene, rexene is fixed to the wooden shaft with thick pins	1
b)	2ft long, diameter- 10 inch		1

S.No	EQUIPMENT	SPECIFICATION	QUANTITY
4	Small roll- 13 inch long, Diameter-3 inch	Sponge roll covered with rexene	3
5	Prone Wedge		
a)	Big- Height-14 inch; Length- 31 inch, breadth 17 inches	Foam filled wedges covered with Nylon, fitted with velcro straps to position the child	1
b)	Small- Height-10 inch; Length- 26 inch, breadth 17 inches		1
6	Balance Board	Rexene covered cushioned platform size 45 cmX60 cmX15cm high	1
7	Kaye-Walker (height-48-64 cm)	Height 48-64 cm, distance between hand grips 34 cm, frame width 58-60cm, frame length 69-83 cm, user height 107-137 cm, maximum user weight 39 kg., frame weight 3.85 kg.	1
8	Trampoline	Compact round trampoline, shape- round, light jumpers. Dimensions, diameter of the mat 2.5m, surface area of the mat(4.9 meter square), minimum lateral installation clearance (5.5m),Jumper weight rating 80 kg., structural load capacity 380kg.,height of the mat above ground 0.8 m, height of the Flexi-net above mat1.5 m, total height 2.3m	1
9	Bolster Swing	With nylon rope or straps with hooks to fit in the swing frame. Size 25 cm diameter X 90 cm long	1
10	Wooden Benches with cushion and Rexene cover	Small (3ft long, height 8 inches, breath 6 inches), Big (3ft long, height 12 inches, breath 8 inches)	1 1
11	Splints (Ankle Foot Orthosis)		1 pair
12	Special chairs with cut-out tray (Tailor made according to need of the child)		1
13	Toys (for play and stimulation)		
a)	Small rattles		10
b)	squeaky		3
c)	Puja bell (clapper bell)		2
d)	Soft toy		10
e)	Brush for tactile stimulation		2
f)	Theraputty	Gluten free, non-toxic, red, yellow and blue colors	3 containers

S.No	EQUIPMENT	SPECIFICATION	QUANTITY
g)	Peg board	laminated square board having 10 holes to hold smoothly finished solid plastic pegs in five different bright colors	2
h)	Ball Pool	The dense foam padded mini Ball Pool is Soft, safe and perfect for small children. It provides an excellent sensory stimulating activity. The round pool is 120cm in diameter x 50cm high, & has 10cm thick padded sides. The pool contains 500 multi color balls of 7cm or 8cm diameter. Pool side and bottom is covered with durable rexin that easily wipes clean.	1
i)	Balls of different size		5
j)	Gaiters	Aluminium/bamboo stick of 8",10", 12",14" long inserted in the pockets of thick canvas, 3 velcro straps to be wound around	Total 8 nos (1 pair of each size mentioned)
k)	Thick handle spoon	Stainless steel spoon, padded handle	3
l)	Thick handle bent spoon	Stainless steel bent spoon, padded handle	3
m)	Plastic spoon with long handle (for babies)	Long handle bright color spoon	3
n)	Plastic glass with rim cut on one side	Plastic glass with one side of the rim is cut to accommodate nose	3
o)	Stainless steel plates with high rim	High rim to prevent spilling over of food	3
p)	Spouted cups	Spouted cups	3

* Pictorial of Therapy Equipment is placed in Annexure

III. DIAGNOSTIC EQUIPMENTS/TOOLS FOR VISION, HEARING & SPEECH, INTELLECTUAL, EMOTIONAL & BEHAVIORAL ASSESSMENT

CONDITION	VALIDATED CONFIRMATORY / DIAGNOSTIC TOOL	AGE GROUP
Hearing Impairment	• OAE screener	0-6 years
	• ABR screener	0-6 years
	• Audiometer	4-18 years
	• Portable Tympanometry Instrument	2-18 years
	• BERA with ASSR with both insert phone and head phone	0-6 years
	• Otoscope	All
Vision Impairment	• Torch-penlight	0-18 years

	• Lea Symbols Visual Acuity Test & Conditioning Flash cards	3-4 Years
	• Lea puzzle	2-3 years
	• Plastic colluder with lip	0-18 years
	• Lea Grating Paddle	2-3 years
	• Lang Fixation Stick or Lea	0-3 Years
	• Log mart chart or Snellen's chart	4-18 years
	• Streak Retinoscope	6 months to 18 years
	• Hiding Heidi	2-3 years
	• Near Vision Test with Lea symbol (Lea playing card set) and Near Vision Line test	3-6 years
	• Distance Vision Test (Leas single symbols book)	3-6 years
<i>Retinopathy of prematurity</i>	• Indirect ophthalmoscope with a 20, 28 or 30 D lens	For preterm children
	• Eye speculum (Alfonso infant wire speculum)	
	• Scleral depressor (wire vectis)	
	Medicine:	All
	• Phenylephrine 2.5%.	
	• Tropicamide 0.5%	
	• Cyclopentolate	
	• 0.2%/1% Ciplox Eye drops 0.3%	
	• Proparacaine Hydrochloride 0.5 %	
	• Laser console plus Laser Indirect Ophthalmoscope with protective glass (Treatment for ROP)	
<i>Speech and language disorder</i>	• *Receptive-Expressive Emergent Language Test—Third Edition (REEL-3)	for 0-3 years
	• *LPT: Linguistic profile test	for 3-9 years
<i>Cognition, Intellectual disability and mental disorder</i>	• *Developmental assessment for Indian Infants (DASSI)	for birth to 30 months
	• *Vineland Social Maturity Scale	0-9 years
	• Vineland Adaptive Behavior Scales	0-9 years
	• *Bayley-III Screening Test Complete Kit Includes; Manual, Stim Book, Picture Book, Record Forms 25 Packs.	1 month to 42 months
	• Developmental Screening Test (DST) by Bharat Raj	1-15 years
	• * Denver Developmental Screening Test II (DDST-II)	1 month to 6 years of age
	• Stanford Binet (Indian adaptation-Kulshreshta)	2-9 years
	• Piagets Sensori-motor Intelligence Scale	0-2 years
	• Piagetian Cognitive Tasks	0-2 years

ASD/Autism : Autism Spectrum disorder	Autism Spectrum disorder: INCLEN-ASD or Indian Scale for Assessment of Autism (ISAA)	2-9 years
ADHD : Attention Deficit Hyperactivity	ADHD : Attention Deficit Hyperactivity: INCLEN	6-9 years
Learning Disability	NIMHANS battery	6-9 years
LD- Dyslexia	Dyslexia Early Screening Test 4-6 years (DEST) and Dyslexia Screening Test Junior (6-11 years)	4-6 years and 6-11 years
Behavioral Learning	Childhood Behavioral Checklist CBCL	0-2 years
Cerebral Palsy and Neuro-motor impairment	Cerebral Palsy and Neuro-motor impairment: INCLEN (INDT-NMI)	0-9 years
Convulsive Disorders (Epilepsy)	INCLEN Diagnostic Tool for Epilepsy (INDT - EPI)	2-9 years

IV. LIST OF DENTAL EQUIPMENT & CONSUMABLES

S No	EQUIPMENT	QUANTITY
1	Dental Chair with all the required attachments and specifications	1 Chair
2	Wall mounted dental x ray	1
3	Table top Front Loading Autoclave (electrical)	1
4	Forceps set for extraction	2 Set (1 Adult + 1 Pediatric)
5	Restorative Filling and Carving Instruments Set	1 set
6	Elevators set of 10 (ten)	1 Set
7	Airrotor	1
8	Contra angle handpiece	1
9	Dental ultrasonic scaler (complete set)	1
10	Composite Filling Instruments	1 kit
11	Dental Electric Brushless Micromotor	1
12	LED Curing Light source	1 Complete Unit
13	Automatic Water Distiller	1
14	Mouth Mirrors	40
15	Probes-Straight	40
16	Explorers	40
17	Tweezers	40
18	Cheatle forceps	1
19	Kidney trays	10
20	Plastic Cheek Retractors	2 each
21	Mouth Props (Adult + Pado)	1 each
22	Cement Spatula (Plastic and Metal)	1 each
23	Matrix Band and retainer(both no1 & 8)	1 set

24	Dental Impression Trays (upper and lower)	1 set each
25	Rubber Bowls	2
26	Plaster Spatula- straight and curved	1 each
27	Suction tips (Metal)	2
28	Mallet - Dental	1
29	Scissors	1
30	Needle Holder	1
31	Bone Chisel	1
32	Glass slab	1
33	Scalpel handle	1
34	Plastic patient drape	2
35	Glass dappen dish	2
36	X-ray viewer	1
37	Stainless steel drums	2
38	Hand scaler (complete set)	1
39	Portable dental darkroom	1
40	Mortar And pestel	1
41	Lead Apron	1
S No	CONSUMABLES	QUANTITY
1	Developer	
2	Eugenol	110 gm
3	Fixer	1L
4	GLC filling (15gm powder/8g liquid)	1
5	GLC luting (15gm powder/8g liquid)	1
6	Impression material alginate dust free(450 g)	1
7	Plugger 15-40 assorted	1 set
8	Polishing paste (100 g)	1
9	Vaseline	1
10	Burs assorted for contrangle handpiece(round, taper fissure, inverted cone)	6 pieces
11	Composite kit with etchant and bonding agent	1 kit
12	Composite syringes individual	1 packet
13	Composite finishing and polishing kit	1 kit
14	Dental IOPA xray film Pedo (size 0)	
15	Dental IOPA xray film adult (size 2) (E speed)	150 film packet
16	Diamond burs-Air rotar handpiece-assorted	1 set
17	Disposable dental suction tips (100 tips)	1 packet
18	G.P point15-80 assorted set	1
19	H file set assorted 15-40,45-80 (21 mm)	1 set
20	K file set assorted 15-40,45-80 (21 mm and 25 mm)	1 set
21	Matrix band no1	1

22	Matrix band no 8	1
23	Mylar strip (8mm,100 strips pack)	1
24	Polishing brush and cup	1 each
25	Plaster of paris	1 kg
26	Zinc oxide powder (110 g)	1 pack
27	Applicator tips for bonding agent	
28	Pit and fissure sealant	1
29	Zinc phosphate cement	1
30	Cotton rolls for isolation(10mm.1000 rolls)	1 pack
31	Etchant gel 37% phosphoric acid gel(9 ml)	1
32	Dentin bonding agent(6g)	1
33	Wedges wooden	1 pack
34	Formocresol (30 ml bottle)	1 bottle
35	Calcium hydroxide powder	1 pack
36	Topical fluoride varnish	1 bottle
37	Green cloth bags for autoclaving instruments	10 bags
38	Normal saline	
39	Betadine	
40	Surgical spirit	
41	Syringe (2ml) and needle 25/26 gauge)	
42	Local Anesthesia (topical and injectable)(2% lidocaine with epinephrine& without epinephrine)	
43	Face mask(disposable)	
44	Examination gloves (100 pieces /box)	
45	Black silk suture 3"0" with suture needle (reverse cutting)	1 pack
46	B P blade no 15	

V. MEDICAL EQUIPMENTS

a.	Paediatric Stethoscope- 2
b.	Sphygmomanometer with paediatric cuff- 2
c.	Direct Ophthalmoscope -1
d.	Paediatric Auroscope -1
e.	Ear speculum-2
f.	Magnifying glass- 2
g.	Weighing machine (both baby and adult)- 2 each
h.	Infantometer- 2
i.	Stadiometer- 2
j.	Measuring tape- 2
k.	Torch- 2
l.	Knee hammer- 2
m.	X Ray viewer- 2

VI. TOYS FOR PLAY AREA

i.	Swings
ii.	Slides
iii.	See Saw
iv.	Tunnel
v.	Tricycle
vi.	Any locally suitable toy

VII. LAB EQUIPMENTS

a.	Automated Blood cell Counter
b.	Microscope
c.	Semi-automated analyzer
d.	Digital Hemoglobinometer

VIII. SENSORY INTEGRATION EQUIPMENTS

1.	Pinspot and Mirror Ball Bundle	13.	Mirror Chime bout
2.	Mirror Ball Motor	14.	Swings:
3.	LED Mirror Ball	a)	Bolster swing
4.	Fire ball -mounted on the roof	b)	Platform swing
5.	Sound Activated Light	c)	Tyre tube swing
6.	LED Bubble Tube	d)	Rope ladder swing
7.	OPTIC fibers	15.	Rhythmic Rocker
8.	Blue LED Lights	16.	Balance boards
9.	150 bulb blue LED light chain	17.	Ball Pool
10.	Bubble Tube	18.	Tunnel
11.	Rotating Drum	19.	Bean bags including white ones
12.	Chime Frame and Beater	20.	Real size animal toys

TRAINING PROGRAM FOR DEIC STAFF:

9

- **Basic level of training** – generic, common to all staff members of DEIC. The curriculum will be developed for one month certificate course which will be attended by all the members to develop • excellent observational skills • a thorough knowledge of Early development • an understanding of the proper use and interpretation of developmental screening and assessment tools • Intervention techniques • Relationship-building skills with both children and parents • knowledge of how to best use the results of a screening, ongoing assessment or evaluation and • the ability to effectively communicate those results to families and other professional
- **Advanced level training** - specific to the concerned domain e.g. optometrist only in vision, Psychologist in developmental assessment and intervention in Cognition and Behavioural domains among small children

TRAINING MODEL:

A compulsory basic level of training will be imparted of duration of one month in which all the specialist have to acquire a basic level knowledge of child development including basic genetics and counselling .

The Basic training model is proposed comprising of training by:

Master Trainers (Qualified experts with wide ranging experience of work with the developmental delay and disability. Categories catered to in the DIECs, Medical Specialists (as required), 1 expert each in the areas of Speech and Language, Augmentative and Alternative Communication, Physiotherapy, Occupational Therapy, Special Education, Early Childhood development , Genetics and counselling .

TRAINING AREAS

The **Basic training** to be provided shall include:

- a. Basic knowledge of developmental mile stones
- b. Basic genetics
- c. Vision : common problems and basic intervention
- d. Hearing : common problems and basic intervention
- e. Motor : Neuro-motor impairment and intervention techniques
- f. Cognitive : assessment and early intervention

- g. Activities of daily living and intervention through them
- h. Training for effective utilization of assessment tools, procedures, equipment and documentation.
- i. Ongoing refresher programs on specific disability related topics and use of technology.
- j. Associated Medical problems
- k. Data capturing and storage
- l. DEIC Administration Rules
- m. Nutrition & nutritional deficiencies

ADVANCED LEVEL TRAINING:

Domain specific training for the specialist of that particular domain:

- 1. Pediatric Vision
- 2. Pediatric speech and Hearing
- 3. Pediatric Neuro-motor disability
- 4. Cognition including training on VSMS, DASII, BINS, M-Chat etc. and intervention
- 5. Pediatric Dental care
- 6. Echocardiography for congenital heart diseases
- 7. USG for DDH
- 8. Pediatric developmental mile stones , birth asphyxia , common pediatric diseases and deficiency

COMMON PROBLEMS EXPECTED TO BE EVALUATED AND TREATED AT THE DEIC IN CHILDREN FROM BIRTH TO 6 YEARS

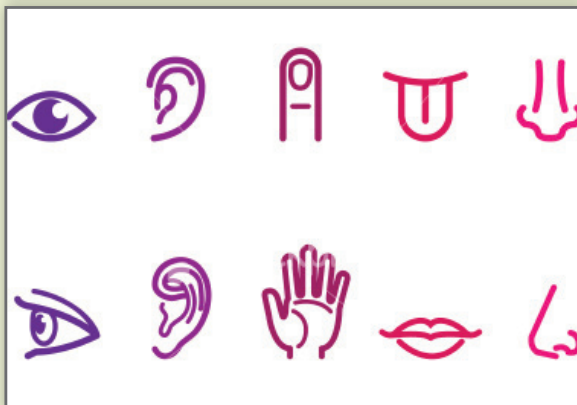
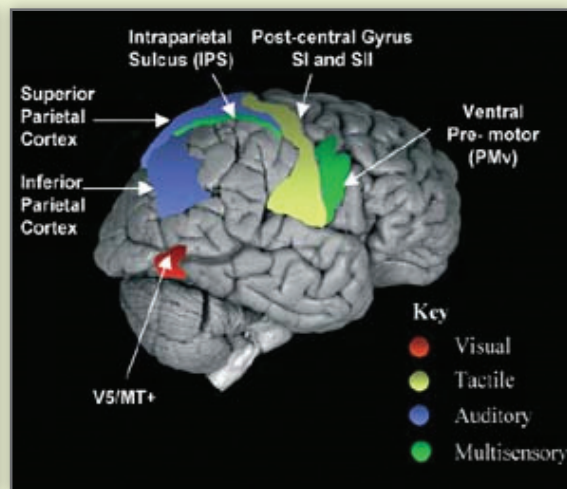
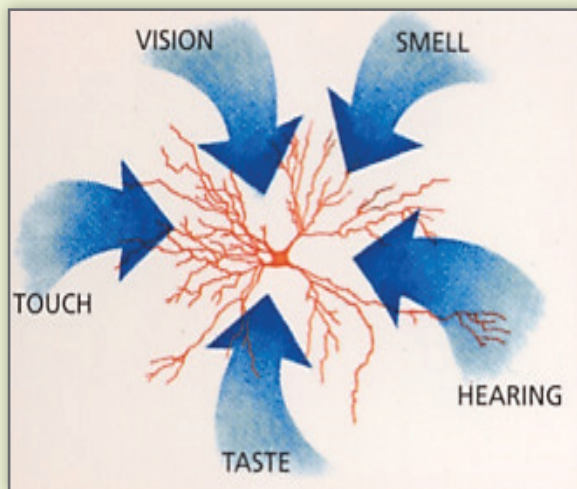
- **MOTOR:**
Cerebral Palsy, Neuromuscular disorders, Progressive Degenerative disorders
- **SPEECH AND HEARING:**
Hearing Impairment, Autism spectrum disorders (ASD), Cleft lip & palate, childhood aphasia, specific language disorders, functional speech disorder, voice / fluency disorders, articulation disorder
- **COGNITION:**
Cognitive developmental delay, Mental Retardation.
- **VISION:**
Amblyopia, Squint, cataracts, refractory errors, Nystagmus, Vitamin A deficiency, congenital glaucoma, cerebral visual impairment, total blindness, ROP, Degenerative disorders.
- **BEHAVIORAL / LEARNING:**
ASD, Attention deficit hyperactivity disorder (ADHD), Specific learning disability (SLD), and other childhood behavioral disorders.
- **DENTAL:**
Early childhood caries or gingivitis.
- **OTHER CHILDHOOD DISABILITIES**

SENSORY INTEGRATION (SI)

11

Sensory integration refers to neural processes through which the brain receives, registers and organizes sensory inputs for use in generating the body's adaptive responses to the surrounding environment-Jean Ayres,1989.

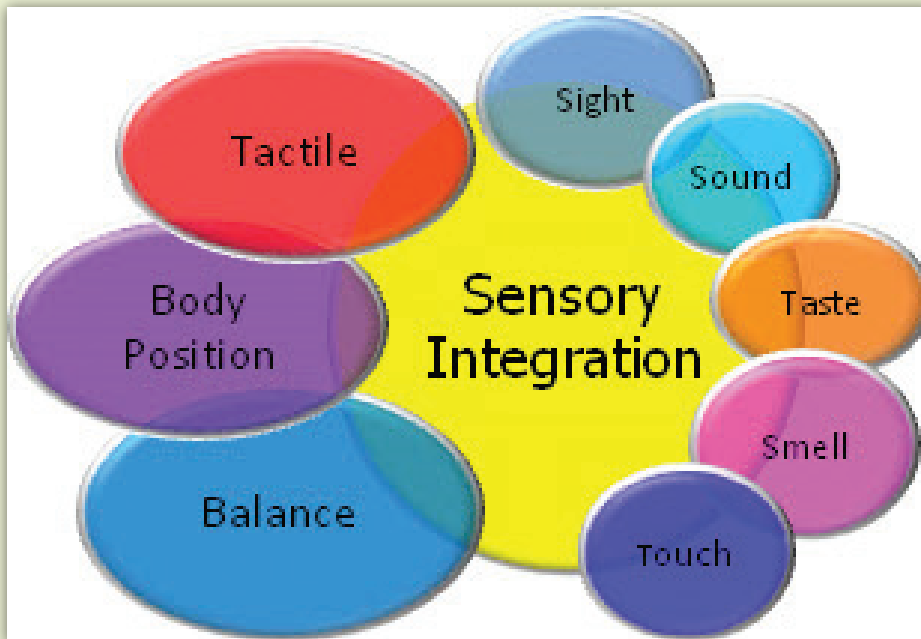
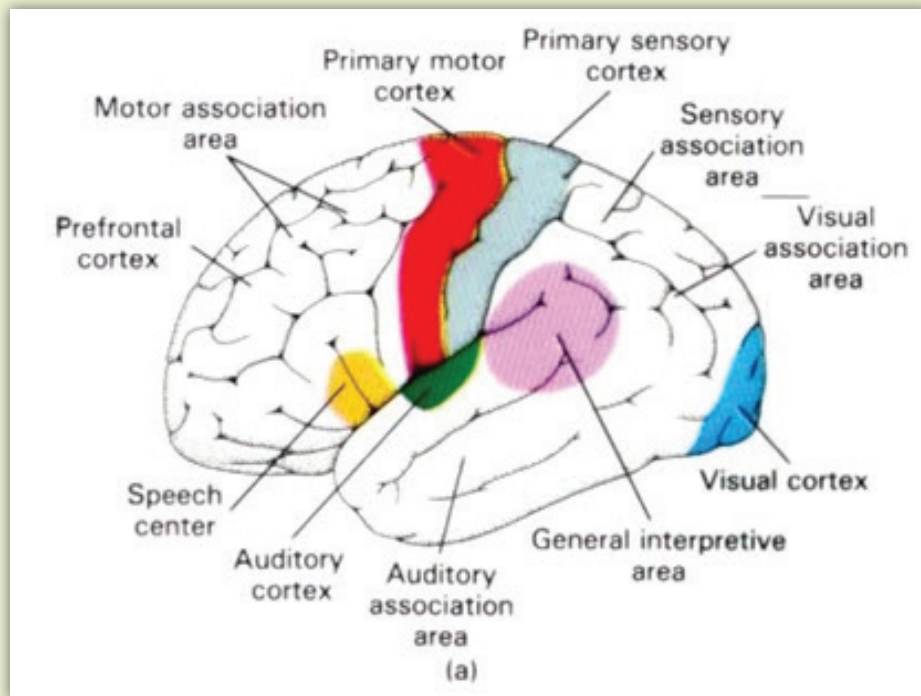
- SI is necessary in order to be able to use the body effectively within the environment.*
- SI is the foundation that allows for complex learning and behavior.*
- SI is founded on the following 7 senses: Visual, auditory, touch, smell, taste, vestibular (pull of gravity) and proprioception (body awareness and movement)*
- Our brain takes in the information from the senses and uses it to form a full picture of who we are, where we are, and what is going around us. This picture can only be formed through the critical process of SI.*



Sensory organs of the body for 7 senses: Visual, auditory, touch, smell, taste, vestibular and proprioception



Ways to stimulate the various sensory organs



According to **Jean Ayres, sensory integration can be defined as **“the ability to take in information through senses, to put it together with prior information, memories, and knowledge stored in the brain, and to make a meaningful response”**.

Sensory integration is the process that organizes sensations received through the senses which come to the central nervous system, that should provide their processing and enable our usable functional outputs.

**Jean Ayres was known for her work in the area of sensory integration disorder and originally developed the therapeutic approach of sensory integration’

Brain's inability to process the information received through the senses is called *Sensory Integration Dysfunction*.

It manifests differently in each person. Therefore sensory integration therapy varies and adapts to each user individually.

The treatment is carried out in sensory room and is based on stimulation of the senses. This type of therapy is suitable for children with autism, concentration disorder, for those with sensory impairments, for children with mental development or insufficient development problems, speech difficulties, learning disabilities and behavioral problems

Some of the clues that the sensory integration is not taking place normally:

- a. I hate my hair being washed, brushed or cut
- b. I cry and shield my eyes from the sun or other bright lights
- c. I resist new foods and textures
- d. I seem to be unaware of normal touch or pain , I often touch others too hard or too soft
- e. I hate being tickled or cuddled
- f. I always walk on my tiptoes
- g. I have trouble focusing and/or concentrating
- h. I am overly sensitive to loud sounds such as vacuum and blenders
- i. I chew on every thing
- j. I have poor fine motor movements such as writing or cutting paper
- k. I have difficulty dressing my self
- l. I sit my legs In an "w" position
- m. I am always smelling people , food and objects
- n. I always want to put on my socks and would never go barefoot
- o. I avoid getting touched, refuse to wear certain clothing , covers his or her eyes or ears
- p. Oversensitivity or under sensitivity to movement sensation
- q. Unusual high or low activity level
- r. Problems of motor coordination may be awkward or seemly careless

Sensory integration dysfunction is often associated with:

- a. Autism spectrum
- b. ADHD
- c. Behavioral disorders
- d. Learning disability

Sensory integration room is a special room designed and equipped to stimulate the senses of hearing, sight, touch and smell. It is a place where children with sensory integration disorder can explore and develop their sensory skills, but also where they can relax and relieve their stress and anxiety.

A Sensory Room is a therapy space designed to stimulate the senses of children who have some neurological impairment or neurobehavioral disorders. It is a controlled space where light, sound, texture and even color are manipulated to reach certain areas of the brain to calm, focus or awaken the individual.

Sensory Rooms use colors to acclimate people to changing stimuli and to elicit predictable responses to certain colors. One way to conduct the therapy is to shift or change colors against a neutral background. The sensory room has been adapted for use in calming and retraining children with an array of sensory disorders. The rooms have proven helpful for complex-needs individuals. Sensory room design ideas may be also useful at home to administer the prescribed therapy.

The child is not told or shown what to do, but encouraged to have a natural response to stimuli from the environment.

What does sensory room look like? What kind of equipment can be found in this room?

Sensory Rooms should have soft padded floors and walls, mattresses and pillows in order to create the environment where children can not hurt themselves. **Atmosphere in the room should be such that every child feels safe and is given the opportunity to explore the space along with his abilities and limitations.**

Minimum space should be 15 feet by 8 feet. The walls, floor and the Roof.

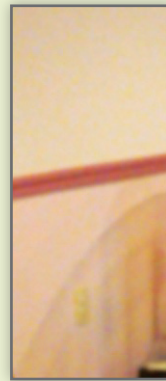
1. **Walls:** Sensory Wall Panels: should have a multitude of colors. On one side of the room the color should be light Blue (Sky color) or light green (garden color) on the other end of the room it could be bright yellow or bright red. The wall should have wooden paneling at places, mirrors at places, carpet and other clothes of various texture ranging from smooth to rough. On one side of the room, the wall should have only smooth textures and on the other side, both rough and bristly. Care should be taken that we need two different sensory panels- one for the hypersensitive child where we require smooth colors, smooth textures, soft lights while on the other, for hypo-sensitive child, where we require bright walls, rough bristly textures, bright colored lights and with tactile discs on the walls. Wall mirrors to be used on both side walls. Wall must have tactile disc as shown in the picture below.



Tactile Disc mostly in "Tactile and proprioceptive Zone"



Wall painted with neutral color



Wooden panel



Mirror mounted wall for both hyper-sensitive and hypo-sensitive children

Walls with grey color and the other light yellow with wooden paneling with different textures and mirror at places

2. **Roof:** Should have neutral color with mirror at places . It will have multiple hooks hanging from the ceiling for swings including chair swings, bolster swings, simple hammocks, tube and tyre swings, rope swings etc. The roof of the sensory room will be having three areas for different sensory components separated by curtains, though the whole room will function as a whole unit. This is to address the needs of both hypo and hyper sensitive children.

To understand the placement of hooks and other mounting devices the roof has been conceptualized into three zones:

- a. **Vestibular zone with different type of swings.**
- b. **Sensory Lighting or visual stimulation zone** with roof mounted LED Mirror Ball, Pinpoint and Mirror Ball, Mirror ball motor –mains, Fire ball, sound activated light ,

Bubble tube (with LED light and vibrator) and speakers connected to the sound player (prerecorded sound of water fall, wind chimes, birds sounds and soft instrumental music)

- c. **Tactile and proprioceptive zone:** Ball pool with the corresponding ceiling or roof just above it should be mounted with Light Pod – 3 /6 way or a rotating mirror ball with changing colors to give the balls of the pool an added color effect. Other items in this zone are mini trampoline, sensory tunnel, therapy balls, big floor pillows, bean bag chairs and hammocks.



Roof with Hooks and swings on the **vestibular zone** of the room.

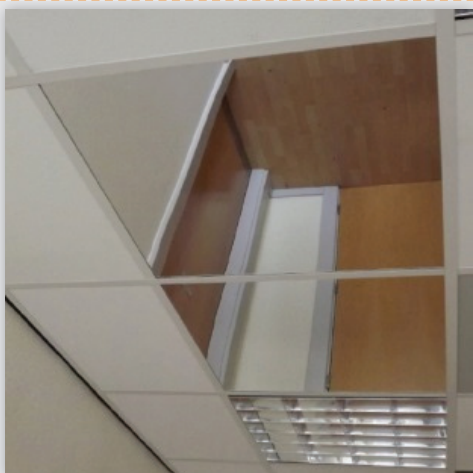


Care should be taken that the floor should have cushions and the distance between the child on the swings and the cushion should be for ground clearance only





Roof with wooden panel (black) on the Sensory Lighting or visual stimulation zone of the room with provision for roof mounted LED Mirror Ball, Pin-spot and Mirror Ball, Mirror ball motor –mains, Fire ball, and sound activated light. Other items in this zone include Bubble tube (with LED light and vibrator) and speakers connected to the sound player (pre-recorded sound of water fall, wind chimes, birds sounds and soft instrumental music) placed on the walls and floors .



Mirrored ceiling tile



Roof of Tactile and proprioceptive zone : Roof above the Ball pool has Light Pod 6 way or a rotating mirror ball with changing colors



Coloured net covering the ball pool





Mirror Ball Motor – Mains Mirror ball motor which can rotate any mirror ball up to 300mm in diameter



LED Mirror Ball: A battery powered motor that rotates a 200mm mirror ball.



Pin-spot and Mirror Ball Bundle Shine the pin-spot onto the mirror ball to create hundreds of mirrored reflections around the room.

Operates on mains voltage. 20cm ball and 15cm chain is to be provided



Fire ball mounted on the roof

3. **Floor:** SI Rooms should have soft padded floors, mattresses and pillows in order to create the environment where children can not hurt themselves. Atmosphere in the room is such that every child is safe and is given the opportunity to explore the space along with his abilities and limitations. Floor should have soft mattress, Pillows, bean bags, small chairs, wooden rocking horse, rope ways, soft toys, therapeutic balls, ball pools, textured tiles. Similarly Floor again has been conceptualized into three zones:
 - a. **Vestibular zone** with different type of swings.
 - b. **Sensory Lighting or visual** - auditory stimulation zone with roof mounted LED Mirror Ball, Pin-spot and Mirror Ball, Mirror ball motor –mains, Fire ball, sound activated light , Bubble tube (with LED light and vibrator) and speakers connected to the sound player (prerecorded sound of water fall, wind chimes, birds sounds and soft instrumental music)
 - c. **Tactile and proprioceptive zone:** Ball pool with the corresponding ceiling or roof just above it should be mounted with Light Pod – 3 /6 way or a rotating mirror ball with changing colors to give the balls of the pool an added color effect. Other items in this zone are mini trampoline, sensory tunnel, therapy balls , big floor pillows, bean bag chairs and hammocks.

Floor Design:



< Floor having bean bags, coloured soft mat, trampoline, ball pool, bean bag and swing



Rocking horse with mirror on the wall

< Mattress, bean bags , blocks, bolsters, therapy balls, trampoline, bolster swings, rope ladder

ACTIVITY- WISE LIST OF INSTRUMENTATION:

A good sensory room will have controllable light sources and light therapy. Most importantly, make sure there are absolutely no fluorescent lights (they are bothersome even to people without sensory processing disorders). A fluorescent lamp or fluorescent tube is a low pressure mercury-vapor gas-discharge lamp that uses fluorescence to produce visible light. An electric current in the gas excites mercury vapor which produces short-wave ultraviolet light that then causes a phosphor coating on the inside of the bulb to glow. Hence it is recommended to use LED lights for the stimulation purpose.

SL.NO.	NAME OF THE INSTRUMENT / ACTIVITY	ILLUSTRATION
VISION		
1	Pin-spot and Mirror Ball Bundle/ Visual: Shine the pin-spot onto the mirror ball to create hundreds of mirrored reflections around the room. Operates on mains voltage. 20cm ball and 15cm chain is to be provided	 The illustration shows a black pin-spot light with a handle and a chain, positioned next to a silver mirror ball. The light is directed towards the mirror ball, which is reflecting the light in various directions.
2	Mirror Ball Motor – Mains / Visual - Mirror ball motor which can rotate any mirror ball up to 300mm in diameter. Operates on mains voltage.	 The illustration shows a black, cylindrical mirror ball motor with a silver ring at the bottom. It is mounted on a white surface.

3	LED Mirror Ball/ Visual - A battery powered motor that rotates a 200mm mirror ball. Shines LED lights on top of the ball to create a pin spot type effect. Static or slow colour changing operation.	
4	Fire ball mounted on the roof/ Visual- A rotating ball producing colourful spots of light. Operates on mains voltage.	
5	Mirror Ball and Motor/ Visual- Shine a pin-spot on the mirror ball to create amazing effects within a room. Operates on mains voltage. Ball is anything between 20 cm to 30cm.	

6	Sound Activated Light / AUDIO – VISUAL- Lights respond and flash to any noise you wish to make.	
7	OPTIC fibres / Visual- A fiber optic light creates a fabulous visual effect, whilst being tactile and safe to touch. Calming or interactive, fiber optics appeal to all ages and abilities. No electricity is present in any fiber optic product, only light meaning they are inherently safe	
8	Making of a mirror ball / Visual	

9	Blue LED Lights: Visual 150 bulb blue LED light chain Bulb Spacing: 7cm Set Length: at least 8.4M Bulb Type: Non replace-able blue LED	
10	Bubble Tube/ Visual: The tubes are made of thick acrylic plastic. They are not glass. The water inside bubbles and the light changes colors. The LED light of Bubble tube should slowly change colour whilst small bubbles rise continuously. Should Operates on mains voltage transformed to low voltage. Minimum Dimensions: 75mm diameter x 500mm H.	Bubble tube with a vibrator and Led light which changes colours with mirror on two sides. 
11	Aquascape: Twist Bubble Floor Lamp Light Colored. The tubes are made of thick acrylic plastic. They are not glass. The water inside bubbles and the light changes colors	

AUDITORY

1

Rotating Drum: A large drum containing brightly coloured balls and bells. Dimensions: 300mm L x 230mm D.



2

Chime Frame and Beater: Six colourful wooden chimes, suspended within a strong wooden frame. The beater is attached to the frame to prevent loss. Dimensions: 370mm L x 270mm H.



3

Mirror Chime bout: Strips of mirror Perspex faced with red and blue Perspex hang to create great visuals and sound at the slightest touch. Dimensions: 200mm D x 240mm H.



4	CD's, tapes, nature sound machines, indoor wind chimes, etc. Nature sounds, white noise, classical music, or new age music are the most popular choices for calming, organizing input.	
VESTIBULAR		
1	Trampoline	
2.	Therapy Balls	
3.	SWINGS: a) Bolster swing (1 small-30cm diameter and 1.2 meter long)	

b) Platform swing



c) Tyre tube swing



d) Rope ladder swing



e) Rhythmic Rocking



f) Balance boards



PROPRIOCEPTIVE

1

Ball Pool surrounded by a colorful net and roof above the Ball pool has Light Pod 6 way or a rotating mirror ball with changing colors



2

Tunnel



3	Bean bags including white ones 	
4	Real size animal toys 	
5	Scooter board 	

One can use therapy balls to roll on top of them, weighted vests and blankets, big floor pillows, lycra swings, and hammocks. Deep pressure input applied correctly and at the proper time will calm, relax, and soothe even the highest energy kids!

One may also want sensory room to provide opportunities for activities which give muscles and joints significant use and pressure. Some great ideas are: scooter boards, moon shoes, jumpolines, tunnels, hippity hop balls, mini trampolines, squeeze/fidget toys, and things to climb

SENSORY LIGHTING

Sensory environments can assist with mood enhancement, behaviour management and emotional well-being. One can use them for intensive interaction, sensory integration, cause and effect, exploring choice, improving hand/eye co-ordination and developing language skills. One may have a choice of sensory environments to specifically meet their requirements.



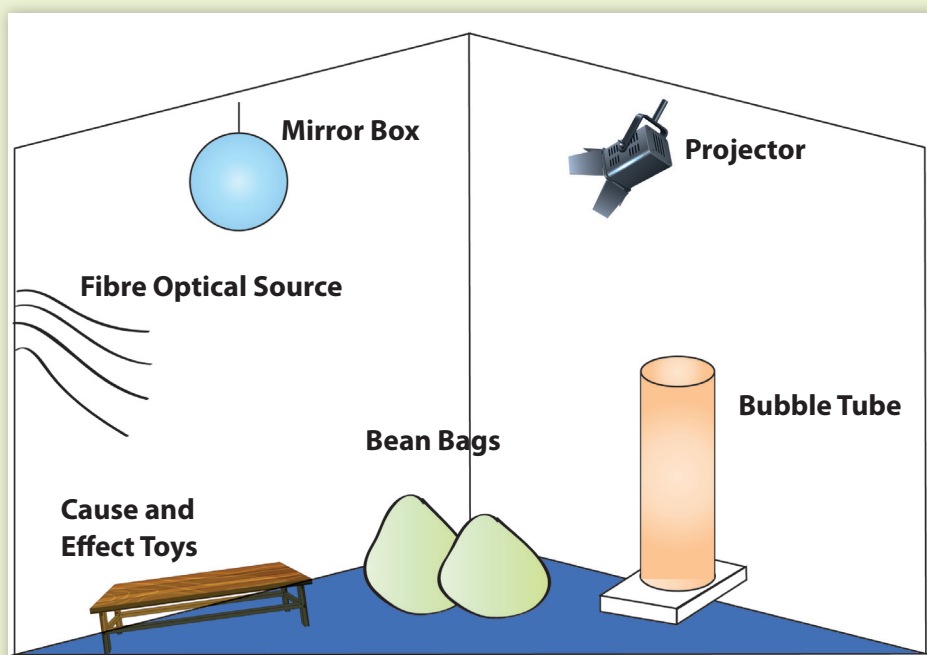
Sensory lighting is especially effective when used in storytelling or theming, helping create the desired atmosphere to bring the story to life. Sensory lighting is also great to use for teaching color recognition to children with sensory disabilities.

Sensory Room Projectors: **Sensory projection units** are one of the three essential components of a sensory room, used to promote relaxation as well as encouraging social interaction skills. A wheel rotator and projector to use this wheel.

Just above the ball pool on the ceiling one can have Light Pod – 3/6 way or a rotating mirror ball with changing colors

Other items on the walls & floor include Bubble tube, audio speakers with Player, bean bags, fibre optic sources and thick mat etc.

Schematic arrangement of the sensory Lightening or visual stimulation zone with roof mounted Mirror Ball, projector:



The room has a) Mirror Ball and Motor or b) Fire ball c) Projector d) Bubble tube with changing colors and you feel vibration when you touch. e) Fiber optic lights. f) Bean bag. g) Soft mat. h) Coarse and soft toys. (360 Degree Rotating LED Lamp, Auto Strobe, Magic Ball RGB Effect Light, LED Revolving Bulb)



A good sensory room will have controllable light sources and light therapy. Most importantly, make sure there are absolutely no fluorescent lights (they are bothersome even to people without sensory processing disorders). Color cubes, fiber optic light sources, rope lights, and/or low wattage pastel colored light bulbs are all good ideas.

OTHER SENSORY STIMULATION METHODS

TACTILE MAT



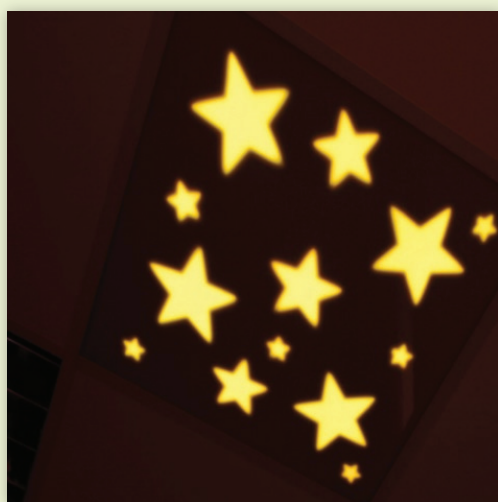
SENSORY WALL PANELS

Built to the highest standard, Experian's sensory wall panels offer a multitude of colors and patterns ideal for creating either a calming or interactive environment while developing a number of life skills. Effective additions to any room, these sensory wall panels produce mesmerizing and striking effects that enhances the sensory experience. It comprises a number of textures which are soft, hard, smooth, rough, cool, and warm and various material including metal, plastic, wood, carpet, mirror and more.

The meandering artistic shape has been designed to encourage a person to touch and follow it around the disc .

The Tactile Disc

Standard is engaging and stimulating is a great way to have fun or assess a person's likes and dislikes.

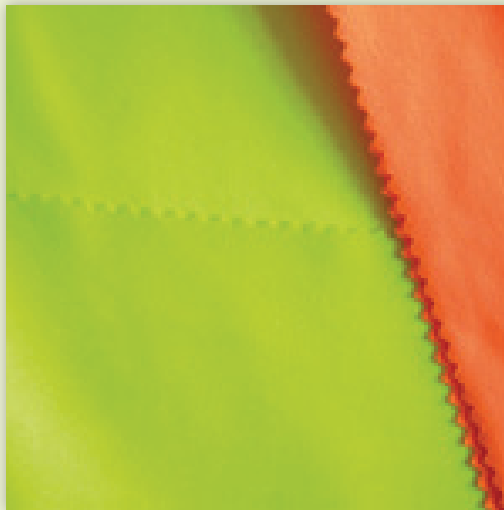


Sensory ceiling stars

CURTAINS

Curtains are useful for quickly creating a sensory environment in any room without the need for expensive partitions or extra walls. They can be easily pushed back out of the way when not needed, giving added versatility.

Black is great for creating a dark space for UV sensory work, while cream gives an ideal surface onto which to project images.



SOME ILLUSTRATIVE PICTURES





ENERGY ROOM

Where you can experience a sense of weightlessness and total relaxation in the leaf chair while watching the stars. Absorb the sights and sounds of the ocean in this watery wonderland with bubble tubes, fibre optic fountain and a large ball pool to dive into.

Great for those with sensory impairments. Explore the environment through touch. A stimulating experience to engage the senses and aid concentration.



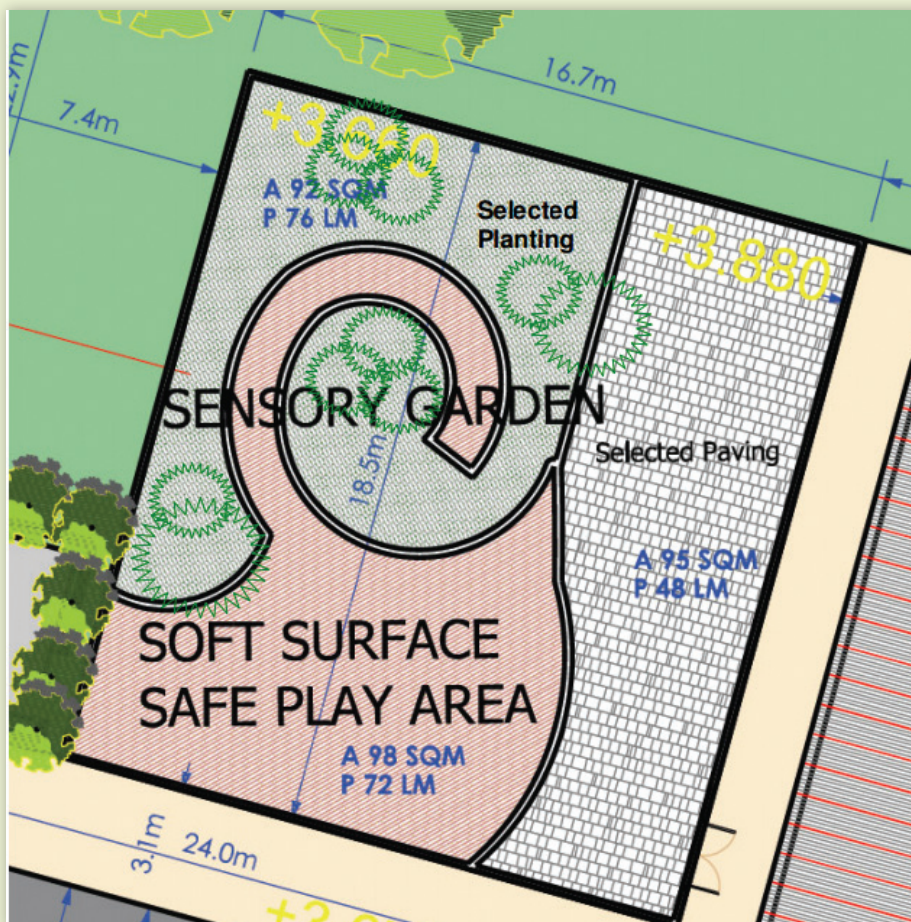
GENERAL SUGGESTIONS

- Be sure to include as many sensory experiences and “stations” as possible.
- Work on 1-2 senses at a time; for example, soothing music while feeling different textures, or deep pressure input while using light/visual therapy and stimuli.
- Use the room as “therapy”, i.e. 5-7 days a week, 1-2 times per day, depending on the individual’s needs.
- Encourage all senses to be explored and used.
- Pay attention to the child’s reaction to various stimuli. Give him more of what he is seeking, the best input to calm or stimulate.
- **DO NOT** force anything.
- Be creative in activities and ways in which the sensory stimuli is introduced.
- Watch for signs of over stimulation/over arousal/extreme fears.
- Precautions should be taken that the toys/instruments are washable, safe and replaced timely if damaged.
- Care should be taken not to allow unsafe, sharp, pointed, small lead painted toys/objects in close proximity to children.

SENSORY GARDEN (DESIRABLE)

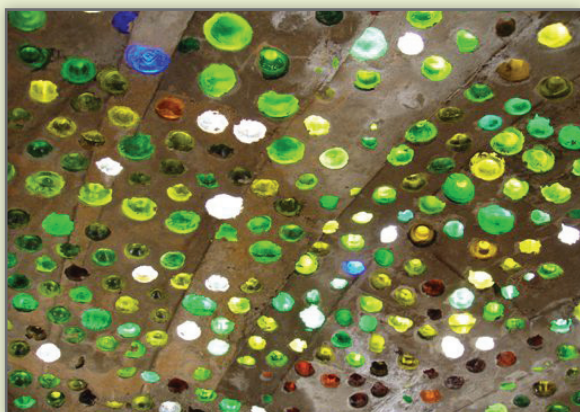
- A sensory garden should be incorporated into the secure play area, where the hospital site area permits. This should be prepared and ready for planting. The DEIC team will be responsible for the selection, provision and installation of appropriate planting. The sensory garden must be fully wheelchair accessible.
- A sensory garden stimulates the senses. Hard and soft landscaping – fountains, raised wheelchair accessible planted beds, pergolas (climb-proof), wind chimes, foot chimes, bird tables, etc., can be used in a variety of ways to provide experiences involving seeing, smelling, hearing, and touching. Children should be encouraged to interact with the plants, touching and smelling them. Space to sit down, picnic, listen to sounds, etc. should be considered within the layout.
- Provision should be made for a water supply and electrical services to accommodate a water feature, should this be required.
- For hyper sensitive children, the portion of sensory garden which has soft landscaping with accessible planted beds and soft sounds.
- For hypo sensitive children, hard landscaping, swings, pergolas (climb proof), sand pits, etc.

A SENSORY GARDEN EXAMPLE









ANNEXURES

ANNEXURE I

THERAPY EQUIPMENTS AND ADAPTIVE SEATS:

1. Therapy ball- 1Big (65cm),
1small (45cm)



2. Therapy mats- 6ft x3ft
Quantity - 6 mats



3. Bolster-
a) 2ft long, diameter- 8 inch
b) 2ft long, diameter- 10
inch
Quantity - 2bolsters



A child is encouraged to roll into prone by rolling
the bolster backwards

4. Small roll- 13 inch long,
Diameter-3 inch
Quantity – 2 rolls

The child is placed in prone
over a roll

A roll is placed under the
head to inhibit extensor
Tone while the mother is
changing nappy



5. Prone Wedge- Big-
Height-14 inch; Length- 31
inch,
Breadth- 17 inches
Small- Height-10 inch;
Length- 26 inch
Quantity -2 wedges,
1 big and 1 small

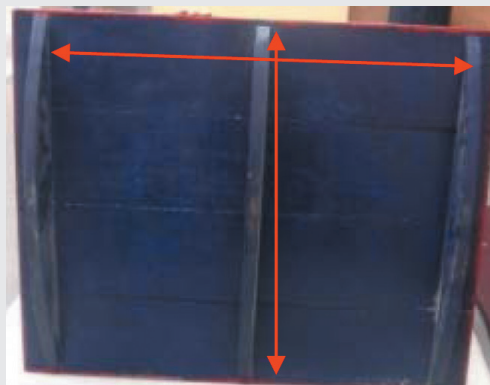
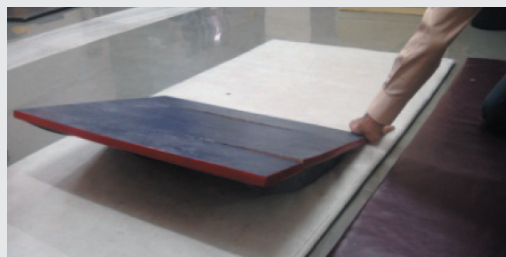




The mother encourages her child to lift her head and trunk by shaking a rattle when the child is placed prone on a wedge. The child is lifting her head and weight bearing through her arms on a bolster

6. Balance Board- Length- 29.5 inch, Breadth- 23 inch, Height- 2.5 inch

Quantity -2
Underside of the Balance board



7. Trampoline
Quantity -1



8. Kaye-Walker
Quantity -1



Size/ref/code		W1/2	W1	W2
Colour				
Height of Walker	Standard Wheels	37.46	41.55	48.64
	Activity Wheels	N/A	N/A	N/A
Distance between hand grips (cm)		34	34	34
Frame Width (cm)		58-60	60-62	58-60
Frame Length (cm)		52-59	56-62	69-83
User Height (cm)		up to 95	91 - 122	107 - 137
Max. user weight (kg)		27	27	39
Frame weight (kg)	3	3.3	3.3	

9. Bolster Swing-
Quantity -1 big - 300mm di-
ameter and 1.5 meter long
1 small-300mm diameter
and 1.2 meter long



10. Toys like balls, rings, squeaky toys for stimulation



Puja bell



Rattle



Rattle



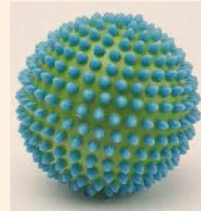
Squeaky toy



Squeaky toy



Soft toy



For tactile stimulation



Brush for tactile stimulation



Toy for tactile stimulation



Plasticin



Peg board



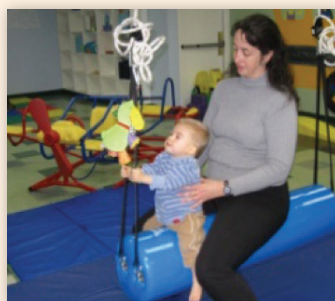
Peg board



Bench



Bolster swing



Small bolster swing



Ball Pool

11. Modified chairs (wooden with cushion covered with Rexene)- Custom made

Quantity-1

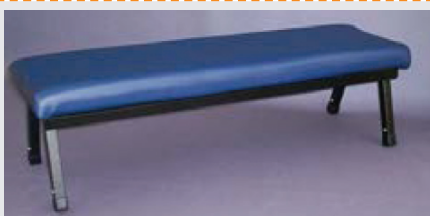


Child sits in a modified chair with a cut-out tray in front.
The chair has castors for easy transportation

12. Splints
(Ankle Foot Orthosis)
[For demonstration]



13. Wooden Benches with cushion and Rexene cover (3ft long and 4, 6, and 8 inches height)
Quantity-3 (one each)



14. Cut-out floor table (2ft×2ft)
Quantity - 2



15. Floor seat (Pelvic strap):
Quantity -2



Child sits in a floor seat with a cut-out floor table in front

UTILITIES OF THERAPY EQUIPMENT

Therapy ball – A useful tool to facilitate movements of head and trunk against gravity. It provides vestibular stimulation. Helps to improve balance reactions. Rolling can be facilitated using righting reactions. Helps to increase tone upto an optimal level for a child with low tone. Rhythmic movements on the ball help to reduce hypertonia and thus prepare a child for more normal patterns of movements.

Therapy mats – Parents and professionals sit on the mats. Therapy is done on the mat. As the mats are placed on the floor, the child feels much secured and dispel fear of falling down from a height in the child and thus rule out any injury due to fall. The mats are easy to clean.

Bolster – Used for proprioceptive, vestibular input. Various movements can be facilitated on a bolster such as head and trunk extension, rotation of trunk in sitting and rolling over. Co-contraction of shoulder girdle muscles can be facilitated through weight bearing through arms in a prone position and gentle rocking movements forward to back helps to facilitate the child's weight shifting ability through arms. Righting reactions can be improved with slight rolling of the bolster to both sides putting the child in an astride position.

Small roll – Used for babies and infants for positioning and to facilitate head control in prone. When placed under the occiput, it helps to maintain elongation of the back of the neck and reduce extensor tone in infants with ATNR and opisthotonic posture.

Prone Wedge – Used for positioning in prone, facilitates head control as the effect of gravity is much eliminated.

Balance Board – Improves balance in sitting or in a standing position. Instability invokes equilibrium reactions and thus improves stability in standing and walking.

Trampoline – Used for proprioceptive and vestibular stimulation especially for children with sensory integration disorder.

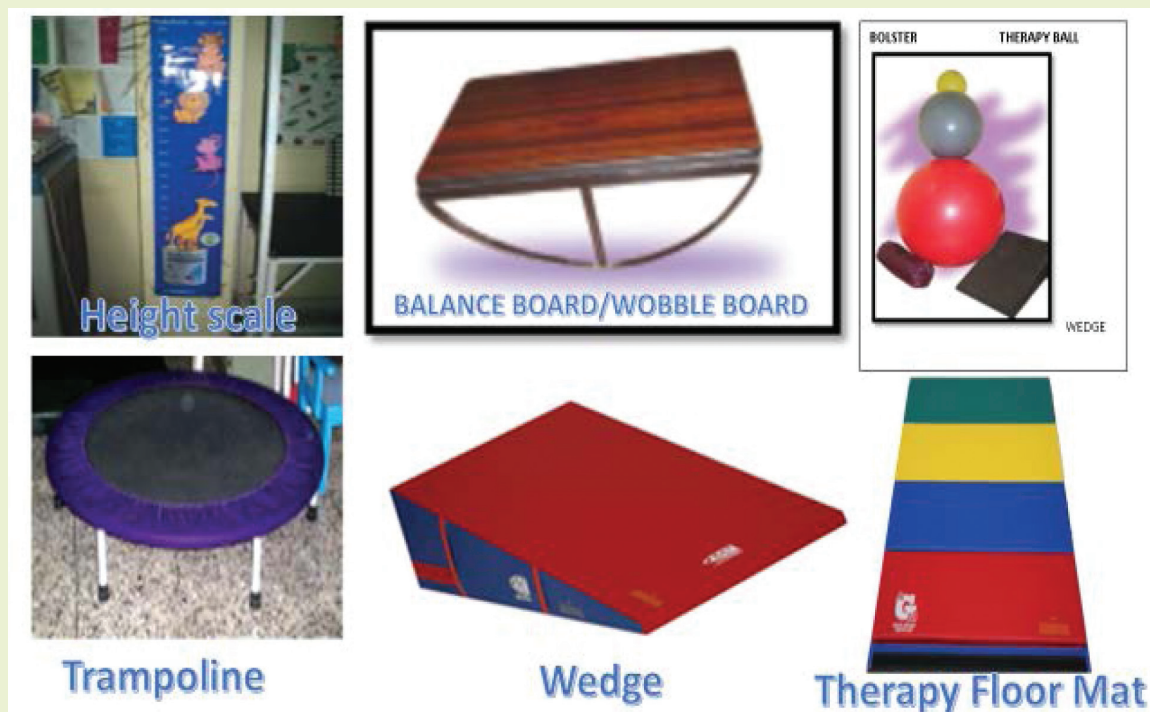
Kaye-Walkers - A walking aid that facilitates extension of trunk, hips, and knees for children with spastic Diplegia.

Modified chairs – Seating children with Cerebral palsy, modified according to the needs of the child.

Splints - Used to keep the joints in neutral positions and provide stability.

Wooden Benches – Used as therapy tool to facilitate standing and cruising. Cruising is particularly important to reduce adductor spasticity and simultaneously facilitates extension and external rotation of hips and extension of knees when the child shifts her body weight sideways. A child can stand in a modified plantigrade position (weight bearing on extended arms while standing on her feet) and gentle rocking forward and backward facilitates weight bearing through both arms and legs. Such rocking movements also helps in improving balance reactions in preparation of walking with walking aids like elbow crutches or rollator or a Kaye-walker.

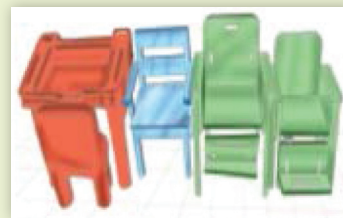
Bolster Swings – For vestibular stimulation, used for children with sensory integration disorder.



Practice Beam



Added Balance Board



Modified Chairs



Bean Bag



Peg Board



Wedges



Actimty Table



Modified Wheel Chair



Cp Walker



Stacking Rings



Trampoline



Balancing Toy



Step Stander



Ball Pool



Slider



Resources to Support Sensory Development



Fig 1: Sensory toys, to squeeze and feel.



Fig 3: Sensory feely boxes, sand trays, yellow sensory box.



Fig 2: Head Phones



Fig 4: Tactile mats and balls.

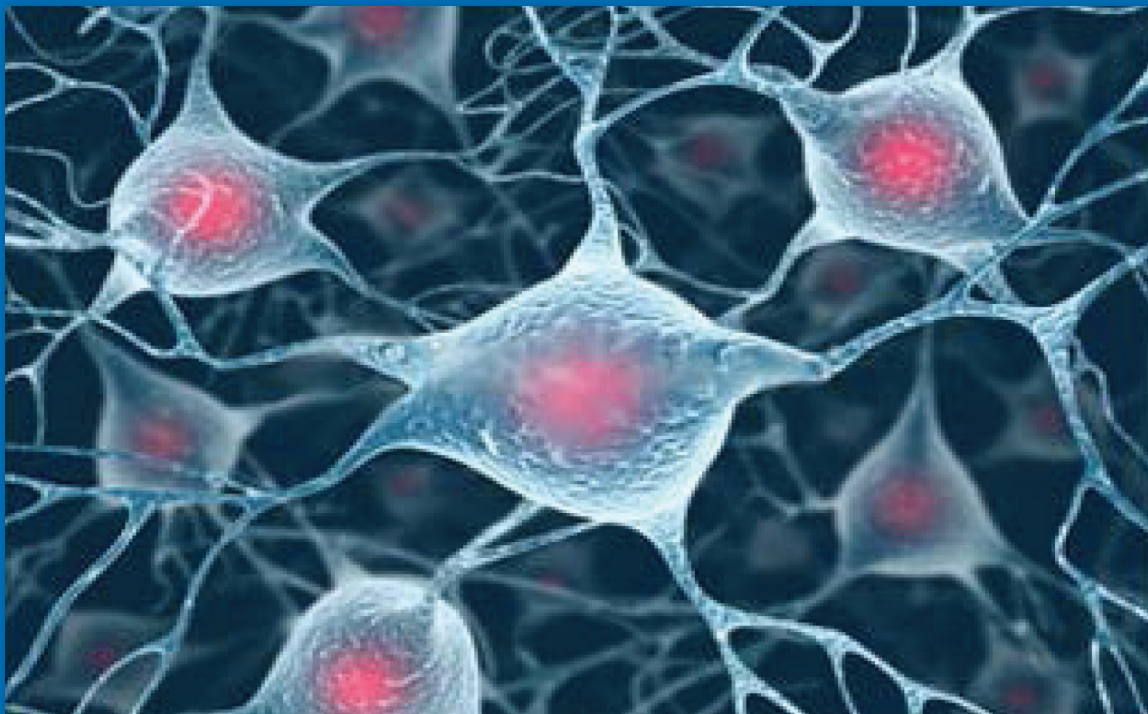


Fig 5: Rocking toy, trampette and play tent.

EARLY BRAIN DEVELOPMENT

There are some important concepts that help us understand early brain development:

- ❖ *At birth, newborns start with very similar brains and brain structures.*
- ❖ *Beginning in the last trimester of the prenatal period, brain pathways are formed by developing new connections. This growth increases after birth and follows a predictable sequence (McCain, Mustard & Shanker, 2007; National Scientific Council on the Developing Child, 2007)*
- ❖ *There are “sensitive periods” during child’s development, when the wiring of the brain for specific abilities is established (Couperus & Nelson, 2006)*
- ❖ *Providing responsive, nurturing and stimulating experiences establish the wiring of the brain connections. Children who are well supported and nurtured physically, emotionally, socially and intellectually will develop a multitude of neural connections that will serve them well throughout their life course.*
- ❖ *A child’s interest and curiosity are the motivators that create new connections to acquire new skills. Each new skill builds on a skill already learned. (Blair & Diamond, 2008; Miller & Keating, 1999; Posner & Rothbart, 2006; Shanker, 2008). The child’s environment can support and enhance his interest and curiosity.*
- ❖ *Early brain development establishes a child’s social competence, cognitive skills, emotional well-being, language, literacy skills, and physical abilities and is a marker for well-being in school and life resiliency (Blair, 2002; Posner & Rothbart, 2006; Shanker & Greenspan, 2009).*



"Early child development sets the foundation for lifelong learning, behaviour and health. The experiences children have in early childhood shape the brain and child's capacity to learn, to get along with others, and to respond to daily stresses and challenges" (Dunst 1996)

"The introduction of planned programming deliberately timed and arranged in order to alter the anticipated or projected course of development"
(Seigal 1972)

"It's not a drug, it's not a vaccine, and it's not a device. It is a group of therapists working together, solving problems and enhancing capabilities"

Adaptation from Richard Horton, Lancet editor

"Medical services and professionals rendering Early Intervention services are the best entry point for such activity because of general acceptance of medical personnel as first line of intervention. Social services and educational services should then work in tandem for reinforcing motivation and sustenance of these benefits.

(Dr Anand Pandit 2013)

"Early intervention is a term which broadly refers to a wide range of experiences and supports provided to children, parents and families during the pregnancy, infancy and early childhood period of development" (Dunst 1996)



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