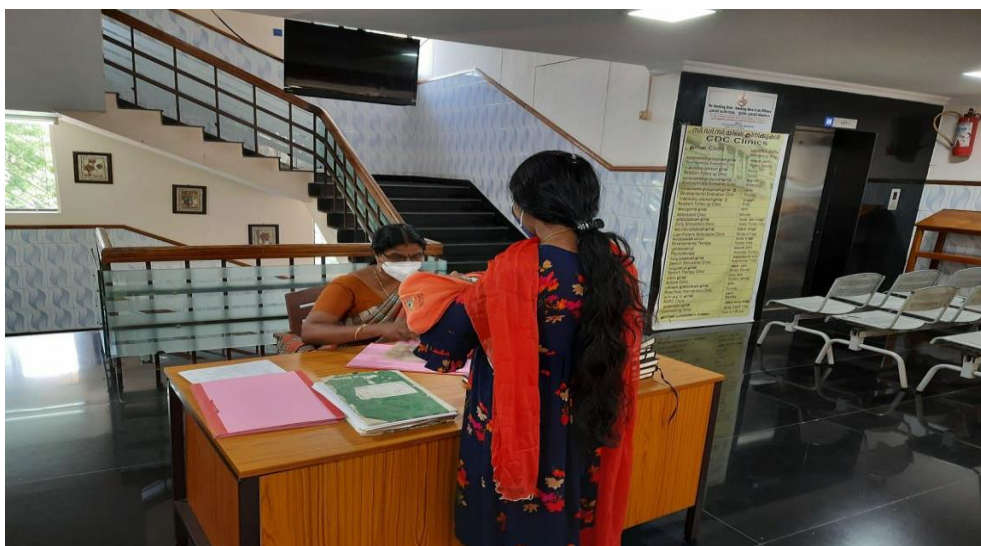


Child Development Centre Medical College, Thiruvananthapuram

Clinical Activities

CDC was established with the focus on early childcare and education, adolescent care, pre-marital counselling, women's welfare and other related fields. In order to provide the same at low cost, CDC has adopted a strategy of one specialty clinic on each day, which has also helped us to train medical and paramedical staff in a systematic way.

Our Reception



I. New born Follow-up Unit

Three clinics are functioning under this unit

a. Early Stimulation Clinic

Day	Beneficiaries	9.00 am - 3.30 pm	
Monday	0-3 years	Developmental evaluation clinic I Developmental evaluation clinic III	Developmental Therapy, Speech Therapy Early stimulation, Late Preterm Clinic ASD Intervention, Speech Stimulation Occupational Therapy BehaviouralCounselling Clinic
Tuesday	0-6 months	New-born follow-up clinic-I	Early Stimulation, Occupational Therapy Developmental Therapy , Speech Therapy Late Preterm Clinic, Ultrasonology Speech Stimulation Clinic BehaviouralCounselling Clinic Preventive Cardiology in the young clinic
Wednesday	3-6 years	Developmental evaluation clinic II	ASD Intervention, Occupational Therapy Developmental Therapy, Speech Therapy Late Preterm Clinic, Early Stimulation BehaviouralCounselling Clinic
Thursday	6-12 years	Developmental evaluation clinic III	Preschool Intervention ASD Evaluation, Early Stimulation Developmental Therapy Speech Stimulation Clinic Occupational Therapy, Speech Therapy Late Preterm Clinic, ADHD Clinic BehaviouralCounselling Clinic
Friday	7-12months 0-18 years	New-born follow-up clinic-II Developmental Evaluation Clinic III Visual impairment clinic	Early Stimulation Clinic Developmental Therapy ASD Intervention Clinic, Neurology Clinic Speech Stimulation Clinic Late Preterm Clinic, Occupational Therapy BehaviouralCounselling Clinic
Saturday	13-18 years 0-3 years	Adolescent clinic Developmental evaluation clinic I Deeptham (Child Psychology Clinic)	ADHD Clinic, Late Preterm Clinic, ASD Intervention, Occupational Therapy Speech Stimulation Clinic, Speech Therapy BehaviouralCounselling Clinic Scholastic Intervention Clinic
	On prior appointments	Foetal Medicine Unit - Sradha Project- Anomaly Scanning	
Down Syndrome Clinic, CVI Clinic : 2 nd & last Wednesdays KUDE Clinic: Wednesdays (Family Counselling Unit- Pallium India)			

The early stimulation clinic of CDC offers early developmental stimulation to all newborn babies with birth weight less than 1800gm till one year of age. A randomized control trial conducted at CDC showed that the Child Development Centre (CDC) model early stimulation therapy done in the first year of postnatal life, in improving the developmental outcome of at-risk neonates at one and two years of age (*Nair, M & Philip, Elsie & Jeyaseelan, Lakshmanan & George, Babu & Mathews, Suja & Padma, K. (2009). Effect of Child Development Centre Model Early Stimulation Among At-risk Babies - A Randomized Controlled Trial. Indian pediatrics. 46 Suppl. s20-6.*).



Objectives

1. Offering early developmental stimulation to all newborn babies with birth weight less than 1800gm till one year of age
2. Motivating the parent to stimulate the baby with appropriate stimuli
3. Lactation counselling to all mothers with LBW babies

Clinic set up:

- The clinic functions in CDC on all week days from 9.00 am to 3.00pm except on holidays.
- All the newborn babies with birth weight less than 1800 referred from OBN and IBN clinics of SAT Hospital are being followed up.

Services offered

All the babies attending the clinic receive the following services.

1. Periodic growth monitoring of children- weight, length, head circumference

2. Developmental screening using Trivandrum Developmental Screening Chart (TDSC) and Denver Developmental Screening Test (DDST) and CDC Grading for motor mile stones
3. Neurological assessment by Amiel-Tison method of assessment
4. Developmental assessment using Developmental Assessments Scales for Indian Infants (DASII) done at one and two years of age
5. Auditory, tactile, visual and motor stimulation
6. Lactation counselling for mothers

b. Late Pre-term Clinic (34 weeks to 36 weeks 6 days)

There is increasing evidence that late preterm babies (Gestational Age 34-0/7wks to 36-0/6 wks) are at increased risk of short term developmental morbidities as compared to term counterparts. A study assessing the outcome of parent based early stimulation model on neurodevelopment of late preterm infants showed that early stimulation pivoting around parent-child in late preterm babies has positive influence on Neurodevelopmental outcome at 12 months of corrected age. (Ashwini N K, Babu G, Deepa B. Outcome of CDC Kerala Early Stimulation Model on Neurodevelopment of Late Preterm Infants. *Acad J Ped Neonatol*. 2017; 3(1): 555603.)

The clinic functions on all week days and the services are offered from 9.00 am to 3.00 pm



Objectives

1. Periodic assessment of late preterm from birth to 24 months
2. Sensory oriented stimulation for late preterm babies.

3. Stimulating the child through normal developmental channel.
4. Teaching the parents to stimulate the baby with appropriate stimuli.
5. Assessing parenting skills and educating.

Service offered

1. Lactation counseling
2. Health education
3. Developmental assessment using TDSC, DDST, Amiel-Tison method and CDC Grading for motor mile stones
4. Hearing & Vision Screening
5. Growth Monitoring
6. Infant massage and tactile stimulation
7. Early intervention based on developmental assessment
8. Evaluation, diagnosis and treatment plan for medical problems by Developmental Pediatrician

c. At Risk Baby Clinic

At-risk babies are more likely to develop developmental delay and hence regular developmental follow-up at fixed interval is planned for these children. Research studies have shown that early intervention is effective in improving the developmental status of at risk babies (*Upadhyay, R.P., Taneja, S., Strand, T.A. et al. Early child stimulation, linear growth and neurodevelopment in low birth weight infants. BMC Pediatr 22, 586 (2022).*)



Objective

1. Reducing childhood disability through early detection and intervention program
2. Assessing the developmental status of new-borns who are at risk for developing developmental delay
3. Assessing and monitoring the growth status

Clinic Set-up

The Clinic is functioning at Child Development Centre on all Tuesdays and Fridays from 9am to 1 pm except on holidays.

Low Birth Weight babies and those babies who were admitted to the In-born and Out-born nurseries at SAT Hospital Thiruvananthapuram are being given appointment. All children will be categorized on risk basis as mild, moderate and severe. All mild risk babies will be followed up at 4th month, then at 1 year, moderate-risk babies will have the follow up regime at 2,4,8,12 months. All babies in severe risk categories will be followed up monthly till one year.

Services Offered

1. Health Education – Breast-feeding, weaning, supplementary foods, immunization, parenting etc.
2. Growth monitoring– weight, length & Head Circumference measurement
3. Developmental assessment using Trivandrum Developmental Screening Chart (TDSC) & CDC Grading for motor milestones
4. Developmental Screening using Denver Developmental Screening Test (DDST)
5. Neurological evaluation using Ameil-Tison method of neurological evaluation
6. Assessment of social age using Vineland Social Maturity Rating Scale
7. Early Intervention services (general stimulation techniques) for all children
8. Specific mother oriented therapy for those children showing mild developmental delay
9. Screening for hearing problems using Oto Acoustic Emission test
10. Screening for visual abnormalities by the ophthalmologist
11. Screening for medical problems by the Developmental Paediatrician.
12. Appropriate referrals to various specialty, if found necessary.
13. Follow up in pre-school – 3 ½ years and further need based follow up

II. ASD Evaluation & Intervention Clinic



Objectives

1. Offering early detection & early intervention services for children under 6 years of age showing autistic features.
2. Training for children having ASD including behaviour modification, speech training etc, Social skill training etc.

Clinic Set-up

The Clinic is functioning at Child Development Centre on all Mondays, Wednesdays, Thursdays and Fridays from 9.00 am to 1.00 pm except on holidays.

All those children (age group 0 to 6 years) who are referred to Child Development Centre for evaluation will be given prior appointment for the clinic. Those babies, who require intervention services, will be followed up on weekly once basis in ASD Group therapy sessions.

ASD group Therapy

Group interventions allow children to learn the group's rules and develop social skills. The group based therapies can have effect on the social responsiveness, cognitive and behavioural domains as well as in reducing the anxiety in children with ASD. Furthermore, parents can meet other parents at these group sessions, which can lead to peer support and information sharing. Group interventions can provide opportunities for children to learn adaptive behaviours by participating in group activities. At CDC, group therapy is delivered



as a uniform program for improving the social, cognitive and behavioural aspects for children with ASD. Four sessions of group therapy are conducted every week.

Services Offered

1. Screening for autistic features in children using Modified Checklist for Autism in Toddlers (M-CHAT) & Trivandrum Autism Behaviour Checklist (TABC)
2. For diagnosing autism in children the following scales are used -Childhood Autism Rating Scale (CARS), Diagnostic & Statistical Manual (DSM V) INDT-ASD, ISSA
3. Specific child oriented parent mediated therapy for those children having autistic features.
4. Screening for medical problems by Developmental Paediatrician.
5. Behaviour modification services, speech-training services
6. Counselling and parental training program for the parents
7. Appropriate referrals to various specialty, if found necessary

III. Intervention Clinic

Developmental Therapy

Developmental Therapy Clinic aims to give Early Intervention Techniques to children detected to have developmental delay. The aim of intervention is prevention and

management of developmental delay, prevention of asymmetries and abnormalities, improving parental awareness.

- Developmental follow up is done using TDSC, LEST, Amiel-Tison method for Neurological evaluation and CDC grading for motor milestones
- Parental counselling and regular follow up
- Based on the delay intervention is individualized
- Growth assessment and monitoring
- Nutritional and parenting practises are also reviewed at each visit
- Monthly follow up and intervention is continued till 2 years of age
- Mother is taught the therapy in detail, so that she can do it regularly and effectively at home.

IV. Speech & Hearing Impairment Unit

All children referred to Child Development Centre with delayed speech and language will be registered in speech evaluation clinic. All children will undergo developmental assessment and speech assessment; after that if needed the cases will be given follow-up for further speech stimulation.

Objectives

1. Early detection and intervention for speech and language delay for at-risk and high-risk babies.
2. Speech training for children with delayed speech and language development, with or without associated sensory deficits or other developmental disorders like intellectual disability, attention deficit hyperactivity disorder etc.
3. Hearing screening using Oto Acoustic Emission for children in the age group of 0 to 6 years.
4. Hearing evaluation using Brain Stem Evoked Response Audiometry (BERA)

a. Speech Stimulation Clinic



Children less than 3 years attend the clinic. In this clinic regular follow up is given for children with speech and language delay.

Services Offered

1. Assessment of Speech and language using Receptive Expressive Emergent Language Scale (REELS)
2. Parents are allowed to observe the intervention along with the child.
3. Counselling for the parents
4. Providing instructional plans, strategies, methods, materials and techniques based on the need of the individual child
5. Appropriate referrals to the needed children

b. Speech Therapy Clinic



Objective

The main objective of Speech Therapy clinic is to improve the communication and the ability to express himself or herself the ideas and thoughts. It is observed that each child shows different outcome and related problems. The therapy also aimed at improving the ability to attain near normal language development along with pre-linguistic skills.

V. Visual Impairment Unit



Objective

1. Ophthalmic evaluation for children with suspected visual impairment
2. Retinopathy of Prematurity (ROP) screening and follow up

Clinic Set up:

The clinic is functioning on all Fridays from 9.00am-1.00pm except on public holidays. All children with squint, headache, eye discharge, scholastic backwardness, learning disability and other neuro-developmental disorders are assessed.

Services Offered:

1. Vision evaluation for children
2. ROP evaluation is done in preterm, LBW babies using indirect ophthalmoscopy
3. For older children evaluation using the Snellen's Chart and refraction test
4. Children in need of further evaluation are referred to RIO

VI. Developmental Evaluation Clinic

Developmental assessment is being done at development evaluation clinics I, II, III according to the stipulated age using simple but effective screening tools designed and validated at CDC and gold standard Developmental tests.

a. Developmental Evaluation Clinic-I (0-3 years)



Children with Developmental Delay in the age group 0-3 years are referred to the evaluation clinic for providing assessment and intervention facilities.

Objectives

1. Identifying children with developmental delay using various screening and diagnostic tools
2. Growth monitoring using growth charts
3. Following up the children at regular intervals
4. Parental Counselling

b. Developmental Evaluation Clinic II (3 to 6 years)



Objectives

1. Identification of developmental and learning problems of preschoolers.
2. Assessing the behavioural pattern of children
3. Early detection and intervention services for children between 3 or 6 years

Clinic Set-up

The clinic is functioning on all Wednesdays from 9.00 am to 3.00pm except holidays

Intervention Programme

Intervention is aimed at enhancing language and communication, social play, pre-academic and independent living skills of young children so that they may take better advantage of opportunities in their communities and may require less professional attention as they grow older.

An individual education programme is developed specially to meet the educational training needs of each child. As no two special children have similar abilities, majority of special children require services from more than one discipline, such as special education, speech therapy, audiology, psychology, physiotherapy, occupational therapy. It is essential that a comprehensive service programme be developed for each child based on his needs including the appropriate inputs from each discipline.

Intervention is mainly given for children who are diagnosed being at risk for children with Attention Deficit Hyperactive Disorder (ADHD), Learning Disorders (LD), Intellectually disabled and ASD(Autism Spectrum Disorder). Intervention packages are available for children with different problems.

Service Offered

- 1) Growth monitoring of children – Weight, Height & Head Circumference
- 2) Various Developmental Screening Tests.
- 3) Psychological evaluation
- 4) Educational counselling for scholastic backwardness
- 5) Evaluation, diagnosis and treatment plan for medical problems by Developmental Pediatrician
- 6) Speech Therapy

c. Developmental Evaluation Clinic -III (6 to 12 years)



As part of developmental evaluation, various intervention programmes are being conducted for this group (6-12 years), which include pre-adolescent children also. The Behavioural Pediatrics and Scholastic Backwardness unit take care of the cases attending this clinic.

Clinic Set-up

The clinic functions on all Mondays, Thursdays and Fridays from 9.00 am to 3.00pm.

Service Offered

- 1) Growth monitoring of children – Weight, Height & Head Circumference
- 2) Educational counselling for scholastic backwardness
- 3) Various Developmental Screening Tests.
- 4) Psychological evaluation and counselling
- 5) Evaluation, diagnosis and treatment plan for medical problems by Developmental Pediatrician
- 6) ADHD Group intervention

VII. Behavioural Pediatrics & Scholastic Backwardness Unit

Objective

This unit focuses on all types of behavioural problems (0-18 years) and learning problems. The activities include identification of the problem, psychological intervention as and when needed. Intervention is offered at the individual and family level with regular follow-up.

Services Offered

1. All children are screened for ten neurodevelopmental disabilities using NDST
2. IQ assessment using appropriate psychometric test
3. Assessing social age and social quotient using VSMS
4. Slow learners (IQ 70-85) are evaluated using Diagnostic Tool for Learning Disorders (DTLD) and intervention is offered
5. Children with ADHD are evaluated using CONNER's Rating scale and behaviour modification is provided
6. Study habit modification counselling for learning and behaviour problems
7. Detailed evaluation for suspected specific learning disability are undertaken

The clinics functioning in the unit include:-

a. Preschool Intervention Clinic

Preschool Intervention Clinic is functioning on all Wednesdays from 9.00 am – 1.00 pm except on holidays. The beneficiaries of Pre-School Clinic of CDC are children who had problems during the neonatal period. The overall developmental screening of children will be done in this clinic by using screening tools for finding out the delay and problems in development. After screening they are called for IQ assessment and interventions.

The tools used in this clinic are Nursery Evaluation Scale Trivandrum (NEST), Denver Developmental Screening Test (DDST), Receptive Expressive Emergent Language Scale (REELS), Vineland Social Maturity Scale (VSMS), Binet-Kamat test of intelligence Wechsler Intelligence Scale for Children and Seguin Form Board Test

b. Adolescent Care Counselling Clinic



Adolescence, as per WH which is the most fascinating period of our life. It is a time of considerable change in virtually all aspects – physical, mental, emotional and social. Apart from changes in physical structure and sexual maturation, changes in abilities, patterns of thinking, attitude, ideas, relationships and moral standards occur.

Objectives :

- The major objective is to develop and implement adequate and state-of-the-art system of care for the social, emotional and behavioural development of adolescents with optimal health.
- The major clinic functioning in this unit is the Adolescent Care Counselling. It is evident from many studies that adolescent population are vulnerable group that have significant morbidity and other psychosocial issues.

Services Offered:

* Intervention for learning, emotional and behavioural problems

* Adolescent care counselling for parents

c. ADHD Clinic



ADHD (Attention Deficit- Hyperactivity Disorder), is a treatable condition which affects about 5 to 8% of children. The diagnosis is generally confirmed by the age of 5 to 7 years and are found more often in boys than girls.

Objectives:-

- (i) Diagnosis of ADHD and therapy
- (ii) Help children with ADHD to explore their feelings and thoughts
- (iii) Setting up behavioural modification programmes at school and home
- (iv) Advice families about assistive technology
- (v) Making aware of the parents and teachers about the fact that ADHD could be successfully managed

INDT/ADHD Screening tool with positive result and IQ between 70-90 and IQ above or equal to 90 are being evaluated and managed.

VIII. Preventive Cardiology in the Young Clinic(PCYC)



The precursors of Cardio Vascular Diseases (CVD) can be found in the young and there is an urgent need for early detection and intervention since these diseases are on the rise. Child onset adult diseases commonly seen in Low birth Weight adolescent will add to the burden of the diseases. This clinic aims at screening for precursors of Cardio Vascular Diseases such as obesity, Hypertension with providing appropriate life style interventions for children and adolescents. The children who are identified as at risk from the community extension services as well as different school projects are examined in this clinic and appropriate interventions including diet-counselling, stress reduction are being given.

The major services offered in the clinic:

1. Screening for CVD Risk factors
2. The relevant laboratory investigations
3. Counselling for Lifestyle modification and Psycho-educational issues of adolescent children
4. Preventive cardiology services and follow up

IX. Paediatric Neurology Clinic



Many of the Neurodevelopmental disorders, seen among children require a detailed evaluation by a Paediatric Neurologist.

At CDC Paediatric Neurology Clinic is functioning on all Saturdays. Children having Autism Spectrum Disorder, Attention Deficit Hyperactivity Disorder, Learning Disabilities, Epilepsy, Cerebral Palsy and Neuro muscular disorders, are being assessed by a Paediatric Neurologist and appropriate management is offered. Pharmacological management and timely follow up is warranted in Neurodevelopmental disorders or comorbid neurological conditions seen in other disorders.

X. DEEPTHAM- Psychological Medicine Clinic

Children and adolescents who attend different clinics of CDC sometimes require consultation and follow-up by a consultant in Psychological Medicine.

Main activities of the Deeptham clinic

- Pharmacotherapy
- Behavioural modification program
- Cognitive behavioural therapy
- Supportive counselling services for parents

Genetic & Metabolic Lab

Services Offered

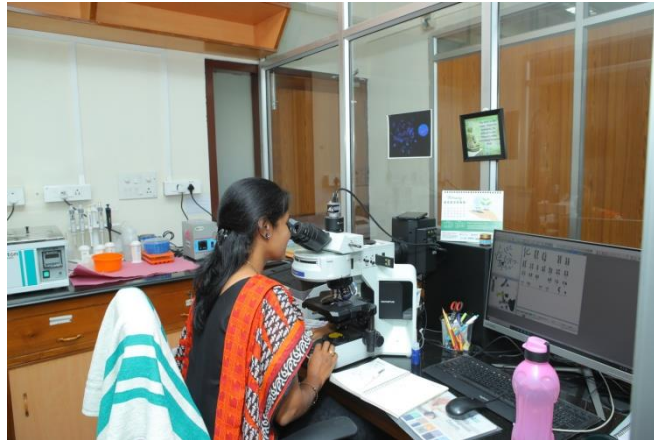
The Genetic and Metabolic unit offers advanced laboratory diagnostic facilities to identify and screen the developmental issues in children. The various diagnostic services include biochemical analysis, cytogenetic analysis and molecular biology techniques. The detailed infrastructure and procedures available at the unit is summarised below.

Bio-chemistry Section

The Bio-chemistry section of the laboratory is equipped with diagnostic devices like Automated Chemiluminescence Immunoassay Analyser for doing thyroid function test in children and adolescents.



Human Cytogenetics



The Human Cytogenetic Laboratory is involved in genetic diagnostic services to the patients attending Medical College and SAT Hospital, Thiruvananthapuram. Cytogenetic study is carried out in children with suspected chromosomal disorders (Intellectual Disability/ Dysmorphism/ Multiple malformation/ Down syndrome/ Short stature/ Ambiguous genitalia) and in couples with recurrent pregnancy loss, infertility etc. The lab follows stringent sterile conditions for sample collection and culture procedures. The documentation and reporting of chromosomal analysis follows the International standard for Chromosomal Nomenclature (ISCN- 2013). The laboratory is equipped with computerised karyotyping system (Applied Spectral Imaging Software) allowing a substantial shortening of turnaround time of the results. The results will be verified by a qualified Medical Geneticist and genetic counselling will be provided to the needy patients.

Standardizing and diagnosis based on FISH (Fluorescent Insitu Hybridization), the first of its kind in Government sector in Kerala was started. The introduction of this new testing facility will help in diagnosing new diseases and to rule out Aneuploidy conditions and Microdeletion syndromes prevailing among children and adolescents.

Molecular Genetics

This section of the laboratory is involved in research activities which include an on-going multicentric collaborative study on lysosomal storage disorder. The lab is also dealing with mutation analysis of rare diseases. Blood samples are collected from SAT as well as from other collaborative centres. DNA isolation followed by PCR, visualization by Gel Documentation system and finally sequencing are being done.

Clinical Research Laboratory of Genetic & Metabolic Unit, CDC

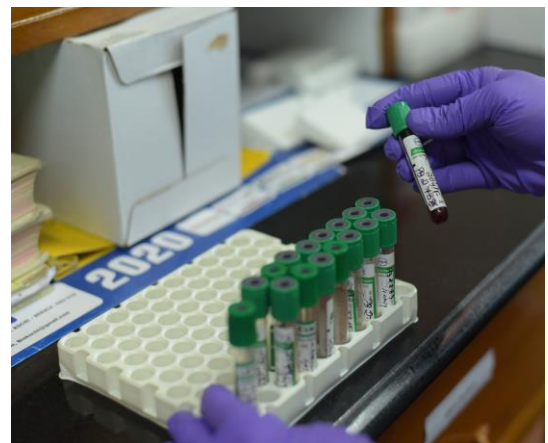


**Dr.Santhi S., Cytogeneticist
doing Chromosomal Analysis Test at CDC**



**Ms.Haritha Dasaradh, Senior Lab. Technician
Doing Biochemical Analysis at CDC**

Molecular Analysis



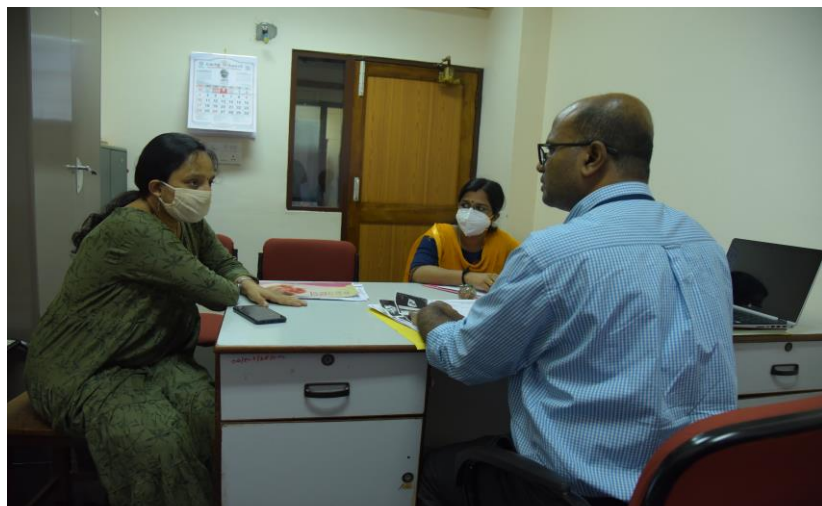
Blood Collection

Sample verification

XII. Imageology Division- Sradha Project- Foetal Medicine Clinic

1. As part of the Reduction of childhood disability initiatives of CDC a project titled "SRADHA project was started during the year 2020. Dr.Pio James, Assistant Professor, Obstetrics & Gynecology, Govt. Medical College, Ernakulam is the consultant of the clinic.
- 2.
3. The "Sradha project" aims at reduction of childhood disability through various antenatal intervention including anomaly scanning using the 4D Ultrasonography machine and advanced equipments available at Genetic & Metabolic unit of CDC.
4. The major services offered are First trimester scan (11-14 weeks), Early Anomaly Scan - 16 weeks), Target Anomaly Scan (18 to 27 weeks), Target Anomaly scan with fetal ECHO, Growth scan with fetal Doppler

5



XIII:Information Documentation & Dissemination Division



Information, Documentation and Dissemination Unit, an integral part of the Centre is intended to cater primarily to the information requirements of the academic community and those who are associated with the activities of the Centre. The main objective of the library functioning in this unit is to organize a specialized collection and to provide services to support the Centre's various programmes and to serve as a comprehensive learning resource centre

Collection development.

Since its inception, high priority has been accorded to 'books' than other materials in the collection process. It strives to collect the relevant literature for its specialized collection to cater the information needs of the clinical and paramedical community and researchers and students. The library is equipped with books, monographs, dissertations, project reports, journals, non-book materials, etc.. The books collection covers wide range of subjects like pediatrics and its specialties, developmental disabilities, epidemiology, adolescent medicine, behavioural sciences, special education, hospital administration, hospital management, genetics, rehabilitation, reproductive medicine, psychology, psychiatry, etc. Now the library has a collection of 3920 books and other materials. The Library has 10 foreign journals and 4 current Indian journals also.

Library organization and automation

The Unit is moving with a mission to organize a modern library and knowledge centre in order to support the potential information and learning requirements. The library has been automated and for this it has adopted 'KOHA', an open source integrated library management software which is being used for library catalogue search and other information retrieval. Internet search facility is also provided in the library.

External users, distance learning students and trainees

Apart from staff of CDC, the library resources are being used heavily by distance learning students and trainees of the Centre, students and researchers from other institutes/ organizations/hospitals, etc.

TEENS

CDC brings out a biannual journal entitled, TEENS", presenting various issues on child & adolescent care and development, the copies of which are also available in the library.

Publications

All the back runs of the publication, TEENS, are kept in the library. The Centre has also published a good number of books, research monographs, bulletins, educational materials, etc., the copies of which are also available in the library.

