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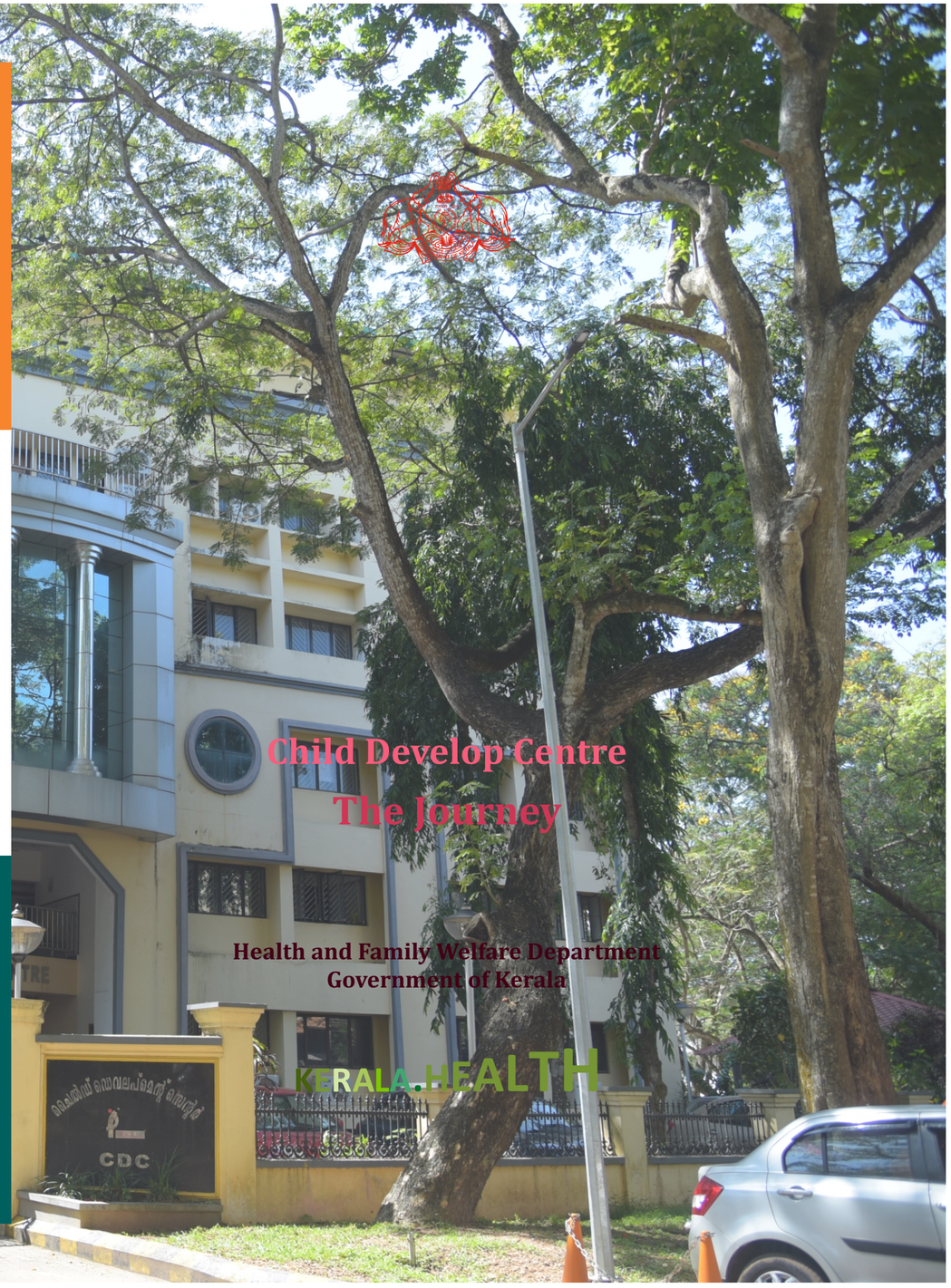
Child Develop Centre The Journey



Child Develop Centre
The Journey

Health and Family Welfare Department
Government of Kerala

KERALA.HEALTH

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Smt. Veena George

Minister for Health &
Family Welfare
and Woman & Child Welfare
Development
Government of Kerala

Message

Kerala's achievements in child health are rooted in a strong commitment to prevention, early intervention, and community centred care. The Child Development Centre (CDC) since inception has followed these principles and has played a pivotal role in strengthening Kerala's child health and development services. CDC has contributed significantly to early identification, timely intervention, and comprehensive management of developmental issues in children.

Through its multidisciplinary approach, the CDC has contributed significantly to early identification of developmental delays, timely interventions, disability prevention, and long-term follow-up care. Its work has supported the introduction of development and validation tools, strengthened the capacity of health professionals, and facilitated research into public-health actions. CDC's strong community-based activities ensured that these interventions reach children and families across diverse settings.

This document provides a comprehensive overview of the vision, accomplishments, and future direction of the Child Development Centre. I am confident that it will serve as a valuable resource for policymakers, health professionals, academicians, and partners working towards strengthening the child and adolescent health in Kerala.

I appreciate the entire CDC team for their dedication and contribution, and extend my best wishes for their continued success in advancing child development and health care in the State.

Veena George

Foreword

The Child Development Centre (CDC), Thiruvananthapuram, stands as a pioneering institution committed to supporting child health, neurodevelopment, and family wellbeing. Over the years, CDC has evolved into a centre of excellence that integrates clinical services, early intervention, research, and community outreach ensuring that every child receives the best possible start in life.

The Government of Kerala have identified the need of an exclusive Centre dedicated to tackle child development related various issues. The continuous support has enabled CDC to reach to the present level of expertise. Through its innovative programs and people-centred approach, CDC has played a transformative role in identifying developmental delays early, guiding families with clarity and compassion, and in supporting children with special needs.

This document reflects CDC's journey over the years and its vision to promote holistic development, to reduce preventable disabilities, and to enable every child to reach their full potential. It also highlights the institution's continued involvement in clinical practice, research, training, and parental support.

I congratulate the entire CDC team under the guidance of Dr Deepa Bhaskar, i/c Director for their efforts in bringing out such a document which showcases the CDC's vision, and professional commitment to improve the quality of life of our children and their families.

Dr Rajan Khobragade IAS
Additional Chief Secretary
Health & Family Welfare and
AYUSH Department
Govt of Kerala.

Index

List of Abbreviations

ADHD	:	Attention Deficit Hyperactivity Disorder
ALD	:	Assessment of Language Development
ARSH	:	Adolescent Reproductive and Sexual Health
ART	:	Assisted Reproductive Technology
ASD	:	Autism Spectrum Disorder
ASHA	:	Accredited Social Health Activist
ASQ	:	Ages and Stages Questionnaire
AT Angles	:	Amiel Tison Passive Angle Method
AWC	:	Anganwadi Centre
AWW	:	Anganwadi Worker
BAP	:	Broad Autism Phenotype
BAPQ	:	Broad Autism Phenotype Questionnaire
BDI	:	Beck Depression Inventory
BERA	:	Brainstem Evoked Response Audiometry
BMI	:	Body Mass Index
BP	:	Blood Pressure
BSID	:	Bayley Scales of Infant and Toddler Development
CACEE	:	Centre for Adult and Continuing Education & Extension
CARS	:	Childhood Autism Rating Scale / Second Edition
CATT	:	Childhood Autism Tool: Trivandrum
CBT	:	Cognitive Behavioural Therapy
CC Card	:	Crowding Cards
CDC	:	Child Development Centre
CDPO	:	Child Development Project Officer
CHC	:	Community Health Centre
CHDP	:	Childhood Disability Project
CI	:	Confidence Interval
CoE	:	Centre of Excellence
COVID19	:	Coronavirus Disease 2019
CP	:	Cerebral Palsy
CSR	:	Corporate Social Responsibility
CVI	:	Cerebral Visual Impairment / Content Validity Index
CVS	:	Chorionic Villus Sampling
DAC	:	Different Art Centre *(programme title)*
DASII	:	Developmental Assessment Scales for Indian Infants
DDST / DDSTII	:	Denver Developmental Screening Test / Second Edition
DEEPTHAM	:	Psychological Medicine Clinic *(programme title)*
DEIC	:	District Early Intervention Centre
DISHA	:	National Conference on Early Detection & Early Intervention
DME	:	Directorate of Medical Education
DOC	:	Developmental Observation Card
DoHAD	:	Developmental Origins of Health and Disease
DSM5	:	Diagnostic and Statistical Manual of Mental Disorders
DTLD	:	Diagnostic Tool for Learning Disability
DHS	:	Directorate of Health Services
ECCE	:	Early Child Care and Education
EDD	:	Expected Date of Delivery
EDEI	:	Early Detection and Early Intervention
ELISA	:	Enzyme Linked Immunosorbent Assay

ESI	:	Employees' State Insurance
FISH	:	Fluorescence In Situ Hybridization
FLE	:	Family Life Education
FNB	:	Fellow of National Board
FGD	:	Focus Group Discussion
GH	:	General Hospital
HOD	:	Head of the Department
HSS	:	Higher Secondary School
ICDS	:	Integrated Child Development Services
ICFOSS	:	International Centre for Free and Open-Source Software
ICMR	:	Indian Council of Medical Research
ICC	:	Intraclass Correlation Coefficient
IEC	:	Information, Education and Communication
IFA	:	Iron and Folic Acid
INDT-ADHD	:	Indian ADHD Diagnostic Tool
INDT –ASD	:	Indian Autism Diagnostic Tool
INDT EPI	:	Indian Epilepsy Diagnostic Tool
INCLEN	:	Indian Clinical Epidemiology Network
IQ	:	Intelligence Quotient
ISAA / ISSA	:	Indian Scale for Assessment of Autism
IYCF	:	Infant and Young Child Feeding
JPHN	:	Junior Public Health Nurse
KAP	:	Knowledge, Attitude and Practice
K-DISC	:	Kerala Development and Innovation Strategic Council
KHRWS	:	Kerala Health Research and Welfare Society
KUDE	:	Paediatric Palliative Care Clinic *(programme title)*
KUHS	:	Kerala University of Health Sciences
LBW	:	Low Birth Weight
LD	:	Learning Disability
LEST	:	Language Evaluation Scale Trivandrum
LKG	:	Lower Kindergarten
LPS	:	Lower Primary School
LSG	:	Local Self Government
MAM	:	Moderate Acute Malnutrition
MCHATR/F	:	Modified Checklist for Autism in Toddlers / Revised with Follow up
MDAT	:	Malayalam Diagnostic Articulation Test
MHA	:	Master of Hospital Administration
M.H.Sc.	:	Master of Health Science
M.Sc.	:	Master of Science
NABL	:	National Accreditation Board for Testing and Calibration Laboratories
NCD / NCDs	:	Non-Communicable Disease(s)
NDST	:	Neurodevelopmental Screening Test
NDD / NDDs	:	Neurodevelopmental Disorder(s)
NGS	:	Next Generation Sequencing
NHM / NRHM	:	National Health Mission / National Rural Health Mission
NIC	:	National Informatics Centre
NICU	:	Neonatal Intensive Care Unit
NIRNAYAM	:	Early Detection & Early Intervention Programme
NEST	:	Nursery Evaluation Scale Trivandrum

ODD	:	Oppositional Defiant Disorder
OAE	:	Otoacoustic Emissions
PAST	:	Partner Assessment Scale Trivandrum
PAT	:	Pre Writing Assessment Tool
PCOS	:	Polycystic Ovary Syndrome
PCPNDT Act	:	Pre Conception and Pre Natal Diagnostic Techniques Act
PCYC	:	Preventive Cardiology in the Young
PCR / RTPCR	:	Polymerase Chain Reaction / Real Time PCR
PGDCCD	:	Postgraduate Diploma in Clinical Child Development
PGDDN	:	Postgraduate Diploma in Developmental Neurology
PGDAP	:	Postgraduate Diploma in Adolescent Paediatrics
PGDCAFC	:	Postgraduate Diploma in Child, Adolescent & Family Counselling
PGDHSR	:	Postgraduate Diploma in Health Science Research
PPE	:	Personal Protective Equipment
QoLA	:	Quality of Life in Autism Questionnaire
RBSK	:	Rashtriya Bal Swasthya Karyakram
RCT	:	Randomized Controlled Trial
REELS	:	Receptive–Expressive Emergent Language Scale
RIO	:	Regional Institute of Ophthalmology
ROC	:	Receiver Operating Characteristic
ROP	:	Retinopathy of Prematurity
SAM	:	Severe Acute Malnutrition
SAT Hospital	:	Sree Avittam Thirunal Hospital
SCARED	:	Screening for Childhood Anxiety Related Emotional Disorders
SD	:	Standard Deviation
SLD	:	Specific Learning Disability
SMA	:	Spinal Muscular Atrophy
SPSS	:	Statistical Package for the Social Sciences
SRADHA	:	Maternal–Fetal Medicine Unit *(programme title)*
T1DM	:	Type 1 Diabetes Mellitus
TABC	:	Trivandrum Autism Behaviour Checklist
TDC	:	Typically Developing Children
TDSC	:	Trivandrum Developmental Screening Chart
TIFFA / TIIFA	:	Targeted Imaging for Fetal Anomalies
TOT	:	Training of Trainers
TSQ T	:	Teenage Screening Questionnaire- Trivandrum
TTC	:	Teacher Training Centre
UNFPA	:	United Nations Population Fund
UNICEF	:	United Nations Children's Fund
UPS	:	Uninterruptible Power Supply
VADPRS	:	Vanderbilt ADHD Diagnostic Parent Rating Scale
VHSS	:	Vocational Higher Secondary School
VSMS	:	Vineland Social Maturity Scale
WCD	:	Women and Child Development
WHO	:	World Health Organization

CHAPTER I

THE CHILD DEVELOPMENT CENTRE (CDC) – KERALA: GENESIS AND JOURNEY

Kerala has long been recognized for its innovation in public health, and the establishment and evolution of the Child Development Centre (CDC) stand among its most significant contributions. CDC emerged from evidence-based clinical research demonstrating that structured early stimulation for high-risk newborns can lead to measurable improvements in neurodevelopmental outcomes. This scientific foundation marked the beginning of a new public health approach in the state—one centered on lifecycle care, early detection, and disability prevention.

Origins 1987–1995

The CDC Project was launched on August 1, 1987, at SAT Hospital, Government Medical College, Thiruvananthapuram, with Dr. Elsie Philip (Professor & HOD of Pediatrics) as Principal Investigator and Dr. M. K. C. Nair (Officer in Charge, Child Guidance Clinic) as Co-investigator. The project received initial support from the KHRWS, followed by funding from the Kowdiar Palace Trust.

This early phase established the foundation for a systematic, scientific approach to infant stimulation, developmental follow-up, and parental counselling—an approach that later became a model for the state.

In 1995, the Hon'ble Governor announced on the floor of the Kerala Legislative Assembly that CDC would be developed as a Centre of Excellence. That same year, CDC was registered as a society under the Travancore–Cochin Literary, Scientific and Charitable Societies Registration Act XII of 1955 (Reg. No. 363/95).

In the 1996–97 State Budget Speech, the Government articulated CDC's future mandate as "a unique scheme for the early detection and treatment of childhood disabilities as a public health programme with community participation, which will become a model for the world."

Take off 1996-2000

In 1998, with UNICEF support, CDC Kerala conducted a large-scale community survey in ICDS blocks to assess the prevalence of developmental delay, revealed significant non-

utilization of available services, and institutionalized statewide early developmental screening by training Anganwadi workers to use the Trivandrum Developmental Screening Chart (TDSC).

Between 1999 and 2001, again with UNICEF support, CDC Kerala carried out a pioneering adolescent study that identified multidimensional psychosocial, health, and educational concerns and led to the development and field-testing of a culturally appropriate Family Life Education (FLE) module.

Consolidation and National Recognition (2001–2011)

Between 2001 and 2011, CDC grew rapidly, emerging as a national reference centre for developmental paediatrics and adolescent health. A major achievement during this period was the translation of epidemiological research, especially on low birth weight, early neurodevelopmental impairment, and adolescent mental health into scalable, community-linked interventions.

CDC developed **a comprehensive service package**, including:

- Early stimulation for newborns and low-birth-weight infants
- At-risk baby clinics and developmental therapy clinics
- Standardized screening tools and developmental assessment systems
- Structured adolescent health and counselling services
- Premarital counselling services

Each service expanded in parallel with validation studies and tool development, facilitating implementation across both primary and secondary healthcare levels.

CDC's leadership in Adolescent Health and Development (AHD) brought visibility at national and international levels. Statewide assessments and strong field experience led to the creation of adolescent clinics, school health models, youth programmes, and parent guidance initiatives.

Academic expansion was another hallmark of this decade. CDC launched distance-education courses, fellowships, and structured training programmes for doctors, nurses, rehabilitation professionals, and frontline workers. Thousands were trained in

developmental surveillance, early screening, adolescent counselling, and mental health support.

Collaborations with UNICEF, UNFPA, ICMR, NRHM, IndiaCLEN, and several national and international bodies strengthened research, capacity-building, and programmatic scale-up. By 2011, CDC had firmly established itself as a national hub for early intervention, developmental paediatrics, adolescent health, and public health training.

Expansion & Establishment as a Centre of Excellence (2012–2025)

2012–2017: Infrastructure and Diagnostic Strengthening

CDC operationalized 15 full-fledged divisions, enabling a multidisciplinary framework for child and adolescent health. Under G.O. (Rt) No. 936/2015/H&FWD, the Government sanctioned ₹360 lakhs for a state-of-the-art Genetic and Metabolic Laboratory and 4-D Ultrasonography.

Karyotyping services began in 2013, making CDC the first government-sector unit in Kerala offering advanced paediatric molecular diagnostics.

In 2017, the Government officially designated CDC as a ***Centre of Excellence in Child and Adolescent Development***, spanning academic, clinical, research, training, and community domains.

2018–2022: Clinical Expansion

The second-phase expansion of the Genetic and Metabolic Unit in 2018 introduced **FISH testing,** enabling diagnosis of chromosomal aneuploidies and microdeletion syndromes. Molecular testing for lysosomal disorders and SMA followed.

The Foetal Medicine Unit (SRADHA) was established in 2019–2020 as the first such government-sector unit in Kerala, created in collaboration with SAT Hospital. It offers anomaly scans, growth surveillance, and diagnostic procedures such as amniocentesis (since 2023), benefiting around 1,400 high-risk pregnancies annually.

Knowledge Partner for the International Conference on 'Clubfoot' (2021):

The Department of Health & Family Welfare, Government of Kerala, held an International Conference on 'Clubfoot' on 6 December 2021, with the Child Development Centre as Knowledge Partner. Experts shared insights on early detection, standardized treatment, and global best practices, highlighting the Ponseti Technique. The conference led to a

major decision to set up around 45 dedicated Clubfoot Clinics across Kerala and strengthen awareness among parents, frontline workers, and clinicians to achieve a 'Clubfoot-Free Kerala'.

In 2021, CDC launched ***DEEPTHAM***, a weekly psychiatry OPD, for the comprehensive management of behavioural and mental health needs in children and adolescents with neurodevelopmental disorders.

2023-2025: Major Milestones

2023: Strengthening Neurodevelopmental and Genetic Services

a. NABL Accreditation of the Genetic & Metabolic Laboratory

- Elevated CDC to a national-level facility for accurate and quality-assured genetic diagnostics.
- Designation as ***the Genetic Centre for the Centre of Excellence in Rare Diseases***
- Positioned CDC as Kerala's lead institution for rare disease diagnosis, research, and coordination.

b. Publication of the Comprehensive Resource Book for ASD

- A state-supported, expert-led, jargon-free manual guiding clinicians, therapists, teachers, and families.
- Launch of Teen Club for Type 1 Diabetes
- A psychosocial and recreational support group fostering peer bonding, positive coping, and emotional well-being among adolescents.

c. Training Program on ASD Management – Jammu & Kashmir (2023)

In June–July 2023, the Child Development Centre (CDC), in collaboration with the Children in India Trust, conducted a hybrid training program for DEIC functionaries and Paediatricians in Jammu & Kashmir on Autism Spectrum Disorder (ASD) management. The program included 10 online expert-led sessions followed by a two-day hands-on workshop delivered by a multidisciplinary CDC team (Developmental Therapists, Occupational Therapist, Speech Pathologist). A total of 75 participants were trained.

CDC Kerala also developed a Handbook on the CDC Model Group Intervention Program in ASD, widely appreciated as a structured, evidence-informed resource.

The model is expected to be replicated across multiple states, supporting India's need for standardized early ASD intervention frameworks.

2024: Deepening Clinical Specialization & Policy Leadership

a. DIYA – Cerebral Visual Impairment Clinic

The DIYA Clinic, launched in 2024, is one of the first government-sector facilities in the state, dedicated to Cerebral Visual Impairment (CVI). Equipped with advanced visual assessment technology— paediatric visual-behaviour tools, and structured CVI protocols—DIYA integrates paediatrics, ophthalmology, neurology, and rehabilitation sciences.

The clinic's hallmark is its functional vision approach, offering:

- Detailed multidisciplinary assessment
- Home-based visual stimulation programmes
- Tailored rehabilitation plans
- Parent counselling and long-term follow-up

DIYA has rapidly become a referral centre for complex neuro-opthalmologic conditions across Kerala.

b. KUDE – Paediatric Palliative Care Clinic

Launched in January 2024, KUDE introduced Kerala's first government-linked non-cancer paediatric palliative care service embedded within a developmental centre. It provides holistic, multidisciplinary care for children with life-limiting and complex neurodevelopmental conditions.

Services include:

- Symptom management (pain, feeding, sleep, spasticity, behavioural issues)
- Psychosocial counselling for parents and siblings
- Home-based and tele-counselling support
- Nutritional and rehabilitative care

KUDE strengthens family resilience and fills a longstanding gap in chronic paediatric care.

c. DISHA National Conference (2024)

The national conference on early detection and intervention, organized along with UNICEF, reinforced CDC's leadership in neurodevelopmental policy formulation. Policy discussions involved senior representatives from UNICEF, NHM, DHS, DME, and the Additional Chief Secretary (Health).

2025: Infrastructure Growth & Statewide Capacity Strengthening

a. Autism Park (CSR-funded)

- Construction began on an inclusive, sensory-integrated therapeutic park for children with ASD, featuring structured play, VR-assisted learning spaces, and sensory pathways.

b. Paediatric Orthopedic Specialty Clinic

- A multidisciplinary clinic providing early evaluation and treatment of musculoskeletal and gait disorders in children with NDDs.

c. UNICEF-Supported Assessment of DEICs

- CDC evaluated the functioning of all DEICs in Kerala under RBSK, identifying gaps and initiating statewide training for RBSK nurses and DEIC teams.

d. Declaration as the Centre of Excellence in Neurodevelopmental Disorders

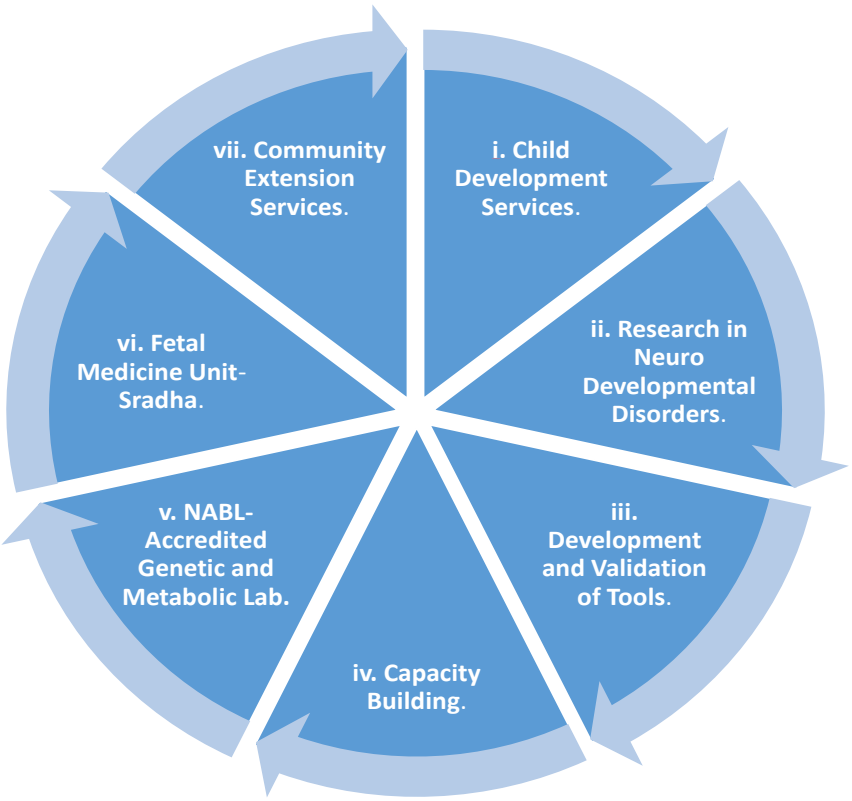
- CDC received formal designation as Kerala's apex institution for neurodevelopmental disorders, solidifying its role in shaping future policy, research, and implementation frameworks[æ].
- From a pioneering research-driven newborn stimulation project in 1987, the Child Development Centre has evolved into a nationally recognised, multidisciplinary institution shaping developmental and adolescent health practice and policy. Its trajectory reflects Kerala's deep commitment to equitable, evidence-based, lifecycle-oriented public health.

  The CDC today stands as a model for integrated neurodevelopmental services, combining clinical excellence, public health innovation, research leadership, and compassionate, family-centered care.

[æ] (G.O. (MS) No. 359/2025/H&FWD (October 20, 2025)

CHAPTER 2

FUNCTIONAL UNITS OF CDC



2.1 Child Development Services – Clinics

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

2.1.1 Newborn Follow-up Unit: Three clinics are functioning under this unit

a. Early Stimulation Clinic

The Early Stimulation Clinic at CDC provides developmental intervention for newborns weighing less than 1800 grams until one year of age. A CDC-led randomized controlled

trial showed that this early stimulation model significantly improves developmental outcomes at one and two years of age[æ].

Key Objectives:

- Provide early developmental stimulation to all babies <1800 g.
- Guide and motivate parents to offer appropriate stimulation at home.
- Offer lactation counselling to mothers of LBW babies.

Clinic Functioning:

- Operates on all weekdays from 9:00 am to 3:00 pm.
- Follows up all eligible newborns referred from OBN and IBN clinics of SAT Hospital.

[æ] (*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. 20-6.)*

b. Late Pre-term Clinic

The Late Pre-term Clinic at CDC follows up infants born between 34 weeks and 36 weeks 6 days, who are known to have a higher risk of short-term developmental issues compared to term babies. Research has shown that the CDC parent-based early stimulation model positively improves neurodevelopmental outcomes at 12 months corrected age®.

Clinic Functioning:

- Operates on all weekdays

- Service hours: 9:00 am to 3:00 pm

® (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.)

c. At-risk Babies

At-risk infants have a higher likelihood of developmental delay, making regular, scheduled developmental follow-up essential. Evidence shows that early intervention significantly improves developmental outcomes in these children[æ].

The Clinic is functioning at the Child Development Centre on all Tuesdays and Fridays from 9 am to 1 pm except on holidays. All children will be categorized by risk as mild, moderate, or severe. All mild-risk babies will be followed up at 4th month, then at 1 year, moderate-risk babies will have the follow-up at 2,4,8,12 months. All babies in severe risk categories will be followed up monthly till one year.

Services provided:

- Health education on breastfeeding, weaning, nutrition, immunization, and parenting
- Regular growth monitoring (weight, length, head circumference)
- Developmental assessment using TDSC and CDC motor milestone grading
- Developmental screening with DDST
- Neurological evaluation (Amiel-Tison method)
- Social age assessment using the Vineland Scale
- Early intervention and general stimulation for all children
- Mother-oriented therapy for mild developmental delay
- Hearing screening (OAE test)

- Vision screening by an ophthalmologistv
- Medical screening by a Developmental Paediatrician
- Referrals to specialists when required
- Preschool follow-up at 3.5 years and additional follow-up as needed

[æ] (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).

2.1.2 ASD Evaluation & Intervention Clinic

Objectives:

Early detection and early intervention for children under 6 with autistic features. Training in behaviour modification, speech, social skills, and related developmental areas.

Clinic Set-up:

Functions on Mondays, Wednesdays, Thursdays, and Fridays, from 9:00 am to 1:00 pm. Children aged 0–6 referred for evaluation are given prior appointments. Those needing intervention attend weekly ASD group therapy sessions.

ASD Group Therapy:

Group-based intervention enhances social, cognitive, and behavioural skills while reducing anxiety. It also facilitates parent-to-parent support. CDC conducts four group therapy sessions per week, following a uniform program.

Services Offered:

- Screening using M-CHAT and TABC
- Diagnosis using CARS, DSM-5, INDT-ASD, and ISSA
- Parent-mediated, child-focused intervention
- Medical screening by a Developmental Paediatrician
- Behaviour modification and speech training
- Counselling and parent trainingReferrals to specialists when needed


2.1.3 Intervention Clinic/ Developmental therapy

The Developmental Therapy Clinic provides early intervention for children with developmental delay, focusing on preventing worsening of the delay, correcting asymmetries, and enhancing parent awareness.

Key Services:

- Developmental follow-up using TDSC, LEST, Amiel-Tison neurological evaluation, and CDC motor milestone grading
- Individualized intervention plans based on each child's delay
- Parental counselling and regular follow-up
- Growth monitoring and review of nutrition and parenting practices
- Monthly follow-up and intervention until 2 years of age
- Mothers are trained thoroughly to continue therapy effectively at home

2.1.4 Speech & Hearing Impairment Unit

Children referred with delayed speech and language development are registered for evaluation. Each child receives both developmental and speech assessments, followed by speech therapy sessions if required.

Objectives:

- Early detection and intervention for speech and language delay in at-risk and high-risk children
- Speech training for children with delayed speech, with or without associated conditions (sensory deficits, intellectual disability, ADHD, etc.)
- Hearing screening using Oto Acoustic Emission (OAE) for children aged 0–6 years
- Detailed hearing evaluation using Brain Stem Evoked Response Audiometry (BERA)

2.1.5 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

2.1.6 Developmental Evaluation Clinics

Developmental Evaluation Clinics I, II, and III provide age-specific assessment and intervention using validated CDC screening tools and gold-standard developmental tests.

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

- For children aged 0–3 years with suspected developmental delay.

Objectives:

- Identify developmental delay using screening and diagnostic tools
- Monitor growth using growth charts
- Provide regular follow-up
- Offer parental counselling
- Clinic timing: Monday and Saturday, 9 to 3 pm.

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

Focuses on developmental and learning problems in preschool-aged children.

Objectives:

- Identify developmental and learning issues
- Assess behavioural patterns
- Provide early detection and intervention for ages 3–6
- **Clinic Timing:** Wednesdays, 9:00 am to 3:00 pm

Services Offered:

- Growth monitoring
- Developmental screening tests
- Psychological evaluation
- Educational counselling
- Medical evaluation and treatment planning
- Speech therapy

c. Developmental Evaluation Clinic III (6–12 years)

Caters to school-age and pre-adolescent children. Managed by the Behavioural Pediatrics and Scholastic Backwardness Unit.

Clinic Timing: Tuesdays, Thursdays, Fridays – 9:00 am to 3:00 pm

Services Offered:

- Growth monitoring
- Educational counselling for scholastic issues
- Developmental screening
- Psychological evaluation and counselling
- Medical evaluation and treatment planning
- ADHD group intervention

2.1.7 Behavioural Pediatrics & Scholastic Backwardness Unit

This unit addresses behavioural issues and learning difficulties in children from 6 –12 years, offering identification, psychological intervention, and regular follow-up at both individual and family levels.

Services Offered

- Screening for 10 neurodevelopmental disabilities using NDST
- IQ assessment using standard psychometric tools
- Social age and social quotient assessment using VSMS
- Evaluation and intervention for slow learners (IQ 70–85) using DTLD
- ADHD assessment using Conner's Rating Scale, with behaviour modification

- Counselling for study habits and behaviour issues
- Detailed evaluation for suspected Specific Learning Disability

2.1.8 Adolescent Care Counselling Clinic

Supports adolescents (10–19 years) through physical, emotional, and behavioural transitions.

Objectives:

- Provide a comprehensive system of care for adolescent social, emotional, and behavioural health
- Address psychosocial vulnerabilities and promote optimal well-being

Services Offered:

- Intervention for learning, emotional, and behavioural problems
- Counselling support for parents of adolescents

2.1.9 ADHD Clinic

ADHD affects 5–8% of children and is commonly diagnosed between 5–7 years.

Objectives:

- Diagnosis and therapy for ADHD
- Help children understand emotions and thoughts
- Establish behaviour modification strategies at home and school
- Guide families on assistive technologies
- Improve awareness among parents and teachers about effective management

2.1.10 Paediatric Neurology Clinic

The Paediatric Neurology Clinic operates every Monday at CDC to provide specialized evaluation for children with neurodevelopmental and neurological disorders. Children with Autism Spectrum Disorder, ADHD, Learning Disabilities, Epilepsy, Cerebral Palsy, and Neuromuscular Disorders are assessed and managed by a Paediatric Neurologist.

Care includes pharmacological management and regular follow-up for neurological comorbidities associated with developmental disorders.

2.1.11 DEEPTHAM – Psychological Medicine Clinic

The Deeptham Clinic offers psychological medicine support for children and adolescents attending various CDC clinics.

Key Activities:

- Pharmacotherapy
- Behaviour modification
- Cognitive Behavioural Therapy (CBT)
- Supportive counselling for parents

2.1.12 Cortical Visual Impairment (CVI) Clinic

The Cortical Visual Impairment (CVI) Clinic, started in January 2024, screens and provides interventions for infants at risk of CVI.

Clinic Days: Second and fourth Wednesdays of every month.

2.1.13 'KUDE' – Palliative Care Clinic

The Kude Palliative Care Clinic, initiated in January 2024, offers counselling and support for parents of children with neurodevelopmental disorders (NDD).

Clinic Days: Second and fourth Wednesdays of every month, managed by a dedicated palliative care team.

2.1.14 Pediatric Ortho Clinic

This clinic is held on the last Friday of every month. Services are provided to children with spasticity persisting despite adequate therapy, congenital anomalies of the feet, gait abnormalities, etc.

2.1.15 Occupational Therapy

The children who need active occupational therapy are offered this service

Objectives

- Early developmental therapy for spastic and hypotonic babies
- Assessment of sensory dysfunction and intervention
- ADL assessment and therapy

Services Offered

- This clinic is functioning on all days with the services of an occupational therapist

Table 2.1.1 CDC - Clinical Services from 2017-2025

Sl. No	Clinics	No. of beneficiaries								
		2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	Apr – Aug 2025
1	Developmental Evaluation Clinic I	912	1043	1070	443	803	899	977	840	337
2	Developmental Evaluation II	613	576	533	162	399	643	874	718	299
3	Developmental Evaluation III	782	751	666	136	420	685	769	935	342
4	Newborn Follow up clinic I	433	502	655	202	354	637	399	505	309
5	Newborn Follow up clinic II	1867	1568	1493	226	638	800	1014	1327	597
6	Adolescent Clinic	348	295	238	62	140	192	243	227	116
7	Early Stimulation Clinic	2506	2725	3088	1050	2198	3583	3637	2972	1160
8	Developmental Therapy Clinic	1299	1273	1531	315	872	1074	1109	935	386
9	ASD Intervention Clinic	166	172		145					
10	ASD Evaluation Clinic	195	160	203	131	265	440	289	449	121

11	ASD Group Intervention Clinic	1287	1513	971		135	336	935	1835	440
12	Physiotherapy Clinic/ Occupational Therapy	130				526	2057	2253	2893	1397
13	DASII	1329	302	925	74		103	206	79	124
14	Speech Stimulation Clinic	672	639	846	627	912	785	708	452	73
15	Ophthalmology	306	331	358	36	156	235	266	184	73
16	Preschool Intervention Clinic	144								
17	Neurology Clinic	431	438	411	93	394	683	936	1111	467
18	Counselling	340	302	778	82	266	410	1335	780	108
19	Ultrasound Scanning	213	211	58	69	50				
20	Late preterm	2462	2639	3389	752	1862	2633	2940	3228	1434
21	ADHD Clinic	161	150	54		104	204	385	431	318
22	Speech Diagnostic Clinic/Therapy	160	834	78	-	-	795	1710	4025	1359
23	Preventive Cardiology in the young (PCYC) Clinic	-	37	56	-	20	49	-	-	-
24	Deeptham-Psychological Medicine	-	-	-	18	325	658	290	820	463
25	SRADHA- Foetal Anomaly Scanning	-	-	-	562	940	322	1486	1001	573
26	Karyotyping-Genetic Lab	594	485	350	275	365	535	361	451	208
27	Counselling	-	-	-	-	-	410	1335	780	108

28	Scholastic Intervention	-	-	-	-	-	162	214	248	105
29	Clinical Psychology	-	-	-	-	-	-	3045	772	387
30	Behaviour Therapy	-	-	-	-	-	-	180	268	123
31	Amniocentesis	-	-	-	-	-	-	40	90	44
32	ASD Parent Counselling	-	-	-	-	-	-	-	210	154
33	Optometric Assessment	-	-	-	-	-	-	-	261	521
34	DIYA Clinic	-	-	-	-	-	-	-	175	63
35	Palliative Care Clinic KUDE	-	-	-	-	-	-	-	41	52
36	Pediatric Ortho Clinic	-	-	-	-	-	-	-		35
Tele counselling for children & parents during lockdown period				**279**	-	-	-	-	-	-
Total		**17350**	**16946**	**18030**	**5460**	**12144**	**19330**	**27936**	**29043**	**12296**

2.2 Research

Research has been the foundation of the Child Development Centre (CDC) since its inception. What began as a rigorously designed randomized controlled trial (RCT) to test a structured early-stimulation programme for high-risk newborns has progressively expanded into a comprehensive portfolio encompassing longitudinal research, tool development and validation, intervention trials, population-based screening initiatives, and the evaluation of programmes and policies. Over the years, the CDC has evolved into a major research hub that has shaped clinical practice, informed state and national programmes, built capacity by training multidisciplinary investigators, and supported the scale-up of evidence-based early childhood and adolescent interventions.

CDC's initial research programme was a randomized controlled trial to evaluate a structured early-stimulation intervention for high-risk newborns. The trial demonstrated that a defined early-stimulation protocol improved neurodevelopmental outcomes at one- and two-year assessments. To enable ongoing evaluation of developmental

trajectories and late outcomes, the study participants were converted into a prospective cohort that ultimately included approximately 1,400 children.

A major component of CDC research is the creation and validation of simple, reliable tools appropriate for community and primary-care settings. These instruments were designed for developmental monitoring, preschool assessment, and screening of neurodevelopmental disorders (NDDs).

Building on the initial randomized control trial and cohort studies, CDC researchers systematically evaluated novel therapeutic techniques and service delivery models using a range of study designs, from controlled trials to implementation research. These included effectiveness assessment of structured early-stimulation and developmental-therapy packages in low-resource settings, programmatic research integrating developmental monitoring within well-baby and immunization clinics, and community pilot interventions leveraging ICDS Anganwadi units to deliver early detection and intervention modules. The outcomes from these diverse studies not only strengthened informed clinical practice within CDC but also provided a robust evidence base for scaling up early detection and intervention programs through ICDS and other health system touch points, thereby bridging research and community-level implementation.

Later the research attention of CDC broadened to the Developmental origins of Health and Disease (DoHAD). These studies explored links between fetal/early life factors and later onset Non-Communicable Disease (NCD) risk markers, extending CDC's remit from neurodevelopment to a broader lifelong health. Methodological highlights included repeated anthropometry, biochemical profiling, and comparative analysis with normal-birth-weight peers to characterise risk trajectories and identify potential early preventive targets. As part of CDC's focus on the DoHAD framework, a key ongoing study, funded by ICMR in collaboration with SCTIMST, examines the impact of early-life nutrition during the first 1,000 days on adiposity rebound, cardiometabolic risk, and cardiac function among low birth weight children in Kerala. The cohort includes 1,400 children, with detailed developmental assessments, blood sample collection, and DNA methylation analyses.

CDC extended its research focus to adolescence through a combination of formative and evaluative studies that generated both assessment tools and intervention programs. This included the development and validation of the Teenage Screening Questionnaire –

Trivandrum (TSQ-T) through pilot studies in schools, aimed at systematically screening adolescents. Research efforts also encompassed reproductive and sexual health—addressing Adolescent Reproductive and Sexual Health (ARSH) needs, teenage pregnancy, polycystic ovary syndrome (PCOS), reproductive tract infections as well as mental health and substance use. In parallel, CDC developed and piloted a culturally appropriate Family Life Education (FLE) module, favoring this approach over conventional 'sex education', and tested various delivery models including school-based programs, community-based teen clubs, adolescent clinics, and ARSH camps. These initiatives employed mixed methods, combining quantitative surveys, qualitative explorations of adolescent needs, tool validation, and implementation research, all of which informed and strengthened adolescent services and educational interventions.

CDC's **Neurodevelopmental Disorders (NDD) research** has operated across three complementary domains. The first domain focused on screening and case ascertainment, involving the development and validation of tools such as the NDST, TDSC, and LEST, CAT-T, Concern-9 alongside population-level screening research within ICDS catchments to estimate prevalence and identify children in need of intervention. The second domain, diagnostic research, addressed the development and field-testing of diagnostic algorithms tailored for use by primary-care physicians. The third domain encompassed intervention trials and comorbidity research, including systematic evaluation of the effectiveness of developmental interventions and assessment of neuropsychiatric and medical comorbidities among children with NDDs. This also included systematic reviews and meta-analysis of prevalence of NDDs.

CDC's research portfolio included large-scale population screening surveys and systematic evaluations of government programmes- including evaluation of various schemes conducted at Attappadi.

Across its research projects, CDC employed a spectrum of research methodologies appropriate to the question at hand: randomized controlled trials and quasi-experimental designs for intervention evaluation; prospective cohort follow-up for life-course research; cross-sectional surveys and systematic reviews for prevalence estimation; tool development studies with psychometric validation; mixed-method designs for programme evaluation and formative work. Emphasis was consistently placed on culturally-sensitive tool adaptation, field-feasible measurement, quality

training of field workers, and linkage of research findings to actionable referrals and services.

CDC's research legacy includes a large, well-characterised birth and high-risk cohort, a suite of validated screening and diagnostic tools for early childhood and adolescence, tested intervention packages and an institutional model for translating evidence into community practice via ICDS, health services and schools. Designation as a KUHS research centre and the training pipeline ensure sustained capacity. The list of completed projects is attached as - ***Annexure I***

2.2.1 Research in Neurodevelopmental Disorders

Over the past decade, CDC has undertaken multiple research initiatives in the field of neurodevelopmental disorders (NDDs), focusing on assessment, intervention, assistive technology, early identification, and capacity building. The major research projects and collaborative research studies in NDDs undertaken are the following.

i. Neuro-developmental Follow-up of High-Risk Babies

Initiated in 1987, this longitudinal research project followed high-risk newborns to study their neurodevelopmental outcomes during infancy and early childhood. The study demonstrated that the CDC model of early stimulation significantly improved neurodevelopmental status at one and two years of age, providing early evidence for the effectiveness of structured early intervention among biologically vulnerable infants.

ii. Fetal Origins of Adult Disease: Long-term Follow-up of High-Risk Birth Cohort

As the original CDC birth cohort entered adolescence and young adulthood (from 1999 onwards), this research examined the Barker hypothesis by comparing growth patterns and biochemical parameters of low birth weight and normal birth weight individuals. Assessments conducted at 13, 16, 19, and 24 years provided valuable longitudinal evidence linking early life factors with later metabolic and health outcomes.

iii. Development and Validation of Trivandrum Developmental Screening Chart (TDSC: 0–2 years)

In 1989, CDC developed and validated the Trivandrum Developmental Screening Chart (0–2 years) in a community sample as a simple and effective developmental monitoring tool for toddlers. This research laid the foundation for large-scale community screening and early identification of developmental delay.

iv. Development of Nursery Evaluation Scale Trivandrum (NEST)

Developed in 1994, NEST was created as a structured, skill-based assessment tool to evaluate school readiness among preschool children aged 4–6 years. The research contributed an objective method for assessing functional development during the preschool period.

v. Neurodevelopmental Disability Project

Implemented between 2005 and 2013, this large multi-centre project—supported by NIH-USA, Autism Speaks, the National Trust (Government of India), and INCLEN—led to the development and validation of the Neuro-Developmental Screening Tool (NDST) for children aged 2–9 years, along with four diagnostic tools for use by primary care physicians.

vi. Development and Validation of Screening Tools for Childhood Disability

During 2009, CDC undertook a major research initiative focused on childhood disability, resulting in the development and validation of Trivandrum Developmental Screening Chart (TDSC: 0–6 years) and Language Evaluation Scale Trivandrum (LEST: 0–6 years), enabling scalable early detection of developmental and language delays in community settings.

vii. Assessment of Differently Abled children at Magic Planet

In 2018, CDC, in collaboration with the Kerala Social Security Mission**,** conducted an assessment of 23 differently abled children trained in magic at the Magic Academy under Shri Gopinath Muthukad. The CDC team assessed various aspects of these children, including cognitive assessment, behaviour assessment, functional status, overall health status, and overall improvement using qualitative and quantitative

methods. This report was released by Smt.K.K.Shailaja Teacher, former Hon'ble Minister of Health and Social Justice.

During the year 2019-20, one hundred children enrolled at the Different Art Centre (DAC) at Magic Planet were assessed, and a report was provided. The project was coordinated and supported by K-DISC, Government of Kerala. The assessment at the Different Arts Centre (DAC) evaluated 100 differently abled children across their bio-psycho-social domains before and after one year of training. Health evaluations revealed concerns such as obesity, cardiac problems, anaemia, dental issues, and refractive errors, for which appropriate interventions and referrals were provided. Psychological assessments showed significant reductions in perceived stress, improved behaviour, better communication, and resolution of depression in the few identified cases. Parents reported notable improvements in their children's artistic skills, communication, independence, social interaction, and overall mood, along with enhanced parental quality of life supported by parent-focused activities like "Charisma." Overall, DAC emerged as a model for holistic rehabilitation, enhancing both child outcomes and parental wellbeing, and was recommended for replication across the state.

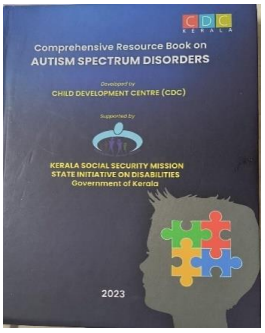
viii. Group therapy for children with Autism Spectrum Disorders (ASD)

In 2018, a pilot group therapy study for children with Autism Spectrum Disorders (ASD) was conducted at CDC. This study included 31 children aged 2–5 years. Over six months, children received weekly, 1.5-hour therapy sessions. These sessions targeted pre-linguistic skills, socialization, peer interaction, communication, play skills, and adaptive behavior. Pre- and post-intervention assessments demonstrated statistically significant improvements in expressive and receptive language, adaptive skills, and a reduction in autism severity as measured by the Childhood Autism Rating Scale (CARS). This study highlighted the feasibility and cost-effectiveness of structured group interventions in low-resource settings. This study is under publication in the Indian Pediatrics Journal.

ix. Comprehensive Resource Book for Autism Spectrum Disorders – 2023

In 2023, CDC published the Comprehensive Resource Book for Autism Spectrum Disorders, supported by the Kerala Social Security Mission. This was developed

through an expert-led process, including multiple focus groups and brainstorming sessions with experts in multiple fields of autism management, like Occupational therapists, speech therapists, psychologists, and special educators. The book serves as a practical, jargon-free guide for caregivers and professionals under the editorial leadership of Dr. MKC Nair and Dr. Paul Russell.



x. Collaboration with Assistive Technology Division, ICFOSS (2023)

CDC partnered with the Assistive Technology Division of ICFOSS to support the development, clinical testing, and validation of assistive devices for children with learning and developmental disabilities. CDC experts contributed to identifying functional needs, evaluating device performance in therapy sessions, and guiding research dissemination

Handing over the Assistive device for learning disorders created by ICFOSS by Hon'ble Chief Minister, Kerala

xi. CDC- UNICEF Project -2024

As part of the UNICEF initiative of 'Creating Awareness and Strengthening Systems for Screening, Surveillance and Management of Developmental delays or disorders in Kerala' done in collaboration with NHM, CDC has been approved as a "Centre of Excellence in NDDs". As part of the CDC- INICEF project various research and training programmes have been envisaged.

The first one is the "GAP analysis of the District Early Intervention Centres in Kerala". The project brief is as follows.

1. GAP analysis of the District Early Intervention Centres in Kerala (UNICEF-supported project)

The Government of India launched in 2013 the nationwide Rashtriya Bal Swasthya Karyakram (RBSK), a Child Health Screening and Early Intervention Services Programme to provide comprehensive care to all the children in the age group of 0–18 years in the community. It has a systematic approach of prevention, early identification, and management of 30 health conditions distributed under 4Ds: Defects at birth (Group A), diseases (Group B), deficiencies (Group C), and developmental delays including disabilities (Group D). Through this program, dedicated mobile health teams (MHTs) are placed in every block in the country. These teams carry out screening of all children in the preschool age enrolled at preschool (Anganwadi) centers twice a year, besides screening of all children studying in Government and Government-aided schools.

Aim: To assess whether DEICs are functioning as envisaged in the national guidelines for RBSK, identify potential gaps in early detection and early intervention for developmental delay/disability, and obtain suggestions to improve the overall functioning of DEICs in Kerala.

Objectives:

i. To conduct a desk review of the functioning of the DEICs in the 14 districts of Kerala in terms of yearly early detection of the 4 Ds envisaged in the program and early intervention services provided to the beneficiaries.

ii. To assess the facilities available under DEICs (manpower, infrastructure, equipment, and services) in Kerala and to find out under/under-utilization of existing facilities.

iii. To assess the gaps (training, manpower, and infrastructure) in the process of implementation of the program.

iv. To generate suggestions for improving the program performance.

2. Preparation of handbook and CME Programme for Pediatricians on Assessment & Management of Neurodevelopmental Disorders in Children

As part of the project, a handbook on the assessment and management of neurodevelopmental disorders (NDDs) in children was developed for pediatricians. Based on this handbook, two Continuing Medical Education (CME) sessions on the Assessment and Management of Neurodevelopmental Disorders in Children have been conducted so far, with a total of 70 pediatricians attending.

3. Training module for TOT to train the RBSK nurses:

A training module for the early detection and early intervention of common NDDs has been prepared.

4. Training module for the mobile intervention unit functionaries.

xii. Early-life neurodevelopmental outcomes of children with antenatal exposure to antiseizure medications (ASMs)

This cohort study investigated the impact of antenatal exposure to antiseizure medications (ASMs) on neurodevelopmental outcomes in children, focusing on motor, cognitive, and language development. Children aged 1½ to 2½ years, born to mothers with epilepsy who received either monotherapy or polytherapy with ASMs during pregnancy, were consecutively recruited from the Kerala Registry of Epilepsy and Pregnancy. A comparison group of children born to mothers without epilepsy and with no ASM exposure was included.

Neurodevelopmental assessment was performed using the Developmental Assessment Scale for Indian Infants (DASII) and the Receptive-Expressive Emergent Language Scale (REELS), while behavioral outcomes were assessed using the Child Behavior Checklist.

Results indicated that while general motor and cognitive development were largely comparable between exposed and unexposed groups, children exposed to ASM polytherapy—particularly combinations including clobazam—showed significant delays in expressive and receptive language skills, highlighting the need for early speech-focused interventions in this population.

xiii. Broad Autism Phenotype (BAP) in Parents of Children with ASD

This study explored the prevalence of Broad Autism Phenotype (BAP) features in parents of children with Autism Spectrum Disorders (ASD) compared to parents of typically developing children (TDC). A total of 111 families with ASD children and 50 families with TDC participated, and parents were assessed using the Broad Autism Phenotype Questionnaire (BAPQ). Children's ASD severity was measured using the Childhood Autism Rating Scale (CARS).

The study found that parents of ASD children, particularly mothers, exhibited significantly higher rates of BAP traits across most subscales, indicating a familial pattern of autism-related characteristics. These findings highlight the importance of considering parental traits in understanding the genetic and behavioral underpinnings of ASD and may inform early identification and family-based interventions.

xiv. Vitamin D Levels in Children with Autism Spectrum Disorders

This cross-sectional study compared serum 25-hydroxy vitamin D [25(OH)D] levels in children with Autism Spectrum Disorder (ASD) and neurotypical children attending the CDC clinics in Kerala. Blood samples were collected and analyzed using an electrochemiluminescence binding assay to determine vitamin D status. Results showed that children with ASD had significantly lower vitamin D levels, with a higher prevalence of deficiency and insufficiency compared to neurotypical peers. While no direct correlation was found between vitamin D levels and ASD severity, the study emphasizes that hypovitaminosis D is common and may affect neurodevelopment. The findings suggest the potential utility of routine vitamin D screening and supplementation as part of comprehensive care for children with ASD, and warrant further longitudinal and interventional studies to clarify causal relationships.

xv. Effectiveness of Health Care Counselling for Mothers of Preterm Babies in Newborn Intensive Care Unit

The study aimed to introduce Health Care Counselling (HCC) for mothers of infants admitted to the NICU, addressing stress, mental health, and newborn care knowledge. It adopted a mixed-methods approach, including in-depth interviews and focus group discussions with mothers, grandmothers, and NICU staff, alongside a quantitative survey of 1,085 mothers. Mothers' knowledge of essential newborn care, mental health status, parental stress, and breastfeeding practices were assessed using validated tools like the LATCH Assessment Tool, PSS: NICU, NSESSS, Trauma Screening Questionnaire, and Edinburgh Postnatal Depression Scale.

An HCC intervention package was developed and delivered by trained PGDCCD students, covering breastfeeding, NICU parenting, common neonatal problems, developmental follow-up, and stress-reduction techniques. Effectiveness was measured through pre- and post-intervention assessments of maternal knowledge, stress levels, mental health, breastfeeding outcomes, and overall infant health.

xvi. Assessment of Neurodevelopmental Status of Lower Primary School Children (standard 1-4) Studying in Government Schools in Thiruvananthapuram District

The study aims to determine the prevalence of neurodevelopmental disorders (NDDs) among children aged 6–10 years in Government lower primary schools in Thiruvananthapuram district using the INCLEN Neurodevelopmental Screening Tool (NDST). It employs a cross-sectional design with cluster sampling, including children from classes 1–4 across rural, urban, coastal, and tribal schools. Children who screened positive on NDST are referred to the Child Development Centre (CDC) for confirmatory assessment using standardized diagnostic tools for specific NDDs such as ASD, ADHD, CP, epilepsy, hearing and vision impairments, intellectual disability, learning disorders, and speech-language disorders. Data collection is ongoing, with complete assessments for 1200 children.

xvii. Comprehensive developmental assessment and management of Neonatal Intensive Care Unit graduates at preschool age (3-6 years)

The study aims to conduct a comprehensive developmental assessment of NICU graduates at preschool age (3–6 years) who previously attended the new-born follow-up clinic at CDC between 2020 and 2022. It adopts a descriptive cross-sectional design, evaluating multiple domains including neurodevelopment, behaviour, speech and language, social adaptability, pre-academic skills, oral health, and growth. NICU graduates are being recruited using consecutive sampling from the CDC clinic registry, with eligibility based on prior NICU admission and parental consent. The required sample size was estimated at 450 children to account for non-response and subgroup analyses, based on a hypothesized prevalence of 35.4% for adverse neurodevelopmental outcomes. Data collection is currently ongoing, with complete assessments already gathered for 240 children.

xviii. Growth and development of infants born with In Vitro Fertilization (IVF) as compared to naturally conceived children.

This study aims to compare the growth and developmental outcomes of infants conceived through In Vitro Fertilization (IVF) with those conceived naturally during the first year of life. Conducted at the Child Development Centre, Medical College, Thiruvananthapuram, it follows a prospective cohort design with assessments at 2, 4, 8, and 12 months. Growth will be measured using weight, length, and head circumference according to WHO standards, while development will be assessed with the Ages and Stages Questionnaire and Bayley Scales of Infant Development. The study will also examine socio-demographic, prenatal, perinatal, and postnatal factors as potential determinants of outcomes. Participants include IVF-conceived infants from the infertility clinic and naturally conceived infants from the same hospital, recruited through consecutive sampling. The findings are expected to clarify whether ART conception affects early growth and development compared to natural conception, guiding early monitoring and intervention strategies.

xix. Development and Validation of a Screening tool for General Teachers, and Diagnostic tool for Medical Board on Learning Disability for children aged 7-12 years

The study aims to develop and validate a set of tools for early identification of Specific Learning Disability (SLD) in children aged 7–12 years, including a screening tool for general teachers, and a diagnostic tool for medical boards. It addresses the need for early detection, as delayed identification often leads to poor academic outcomes, low self-esteem, and limited career opportunities. The tools will be culturally and linguistically adapted, including development of a diagnostic tool in Malayalam. A cross-sectional, mixed-methods design will be used in government schools across urban, rural, coastal, and slum areas of Thiruvananthapuram, with stratified sampling and systematic training of teachers. Psychometric validation will include reliability measures (test-retest, inter-observer, internal consistency) and validity analyses (content, construct, convergent, divergent, criterion) using factor analysis and ROC curves. The project also seeks to estimate the prevalence of SLD in this population, ultimately facilitating early intervention and improved academic and social outcomes for affected children. Data collection is ongoing for this project.

xx. Assessment of co-morbid conditions and parenting issues among children with Attention Deficit Hyper Activity Disorder (6-9 years).

The study assessed the prevalence of comorbidities and parenting issues among children aged 6–9 years diagnosed with ADHD at the DEC III clinic of the Child Development Centre. Comorbid conditions including epilepsy, sleep problems, depressive disorder, anxiety disorder, conduct disorder, oppositional defiant disorder, tic disorder, ASD, and learning disabilities were evaluated using validated diagnostic tools such as INDT-ADHD, INDT-EPI, INDT-ASD, NIMHANS LD Battery, and the Children's Sleep Health Questionnaire. Parenting issues were explored through in-depth qualitative interviews with primary caregivers. Data were analyzed using descriptive statistics and qualitative content analysis to identify patterns of comorbidity and challenges faced by parents. Based on the findings, an intervention package was developed to support caregivers in managing ADHD and its comorbidities. The results of this study is currently under publication.

xxi. Effectiveness of a structured intervention package on core symptoms of ADHD among 5- 9- year-old children having ADHD

The study developed and implemented a structured intervention package for children aged 6–9 years with ADHD at the Child Development Centre, Kerala. The intervention included clinic-and-parent-mediated sessions addressing inattention, hyperactivity, impulsivity, sleep problems, behavioral issues, and scholastic difficulties, conducted over six months. Children were assessed using the INDT-ADHD and Vanderbilt ADHD Diagnostic Parent Rating Scale (VADPRS) before and after the intervention, while parents were guided on home-based activities. Data were managed using Microsoft Excel and analyzed with SPSS, with paired t-tests applied to evaluate pre-post differences in inattention, hyperactivity, and total scores. The effectiveness of the intervention was determined by improvements in the Vanderbilt scores, indicating reductions in core ADHD symptoms.

2.2.2 Research in Adolescent health

i. Adolescent Reproductive and Sexual Health (ARSH) Need Assessment Study

Conducted in 2005, this study assessed reproductive and sexual health needs of adolescents and young adults in selected districts of Kerala. The research provided critical population-based evidence on sexual abuse prevalence and unmet ARSH needs among youth.

ii. Understanding Adolescence: Perceived Problems and Developmental Needs

Initiated in 1999, this research explored perceived problems among apparently normal adolescents across physical, emotional, social, educational, and sexual health domains. The findings informed the development and validation of culturally sensitive tools, including the Teenage Screening Questionnaire–Trivandrum (TSQ-T) and the conceptualization of Family Life Education (FLE).

iii. Research on Adolescent Reproductive Health and Psychosocial Outcomes

From 2008 onwards, CDC facilitated multiple doctoral-level research studies focusing on adolescent reproductive and sexual health and psychosocial well-being. Key research themes included teenage pregnancy, polycystic ovary syndrome, reproductive tract infections, premarital counselling, marital harmony, and their implications for future fertility, lifestyle diseases, and family health.

iv. Addressing Sexual Reproductive Health Needs of Young Adult girls (15 - 24 years) with Hearing Impairment

The project aims to improve the sexual and reproductive health of young adult girls with hearing impairment. In Phase I, in-depth interviews with girls, parents, teachers, and experts revealed major gaps in knowledge and communication. In Phase II, medical screening camps identified significant untreated reproductive morbidities. In Phase III, based on the evidence generated, a tailored reproductive health education and intervention module is being developed. The project highlights the high vulnerability of this group and the need for accessible, disability-sensitive services. It provides a comprehensive framework from needs assessment to intervention design.

2.2.3 Research in Non-Communicable Diseases

The Non-Communicable Disease (NCD) preventive project was initially conceptualized and implemented at a single government higher secondary school in Thiruvananthapuram to assess the rising burden of NCDs among adolescents. At the school level, baseline assessments of lifestyle practices, dietary habits, physical activity, screen time, substance use, and stress levels were conducted, along with physiological measurements like blood pressure, BMI.

Later, the project was scaled up to the district level, encompassing 15 government higher secondary schools in Thiruvananthapuram. At the district level, a structured multistage cluster sampling approach was employed to assess over 1800 students, and interventions were provided. This lead to the development of a model for evidence-based school health promotion. Following the success of the district-wide initiative, which demonstrated significant improvements in lifestyle behaviors and NCD risk reduction among adolescents, the program was expanded further into a state-wide study to reach a larger population, to inform policy-level strategies for adolescent NCD prevention across Kerala.

i. NCD Prevention Programme - Life Style Disease Screening and Intervention for Higher Secondary School Students in Kerala

CDC, in association with the Directorate of General Education, Kerala, implemented a state-wide programme for lifestyle disease screening and intervention among 11th-grade students. The programme targeted 1.75 lakh students across 850

government higher secondary schools, with 1,00,868 students screened using a web-based questionnaire and physical measurements (BP, height, weight). Trained personnel included 200 IAP paediatricians, 820 PHC medical officers, 820 Souhrida coordinators, and 850 school counselors.

Table 2.2.3.1 NCD Prevention Programme - Life Style Disease Screening and Intervention for Higher Secondary School Students

Indicator	Details
Target Population	Higher Secondary School Students (Class XI) across Kerala (760 Government schools)
Total Students Screened	1,00,868 students
Age Range	Mean age 16.02 years (SD 0.605)
Gender Distribution	54.9% girls, 45.1% boys
Assessment Tools	Web-based screening questionnaire, pre-tested lifestyle questionnaire, BP, height, weight
Trained Personnel	200 IAP Paediatricians, 820 PHC Medical Officers, 820 Souhruda Coordinators, 850 School Counselors
Screening Method	Self-administered computerized web tool developed by CDC, computerized by NIC, security audited by Kerala State IT Mission
Consent	Only students with parental consent and personal assent included
Key Lifestyle Indicators Assessed	Dietary habits, physical activity, screen time, substance abuse, perceived stress
Key Physiological Indicators	Blood Pressure, Height, Weight
Source: CDC	

In the first phase, NCD risk screening of the students was done using an online survey portal, and 760 schools completed the survey with 1,00,860 students participating. In the second phase, risk categorization of the students was made, and lists of students who had risk of elevated blood pressure, overweight and obesity, and stress were sent to all schools along with information booklets and health cards for both boys and girls. RBSK nurses from NHM checked the BP of all students who had elevated blood pressure and obesity in the initial screening by trained Souhrida Coordinators, issued health cards, provided appropriate referrals to all the needy students, and ensured a three-month follow-up of these students. Souhrida Coordinators organized a half-day session on non-communicable disease prevention in all Government Higher Secondary schools by paediatricians/medical officers.

The blood pressure screening results showed that 16.4% of students had elevated BP (120/<80 to 129/<80 mm Hg), 11.5% had stage 1 hypertension (130/80 to 139/89 mm Hg), and 4.6% had stage 2 hypertension (≥140/90 mm Hg). Elevated BP was found among 19.2% of boys and 14.1% of girls. Stage 1 hypertension was observed among 12.9% of boys and 14.1% of girls. Stage 2 hypertension was seen among 5.7% of boys and 3.8% of girls. Not much difference was observed in the blood pressure levels of rural and urban students.

Among 1,00,868 students, at least one of the six NCD risk factors was observed in 96.3% of them. Six out of the six NCD risk factors were reported by 1.0% of the total students. Risk factor clusters with two risk factors (dyads) and three risk factors

(triads) were observed in 27.5% and 28.6% of the students, respectively. Overall, 53.5% of the total students were found to have at least three or more NCD risk factors (Table 48). Dyads and triads of NCD risk factors were highly prevalent among the adolescents, accounting for a combined prevalence of 56.1%.

The current study found high levels of behavioral and physiological risk factors for non-communicable diseases in the higher secondary school students. Information, Education, Communication (IEC) activities for creating awareness on NCDs and healthy lifestyle among children and parents, along with screening and management of at-risk students as conducted in the project, also helped to bring about healthy lifestyle modifications among the students.

ii. Early-life nutrition in the first thousand days of life and its association with early adiposity rebound, cardio metabolic risk, and cardiac function in Low Birth Weight Children at 2 years in Kerala- 2024

As part of CDC's Developmental Origins of Health and Disease (DoHAD) research, a **joint ICMR-funded** study with SCTIMST investigates the impact of early-life nutrition during the first 1,000 days on adiposity rebound, cardiometabolic risk, and cardiac function among low-birth-weight children in Kerala. The birth cohort includes 1,400 children registered at CDC, with DNA methylation analyses, echocardiography in a sub-sample of 400 children, and developmental assessments conducted. Data collection is ongoing, with completion expected by April 2027. This study establishes the first well-defined birth cohort in Kerala to support longitudinal research on early-life determinants of non-communicable disease risk.

iii. Prevalence and Correlates of Congenital Anomalies in pregnant Women Attending the Fetal Medicine Department of a Tertiary Care Hospital

The study investigates risk factors associated with congenital anomalies (CAs) among high-risk pregnant women attending the Foetal Medicine Clinic at the Child Development Centre, Thiruvananthapuram. It adopts a cross-sectional design, with high-risk pregnancies identified through antenatal scans using 3D/4D ultrasound. Data are collected via a structured interviewer-administered questionnaire capturing socio-demographic, obstetric, medical, lifestyle, and environmental

exposures. Currently, data collection is ongoing, and complete information has been gathered for 400 cases.

2.2.4 Research /Programme evaluations of public health importance

i. Report on Evaluation of Welfare Schemes implemented at Attappadi – 2018-19

- under Women and Child Development Department regarding (i) First 1000 days programme, (ii) Community Kitchen, (iii) Jathak (iv) Janani, and (v) Jalanidhi. CDC conducted a detailed evaluation of the above four community development programmes, which are being conducted at Attappadi Adivasi area of Palghat District, and report was submitted to the Government. The detailed report has mainly findings which will help the Women and Child Development Department to streamline, co-ordinate and modify some of the components of the programmes being implemented. Action Plan and Strategies were also suggested.

Major Findings:

I. The First 1000 days program

- The training/education programme had some positive impact on the pregnant and lactating mothers, children, and adolescent girls. However, the coverage of the target population was not optimal.
- Compliance with folic acid supplementation was good among the beneficiary group, but as a routine practice, the consumption was poor during the periconception period.
- EDD kits were sparingly used by AWW in early detection of developmental problems even though kits were purchased for all the AWCs and AWW were trained in using the kit. Integrated training to AWWs, JPHNs, and ASHAs was effective in improving their knowledge and skills on newborn care, management of newborn illnesses, first-aid, and preventive services. However, they suggested refresher training and provision of teaching materials for later use.
- Coverage of awareness on the first 1000 days program for Local self-government representatives was not 100 percent, and their proactive involvement in the programme after the training was not adequate.

- As per the KAP survey, 65% of mothers of children less than 5 years old attended any of the awareness programs related to maternal, child, or adolescent health.
- The majority of the mothers had average to good knowledge and a positive attitude toward maternal health. Awareness was lowest with regard to folic acid and IFA consumption.
- Preconception folic acid consumption was low, and 40% did not consume it during pregnancy. More than three-fourths of the mothers consumed IFA tablets until delivery, and almost all of them had institutional delivery.
- Most of them had good knowledge and positive attitude towards child health. 84 percent practiced exclusive breastfeeding. Almost all children were fully immunized and had regular growth monitoring at AWCs.

II. Community kitchen

- Food is served two times a day (Breakfast and evening meal) and distributed to all those who attend the kitchen. Most of them take its back home and share with other family members. Absence of a prescribed standard with regard to quality and quantity of food was observed in qualitative and quantitative assessments.
- Service interruption from days to weeks was also observed.
- Community Kitchen was not perceived as a felt need by the majority to most block and peripheral service providers and LSG/NGO representatives, whereas majority of animators, tribal promoters, and community stakeholders who participated in the study felt the other way.

III. Janani Scheme

- The majority of participants of the qualitative study from non-health departments were ignorant about the scheme-related activities.
- Delay in antenatal registration and even unregistered cases were reported.
- Most of the antenatal women received a minimum of 5 antenatal checkups.

- Consumption of IFA was reported as poor by nearly half of the mothers, reasons mainly being side effects and misconceptions.
- Inadequate facilities were reported as a problem in managing high-risk pregnancies at Kottathara multi-specialty hospital.
- Financial incentives were available to pregnant and lactating women from various sources, but peripheral workers were not able to mention how the money was utilized by the recipients. There were many mothers who were ignorant about their entitlements and received what they were given. Postnatal visits were reported as more regular these days than before.

IV. Jathak scheme

- Monitoring of children under 5 years of age, identification of malnourished children, and their effective management are being carried out satisfactorily.
- Analysis of secondary data on Jathak demonstrates a decrease in the prevalence of SAM/MAM children over the years.

V. Jalanidhi scheme

- This program was intended to provide potable drinking water to AWCs in Attapadi block. It was observed that 95% of AWCs were covered by Jalanidhi scheme.
- Water availability was ensured in almost 3/4th of AWCs.
- Concerns were expressed by peripheral workers ensuring the water quality and future maintenance of the infrastructure provided.

ii. Report on modernizing Anganwadis in the state was submitted to the Government and was released by Hon'ble Chief Minister in 2019. The report was prepared considering the importance of early years of life and its impact on adulthood. Early detection and early intervention of developmental delay, identification of learning disability and other neurodevelopmental issues and early learning were included, adopting the principles of Early Child Care and Education (ECCE) of the Government. Improving the infrastructural facilities with provision of

adequate play equipment and design to set up anganwadies in two, five and 10 cents, depending on the availability of land, were highlighted in the report

2.2.5 CDC Ongoing Research projects

1. Growth, development and psychosocial outcome of children during childhood years (0-3 years) born after Assisted Reproductive Technology as compared to naturally conceived children
2. Adiposity gain, and early adiposity rebound in low-birth-weight children and its association with cardio metabolic risk, cardiac structure, and cardiac function in children at 2-years in Kerala: A birth cohort analysis.
3. Developmental and behavioral outcome of late preterm babies on CDC model intervention as compared to those without intervention and normal term babies.
4. Early adiposity rebound and incidence of cardiovascular risk factors in a cohort of Low Birth Weight children
5. Development and validation of a screening tool for teachers and a confirmatory tool on Learning Disability for children aged 7-12 years
6. Assessment of neurodevelopmental status of primary school children (standard 1-4) in Thiruvananthapuram district
7. Prevalence of congenital anomalies among high risk pregnancies using fetal Ultrasonographic examination and assessment of risk factors among pregnant mothers
8. Parental care-seeking pathway and challenges for autism spectrum disorders children: A qualitative study
9. Knowledge, attitude and practices associated with total communication methods among Speech and Language Pathologists working with Complex Communication Needs children
10. A qualitative exploration into perceptions regarding total communication practices among parents of children with complex communication needs.

11. Impact of CSF flow-cytometry in Paediatric Acute Lymphoblastic Leukaemia (ALL) patients: A prospective cohort study
12. Comprehensive developmental Assessment and Management of Newborn Intensive Care Unit Graduates at Preschool Age (3-6 years)
13. Effectiveness of an Intervention package on pre-Academic Readiness in children Aged (3-5 years)
14. Effectiveness of a structured intervention for Behavioral problems of preschool children aged 3-6 years
15. Effectiveness of an Intervention Package among Preschool Children [3-5years] in managing early signs of ADHD
16. Effectiveness of a parent-mediated early intervention module to promote speech intelligibility development in preschool children
17. Effectiveness of an Intervention Package for improving Social adaptability among Preschool children (3 to 6 years)
18. 19. Comprehensive Assessment of Adolescents with Type 1 Diabetes Attending a Specialty Clinic in a Tertiary Care Hospital.
19. Effectiveness of an intervention package for Managing persisting temperamental issues in Children aged 6-12 years
20. Prevalence of sleep issues and effectiveness of sleep hygiene practices among children with autism spectrum disorder (2- 6 years) Attending child development centre.
21. Effectiveness of an Intervention Package on Behavioural Modification in Children with Attention Deficit Hyperactivity Disorder (6-12years)

2.2.6 Publications, Reports, Papers

- **Thulaseedharan N, Maria Scaria L, Ambatipudi S, Bhaskaran D, Hariharan S, Sureshbabu A, et al. Nutritional Influences on Adiposity Rebound and Cardiometabolic Outcomes in a Prospective Birth Cohort of Low-Birth Weight Children: A Study Protocol [version 1; peer review: 2 approved].**

Wellcome Open Research [Internet]. 2025;10(473). Available from: https://wellcomeopenresearch.org/articles/10-473/v1

Summary: This study will be conducted as a longitudinal follow-up study among children with low birth weight (children born with a birth weight of less than 2500 grams). A thousand four hundred children will be recruited consecutively for this study. Birth weight, gestational age, and early neonatal and perinatal details will be collected from clinical records. Information on sociodemographic characteristics, dietary practices, and antenatal, obstetric, and postnatal histories will also be collected. The two-year follow-up assessment will include anthropometric measurements (height, weight, head circumference, chest circumference, waist circumference, and skinfold thickness) and blood pressure. Biochemical investigations will include a lipid profile, serum proteins, insulin resistance assessment, and hemoglobin levels. In addition, DNA methylation at six specific CpG sites relevant to adipogenesis and cardiometabolic health will be assessed. Left ventricular mass and ejection fraction will be evaluated using echocardiography. Carotid intima-media thickness will be measured using an appropriate ultrasound probe. The neurodevelopmental status of the children will be assessed using the Developmental Assessment Scales for Indian Infants (DASII) and Vineland Social Maturity Scale (VSMS).

- **George B, Raju JRA, Leela LM, Bhaskaran D, Indiradevi L, Thulaseedharan N. Prevalence and determinants of overweight and obesity among higher secondary students in a district in Kerala. Int J Community Med Public Health 2021; 8: 3074-8.**

  Background: Overweight and obesity among adolescents and children are associated with early onset of noncommunicable diseases and greater risk of complications in adulthood. The study was conceived in the background of the high burden on adult non-communicable diseases in the state, to assess the prevalence and determinants of overweight and obesity among higher secondary students in one of its fourteen districts, with a view to explore the areas to be focused in preventive activities.

Methods: Anthropometric, blood pressure, and physical examination of 1846 class plus one students were conducted in Thiruvananthapuram. Lifestyle assessment of the children was also conducted using a self-administered pre-validated questionnaire. Prevalence of overweight and obesity was calculated based on Indian academy of paediatrics body mass index cut-offs. Logistic regression analysis was done to discover factors associated with overweight conditions.

Results: Among the students, 14.19% were overweight; 6.45% were obese. Boys, rural residents, and those from low socioeconomic background had lower odds of being overweight. Students who had main meal (s) from outside on three or more days a week (adjusted odds ratio 1.99; CI: 1.17-3.386), and with history of hypercholesterolemia (adjusted odds ratios (aOR) 1.8; CI: 1.19-2.63), obesity (aOR 1.6; CI: 1.11-2.23), or diabetes (aOR 1.5; CI: 1.17-1.95) in the immediate family had higher odds of being overweight. Hypertension and acanthosis were significantly higher among overweight students (p=0.001).

Conclusions: The results warrant the adoption of screening and timely intervention for non-communicable disease risk factors from school level itself to reduce future morbidity and the risk of complications.

- **Scaria LM, Bhaskaran D, George B. Prevalence of Specific Learning Disorders (SLD) Among Children in India: A Systematic Review and Meta Analysis. Indian Journal of Psychological Medicine. June 2022. doi: 10.1177/02537176221100128 d.**

Background: Specific learning disorders (SLD) comprise varied conditions with ongoing problems in one of the three areas of educational skills-reading, writing, and arithmetic-which are essential for the learning process. There is a dearth of systematic reviews focused exclusively on the prevalence of SLD in India. Hence, this study was done to estimate the prevalence of SLD in Indian children.

Methods: A systematic search of electronic databases of MEDLINE, Embase, PsycINFO, and CINAHL was conducted. Two authors independently assessed the eligibility of the full-text articles. The third author reassessed all selected

studies. A standardized data extraction form was developed and piloted. The pooled prevalence of SLDs was estimated from the reported prevalence of eligible studies, using the random-effects model.

Results: Six studies of the systematic review included the diagnostic screening of 8133 children. The random-effects meta-analysis showed that the overall pooled prevalence of SLD in India was 8% (95% CI = 4-11). The tools used to diagnose SLD in the studies were the National Institute of Mental Health and Neurosciences (NIMHANS)-SLD index and the Grade Level Assessment Device (GLAD).

Conclusions: Nearly 8% of children up to 19 years have SLD. There are only a few high-quality, methodologically sound, population-based epidemiological studies on this topic. There is a pressing need to have large population-based surveys in India, using appropriate screening and diagnostic tools. Constructing standardized assessment tools, keeping in view the diversity of Indian culture, is also necessary.

- **Babu G, Scaria LM, Prasanna GL, Deepa B, Leena ML, Remadevi S. A Nine Item Red Flag Sign Card for Identification of Autism Spectrum Disorder among Toddlers Aged 12 to 18 Months. Indian J Pediatr. 2022; 89(3): 288-290. doi: 10.1007/s12098-021-04021-y**

Abstract: There is a dearth of validated red flags measures for early identification of autism spectrum disorder (ASD) among toddlers. Hence, a new screening measure was developed. Item generation was done through literature search. Content validity (CVI) assessment was done. Criterion validity was done using Diagnostic and Statistical Manual 5 (DSM-5) as reference standard, data were collected from the case records of children with ASD diagnosis at 2 y, and evaluated for developmental milestones between 12 and 18 mo in a tertiary care setting. Item reduction of the measure from 18 to 9 was done. The area under the curve in the receiver operating characteristic (ROC) curve for new measure was 0.81 (95% CI = 0.73, 0.87); z = 7.874; p < 0.001 against DSM-5 score of ≥ 2 in the new measure; achieved sensitivity of 93.42% (95% CI = 85.3, 97.8) and specificity of 60% (95% CI = 45.9, 73.0). Thus, new

validated red flag sign card (Concern-9) can be used effectively for early screening and identification of ASD among children aged 12-18 mo.

- **Sanjeev V. Thomas, Panniyammakal Jeemon, Manna Jose, Lekshmi Madhavan Amrithum, Deepa Bhaskaran, Muttathu Krishnapanicker Chandrasekharan Nair, Babu George. Differential impact of antenatal exposure to antiseizure medications on motor and mental development in infants of women with epilepsy. Epileptic Disorders. [Epub ahead of print]. doi: 10.1684/epd.2022.1414**

  Summary: The study found that infants with antenatal exposure to antiseizure medication (ASM) polytherapy or monotherapy had lower mental development quotients compared to unexposed infants. The risks varied depending on the specific medication and dosage, with valproate, phenobarbitone, and carbamazepine showing dose-dependent associations with lower motor and mental development.

- **Bhaskaran, D., Thomas, S., & Scaria, L. M. Neurobehavioral Outcomes of Children with Antenatal Exposure to Antiseizure Medications. Indian J Pediatr (2024). https://doi.org/10.1007/s12098-024-05165-3**

  Objectives: To evaluate the effect of antiepileptic medications prescribed to mothers during pregnancy on the development and behavior of children.

  Methods: From the Kerala Registry of Epilepsy and Pregnancy, 98 children between the ages of 1½ to 2½ y were consecutively chosen. Children of mothers who did not have epilepsy during pregnancy and not exposed to antiseizure medications (ASMs) antenatally were selected as comparator group. Developmental assessment of the children was performed using Developmental Assessment Scale for Indian Infants (DASII) and Receptive-Expressive Emergent Language Scale (REELS). Behavior outcomes were assessed using Child Behavior Checklist.

  Results: A significant delay in expressive language skills was seen in children exposed to antiseizure medication with an odds ratio of 2.539 (95% CI 1.10, 5.85, P = 0.026). A delay in expressive language skills was seen in polytherapy with clobazam (odds ratio 6.83; 95% CI 2.17, 21.56, P < 0.001). Also, delay was

seen in receptive language skills in the same polytherapy group (odds ratio of 7.333; 95% CI 2.16, 24.92, P < 0.001). There were no statistically significant differences between study and comparative groups in motor and mental quotient domains and behavioral outcomes.

Conclusions: The finding of speech delay in children exposed to ASMs is significant since individuals with a history of childhood speech or language disorders may experience long-term difficulties in mental health, social well-being, and academic outcomes.

- **Deepa Bhaskaran, Liss Scaria & Babu George (06 Aug 2024): Grief among parents of children with autism spectrum disorders: a systematic review, International Journal of Developmental Disabilities, DOI: 10.1080/20473869.2024.2387401**

  Summary: A literature search has revealed a huge lacuna in studies related to the feelings of grief experienced by the caregivers of autistic children. Emotional stability and coping of the parents are highly essential not only for the rehabilitation of the child but also to make an improvement in the quality of life of the parents. The primary caregivers of children in the spectrum suffer very powerful and incessant emotions of sadness and grief. The feelings of mothers and fathers of children with autism from recent studies include an unexpected sense of losing a child along with shock, denial, fearfulness, guilt, rage, and/or sorrow. Two most common affective reactions of these parents were grief ("chronic sorrow" or "nonfinite grief") and distress. The maternal experience of grief was found to be more especially in children with recent diagnoses of autism.

- **Bhaskaran, D., George, B. Savant Syndrome. Indian J Pediatr 89, 735 (2022). https://doi.org/10.1007/s12098-022-04202-3**

- **Deepa Bhaskaran, Babu George, Leena M. L., Preema Mahendran, Neethu T., Prasanna G. L., Resmi V. R., Remadevi S. Translating and validating the modified checklist for autism in toddlers (M-CHAT-R/F) into Malayalam for effective utilization in the clinical setting. Int J Contemp Pediatr. 2024 Dec; 11(12):1747-1751**

Background: Early intervention strategies significantly improve developmental outcomes for children with autism spectrum disorders. In this background, this study was conducted to translate and validate Malayalam version of Modified Checklist for Autism in Toddlers (M-CHAT-R/F).

Methods: This cross-sectional study was conducted in four steps. The original version of MCHAT-R/F was translated into Malayalam, and back translated by bilingual experts followed by pilot testing. Finally, the translated tool was administered to 100 children for evaluation of psychometric properties which included reliability and validity assessment. The statistical analysis was conducted using IBM SPSS version 25.

Results: The internal consistency of the items as per parent confirmed stage of screening and flow chart interview stage of screening was 0.539 and 0.731 respectively. The level of agreement in categorizing the children according to the risk of ASD by two raters during first and second screening stage was 0.647 and 0.432 respectively. The test-retest reliability analysis showed that all the items had a moderate level of agreement between test and retest. All the items had an I-CVI more than 0.90. There was strong positive correlation between the score obtained during first stage (r: 0.562) and second stage (r: 0.529) with CARS score which indicates high convergent validity.

Conclusions: The newly translated tool with high reliability and validity could enable in screening symptoms of autism among children belonging to lower age group, which would facilitate in providing appropriate intervention as early as possible.

- **Babu George, Jubyraj Aswathymana Raju, Leena Mundappaliyil Leela, Mini Appukkuttan Omana, Deepa Bhaskaran, Remadevi Saradamma. Development and Validation of a Tool for Assessing Pre-Writing Skills of 2- 5 y old Children. Indian Journal of Paediatrics. https://doi.org/10.1007/s12098- 023-04776-6**

Objectives: To develop a tool to assess pre-writing skills of 2-5 y old children in India.

Methods: The tool development process followed the recommendations by Fitzpatrick et al. and the Consensus based Standards for the selection of health Measurement Instruments (COSMIN), and included 4 phases. In Phase I, an initial 35-item draft tool was developed by an expert panel for the tool-development. In Phase II, the 35-item draft tool was prevalidated through peer and expert reviews, pilot-study to assess the tool-comprehensibility, and assessment of test-retest and inter-rater reliability. In Phase III, the 35-item draft tool was administered on the 575 typically developing children aged 2-5 y, recruited from rural, urban, slum, and coastal areas through stratified random sampling. In Phase IV, the normative age-range for development of each item was generated by calculating the age-percentiles (10th, 25th, 50th, 75th, 90th). Factor analysis and item reduction was done for items in 2-3, 3-4, and 4-5 y age-groups. The final tool was converted to graphic format with 10th-90th age-percentile bars.

Results: The final tool had 26 items with a three-factor structure. Cronbach's alpha was within acceptable limits for all three age groups (0.723, 0.778, and 0.823 in 2-3 y, 3-4 y, and 4-5 y respectively). Kappa coefficients of the items ranged from 0.6-1 in inter-rater reliability and 0.64-1 test-retest reliability analysis reflecting substantial agreement between ratings.

Conclusions A 26-item screening tool "Prewriting skills Assessment Tool" (PAT) to assess writing readiness of 2-5 y old children was developed. Tool reliability and construct validity have been established.

- **Babu George, Juby Raj A. R., Leena M. L., Deepa Bhaskaran, Lalikumari I., Preema Mahendran, Neethu T. Prevalence and determinants of acanthosis nigricans among adolescents: a school-based cross-sectional study in Southern Kerala. Int J Res Dermatol. 2025 Jan; 11(1): 46-51. http://www.ijord.com. DOI: https://dx.doi.org/10.18203/issn.2455-4529.IntJResDermatol20243875**

Background: Acanthosis nigricans (AN) is a dermatologic condition that may be associated with various underlying medical conditions and is increasingly seen in obese children and adolescents. Assessing AN in adolescents is crucial as it

can serve as an early indicator of underlying insulin resistance and metabolic disorders.

Methods: This cross sectional study was conducted among class eleven higher secondary students in public and aided sector in Thiruvananthapuram district of Kerala. A total of 1832 students were recruited using multistage cluster sampling procedure. The participants were examined and neck grading for acanthosis was recorded. Anthropometric readings along with blood pressure, perceived stress levels, family history of diseases as well as life style habits were also evaluated. The female participants were examined for symptoms of anovulation and hyperandrogenism.

Results: A total of 1832 students participated in the study of which 66% were girls and 34% were boys. About 26% were found to have AN. Prevalence of Acanthosis was higher in girls (30.3%) compared to boys (18%). Hypertension (OR: 2.83, 95% CI: 2.25-3.55), overweight or obesity (OR: 10.67, 95% CI: 8.26-13.78) and high levels of perceived stress (OR: 1.55, 95% CI: 1.05-2.30) were found to be significantly associated with acanthosis.

Conclusions: The findings suggest that AN neck grading can serve as a useful tool for non-communicable disease screening in schools, enabling the identification of students who may require further evaluation and intervention.

- **Babu George, Deepa Bhaskaran, Leena M.L., Juby Raj A. R., Lalikumari I., Preema Mahendran, Neethu T. Prevalence and Patterns of Non-Communicable Disease Risk Factors in Adolescents: A South Kerala School Based Study. Online Journal of Health and Allied Sciences. Volume 24, Issue 1; Jan-Mar 2025**

  Background: In the background of rising prevalence of non-communicable diseases (NCDs), the health system needs to implement preventive strategies particularly at early stages of disease development. Addressing these issues should commence in childhood, as unhealthy lifestyle practices play a significant role in influencing health outcomes from an early age. Methods: This cross sectional study was conducted among1852 class eleven students in 15 Higher Secondary Schools in Thiruvananthapuram district selected through

multistage cluster sampling. Dietary practices, physical activity and screen use patterns, substance abuse, and perceived stress levels were assessed using a prevalidated questionnaire. Blood Pressure, Anthropometric measurements, and Acanthosis nigricans neck severity grading were also recorded. Results: About 25% of the students had Grade I Hypertension and 8.3% had Grade II Hypertension. Around 19% of the students were overweight, while 6.4% were obese. Around 62% of the participants reported engaging in moderate or vigorous physical activities less than three days a week. Consumption of junk foods was highly frequent among the students, with 61% reporting consumption of oil-fried snacks three or more days a week and 53.5% consuming sugary snacks three or more days a week. Fruit and vegetable consumption was low. Acanthosis nigricans (neck) was found in 26% of the students. Nearly 33% of the students had recreational screen time greater than three hours per day. Conclusion: The study results show that a major proportion of middle-late adolescents have behavioural, and physiological risk factors for NCDs, warranting strong preventive measures to be adopted at school level itself. Strategies aimed at awareness generation, increasing availability of and accessibility to healthy food and physical activity habits, as well as regular anthropometric and blood pressure screenings with follow up provisions in the schools need to be implemented.

- **George B, Bhaskaran D, Leela LM, Raju JA, Indiradevi L, Mahendran P, Thulaseedharan N. Prevalence and Determinants of Hypertension among Adolescents: A Cross-Sectional Study in South Kerala. J Med Sci Health 2025; 11(3):244-250**

  Background and Objective: Hypertension is one of the major risk factors for Non-Communicable disease related morbidity and premature mortality worldwide. Rising levels of Non-Communicable diseases necessitate adoption of early detection of premorbid conditions and risk factors and preventive strategies in vulnerable population. The current study was aimed at assessing the prevalence and associated factors of hypertension among adolescents in Southern Kerala. Methods: For this cross-sectional study, 1852 class eleven students from fifteen selected schools in the capital district, recruited using

multistage cluster sampling procedure were examined by trained medical personnel. Blood pressure, anthropometry, and lifestyle parameters were assessed. Hypertension was determined based on the latest American Academy of Paediatrics recommendations. Adjusted Odds Ratios were calculated using binary logistic regression. Results: Grade 1 Hypertension was found in 24.68% (CI: 22.7%-26.6%) and Grade 2 in 8.31% (CI: 7%-9.5%). The odds of Hypertension were higher in boys (adjusted Odds Ratio- aOR 1.62, CI:1.3-2.0), overweight students (aOR 3.45, CI: 2.71-4.39), students with lower fruit intake (aOR 1.44, CI 1.06-1.95), lower daily physical activity (aOR 1.42, CI 1.08-1.86), and those who were currently using smokeless tobacco products (aOR 3.71, CI: 1.1-12.5). Conclusion: High levels of hypertension among the students warrant concern and adoption of early screening measures in the school-level itself, with appropriate interventions including behavioral-change communication, and follow-ups.

- **George B, Padmam MSR, Nair MKC, Leena ML, Scaria LM, Prasanna GL, Neethu T, Shahida AS, Bhaskaran D, Russell PSS. Childhood Autism Tool - Trivandrum (CAT-T) - Development and Validation. Indian J Pediatr. 2025 Jul 29. doi: 10.1007/s12098-025-05672-x. Epub ahead of print. PMID: 40728823.**

  Objectives: To develop and validate a culturally appropriate measure for the diagnosis of ASD among children between 2 and 6 y of age in Kerala.

  Methods: This qualitative study was conducted among 200 children who were consecutively recruited over a period of 18 mo. The development of the new measure was based on the Consensus based Standards for the selection of health Measurement Instruments (COSMIN) protocol. The face and content validity were already established while developing the measure. The convergent and divergent validity of CAT-T were measured against Childhood Autism Rating Scale (CARS) and Vineland Social Maturity Scale (VSMS) respectively. The construct validity of CAT-T was evaluated using exploratory factor analysis.

  Results: A 39-item measure was developed by using the 8 steps recommended for psychosocial measure development. The 39 items of the tool were subjected

to factor analysis and finally a tool having 24 items was developed (CAT-T). Convergent validity of the measure with CARS (r = 0.67, p = 0.0001) and divergent validity with VSMS (r = -0.50, p = 0.0001) were moderate. The tool has good test retest reliability (ICC = 0.86), inter rater reliability (ICC = 0.89), and internal consistency of 24-item CAT-T was very high (Cronbach's alpha = 0.86). The construct validity of CAT-T demonstrated a 7- factor structure that explained 66.22% of the variance.

Conclusions: A 24-item final measure, the Childhood Autism Tool-Trivandrum (CAT-T), was developed. The measure CAT-T has adequate validity and reliability parameters.

- **Scaria L, Soman B, George B et al. Determinants of very low birth weight in India: The National Family Health Survey – 4 [version 2; peer review: 2 approved]. Wellcome Open Res 2022, 7:20(https://doi.org/10.12688/wellcomeopenres.17463.2)**

  Data from the NFHS-4 on birthweight and other socio-demographic characteristics for the youngest child born in the family during the five years preceding the survey were used. Data of 147,762 infant–mother pairs were included. Multiple logistic regression models were employed to delineate the independent predictors of VLBW (birth weight<1500 g) or LBW (birth weight: 1500-2499 g).

  Results: Of the 147,762 children included in the study, VLBW and LBW were observed in 1.2% and 15.8% of children, respectively. The odds of VLBW were higher in female children (aOR: 1.36, 95% CI: 1.15–1.60), among mothers aged 13–19 years (aOR: 1.58, 95% CI: 1.22–2.07), mothers with severe or moderate anaemia (aOR: 1.61, 95% CI: 1.34–1.94), mothers without recommended antenatal care (aOR: 1.47, 95% CI: 1.31–1.90), maternal height less than 150 cm (aOR: 1.54, 95% CI: 1.29–1.85) and among mothers with multiple pregnancy (aOR: 21.34, 95% CI: 14.70–30.96) in comparison to their corresponding counterparts. In addition to the variables associated with VLBW, educational status of mothers (no education; aOR: 1.08, 95% CI: 1.02–1.15 and primary education; aOR: 1.16, 95% CI: 1.08–1.25), caste of the children (scheduled tribe;

aOR: 1.13, 95% CI: 1.03–1.24), and wealthiness of the family (poorest wealth quintiles; aOR: 1.11, 95% CI: 1.03–1.19) were associated with LBW.

Conclusions: Interventions targeting improvements in antenatal care access, maternal health, and nutritional status may reduce the number of VLBW infants. Social determinants of LBW require further detailed study to understand the high propensity of low birth-weight phenotypes in the disadvantaged communities in India.

TEENS journal

- TEENS, Vol 13&14, Number 1 &2, January & July 2019& 2020
- TEENS, Vol 15, Number 1 January 2021

Newsletter

- Child, Volume 03, Issue 01, January 2020
- Child, Volume 03, Issue 02, June 2020
- Child, Volume 04, Issue 01, January 2021
- Child, Volume 04, Issue 02, June 2021
- Child, Volume 05, Issue 01, June 2022
- Child, Volume 06, Issue 01, June 2024
- Child, Volume 07, Issue 01, June 2025

Other Publications

- Care of Preterm Babies – Malayalam (Masam Thikayathe Janikkunna Kunjungalude Paricharanam)
- Adolescent Health Cards (Boys & Girls)
- Autism Resource Module (Under Publication)
- First 1000 days (Under Publication)
- Preterm Care (Under Publication)

2.3 Development and Validation of Tools

A major contribution of CDC research focused on the creation and validation of simple, reliable tools appropriate for community and primary-care settings. These instruments were designed for developmental monitoring, preschool assessment, and screening and diagnosis of neurodevelopmental disorders (NDDs). These tools were developed through iterative processes: item generation from clinical observation and literature, pilot testing in community samples, formal validation against gold-standard assessments, and later directed to the field training of community workers (Anganwadi workers). Emphasis was placed on brevity, ease of training, cultural appropriateness, and linkage to referral pathways.

From 2015 onwards, CDC undertook systematic translation, cultural adaptation, and validation of standardized tools for autism spectrum disorder and preschool developmental assessment, strengthening locally relevant screening and evaluation capacity.

This chapter presents a detailed account of the tools developed and validated at CDC.

i. CDC Grading

The CDC Grading is a simple developmental assessment method developed to identify early motor delays in infants, particularly during the first year of life. It focuses on four key motor milestones- social smile at 2 months, head holding at 4 months, sitting at 8 months, and standing at 12 months- as most developmental delays in infancy can be detected using these cut-off points. The Developmental Observation Card (DOC) enables parents and caregivers to observe and report these milestones at home, making early identification feasible even in community settings.

CDC Grading provides structured severity levels (Grade 0 to V) for head holding, sitting, and standing, allowing clinicians to objectively assess developmental progression. Each milestone is evaluated at its age-specific cutoff, with clear functional descriptions corresponding to each grade. Grades III, IV, and V are considered developmentally appropriate (normal) for the respective age, while Grades 0–II suggest delay and require further evaluation. Overall, CDC Grading is a

practical, low-cost, and reliable approach for early screening of motor developmental delays and timely referral for intervention.

ii. Trivandrum Developmental Screening Chart (TDSC: 0 – 6 years) (Annexure II)

The Trivandrum Development Screening Chart for children aged 0–6 years [TDSC (0–6 y)] is a simple community-based screening tool developed by CDC Kerala to identify developmental delay in early childhood. It consists of 51 carefully selected developmental items derived from existing standardized charts, ensuring strong face and content validity. Criterion validity was assessed in a large community sample of 1,183 children by validating TDSC (0–6 y) against the Denver Developmental Screening Test (DDST) as the reference standard. Considering one item delay as test positive, the tool demonstrated good diagnostic accuracy with a sensitivity of 84.62% and specificity of 90.8%, along with a very high negative predictive value of 99.23%. The reliability of TDSC (0–6 y) was found to be robust, with acceptable test–retest reliability (ICC 0.77) and excellent inter-rater reliability (ICC 0.97). Overall, TDSC (0–6 y) is a reliable, valid, and feasible screening tool for use in community settings, facilitating early identification and timely intervention for children with developmental delays.

iii. Language Evaluation Scale Trivandrum (LEST) For Children Aged 0-3 Years and 3-6 years (Annexure III)

The Language Evaluation Scale Trivandrum (LEST) is a simple screening tool developed by CDC Kerala to identify language delay in early childhood and has been validated for use in both clinical and community settings. LEST (0–3 years) was validated against the Receptive Expressive Emergent Language Scale (REELS) in a developmental evaluation clinic population, with assessments conducted independently and blindly by trained professionals. In a clinic sample of 679 children aged 0–3 years with suspected speech and language problems, LEST (0–3) demonstrated high sensitivity (84.4%), specificity (80.3%), and overall accuracy (83.2%). The tool also showed a high positive predictive value (91.5%), indicating strong ability to correctly identify children with language delay, making it particularly useful in clinical settings.

For older preschool children, LEST (3–6 years) comprising 31 items was validated in a community sample of 606 children against the extended REELS. Using one-item delay as the cut-off, LEST (3–6 years) demonstrated high sensitivity (81%) with excellent negative predictive value (98%), suitable for initial community screening. When two-item delay was considered, the specificity (94%) and accuracy (92%) increased, allowing better identification of true language delays. Overall, LEST across 0–6 years is a valid, reliable, and feasible language screening tool, especially valuable in resource-limited settings.

iv. Trivandrum Autism Behavioural Checklist (TABC) (Annexure IV)

The Trivandrum Autism Behavioural Checklist (TABC) is a simple screening tool developed by the Child Development Centre (CDC), Kerala, to facilitate early detection of autism in routine clinical and community settings. Recognizing the rising prevalence of autism and the need for feasible screening methods, TABC was designed for use among young children aged 18–36 months. The tool was validated at CDC Kerala against the Checklist for Autism in Toddlers (CHAT) as a screening reference and the Childhood Autism Rating Scale (CARS) as the diagnostic gold standard, using blinded assessments by independent investigators.

When validated against CHAT, TABC showed high specificity (94.19%) and a strong negative predictive value (93.10%), indicating its effectiveness in ruling out autism in children without features. Against CARS, TABC demonstrated a sensitivity of 80% and specificity of 91.1%, with an excellent negative predictive value of 98.61%. Although the positive predictive value was modest, the consistently high negative predictive values across both comparisons highlight TABC's strength as a screening tool rather than a diagnostic instrument. The comparable prevalence rates identified by TABC (13.2%) and CHAT (14%) further support its utility in routine clinical screening. Overall, TABC is a practical, reliable screening instrument for early identification of autism, with confirmation recommended using standardized diagnostic tools such as CARS.

v. Nursery Evaluation Scale Trivandrum (NEST) (Annexure V)

The Nursery Evaluation Scale Trivandrum (NEST) is a functional assessment and screening tool developed at CDC Kerala for preschool children aged 4–6 years. It is

designed to help preschool teachers and clinicians monitor skill development and identify children who require one-to-one instructional support, rather than to assess intelligence or select children for school admission. NEST was formulated based on established child development theories and extensive clinical experience and was standardized on 613 preschool children.

Originally consisting of 181 items, NEST was refined through factor analysis to 69 items across six developmental domains, including gross motor, fine motor, cognitive, personal–social, expressive language, and receptive language skills. The tool was validated against DDST-II, with one-item delay on NEST and "suspect" on DDST-II considered positive. Validation showed moderate sensitivity (60.21%), good specificity (81.64%), and an overall accuracy of 75%, supporting NEST as a useful screening tool for identifying mild developmental delays in preschool children.

vi. Neuro-Developmental Screening Tool (NDST)

The Neuro-Developmental Screening Tool (NDST) is a standardized screening instrument designed to identify neurodevelopmental difficulties in children aged 2–9 years. It was developed as part of the INCLEN initiative, with the Child Development Centre (CDC) Kerala serving as one of the key investigators in its development and validation. NDST functions as a first-level screening tool that can be used in clinical and community settings to detect children at risk for neurodevelopmental disorders. The tool is complemented by four INCLEN-derived diagnostic instruments intended for clinician use, enabling detailed assessment and confirmation of specific conditions. NDST is simple, age-appropriate, and feasible for use by trained personnel, making it suitable for large-scale screening programs. Overall, NDST strengthens early identification and referral for comprehensive evaluation and intervention in children with neurodevelopmental concerns.

vii. Teen Screen Questionnaire

The Teen Screen Questionnaire–Mental Health (TSQ-M) is a brief, self-reported screening instrument developed to identify mental ill-health among adolescents in India. It was validated in a prospective cross-sectional study involving 146 adolescents from rural and urban schools, using the General Health Questionnaire-

12 (GHQ-12) as the gold standard. A cut-off score of ≥29 demonstrated acceptable diagnostic accuracy, with a sensitivity of 75.68%, specificity of 68.06%, and an area under the ROC curve of 0.79. The tool showed adequate face and content validity, along with moderate internal consistency (Cronbach's α = 0.64), reflecting the multidimensional nature of adolescent mental health. Factor analysis revealed an eight-factor structure explaining 60% of the variance, supporting the presence of multiple sub-constructs of mental ill-health. Overall, TSQ-M is a psychometrically sound, rapid screening tool suitable for both clinical practice and research in Indian primary-care settings.

viii. 18 Point Screening Tool Kerala (PSTK-18)

Child Development Centre developed for NHM an 18 Point Screening Tool Kerala (PSTK-18) (Developmental & Disability Screening Tool (0-1 year). Community-Based Infant Disability Screening Training Programme was carried out for CDPOs, Supervisors &RBSK Nurses of selected 30 ICDS of Kerala 2019 based on this screening tool.

ix. Concern 9 – Red Flag sign Tool developed by CDC for identification of early markers of Autism among babies of age 12 months to 18 months (Annexure VI)

In response to the paucity of validated screening instruments for the very early identification of Autism Spectrum Disorder (ASD), CDC developed and validated a nine-item red flag sign card (Concern-9) for toddlers aged 12–18 months. The tool was designed to enable identification of early behavioural markers of ASD during a critical neurodevelopmental window, when timely intervention yields maximal benefit. Item generation for the tool was undertaken through an extensive review of existing literature on early autism markers, followed by a structured expert review to establish content validity, and quantified using the Content Validity Index (CVI). Criterion validity was assessed using the DSM-5 diagnostic criteria as the reference standard.

Data were retrospectively extracted from case records of children who received a confirmed diagnosis of ASD at two years of age, with careful evaluation of their documented developmental milestones during the 12–18-month period in a

tertiary care setting. Through systematic item reduction, the initial 18-item measure was refined to a concise nine-item screening card. The psychometric performance of Concern-9 was robust, with the receiver operating characteristic (ROC) analysis yielding an area under the curve of 0.81 (95% CI: 0.73–0.87; $p < 0.001$). Using a cut-off score of ≥2, the tool demonstrated high sensitivity (93.42%) and acceptable specificity (60%) for ASD identification. Published in the Indian Journal of Pediatrics, Concern-9 represents a clinically feasible, evidence-based screening instrument that strengthens early autism detection and supports the initiation of early intervention strategies in both clinical and community settings.

x. Translation of Quality of Life in Autism Questionnaire (QoLA) and assessment of its reliability and validity

As part of CDC's efforts to address the psychosocial dimensions of autism spectrum disorder, the Quality of Life in Autism Questionnaire (QoLA) was translated into Malayalam and psychometrically validated for use among parents of children with ASD. This validation study was conducted in a tertiary care setting and included 100 parents of children aged 2–6 years with a confirmed diagnosis of ASD, who were consecutively recruited during outpatient visits. Permission for translation and use of the tool was obtained from the original author. The translation process followed standard methodological steps, including two independent forward translations from English to Malayalam, back-translation by a separate bilingual expert, pretesting among ten parents, and refinement through a pilot study. The finalized Malayalam version was administered to the target caregiver population, and reliability and validity analyses were performed using appropriate statistical methods. The tool demonstrated moderate convergent validity ($r = 0.315$; $p = 0.001$), excellent test–retest reliability (ICC = 0.890) and high internal consistency (Cronbach's alpha = 0.872). Item-level analysis showed satisfactory item–total correlations for all items except one, and discriminant validity was found to be statistically significant. The validated Malayalam QoLA provides a culturally relevant instrument for identifying quality-of-life concerns and psychosocial challenges faced by parents of children with ASD, thereby supporting holistic family-centred assessment and timely psychosocial interventions. This tool is under publication with the Indian Journal of Pediatrics.

xi. Translation and Validation of Modified Checklist for Autism in Toddlers, Revised with Follow-up (M-CHAT-R/F)

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder, identified by deficits in social communication along with restricted interests and repetitive behaviors. The American Academy of Paediatrics recommends that routine screening assessment for ASD needs to be carried out at a consultation between 18 and 24 months. The most widely used screening tool is the M-CHAT (Modified Checklist for Autism in Toddlers), a two-step assessment among children aged 18 to 30 months that includes a 23-item parent questionnaire and a follow-up interview for certain cases aimed at reducing the number of false positive results. Early intervention strategies have been shown to significantly improve developmental outcomes for children with ASD, emphasizing the significance of reliable screening tools.

It was in this background that this study was conducted to translate and validate MCHAT-R/F tool in Malayalam language. This cross-sectional study was conducted in four steps. The original version of MCHAT-R/F was translated into Malayalam and back-translated by bilingual experts, followed by pilot testing. Finally, the translated tool was administered to 100 children for evaluation of psychometric properties, which included reliability and validity assessment. The results showed that the internal consistency of the items as per parent confirmed stage of screening and flow chart interview stage of screening was 0.539 and 0.731 respectively. The level of agreement in categorizing the children according to the risk of ASD by two raters during first and second screening stage was 0.647 and 0.432 respectively. The test-retest reliability analysis showed that all the items had a moderate level of agreement between test and retest. All the items had an I-CVI more than 0.90. There was strong positive correlation between the score obtained during first stage (r: 0.562) and second stage (r: 0.529) with CARS score which indicates high convergent validity. This study was published in International Journal of Contemporary Paediatrics.

xii. Development and validation of a Prewriting skill assessment tool for 2-5 year old children attending preschools- (Annexure -VII)

School readiness is the most integral concept of Early Child Care and Education (ECCE) models worldwide. It is important for children entering schools to be at appropriate developmental levels to start writing, reading, and have some basic experience in numeracy or logic- that is, prewriting, pre-reading, and pre-arithmetic skills. These skills should be developed at the kindergarten level itself. Pre-writing skills are a set of basic, essential abilities and accomplishments a child needs to develop before he/she can write.

Assessment of preschool children's prewriting skills is important for identifying those who lag and providing appropriate early interventions to develop these skills. Individualizing writing instruction in this way will provide meaningful, amicable writing experiences for all children, setting the stage for writing readiness when they enter school. Currently, there is a dearth of validated tools specifically for assessing the prewriting skills of pre-schoolers in India. It was in this background that the development of such a tool to assess pre-writing skills of children aged 2-5 year was conceived. The final tool had 26 items with a three-factor structure. Cronbach's alpha was within acceptable limits for all three age groups (0.723, 0.778, and 0.823 in 2-3 y, 3-4 y, and 4-5 y respectively). Kappa coefficients of the items ranged from 0.6-1in inter-rater reliability and 0.64-1 test-retest reliability analysis reflecting substantial agreement between ratings. To conclude, a 26-item screening tool "Prewriting skills Assessment Tool" (PAT) to assess writing readiness of 2-5 y old children was developed. Tool reliability and construct validity have been established. This was published in Indian Journal of Paediatrics.

xiii. Childhood Autism Tool–Trivandrum (CAT-T)- (Annexure VIII)

As part of CDC's continuing commitment to developing culturally appropriate diagnostic tools for neurodevelopmental disorders, the Childhood Autism Tool–Trivandrum (CAT-T) was developed and validated as a clinician-administered measure for the diagnosis of Autism Spectrum Disorder among children aged 2–6 years in Kerala. The tool was conceived in response to the limited availability of validated autism diagnostic instruments suitable for routine clinical use in low- and middle-income settings. The development process adhered rigorously to the

Consensus-based Standards for the Selection of Health Measurement Instruments (COSMIN) guidelines and followed eight systematic steps of psychosocial measure development. An initial pool of 39 items was generated based on clinical observations, literature review and expert consensus, with face and content validity established during the early phases. The tool was subsequently subjected to psychometric evaluation in a qualitative study involving 200 consecutively recruited children over an 18-month period. Exploratory factor analysis resulted in a refined 24-item instrument with a seven-factor structure explaining 66.22% of the total variance, reflecting core domains relevant to autism symptomatology.

The CAT-T demonstrated moderate convergent validity when compared with the Childhood Autism Rating Scale ($r = 0.67$, $p < 0.001$) and moderate divergent validity with the Vineland Social Maturity Scale ($r = -0.50$, $p < 0.001$). Reliability indices were robust, with high test–retest reliability (ICC = 0.86), inter-rater reliability (ICC = 0.89) and excellent internal consistency (Cronbach's alpha = 0.86). Published in the Indian Journal of Pediatrics in 2025, CAT-T represents a significant contribution to autism diagnostics in India, offering a psychometrically sound, culturally relevant and clinically feasible tool that strengthens early diagnosis and facilitates timely intervention within both tertiary care and community-based child development services.

xiv. Development and validation of Early Reading and Numeracy skills Assessment Tool (2 to 5 years)

This study will focus on developing and validating a tool to assess pre-reading and early numeracy skills in children aged 3–6 years attending preschools in Thiruvananthapuram. The tool will be constructed through expert consultation, literature review, and input from preschool teachers and parents, ensuring coverage of key domains in emergent literacy and early numeracy. It will include age-appropriate tasks assessing skills such as print awareness, phonemic awareness, counting, number recognition, and quantity manipulation, with items formatted graphically for clarity.

Validation will involve assessing content, construct, and face validity, alongside reliability measures including internal consistency, test-retest, and inter-rater reliability. Factor analysis will be performed to determine the underlying structure

and reduce items where appropriate, and normative age ranges will be established for each task. The expected outcome is a psychometrically robust, user-friendly tool that can identify children at risk for reading and math difficulties, guide early interventions, and support monitoring of preschool learning development.

xv. **Development and Validation of a Tool for Assessing Grief among Parents of Children with Autism Spectrum Disorders-** (accepted under the ICMR Extramural small grants)

Parents of children with Autism Spectrum Disorders (ASD) often experience grief due to ambiguous loss, chronic sorrow, and emotional distress. While grief among parents of children with chronic illnesses has been studied, there is limited research on its prevalence, patterns, predictive factors, and cultural dimensions among parents of children with ASD in India. No standardized tool exists to assess grief in this population. This study aims to develop and validate a culturally relevant tool for assessing grief among parents of children with ASD. The study also examines the prevalence, patterns, and predictors of grief and implements targeted grief counseling and support programs.

The project aims to develop a culturally appropriate construct of grief. Develop and validate an assessment tool for grief among Indian parents. The study consists of three phases: (1) Systematic review, (2) Focus group discussions, (3) Development and validation of the assessment tool using STARD and COSMIN guidelines. The study will provide a validated tool for assessing parental grief, leading to better psychological support. Findings will inform policy recommendations, grief counseling interventions, and the establishment of parental support groups

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2.4 Capacity Building

2.4.1 Courses

- In 1995, a two-year full-time **postgraduate diploma in clinical child development (PG-DCCD)** course was started at CDC Kerala, as a paramedical course under the Government of Kerala, to meet the need for competent trainers in developmental assessment and intervention for anganwadi workers and other community health workers. This Diploma in Clinical Child Development is the first course of its kind in India, designed to create qualified community-level trainers in clinical child development for the prevention of childhood disability. Over the last 30 years, over 240 persons completed this two-year full-time paramedical course and are currently managing neuro-developmental follow-up clinics, developmental evaluation and intervention clinics at mini CDCs and community extension services in Kerala and other parts of India.
- **Distance education courses with University of Kerala**: As part of the national capacity building, CDC Kerala has initiated and conducted the following distance education courses of the University of Kerala in 2004 and till 2011, 2590 medical, paramedical, and graduate students have completed the courses.

  (i) M.H.Sc. in Clinical Child Development

  (ii) M.Sc. in Clinical Nutrition and Dietetics

  (iii) Master of Hospital Administration (MHA)

  (iv) P.G Diploma in Child, Adolescent & Family Counseling

  (v) PG Diploma in Developmental Neurology

  (vi) PG Diploma in Adolescent Pediatrics

  (vii) P.G Diploma in Health Science Research

- **IAP Fellowship Programme in Development and Behavioural Paediatrics**
  From 2016, the Centre has offered a regular course- the IAP Fellowship programme in Development and Behavioural Paediatrics, started in association with the Indian Academy of Paediatrics, Mumbai. The duration of the course is one year. The training is conducted at the Child Development Centre, Medical College Campus, and Thiruvananthapuram. Two students are admitted every

year for this programme. A total of 18 paediatricians have been trained through the programme so far, and they are currently practising Developmental Paediatrics in various parts of the country.

- **Courses in association with the Centre for Adult and Continuing Education &Extension (CACEE), University of Kerala**

  In 2019, the CDC in association with the Centre for Adult and Continuing Education &Extension (CACEE) revamped the following four courses:

  A. PG Diploma in Adolescent Pediatrics (PGDAP): Adolescent Paediatrics is an emerging sub-specialty of paediatrics essentially for creating a cadre of doctors who can effectively deal with the psycho-medical, emotional, growth, and development of children between 10-20 years. This one-year course is mainly focused for Paediatricians.

  B. PG Diploma in Child, Adolescent and Family Counseling (PGD CAFC): Many counselors who are working in the field have not necessarily had formal clinical counselling training, but have shown interest in undertaking long-term training, provided the mode of training is distance education. Hence, a "PG Diploma in Child, Adolescent & Family Counselling" was started for master's degree holders in any of the branches of science, B.Sc. Nursing or personnel already working in the field.

  C. Post Graduate Diploma in Developmental Neurology (PGD DN): Another Postgraduate programme offered is the PG Diploma in Developmental Neurology, which is of one year duration. The basic qualification for getting admission is a PG Degree / Diploma in Pediatrics, MD / Dip.NB / MNAMS / DCH/MBBS.

  D. PG Diploma in Health Science Research (PGD HSR): PG Diploma in Health Science Research, is a One-year course. The basic qualification for getting admission is any Health Science related Degree (MBBS, BDS, B.Sc. Nursing, B.Pharm, BSMS, BAMS, BHMS, BV.Sc.) from any recognized University in India The major objective of P.G. Diploma in Health Science Research (PGD HSR) is to equip health professionals to interpret and apply the principles of epidemiology confidently to their particular needs.

Table 2.4.1.1 Courses and participants

Course	Admission	No of candidates
PGD DN	2019-2020	62 Paediatricians
	2022-2023	104 Paediatricians
	2023-2024	110 Paediatricians
	2024-2025	120 Paediatricians
PGDAP	2019-2020	15 Paediatricians
	2022-2023	24 Paediatricians
	2023-2024	40 Paediatricians
PGD CAFC	2021-2022	32 Post Graduates
	2023-2024	10 Post Graduates

Source: CDC

2.4.2 Major training and capacity building programmes

The Child Development Centre (CDC) has played a pivotal role in national and state-level capacity building through a wide range of structured training programmes. These programmes strengthen the skills of pediatricians, CDPOs, ICDS supervisors, school counsellors, Souhrida coordinators, medical officers, mid-level service providers, and frontline workers. Major initiatives include the NCD Prevention Training Program for higher secondary schools, First Thousand Days Training of Trainers, and intensive programmes on early detection of developmental delay, disability, and Autism Spectrum Disorder, benefiting over 1,500 ICDS supervisors and 115 pediatricians. CDC also conducted specialized workshops such as DASII training, genetic testing workshops, SMA training, and DEIC functionary training, along with national conferences like DISHA and the National Conference on Genetic Disorders. Complementary awareness activities—Autism Day events, webinars, and parent-focused sessions—further expanded community knowledge. Extensive preschool and adolescent care programmes, including

IYCF sessions, early stimulation workshops, school health talks, stress management classes, and adolescent-friendly services, strengthened early intervention and adolescent well-being. Through these diverse and sustained initiatives, CDC has built a strong multi-sectoral workforce capable of improving child development outcomes across Kerala and beyond.

- **CDC–NRHM Childhood Disability Project (CHDP)**

  This project (started in 2009), established a district model for the early detection and management of childhood disability in children below six years. Capacity building was achieved through large-scale training of 2,557 health providers, empowering them to screen and identify developmental delays. ASHA workers surveyed over 80,000 children, followed by Anganwadi medical camps, the tools TDSC & LEST. Disability Evaluation Camps were conducted across 34 PHCs by a multidisciplinary team, and Child Development Referral Units (CDRUs) were set up for ongoing support. Training manuals and rehabilitation modules were also developed.

- **CDC–NRHM Adolescent Health District Plan (AHDP)**

  Launched in 2008, this project strengthened the adolescent health system in Thiruvananthapuram through extensive training of medical/paramedical staff, ASHAs, teachers, and community workers. Awareness programmes covered nearly 57,000 adolescents and stakeholders. Capacity building included developing an ARSH booklet, organising community medical camps, establishing adolescent clinics in CHCs, and running weekly ARSH clinics in Taluk Hospitals by multidisciplinary mobile teams. The project enhanced adolescent-friendly services and improved community awareness on reproductive health, nutrition, and psychosocial issues.

- **Knowledge Partner of the International Conference on Clubfoot**

  The Department of Health & Family Welfare, Government of Kerala, organized an International Conference on "Clubfoot" on 6th December 2021. Child Development Centre was a knowledge partner of the Conference, and the theme was "Clubfoot-free Kerala- None shall be disabled due to Clubfoot". Eminent national and international faculty delivered speeches during the Conference. The

major outcome envisaged was the establishment of about 45 clubfoot clinics in various hospitals of Kerala and increased awareness among parents and professionals with regard to early detection and treatment, especially adopting the non-surgical Ponseti Technique.

- **Nirnayam (Early detection and Early intervention programme through ICDS) (2022-25)**

  Investing in early child care and development will ensure long-term dividends. All health care interventions in children in the age group 0-3 years are important since any delay or deviation occurring during this period can be identified early, and appropriate interventions can be instituted. CDC, in association with the Women and Child Development Department, initiated a program, which will be implemented through ICDS. An assessment kit has been developed and designed having 12 items, which will help in the identification of Developmental delay among children less than 3 years. Appropriate Early stimulation and Early intervention programme has been prepared and is available as two modules for (i) Growth assessment and (ii) Developmental assessment and intervention. The programme is named NIRNAYAM

  The Nirnayam kit developed by CDC **(Annexure IX),** is a comprehensive device of 12 items, including one-inch coloured cubes, bell, rattle, measuring tape, pen torch, and various other essential materials for assessing the development of children aged 0-3 years. This kit is developed to support early detection of Developmental Delay in children less than 3 years.

- **Training Programme for Child Development Project Officers (CDPOs) and Supervisors of ICDS on Early Detection of Disability.**

  The Child Development Centre (CDC), entrusted by the Department of Women and Child Development, Government of Kerala, conducted a two-day training programme on Early Detection of Disability for 581 CDPOs and ICDS Supervisors across the state in 12 batches between January and March 2023. The training focused on understanding developmental milestones, identifying common childhood disabilities, detecting growth retardation and nutritional issues, and implementing early intervention strategies. Through interactive sessions,

demonstrations, and discussions, participants were equipped to recognize developmental delays in children and initiate timely interventions, thereby strengthening the capacity of the ICDS workforce to improve early childhood development and enhance the quality of life for children in Kerala.

- **Orientation (Job training) Training Programme for School Counselors of Women and Child Development Department, For Quality improvement (Psycho-Social Health, Academic & Life Skill Development) of students of Class V to XII.**

  In response to the request from the Department of Women and Child Development (File No. DWCDO/1/2022-ICDSA1 dated 27.5.2022), CDC conducted a three-day Orientation and Job Training Program for 94 newly appointed school counselors from across Kerala. The program, organized in two batches, included 15 sessions per batch covering adolescent counseling principles, academic and mental health issues, substance abuse prevention, lifestyle and social health, life skills education, reproductive health, cyber safety, and parenting adolescents. Sessions were facilitated by a multidisciplinary faculty comprising pediatricians, psychiatrists, clinical psychologists, nutritionists, gynecologists, and experienced counselors. The training aimed to strengthen the capacity of new school counselors to effectively address the challenges posed by the COVID-19 pandemic and enhance the overall well-being of adolescents under their care.

- **Training Program on Management of Autism Spectrum Disorder at Jammu & Kashmir:**

  Along with Children in India Trust, CDC conducted a training program for District Early Intervention Centre (DEIC) functionaries and Paediatricians in Jammu and Kashmir on the Management of Autism Spectrum Disorder (ASD) among children during June – July 2023. Hybrid mode using online platform and direct hands-on training by a team of experts from CDC. 10 online sessions were provided by experts in the field. Two-day hands-on training for the DEIC functionaries and Paediatricians was provided by a team of therapists consisting of 2 Developmental therapists, 1 Occupational therapist, and 1 Speech pathologist from Child Development Centre, and 75 participants attended the

program. CDC Kerala prepared a Handbook on the CDC Model Group Intervention Program in Autism Spectrum Disorders and shared it with the participants.

Medical professionals posing with guests and experts during a workshop at SMGS Hospital Jammu on Saturday.

2-day workshop on mgmt of ASD concludes at SMGS Hospital

Excelsior Correspondent

JAMMU, July 8: A two-day training and management session on Autism Spectrum Disorder (ASD) concluded at SMGS Hospital, here today.

The workshop was inaugurated by Secretary, Health and Medical Education Department, Bhupinder Kumar, who in his opening remarks, emphasized the importance of preventing autism and highlighted the need for concerted efforts to address this issue.

Stressing the significance of collaboration, Bhupinder emphasized the Government's commitment to form meaningful partnerships with organizations like 'Children in India' to ensure that no child with a disability is left behind.

Principal, GMC Jammu, Dr Shashi Sudhan Sharma gave the opening remarks highlighting the need to work more vigorously for children with autism while

The two-day training and management session, organized by 'Children in India' in partnership with National Health Mission J&K, Department of Pediatrics (GMC Jammu) and the Child Development Centre, Kerala, witnessed the participation of guests and dignitaries from various medical institutions, Rotary Club Jammu and the Inner Wheel Club of Jammu.

A consortium of medical professionals from multiple DEICs, Northern Army Command, NHM, SMGS Hospital and GMC Jammu actively participated in the workshop, which was led by a renowned faculty from the Child Development Centre (CDC), Thiruvananthapuram, Kerala.

Dr Santhosh George, Founder Trustee, Children in India, encouraged the participants to pose relevant queries, proposing an empathetic pathway of care for children with ASD.

Neonatology) and Dr Sanjeev Kumar Digra (Prof of Pediatrics, GMC Jammu) were present on the occasion.

The two-day session concluded with a hands-on training module on group therapy, led by the expert team from the Child Development Centre, Kerala, providing participants with practical skills to further enhance autism management practices.

State Disability Program Coordinator for 'Children in India', Jammu, Vidushi Sharma gave the closing remarks for the session.

- **DISHA 2024- National Conference on Early Detection and Early Intervention of Developmental Disorders**

DISHA 2024 National Conference: CDC organized a National Conference on the Early Detection and Early Intervention of Services, Director of Medical Education, along with other government officials and UNICEF Neurodevelopmental Disorders 'DISHA 2024 on October 21st and 22nd, 2024, with technical support from UNICEF. The conference was inaugurated by the Hon'ble Health Minister of Kerala, with the Health Secretary delivering the presidential address. The Health Secretary, Director of Health representatives, including the UNICEF-All India Chief of Health, and other key personnel attended the conference. National and state experts in Neurodevelopmental Paediatrics shared their knowledge on early detection and intervention for Neurodevelopmental Disorders (NDDs). Additionally, two workshops were held,

focusing on Genetics in NDDs and Neurodevelopmental Assessment. Doctors from all over India have attended the Conference.

- **Capacity Enhancement of Paediatricians for Early Screening of Autism Spectrum Disorder (ASD) and Strategies of Early Intervention and Preparation of a Comprehensive Resource Book in Autism Management**

  The development of the Resource Book included content development workshops, Focused Group discussions (FGD), in-depth interviews of experts in the various aspects of ASD, with regular interactions, extensive review of national and international literature. We conducted 8 two-day workshops covering all aspects of ASD, including nearly 60 experts from different specialties. This content was finalized by conducting series of workshops, including experts from different specialties under the chief editorialship of Dr MKC Nair, former Vice Chancellor of KUHS and founder Director of CDC, and Dr Paul Russel, Professor of Psychiatry, Child and Adolescent Psychiatry Unit, Christian Medical College, Vellore.

  This resource book on Autism explores and expands on the practical and jargon free information on Autism Spectrum Disorder. The objective is to provide guidance to professionals and care givers involved in the management of ASD, an outline about the problem and the practical guidelines on available intervention. Key topics addressed in the resource book include - Introduction, History and Construct of ASD, Epidemiology, Aetiology, Clinical features, Course - Prognosis, Diagnosis, Differential Diagnosis, and Interventions in ASD. As part of this

project training programs were organized for 100 paediatricians across Kerala in the diagnosis of ASD among children using INDT ASD and ISSA.

- **One-Day Clinical Conference in Fetal Medicine**

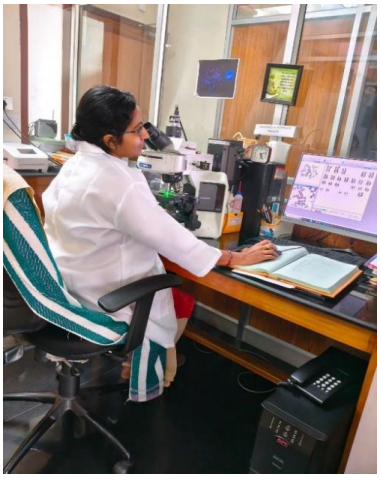
The One-Day Clinical Conference in Fetal Medicine, held on 30 December 2025 at the Child Development Centre, Thiruvananthapuram, brought together 100 practicing obstetricians, gynecologists, fetal medicine fellows, postgraduate trainees, and faculty from across institutions. Organized by the Department of Fetal Medicine, CDC, and SAT Hospital, the conference featured 50 case-based presentations and interactive sessions led by experts, including Dr. Sudarshanan Suresh, Dr. Manikandan K, and Dr. Pio James, covering fetal imaging, diagnosis, therapy, and antenatal counselling. The programme enhanced participants' understanding of fetal anomalies, evidence-based decision-making in high-risk cases, practical clinical skills, and the importance of multidisciplinary collaboration. Concluding with a valedictory session and appreciation of speakers, the conference served as an academically enriching platform for knowledge sharing and professional development in fetal medicine.

Table 2.4.2.1 Major Capacity Building programs conducted by CDC

Program (2017-2024)	Participants	Number of participants
NCD Training Program (NCD Prevention program for higher secondary students)- Online training	Pediatricians	198
	Souhrida Coordinators	820
	School Counsellors	820
	Mid-Level Service Providers	820
	PHC/CHC Medical Officers	545
First Thousand Days Training of Trainers program - Online training	CDPOs and ICDS Supervisors of Woman and Child Development Department	220

Capacity Enhancement of Pediatricians for Early Screening of Autism Spectrum Disorder and Strategies of Early Intervention	Pediatricians	115
Early detection of developmental delay/disability among children 0-6 years	CDPOs and ICDS Supervisors of Woman and Child Development Department	1463
School counselor's training program (Job training & Refresher training)	School Counsellors of WCD	518
Total		5519

2.5 NABL-Accredited Genetic and Metabolic Lab



The Genetic and Metabolic Unit of the Child Development Centre (CDC), an autonomous institution located within the SAT Hospital campus, Thiruvananthapuram, has evolved into a state-of-the-art facility offering comprehensive diagnostic services for genetic and metabolic disorders in children. Over the years, the centre has achieved several significant milestones in the establishment and expansion of genetic clinical services, cytogenetics, and molecular diagnostics. The major milestones are outlined below:

2007 – Establishment of the Genetic Clinic

The Genetic Clinic was established in the year 2007 in the SAT hospital to provide specialized genetic evaluation, diagnosis, and counselling for children with developmental delays, congenital anomalies, neurodevelopmental disorders, and inherited metabolic conditions. This marked the beginning of organized genetic services at CDC, catering to a growing pediatric population with suspected genetic disorders.

2013 – Establishment of the Cytogenetics Laboratory (Karyotyping Facility)

In **2013**, the Cytogenetics Laboratory was initiated with **karyotyping** as the primary diagnostic service. This was a major leap forward in in-house genetic diagnostics, enabling the detection of numerical and structural chromosomal abnormalities such as Down syndrome, Turner syndrome, and other chromosomal disorders. This facility significantly reduced the dependency on external laboratories and improved turnaround time for critical diagnoses.

2015 – ICMR Multicentric Research Project

In 2015, the Genetic and Metabolic Unit achieved national recognition by participating in an Indian Council of Medical Research (ICMR) funded multicentric project focusing on rare genetic disorders such as Gaucher disease, Achondroplasia, and Apert syndrome. This project strengthened the research component of the laboratory and enhanced expertise in the diagnosis and management of skeletal dysplasias and lysosomal storage disorders.

2017 – Establishment of the Molecular Genetics Laboratory

In 2017, the Molecular Genetics Laboratory was established, expanding the diagnostic scope of the centre beyond cytogenetics. Molecular diagnostic techniques were introduced for the detection of single-gene disorders. This marked a significant technological advancement, enabling precise mutation-based diagnosis and facilitating carrier detection and prenatal diagnosis in selected conditions.

2019 – Installation of Genetic Sequencer Facility

In 2019, the laboratory further strengthened its molecular diagnostic capabilities with the installation of a Genetic Sequencer 3500. This facility enabled DNA sequencing for mutation analysis, significantly improving the accuracy and depth of genetic testing. It

laid the foundation for advanced diagnostics and research activities and prepared the laboratory for next-generation technologies.

2021 – Introduction of SMA Diagnosis by MLPA

In 2021, Spinal Muscular Atrophy (SMA) diagnosis using MLPA (Multiplex Ligation-dependent Probe Amplification) was introduced. This was a major milestone as SMA is a critical childhood neuromuscular disorder requiring early diagnosis for effective management. The availability of MLPA testing at CDC greatly benefited patients from across the state by providing rapid, reliable, and cost-effective diagnosis.

2023 – NABL Accreditation for Cytogenetics and Biochemistry

In 2023, the Cytogenetics and Biochemistry sections of the laboratory achieved NABL accreditation as per ISO 15189 standards. This accreditation established the laboratory's compliance with international quality standards for medical laboratories and reinforced its commitment to accuracy, reliability, and patient safety in genetic testing.

2023 – Designation as Centre of Excellence (CoE) for Rare Diseases

In the same year, the Centre received recognition as a Centre of Excellence (CoE) for Rare Diseases for SAT Hospital. **The Genetic Laboratory at the Child Development Centre** serves as the core laboratory facility for this CoE. This milestone strengthened the role of CDC as a referral hub for rare disease diagnosis and management in the state.

Expansion of Diagnostic Test Portfolio

In addition to routine karyotyping, FISH, and molecular diagnostics, the laboratory has continuously expanded its diagnostic portfolio to include advanced and specialized tests. These include:

- **Hemophilia diagnosis (Inversion 22 mutation detection)**
- **FISH testing for DiGeorge syndrome (22q11.2 deletion)**
- **FISH for sex chromosome analysis (XX/XY)**
- **SRY gene deletion analysis**
- **Other targeted molecular tests for inherited disorders**

The laboratory currently offers cytogenetics and molecular diagnostic services in-house, with advanced technologies such as microarray and next-generation sequencing (NGS) being performed through collaborative arrangements with other reputed centers.

Conclusion

From its modest beginning as a genetic clinic in 2007 to becoming a NABL-accredited laboratory and Centre of Excellence for Rare Diseases in 2023, the Genetic and Metabolic Unit of the Child Development Centre has made remarkable progress. The continuous upgrading of infrastructure, technologies, and test menu reflects its strong commitment to excellence in patient care, diagnostics, teaching, and research in medical genetics.

Table 2.5.1 Major Milestones in CDC Diagnostic Services

Year	Milestone
2007	Establishment of Genetic Clinic
2013	Establishment of Cytogenetics Laboratory (Karyotyping)
2015	ICMR Multicentric Project on Gaudier, Achondroplasia & Aped Syndrome
2017	Establishment of Molecular Genetics Laboratory
2019	Installation of Genetic Sequencer Facility
2021	Introduction of SMA Diagnosis by MLPA
2023	NABL Accreditation for Cytogenetics & Biochemistry
2023	Centre of Excellence (CoE) for Rare Diseases - SAT Hospital
Ongoing	Expansion of Diagnostic Tests (Hemophilia, FISH. SRY, etc.)
Ongoing	Collaborative Advanced Testing (Microarray & NGS)

Source: CDC

2.6 Fetal Medicine Unit- Sradha. Now Department of Fetal Medicine

Fetal medicine is a relatively new field in India. Our obstetricians, though competent in their own field, are not able to give optimal care to high-risk pregnancies and have limited training in fetal medicine. Even though there are good fetal medicine units coming up in the corporate sector, the poor and needy mothers with high-risk pregnancies complicated by fetal structural anomalies, growth disorders and complicated multiple pregnancies cannot afford the services of corporate hospitals. In this context the Government of Kerala has taken the initiative of establishing "SRADHA" Maternal Fetal Medicine unit as a joint venture of SAT Hospital,

Thiruvananthapuram, Child Development Centre (CDC) Kerala, and National Health Mission from 01/01/2020

Establishment Timeline

The Fetal Medicine Unit commenced services on 17th October 2019, functioning three days a week. It expanded to full operational capacity on 1 January 2020. Despite the pandemic, the formal inauguration and logo release were conducted online on 23 February 2021 by the former Hon. Health Minister, Smt. K. K. Shailaja. Subsequently, recognizing its growing scope and impact, the unit was upgraded by the Government to a full-fledged Department of Fetal Medicine on 18 September 2024 with Dr Pio James as the Head of the Department.

Faculty & Staff

Head of the department is Dr. Pio James J, Assistant Professor, Department of Obstetrics & Gynecology, SAT Hospital. He is trained in High-Risk Obstetrics & Perinatology (FNB, 2 years) and Fetal Medicine (Fellowship, 3 years). Nursing Officer Sr. Athira assists in daily clinical activities of the department.

Aim

To provide dedicated, high-quality obstetric and fetal medicine services to poor and high-risk pregnant women in a government setup, to improve maternal and neonatal outcomes, and reduce childhood disability.

Vision

To create responsible and prepared parenthood through healthier children by establishing a continuum of care linking reproductive, maternal, newborn, child, adolescent health, and nutrition.

Motto

- To reduce childhood disability and adult-onset disease through early risk identification, intervention, and follow-up
- To provide sensitive, accurate counselling that respects parental values
- To work in partnership with neonatologists, pediatric subspecialists, surgeons, geneticists, and physicians to reduce perinatal mortality

and disability

Table 2.6.1 Services Offered in Fetal Medicine Unit

Sl No	Key Services
1	Pre and periconceptional counselling and care
2	Screening for Down syndrome (11-14 weeks)
3	Early assessment of the mother and fetus in high-risk pregnancy
4	First Trimester Target scan (11-14 weeks) and Early Target scans (16-17 weeks)
5	TARGET/TIIFA/Anomaly scan (18-20 weeks)
6	Surveillance for Fetal Growth Disorders
7	Surveillance of complicated Multiple pregnancies.
8	Detailed assessment of certain organ systems
9	Invasive procedures and foetal intervention- amniocentesis, chorionic villus sampling
10	Cross consultation with the geneticist, neonatologist, paediatrician, and other paediatric subspecialties as and when required

Source: CDC

Infrastructure

The SRADHA Fetal Medicine Department is housed on the entire ground floor of the Child Development Centre, providing a dedicated clinical environment. The unit includes a well-equipped scan room, consultation area, and spacious waiting facilities, along with provisions for rest and patient monitoring after procedures, ensuring comfort for patients and their attendants.

A high-end GE Voluson E8 ultrasound system supports advanced fetal imaging, and clinical documentation is streamlined through the Sonocare Fetal Medicine software, which enables accurate reporting and secure data storage.

The department operates in full compliance with the PCPNDT (Pre-Conception and Pre-Natal Diagnostic Techniques) Act requirements.

Data Management

Each patient is assigned a unique ID, with records maintained in hard and soft copy formats to ensure continuity of care.

Table 2.6.2 Fetal Medicine Unit Beneficiary Statistics (2020–2025)

Year	Number of beneficiaries- level 2 ultrasound & management	Procedure- chorionic villus sampling, amniocentesis
2020	562	-
2021	940	-
2022	1157	-
2023	1313	18
2024	1240	85
2025	1130	84
Total	6342	187

Source: CDC

Patient Flow Model

The Fetal Medicine Department provides free services in high-risk obstetric and fetal medicine to poor and needy pregnant mothers in our government set-up. The majority of the patients seen in the unit are pregnant mothers registered at SAT Hospital, Trivandrum who are referred by doctors from PHC, CHC, GH, ESI, and even private institutions. Patients also come from neighboring districts and even from Kanyakumari district of Tamil Nadu, travelling long distance, to avail the dedicated service of this center.

Patients are registered in the Fetal Medicine Department and given appointments. A detailed history is taken, followed by the required scan. Based on the findings, counselling, procedures, or follow-up care is provided.

Clinical Services

The department undertakes a wide spectrum of clinical services. These include advanced fetal imaging, such as Fetal Echocardiography, Neurosonography, and detailed Skeletal Surveys. Continuous surveillance and monitoring of high-risk pregnancies form a core component of service delivery. In addition, the unit has expanded its scope to include Invasive Prenatal Diagnostic procedures, with amniocentesis initiated in October 2023.

Teaching and Training

The unit regularly trains postgraduate students from the Departments of Obstetrics & Gynecology and Neonatology, Reproductive Medicine, providing adequate clinical exposure. A One-Day Clinical Conference in Fetal Medicine was held in November 2025, organized jointly by CDC and SAT Hospital. It was attended by obstetricians, gynecologists, fetal medicine fellows, postgraduate trainees, and faculty from all over Kerala

Research Activities

- Case series presentations, including Club Foot, won *First Prize* at the Club Foot International Conference organized by the Government of Kerala.
- Ongoing research includes the prevalence of congenital anomalies among pregnant women attending the unit, with data collection in progress.

Achievements and Impact

- High volume of beneficiaries
- Diagnostic procedures like Amniocentesis and Chorionic villus sampling
- Earlier diagnosis of common pregnancy related problems by first trimester evaluation
- Contribution to reducing neonatal complications
- Improved access to specialized fetal care for the underserved population

Future Plans

- Expansion of infrastructure and services
- Introduction of first-trimester combined screening on a population scale

- Establishment of fetal therapy services within government care
- Advanced intrauterine procedures (Intrauterine blood transfusion, Invasive intrauterine procedures for complicated monochorionic twins)
- To start Fellowship training.

2.7 Community Extension Services

Child Development Centre (CDC) has developed a strong and comprehensive community extension service model addressing childhood disability, adolescent health, and early developmental concerns through multiple district- and national-level initiatives. Through the CDC–NRHM Childhood Disability Project, more than 2,500 frontline workers have been trained, over 80,000 children screened, and structured disability evaluation camps and referral pathways established, forming a replicable district model. In adolescent health, the CDC–NRHM Adolescent Health District Plan has trained thousands of healthcare providers, reached nearly 57,000 adolescents and mothers through awareness programmes, and established adolescent-friendly clinics and ARSH services in taluk hospitals and CHCs. Together, these initiatives demonstrate CDC's sustained commitment to early detection, early intervention, adolescent well-being, and community capacity-building across Kerala and beyond.

1. School-Based Programs

- Adolescent Awareness programmes in schools (Alathara Sreekaryam, Govt HSS, Kumarapuram)
- Adolescent Care & Counselling and Health Check-ups in HSS and VHSS schools across districts
- Life Skill Education programmes for adolescents & school-based life skills orientation
- School Medical Evaluation camps
- Anti-drug & Substance abuse programme (Mukthi) at Arya Central School, Thiruvananthapuram
- Programmes on Study habits, Exam fear, Learning Disability, academic issues (Teachers, School counselor training)

2. Early Childhood & ICDS/Anganwadi–Linked Community Services

- Community-Based Infant Disability Screening – Statewide Training for CDPOs, Supervisors & RBSK nurses.
- First Thousand Days TOT Programme for CDPOs and ICDS Supervisors (Nutrition, Breastfeeding, Antenatal care)
- Early Detection of Disability – Multiple 2-day training programmes for ICDS supervisors across Kerala (2020–2023)
- Preschool Project – Capacity building for pre-primary teachers (Cotton Hill TTC & VHSS)

3. Medical Camps & Health Awareness Camps

- Medical Camp & Health Awareness Programme for B.Ed students (2017, 2018, 2019)
- Medical Camp & Life Skill Education for adolescents in schools (2019)
- Medical Camp for students at Balavikas Special School, Peroorkada (2023)
- Participation in Career Guidance Exhibition (Health awareness)
- Block-level Community Extension Programme, Kilimanoor – CDC stall (1000 participants)

4. Awareness Programmes for Parents & Public

- World Down Syndrome Day – Awareness programmes for children & parents
- Autism Awareness Week – Parents meeting & exhibitions (2019, 2022)
- Child Abuse Prevention Programme (jointly with IAP)
- Depression & Mental Health awareness programme (World Health Day)
- Stress management sessions during COVID-19 for parents and children (online)

5. Screening & Prevention Programs (Community-Level)

- State-wide Lifestyle Disease Screening & Intervention Programme for Higher Secondary Students (multiple districts, 2022–2023)
- Orientation for Paediatricians & School Counsellors on NCD prevention programmes

- Adolescent medical evaluation camps (school-based)

6. Other Community-Oriented Initiatives

- Participation in Medical Exhibitions (MEDEX) – Public education stalls
- Child Rights Conference (public awareness on child protection)
- World Immunization Week activities with public awareness sessions

Major community extension services

1. Assessment of under-5 children in Pattanakkad ICDS block

In 1998 a survey was done by CDC with the UNICEF support, and the help of Anganwadi workers covering 12520 children up to 5 years of age in the Pattanakkad ICDS block that showed a prevalence rate of2.5% developmental delay/disability. These children with delay/disability identified were followed up a year later, and 52.1% turned out to be non-utilizers of available disability services. Again, with UNICEF support, printed TDSC charts and were distributed to all ICDS Anganwadis in Kerala. All the functionaries of ICDS in Kerala were trained by CDC team to use the TDSC charts. To increase the reach of this program, children below 2 years in 10 ICDS blocks of Kerala were screened for developmental delay, giving a prevalence rate of 1.53% (range 0.97 – 2.81).

2. Developmental monitoring system in the community

In 1999, a developmental monitoring system in the community for children below 6 years was established in three ICDS blocks: Koduvally (North Kerala), Madappally (Central Kerala), and Chavara (South Kerala). A "Developmental Friendly Well Baby Clinic" concept was established to introduce developmental monitoring along with immunization services at the Well-baby Clinics.

3. Comprehensive adolescent care project

In 2001, with the support of UNICEF, a pilot project on comprehensive adolescent care was initiated at Kudappanakunnu panchayath, which introduced the new concepts of teen clubs, adolescent clinics, and teenage day celebrations, that formed the base of an Adolescent Care Module under Adolescent Care Program-Kerala, supported by the European Commission. Family life education (FLE) training for all the Anganwadi workers of the seven southern districts of Kerala was made possible.

4. Adolescent care counseling camps

Adolescent care counseling camps were held, one in each panchayath of Kerala State, covering over 150,000 adolescents, using the ICDS network during 2012-13. Similarly, early detection of delay/disability camps were held in one Anganwadi area per panchayath covering over 50 thousand children below 3 years and showing a delay/disability prevalence rate of 2.8%. Now the same is being scaled up involving all panchayaths in Kerala and covering all children below 3 years in Kerala State.

Table 2.7.1 Community extension and capacity building activities since 2015

Theme	Programmes
Disability reduction-related programs	Two-day Training Programmes on Early Detection of Disability for CDPOs & ICDS Supervisors (multiple batches 2020–2025)
	Children & Adolescents with Hearing Impairment- sessions on reproductive health
	Developmental Assessment Scale for Indian Infants Training Workshops (2020, 2024)
	National Webinar on Autism Spectrum Disorders Zonal Conference on Redefining Communication for Children on the Autism Spectrum: Current Trends and Future Prospects
	Autism Day Awareness Programmes (multiple years)
	Mobile App on Intervention for Autism – Launch & training
	Classes PGDDN – Post Graduate Diploma in Developmental Neurology (all batches 2020–2025)
	Training Program for DEIC Functionaries on Neurodevelopmental Disorders
	Early Detection & Early Intervention (EDEI) sessions under First 1000 Days TOT program
	Awareness sessions for Parents of Children with ASD (conducted every month)

	Training Workshops on Spinal Muscular Atrophy (SMA) – for doctors & physiotherapists
	Workshop on Rational Genetic Testing
	Certificate Course in Essentials of Clinical Genetics
	DISHA National Conference on Early Detection & Early Intervention
	Early Stimulation Workshop – Social Work Dept, CDC Faculty led the workshop
	Special medical & developmental camp for children with rare diseases
	Early Detection & Early Intervention for Specific Learning Disability – Training (2025)
	Down Syndrome Day events (annual)
	Workshop on Neurodevelopmental Disorders (2025) as part of National Conference on Neurodevelopmental Pediatrics
Preschool programmes	Class for LKG students – Kido Play School
	Parenting Newborns, Infants & Toddlers (multiple TOT sessions)
	Care of Newborn with Special Needs (Preterm/LBW)-awareness sessions
	Immunization & Growth Monitoring sessions
	Infant and Young Child Feeding (IYCF) sessions
	Stress Management for Parents & Children – schools in Thiruvananthapuram
	Ammathottil Caretakers Training for staff of Child Welfare – 0–6 yrs early detection
	Children's Day Celebrations at various LPS schools
	Medical camp at Balavikas Special School

	Artistic Spectrum – Art Exhibition by Children with ASD
	Poster competitions for Autism Awareness Month
Adolescent Care Programmes	Parenting the Adolescents-parenting class
	Substance Abuse Awareness – by Narcotic Cell
	Say No to Drugs – FIP Programme
	Adolescent Day Orations (21st, 22nd)
	Counseling Sessions for adolescents (Mitai Clinic)
	Teen Club Meetings (general & T1DM teen club)
	PG Diploma in Adolescent Pediatrics (PGD-AP)
	NCD Prevention & Lifestyle Disease Screening for Higher Secondary Students
	Anti-Drug Programme for 7th Standard Students (Mukthi)- at the Arya Central School, Thiruvananthapuram

Source - CDC

CHAPTER 3

FACILITIES AVAILABLE

3.1 CDC Clinic

3.1.1 Anthropometry equipment: Infantometer, Stadiometer, Infant weighing scale, Adult weighing scale. Growth Charts.

3.1.2 Developmental Screening Tools:

1. DOC (Developmental Observation Card).
2. CDC grading – Head control, Sitting, Standing
3. TDSC (0-6) – Trivandrum Developmental Screening chart.
4. DDST II (0-6) – Denver Developmental Screening Tool.
5. LEST (0-6) – Language Evaluation Scale Trivandrum (For assessing language development)
6. AT Angles Measurement – Amiel Tison Passive Angle Method (Muscle tone assessment
7. Concern-9: A 9-item test which can be applied to children between 12-18 months to assess risk for ASD.
8. M-CHAT-RF: A questionnaire to assess the risk for ASD in children from 16 months – 30 months.
9. TABC (Trivandrum Autism Behavior Checklist): A screening test to assess the risk for autism among 2 – 6 years. It assesses the child in 4 domains. Viz: Socialization, Communication, Behavior Characteristics, and Sensory Integration
10. NEST – Nursery Evaluation Scale Trivandrum
11. Teenage Screening Questionnaire (10 -19yrs)
12. PAST (Partner Assessment Scale Trivandrum)
13. PAT (Pre–Writing Assessment) (2-5yrs)
14. ASQ –Ages and Stages Questionnaire (0-6yrs)
15. NDST (2 – 9years) – Neuro Development Screening Test (For screening 10 Neuro Development Disorders)

3.1.3 Diagnostic Tools for Neurodevelopmental Disorders:

1. INDT – ASD: An Indian tool to diagnose ASD from 2-9 years

2. ISAA: A diagnostic tool to certify ASD in the Indian Scenario.
3. CARS-2: Diagnostic Rating Scale, which can be used to assess the severity of ASD.
4. DSM–5 criteria for ASD: An international diagnostic criterion to evaluate ASD.
5. ADOS-2: The gold Standard, which can be used to diagnose ASD from the Toddler period to adulthood.
6. REELS (Receptive Expressive Emergent Language Scale): Parent interview-based scale for evaluation of language skills in children 0 – 7 years, gives receptive language age and expressive language age.
7. ALD (Assessment of Language Development): Objective Language evaluation tool for ages 0-10 years, gives receptive language age and expressive language age.
8. MDAT (Malayalam Diagnostic Articulation Test): Objective test used to evaluate pronunciation errors.
9. Vanderbilt ADHD Rating Scale: To assess symptoms of ADHD in children and adolescents (Comorbidities like ODD, CD, Anxiety, and Depression)
10. Corners 3 Parent Rating Scale (6- 12y): To assess ADHD Symptoms, their severity, and related issues in children and adolescents (also to understand the behavioural and social problems across different settings like school or home)

3.1.4 Hearing assessment:

1. OAE screener-Instrument used to test Otoacoustic emissions from the inner ear. It helps to detect hearing loss in children and guides candidacy for further diagnostic evaluation.
2. IHS BERA – Instrument used for objective evaluation of hearing. It is used in the diagnostic assessment of hearing loss.
3. Interacoustics Titan Tympanometer –Instrument used for objective evaluation of middle ear function. Helps in detecting middle ear diseases in children.

3.1.5 Psychometric tools

- Binet Kamath Test
- Malin's Intelligence Scale for Indian Children
- Seguin Form Board Test
- LD assessment – Nimhans battery

- BDI – Beck Depression Inventory
- SCARED – Screening for Childhood Anxiety Disorder
- VSMS – Vineland Social Maturity Scale

3.1.6 Specialised developmental tools.

- DASII (0 – 30m) – Developmental Assessment Scales for Indian Infants. (for assessing mental and motor developmental quotient)
- BSID – Bayley Scales of Infant and Toddler Development (a formal developmental assessment tool for diagnosing developmental delays in early childhood)

3.1.7 Occupational therapy equipment:

1. Wedge: To position the child into the prone position
2. Bolster: To position in four points, to keep as obstacles
3. Stairs: Stair climbing, motor planning
4. Parallel bars with mirrors: For gait tracing
5. Swing: Vestibular stimulation to manage hyperactivity.
6. Bolster Swing: To give vestibular stimulation.
7. Scooter board: To improve proximal stability.
8. Balance board: To improve balance.
9. Foam wedge: To slide, crawl, for creeping activities, to manage gravitational insecurity.
10. Bean bag: To provide deep compression.
11. Therapy ball: To give vestibular stimulation, to improve sitting balance, and to manage hyperactivity.
12. Balance beam: To improve balance
13. Walking board: To improve balance
14. Trampolene: To give vestibular stimulation to improve standing balance.
15. Hand exercises: To improve grip strength.
16. Stretch band: To strengthen the abductors of fingers.
17. Theraband: To strengthen hand muscles.
18. Play-dough: To improve fine motor skills and Bilateral integration.
19. Stacking cups: to improve size concept.
20. Beads set: To improve eye-hand coordination.

21. Colour Sorter: To teach the colour concept.
22. Shape Sorter: To teach the shape concept.
23. Pegboard: To improve colour concept attention
24. Puzzles: To improve problem-solving skills
25. Xylophone- auditory Stimulation
26. Cloth pegs: To improve pinch strength
27. Dexterity board: To improve hand dexterity.
28. Alphabets and numbers: To teach the alphabet and number concept.

3.1.8 Vision and CVI unit

1. Torch: For fixation and torch light examination.
2. Snellen's chart: To assess vision.
3. Bridge crowding Cards (CC Card): To assess vision in children between (3-5yrs.)
4. Lea paddles: To assess functional vision assessment in children (2 years).
5. Light box: for light box exercises.
6. Hiding Heidi Low Contrast test: To assess vision in children
7. Visuo Prime Monitor: Used for Vision Therapy.
8. Trial set: used for subjective and objective refraction.
9. Lea puzzle: Used for vision assessment and vision therapy.
10. Retinoscopy: Used for objective refraction
11. Bernell Rotation Trainer: Used for vision therapy.

3.2 Genetic and metabolic unit facilities

3.2.1 Cytogenetics, FISH, and Molecular Genetics

1. Microscope with software for karyotyping/ FISH (Applied Spectral Imaging)
2. Laminar Air Flow
3. Inverted Microscope
4. Refrigerator
5. Hot air Oven
6. Slide warming table
7. Hybridization Chamber
8. CO2 Incubator

9. Incubator
10. De-ionized water plant
11. Water Bath with display
12. Centrifuge
13. Vortex mixer
14. Minispin
15. Vertical Autoclave
16. pH pen
17. Magnetic stirrer cum hot plate
18. UPS (online 5 KV line wave)
19. Computer
20. Analytical weighing balance
21. PCR Machine
22. Electrophoresis apparatus and power supply- Horizontal & Vertical
23. Gel documentation system
24. Microwave oven
25. Deep freezer (-40 degrees Celsius)
26. Deep freezer (-80 degrees Celsius)
27. Deep Freezer (-20 degrees Celsius)
28. Spectrophotometer
29. Real-time PCR
30. DNA Sequencer
31. Cryo refrigerated centrifuge
32. Fume hood
33. Micropipette

3.2.2 Biochemistry and Hematology

1. Chemiluminescence Assay Analyser
2. Semiautomated Biochemistry Analyser
3. Ion Selective Analyzer
4. Hematology Analyzer
5. ELISA Reader

3.3 Foetal Medicine Unit facilities

1. Voluson E8- High-resolution ultrasound machine with Doppler and 3D, 4D Imaging capabilities, transabdominal probes: low frequency, mid frequency, and high frequency probes; linear array probes; and transvaginal ultrasound probes
2. Image archiving and reporting software
3. Fumigator
4. Post-procedure recovery room with 4 beds

3.4 Information, Documentation and Dissemination Unit

This is an integral part of the Centre, 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.

The Information, Documentation and Dissemination Unit, an integral part of the Centre, is primarily intended to cater to the information requirements of the academic community and those associated with the Centre's activities. 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' over other materials in the collection process. It strives to collect relevant literature for its specialized collection, catering to the information needs of the clinical and paramedical communities, as well as researchers and students. The library is equipped with books, monographs, dissertations, project reports, journals, non-book materials, etc.. The book collection covers a 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.

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. An 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 titled, '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.

CHAPTER 4

CDC - BEFORE, DURING, AND AFTER COVID-19 PANDEMIC

The first confirmed case of COVID-19 in India was reported from Kerala on 30 January 2020 in Thrissur. Following this, the Government of Kerala declared a high alert on 4 February 2020. Cases rapidly increased across the state from 8 March 2020 onwards. Despite the caseload, Kerala successfully maintained one of the lowest mortality rates in India (0.4%), compared to the National average of 1.67%, gaining recognition both nationally and internationally.

Before the pandemic, the Child Development Centre (CDC) functioned with fully operational clinical services, regular research activities, training programmes, community-based initiatives, and in-person meetings.

COVID-19 Response at CDC

From the beginning of the outbreak, CDC adhered strictly to government-issued health and safety protocols aimed at preventing transmission and ensuring continuity of essential services.

Clinical Services during the Pandemic

Despite the pandemic, all clinics at CDC remained functional. However, patient volume decreased due to Limited public transport, fear of infection, and containment zone restrictions

Those unable to visit in person received tele-counselling and telemedicine services. CDC was also a part of the E-Sanjeevani program launched by the government.

Key precautionary measures

a. Entry and Screening

- Registration and documentation
- Thermal scanning and declaration forms

b. Mandatory Use of PPE

- N95 masks and face shields for clinical staff
- Minimum requirement of 3-ply masks for non-clinical personnel and visitors

c. Controlled Patient Movement

- Restricted number of bystanders
- Reorganised waiting areas to ensure distancing

d. Facility Sanitization

- Comprehensive sanitation conducted by the Fire & Rescue Department
- Continued routine disinfection as per guidelines

During this period, approximately 500 children and antenatal mothers received services.

Teaching, Training and Meetings

As face-to-face instruction was restricted, CDC shifted to digital platforms for PG Diploma, Fellowship programmes, Academic discussions, Assessments, and Examinations. A milestone initiative was an online training programme for Anganwadi workers, where 5,000 workers attended live and over 30,000 accessed the content via YouTube. Executive and official meetings were also shifted to virtual mode

Research and Publications

Some research requiring patient recruitment was temporarily halted. However, CDC focused on digital counselling initiatives, documentation and publication of scientific content, and continuation of community projects through virtual platforms

Other Initiatives include

Other initiatives like Tele-counselling for students in the NCD prevention programme, *Balamithram* project to support IT-sector parents during lockdown in collaboration with Kerala State Women's Development Corporation, and digital training programmes for Anganwadi workers as per directives from the Department of Women & Child Development, Government of Kerala.

Table 4.1 CDC Training during COVID-19 pandemic

Sl. No.	Date & Time	Topic	Facilitator
1	20.08.2020 Thursday 2.00 pm	Developmental Milestones	Dr.Babu George Director, CDC

2	22.08.2020 Saturday 10.30 am	Febrile Seizures / Epilepsy	Dr.P.A.Mohamed Kunju Consultant Pediatric Neurologist, CDC
3	24.08.2020 Monday 2.00 pm	Early Markers of Autism Spectrum Disorders	Ms.Prasanna G.L. Developmental Therapist, CDC
4	27.08.2020 Thursday 2.00 pm	Developmental screening tools (3-6 years)	Ms.Lekshmi M.A. Pre-school Teacher, CDC

Source: CDC

CDC after the Pandemic (Post –COVID-19 Transformation)

The pandemic reshaped the CDC's operational model and created lasting improvements in systems and service delivery.

Enhanced Clinical Services

- Full restoration of in-person clinical operations
- Continued integration of safety practices (mask use in clinical settings, controlled access, hygiene protocols)
- A sustained hybrid care model (in-clinic + telemedicine) improving accessibility for remote and differently-abled beneficiaries

Digital Health Integration

Digital health services have transitioned from temporary solutions to permanent systems, including online appointment management.

Strengthened Academic Framework

Hybrid academic delivery continued for postgraduate and fellowship programmes, enabling flexibility in learning, inclusion of external faculty and national experts, and wider participation in training sessions and CME programmes.

Renewed Research Priorities

Post-pandemic research areas include Non-Communicable diseases-risk assessment of higher secondary school students in Kerala

Expanded Community and Policy Support

CDC continued to contribute to statewide programmes in developmental health, disability services, and early childhood development, leveraging its enhanced digital and training capacity.

The COVID-19 pandemic presented significant challenges but also provided opportunities for innovation and transformation at CDC. The centre emerged more resilient, digitally equipped, and service-oriented. The integration of hybrid healthcare models, digital teaching systems, strengthened research directions, and expanded collaboration frameworks has improved access, efficiency, and preparedness.

CDC today stands better equipped to support children, families, and the public health system with expanded capability and strengthened institutional readiness for future challenges.

CDC KERALA- ORGANIZATIONAL VALUES

Excellence

Team work

Integrity

Responsiveness

Diversity

Accountability

www.cdckerala.org
Phone: 0471 2553540
Email: cdctvpm@gmail.com

Annexures

Annexure I

List of Completed Research Projects -2017-2020

Sl No	Name of Project
1	Assessment of Differently Abled Children at Magic Planet
2	Assessment of comorbidities in children with autism spectrum disorder aged 2-6 years
3	Sensory profile in children with autism spectrum disorder (ASD) and attention deficit hyperactivity disorder (ADHD)
4	Evaluation of Welfare Schemes implemented at Attappadi under Department of Women and Child Development, Government of Kerala
5	Translation and validation of "Quality of Life in Autism Questionnaire (QoLA)" for parents and caregivers of children with ASD
6	Effectiveness of CDC model intervention package for slow learners between 4-6 years
7	Effectiveness of group therapy in children with ASD
8	Neurodevelopmental Outcome of Children at 6-8 years age with history of Speech and Language Delay at 24-36 months
9	Effectiveness of Early Intervention Programme in Children with Attention Deficit Hyperactivity Disorder in Preschool Age Group (4-6 years)
10	Effectiveness of early intervention among children (4 – 16 months) with early markers of Autism Spectrum Disorders (ASD)
11	Prevalence and risk factors of obesity and overweight among adolescent girls (13 – 15 years) in Govt. Schools in Thiruvananthapuram corporation
12	Effectiveness of early intervention programme for late preterm children at one year with mental and motor cluster <50th percentile in the DASII scale
13	Effectiveness of speech and language stimulation for at-risk children with speech and language delay at 18 months

14	Effectiveness of intervention based on Nursery Evaluation Scale Trivandrum (Junior) 2- 4 years old children with developmental delay
15	Effectiveness of parent based behaviour modification in management of temper tantrum in children between age group 2 – 5 years
16	Stress among mothers of very low birth weight babies admitted in tertiary neonatal intensive care unit
17	Assessment of writing readiness in children between the age group 2-5 years
18	Effectiveness of an intervention package for children at-risk for learning problems between 4 – 6 years
19	Knowledge, Attitude and Practice of parents regarding screen time of children below 2 years of ages
20	Effectiveness of Lifestyle intervention in the knowledge, attitude and practice of adolescent girls (13 – 15 years) in Govt. Schools in Thiruvananthapuram corporation
21	Sensory issues in children aged 3-10 years with Autism Spectrum Disorder using 'Short sensory profile'
22	Sleep issues in children with attention deficit hyperactivity disorder and effect of sleep hygiene intervention on sleep issues
23	Effectiveness of 'child development centre model - group therapy' in children with autism spectrum disorders aged 2-6 years
24	Autism spectrum disorders – screening, diagnosis and development of an intervention package for primary care setting
25	Effectiveness of ADL intervention package in the adaptive skills of children with ASD aged 2-6 years
26	Effectiveness of parent based sensory intervention program for children with autism spectrum disorder, aged 2 to 6 years
27	Problems faced by parents of children with autism spectrum disorders – a qualitative study
28	Effectiveness of group intervention programme in speech and language characteristic of children with autism spectrum disorder aged 2-6 years
29	Effectiveness of intervention on academic performance among children with Borderline Intellectual Functioning (BIF) of 1st and 2nd standard

30	“Effectiveness of early intervention in speech, language and social skill development in Trisomy 21 below 3 years”
31	Developmental Outcome of Very Low Birth Weight Babies on Early Stimulation at 1 Year
32	“Comparative Outcome Of Early Language Intervention Among Very Low Birth Weight (<1.5kg) and Low Birth Weight (<2.5kg) Between The Age Group Of 18-24 Months With Language Delay Using REELS”
33	“Developmental Outcome of Late Preterm at Preschool age (4 Year 6 months to 6 year) using Nursery Evaluation Scale Trivandrum (NEST) based intervention”.
34	Effectiveness of structured intervention programme for late preterm children with behavioural problems in the age 2-5 years
35	Psycho – educational profile of primary school children (6-12 year) with Borderline Intellectual Functioning (BIF)
36	Assessment of child rearing practises among mothers of preschool children (3 -6) years
37	Psychosocial factors influencing the reduction in severity of symptoms among children with Autism Spectrum Disorder in the age group 2 to 5 years
38	Mother support programme for improving exclusive breast feeding among mothers of very low birth weight babies
39	Cardiovascular risk factors among young adults born Low birth weight and a stratified risk prediction score for development of Pre-metabolic syndrome
40	Assessment of Thyroid Function among Children with Down Syndrome
41	Non Communicable Disease risk factors among higher secondary school children in Thiruvananthapuram district, Kerala
42	Development of a Mobile Application on Sexual Reproductive Health Needs of Young Adult Girls (18 - 26 years) with Hearing Impairment
43	A comparison of Vitamin D levels in children with Autism Spectrum Disorders (ASD) and normal children
44	Effectiveness of Health Care Counselling for Mothers of Preterm Babies in Newborn Intensive Care Unit

45	Neurodevelopmental Follow up of Low Birth Weight Babies (<1800 gm) at 6-8 years of Age.
46	Translation and validation of Modified Checklist for Autism in Toddlers, revised with follow-up (M-CHAT-R/F)
47	Profile of Broad Autism Phenotype in Parents of Children with Autism Spectrum Disorders
48	Prevalence of Neurodevelopmental Disorders among Siblings of Children Diagnosed as Autism Spectrum Disorders
49	Capacity Enhancement of Paediatricians for Early Screening of Autism Spectrum Disorder (ASD) and Strategies of Early Intervention and Preparation of a Comprehensive Resource Book in Autism Management
50	Development and validation of a Prewriting skill assessment tool for 2-5 year old children attending preschools

2020-2025

Sl No	Project Title
1	Capacity Enhancement of Paediatricians for Early Screening of Autism Spectrum Disorder (ASD) and Strategies of Early Intervention and Preparation of a Comprehensive Resource Book in Autism Management
2	Prevalence of Neurodevelopmental Disorders among Siblings of Children Diagnosed as Autism Spectrum Disorders
3	Assessment of Non Communicable Disease Risk Factors among Higher Secondary School Children in Thiruvananthapuram district, Kerala
4	Bio-psycho-social Assessment of Differently abled children selected as performers at Different Art Village at Magic Planet
5	Development and validation of a Prewriting skill assessment tool for 2-5 year old children attending preschools
6	Assessment of co-morbid conditions and parenting issues among children with Attention Deficit Hyper Activity Disorder(6-12 years)
7	Effectiveness of intervention on academic performance among children with Borderline Intellectual Functioning (BIF) of 1st and 2nd standard

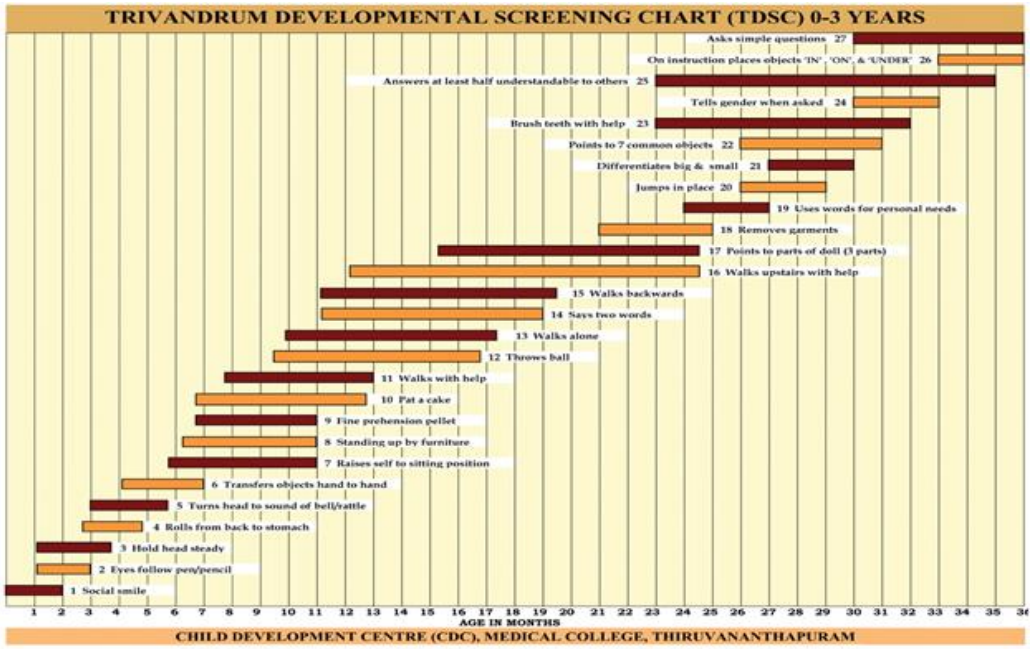
8	Effectiveness of early intervention in speech, language and social skill development in Trisomy 21 below 3 years
9	Developmental Outcome of Very Low Birth Weight Babies on Early Stimulation at 1 Year
10	Comparative Outcome of Early Language Intervention among Very Low Birth Weight (<1.5kg) and Low Birth Weight (<2.5kg) Between the Age Group of 18-24 Months with Language Delay using REELS
11	Developmental Outcome of Late Preterm at Preschool age (4 Year 6 months to 6 year) using Nursery Evaluation Scale Trivandrum (NEST) based intervention
12	Effectiveness of structured intervention programme for late preterm children with behavioural problems in the age 2-5 years
13	Psycho – educational profile of primary school children (6-12 year) with Borderline Intellectual Functioning (BIF)
14	Assessment of child rearing practices among mothers of preschool children (3 -6) years
15	Psychosocial factors influencing the reduction in severity of symptoms among children with Autism Spectrum Disorder in the age group 2 to 5 years
16	Mother support programme for improving exclusive breast feeding among mothers of very low birth weight babies
17	Translation and Validation of Modified Checklist for Autism in Toddlers, Revised with Follow-up (M-CHAT-R/F)
18	Addressing Sexual Reproductive Health Needs of Young Adult girls (15 - 24 years) with Hearing Impairment
19	Developmental follow up of low birth weight babies <1800 gram who attended the CDC Early Stimulation clinic at the age of 8 years
20	Assessment of Vitamin D level among children with ASD
21	Assessment of thyroid function among children with Down syndrome
22	Effectiveness of Health Care Counselling for Mothers of Preterm Babies in Newborn Intensive Care Unit

23	Neurodevelopmental Outcome of Late Preterm Infants At 24 Months of Corrected Age Using Developmental Assessment Scale For Indian Infants(DASII)
24	Translation to Malayalam Language and Validation of Vanderbilt Assessment Parent Informant Scale for ADHD
25	Assessment of Growth and Developmental trajectories of children aged 0-6 months in children's homes in Thiruvananthapuram district and effectiveness of early stimulation
26	Cognitive, Social-behavioural and Adaptive functioning in preschool children with chronic kidney disease – a hospital based cross sectional study
27	Neurodevelopmental Assessment of Extremely Low Birth Weight(<1000g) Children at their Preschool Age (4-6 Years)
28	Neurodevelopmental and behavioural status of children aged 3-6 years who attended 'At Risk Clinic' of Child Development Centre Thiruvananthapuram
29	Comparison of Neurodevelopmental status and growth of low birth weight babies (<1800gm) with and without Early Stimulation follow up at 2 years.
30	Early Detection of Red Flag Signs of Autism Spectrum Disorder Using Concern - 9 among Children Between 12-18 Months and Development of Intervention Module
31	Assessment of sensory processing difficulty among children with attention deficit hyperactivity disorder using short sensory profile and development of an intervention package
32	Assessment of Growth and Development of 0- to 6-year-old in Children's Home in Thiruvananthapuram District and Development of a caregiver's module
33	Developmental and behavioural outcome of late preterm babies with and without early intervention programme between 36 months and 48 months.
34	Identification of sensory issues among at-risk babies aged 7 months to 35 months.
35	Early identification and intervention for hyperkinetic behaviour in toddlers (1.12 to 3.12 years)
36	Neurodevelopmental outcome of children with infantile epileptic spasm syndrome aged between 6 months to 3 years
37	Neurodevelopmental outcome of neonates with hypogycemia at 6 months of age.

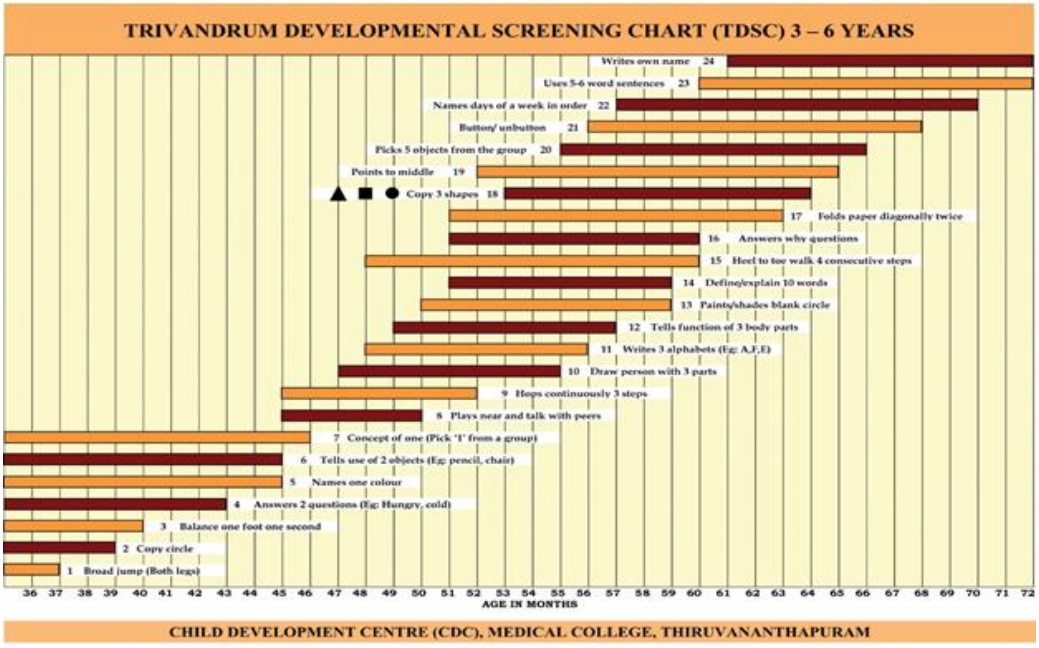
38	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program For Higher Secondary School Students in Kerala
39	Assessment of Autistic Spectrum Disorder Knowledge and Attitude among Paediatricians and Paediatric Residents in Kerala
40	Performance mance Assessment of Children with ADHD and Normal Children Aged 6 To 10 Years in Draw A Man Test
41	Prevalence of sleep problems and the effectiveness of sleep hygiene practices in South Indian children with autism spectrum disorder
42	Perceived Parenting Style and Emotional Behavioural Problems among Adolescents Attending Tertiary Care Centre in Kerala
43	Non-speaking communicative behaviour in children with Autism Spectrum Disorder (ASD) aged 2 to 4 years at Tertiary care centre
44	Growth and developmental outcome of different categories of preterm babies attending newborn follow up clinics of Child Development Centre at 1 year
45	Developmental assessment of children attending well baby clinic of tertiary care centre at the age of 9 months
46	Effectiveness of a stress management intervention package for mothers of children with Attention Deficit Hyperactivity Disorder aged 6 to 12 years
47	Maternal Postnatal Attachment and its Association with Postpartum Depression and Stress among Mothers Attending New Born Follow up Clinic in Tertiary Care Centre
48	Effectiveness of a Comprehensive Intervention Package on Activities of Daily Living in Children with Autism Spectrum Disorder Aged 4-6 years.
49	Effectiveness of a Six-Month Early Intervention Package on the Development Outcome of At-Risk Babies Recruited at One Year
50	Emotional and Behavioural Difficulties in Children with Learning Disability Aged 8 to 15 Years
51	GAP analysis of the District Early Intervention Centres in Kerala
52	A comparison of Vitamin D levels in children with Autism Spectrum Disorders (ASD) and normal children

Annexure II

Trivandrum Developmental Screening Chart (TDSC)

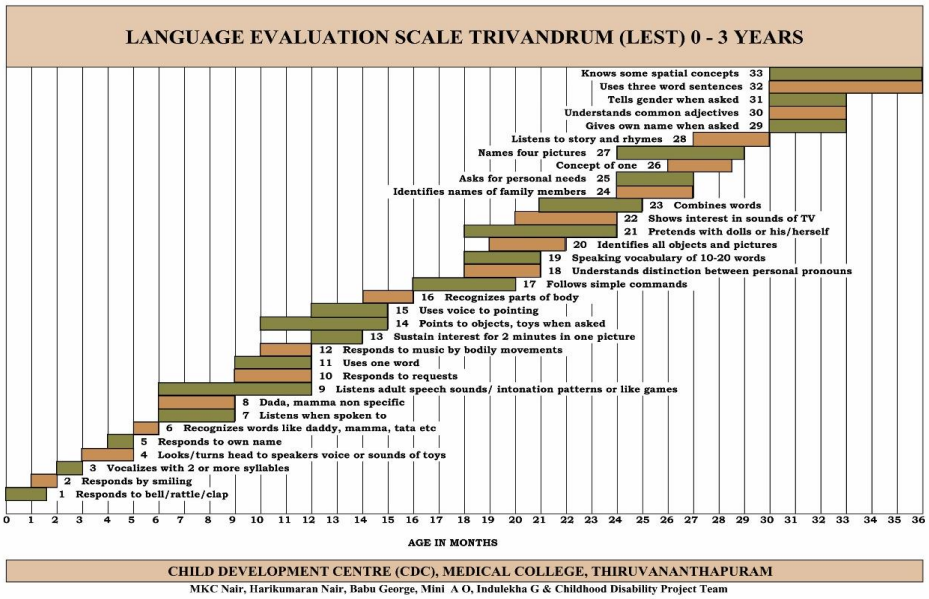


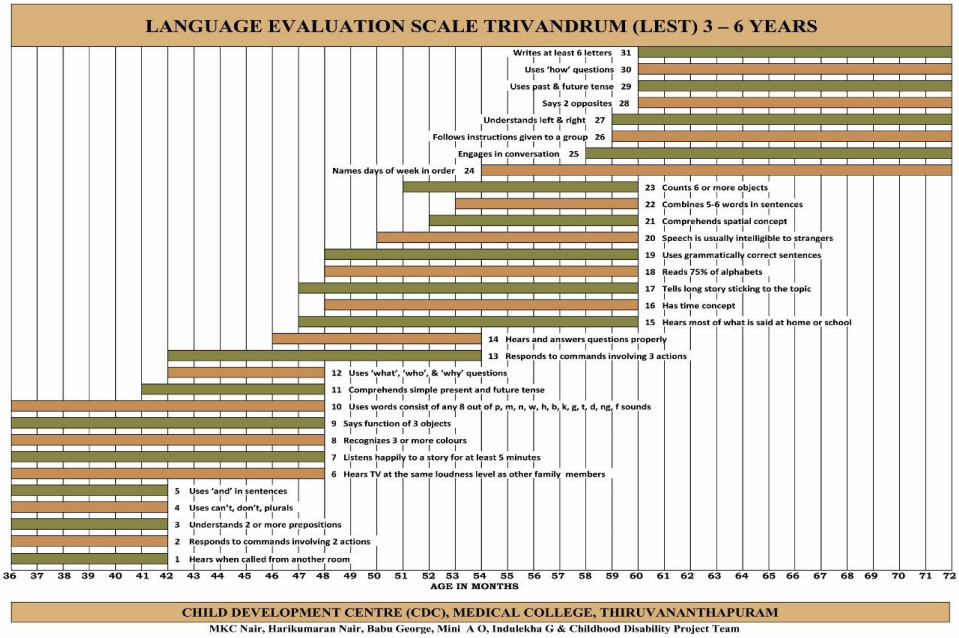
MKC Nair, GS Harikumaran Nair, Babu George, N Suma, C Neethu, ML Leena, PS Russell.
Development and Validation of Trivandrum Developmental Screening Chart for Children aged 0 – 6 years (TDSC 0-6 years). Indian J Pediatr 2013



MKC Nair, GS Harikumaran Nair, Babu George, N Suma, C Neethu, ML Leena, PS Russell.
Development and Validation of Trivandrum Developmental Screening Chart for Children aged 0 – 6 years (TDSC 0-6 years). Indian J Pediatr 2013

Annexure III





Language Evaluation Scale Trivandrum (LEST)

Annexure IV

TRIVANDRUM AUTISM BEHAVIOURAL CHECKLIST - TABC

1. SOCIAL INTERACTION

		NEVER	SOMETIMES	OFTEN	ALWAYS
a	Inability to establish and /or maintain eye contact				
b	Child doesn't respond when called, sometimes appears to be deaf				
c	Difficulty in mixing and playing with other children of the same age				
d	Lack of appropriate emotional response				
e	Can do certain tasks well, but not the tasks involving social understanding				

2. COMMUNICATION

		NEVER	SOMETIMES	OFTEN	ALWAYS
a	Difficulty in comprehension /communication				
b	May not indicate needs by gestures or leading adults by hand				
c	Echolalia/using non sensical words or muttering to self				
d	Lack of pretend play				

3. BEHAVIOURLA CHARACTORISTICS

		NEVER	SOMETIMES	OFTEN	ALWAYS
a	Like sameness in everyday routine				
b	Inappropriate attachment to objects				

c	unusual body movements such s flapping hands, or rocking and jumping				
d	Extreme restlessness, hyperactivity /over passivity or prefers to be alone all the time				
e	Not responsive to normal teaching methods				

4. SENSORY INTEGRATION

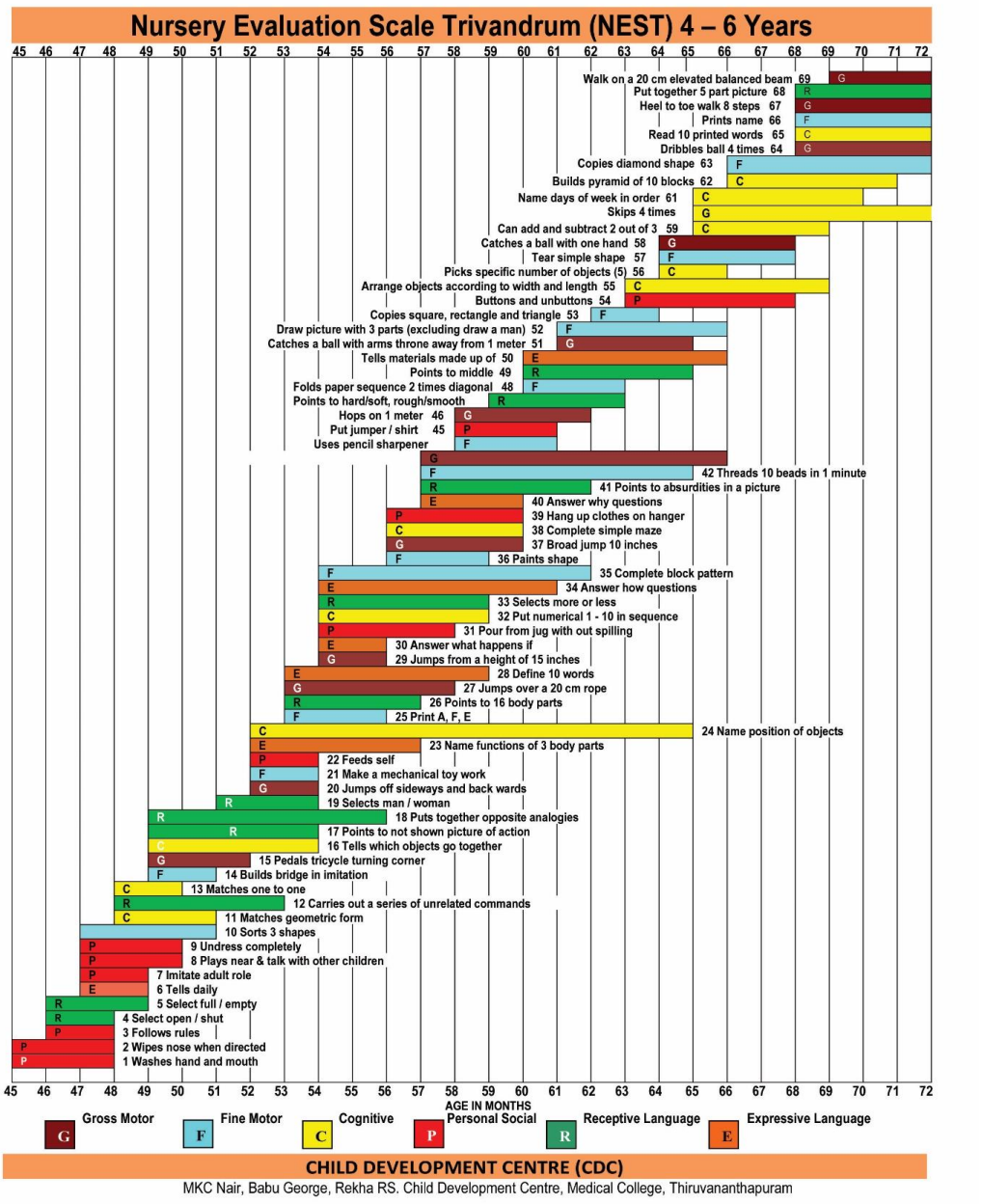
		NEVER	SOMETIMES	OFTEN	ALWAYS
a	Does not like to be hugged or touch/apparent insensitivity to pain				
b	Intolerance/addiction to certain sounds, tastes, odours, visuals				
c	No understanding or fear of real dangers/excessive fear for heights, change in position				
d	Enjoys spinning or rotating objects				
e	Inappropriate laughing or giggling/crying spells with extreme distress for no apparent reason				
f	Difficulty in fine motor skills/a tendency to fall/clumsiness/resistance to new motor movement activities				

Response: Never-1 Sometimes-2 Often-3 Always-4

scoring: 20-35 NON-AUTISTIC 36-43- MILD TO MODERATE AUTISM
44 AND ABOVE- SEVERE AUTISM

Annexure V

Nursery Evaluation Scale Trivandrum (ENEST)



MKC Nair, Babu George, Rekha RS. Child Development Centre, Medical College, Thiruvananthapuram

Annexure VI

Concern-9

Concern-9 (12-18 Months) The Red flag signs of Autism Spectrum Disorder

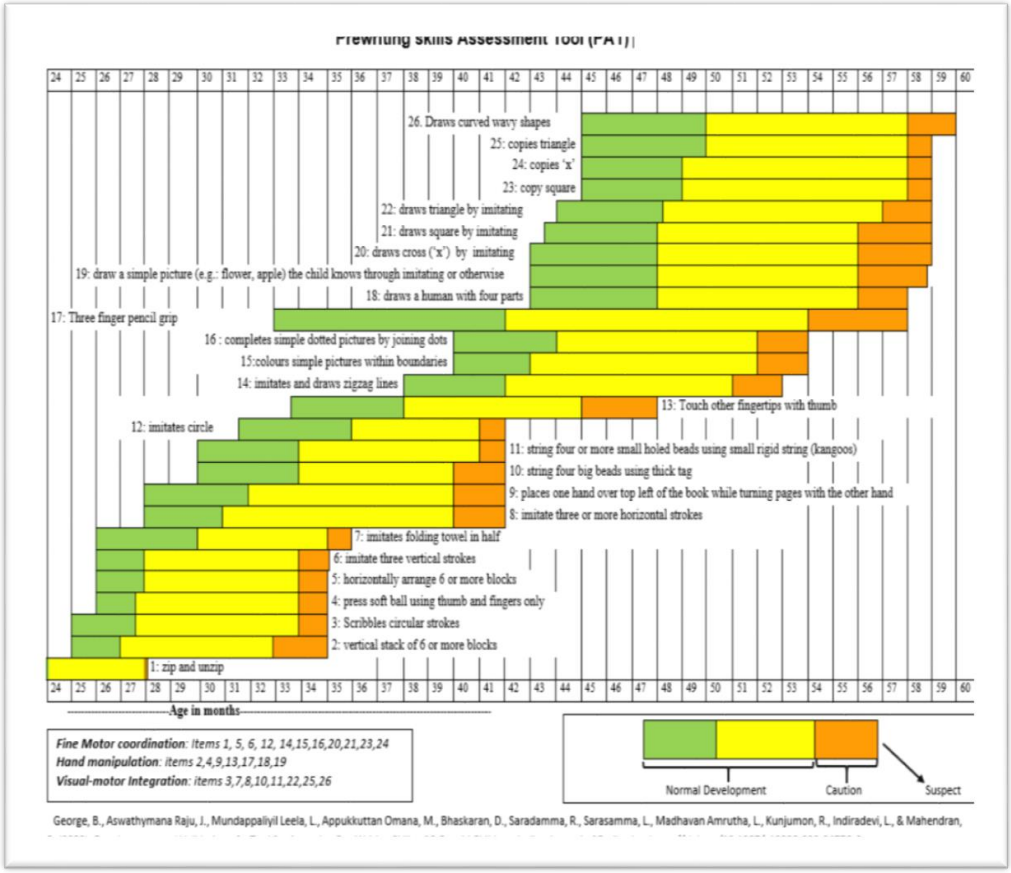
Sl. No.	Item	Yes (Score=0)	No (Score=1)
1	Baby is showing interest in other children		
2	Baby is engaging in simple play (eg. using a telephone, doll, car, towel etc)		
3	Baby is smiling looking at you		
4	Baby is looking at things which you are also looking at		
5	Baby is engaging in activities imitating others		
6	Baby is responding well while calling his/her name		
7	Baby is maintaining good eye contact with others		
8	Baby is pointing to a particular object when asked to show		
9	Baby is having great interest in peek-a-boo		
	* Total Score		

*** Concern**:
(i). If the total score is 2 or more
(ii) If item No.7 is 'No' even if the score is less than 2, there is concern
((i & ii).In the above two situations, consultation of a Pediatrician is recommended)

No Concern: If the total score is 0 or 1 (Repeat the Concern-9 card at 12, 14, 16 and 18 months of age)
However, a detailed formal developmental evaluation is required at 18 months, 24 months and beyond or at any age if the parents or the physician has concern regarding the developmental status of the child

Annexure VII

Pre-Writing Assessment Tool (PAT)



Annexure VIII

CAT-T Childhood Autism Tool-Trivandrum

Name of Child _____

ID No. _____ Age. in months _____

DOES YOUR CHILD ?

		PUT TICK MARK IN THE APPROPRIATE COLUMN			
		0 | NEVER	1 | SOMETIMES	2 | OFTEN	3 | ALWAYS
1	have difficulty in establishing eye contact				
2	have difficulty in maintaining eye contact				
3	appear tc be in his/her own world				
4	have difficulty in responding when called				
5	have difficulty in mixing with other children of the same age				
6	have difficulty in playing together with other children of the same age				
7	have difficulty in smilling at others				
8	have difficulty in making pretend play or imaginative play				
9	have difficulty in meaningfully combining at least two words				
10	have difficulty in indicating needs verbally				
11	have difficulty in initiating conversation with others				
12	have difficulty in sustaining conversation with others				
13	have crying spells with extreme distress for no apparent reasons				
14	insist on sameness in everyday routines				
15	have the habit of making the same unusual sounds again and again				
16	show hyperactivity				
17	show extreme restlessness while trying to restrict him / her				
18	have inappropriate attachments to some objects				
19	have self-injurious behaviour (Eg. head banging, eye poking, etc...)				
20	show persistent preoccupation with parts of toys and not the toy itself (Enjoys spinning or rotating wheels of a toy car)				
21	show intolerance to specific sound (Whistling of pressure cooker, mixie, horn sound, etc...)				
22	have repetitive motor mannerisms unusual for the age (Eg: flapping hands, rocking or jumping)				
23	show unusual (excessive) liking for crispy food items				
24	show unusual (excessive) intolerance for sticky food items				

_____ NON-AUTISTIC - score up to 16

_____ AUTISM - score 17 and above

Total Score _____

Annexure IX

Nirnayam Kit

Annexure X

CDC Capacity Building Programme

Date	Programme	Venue	No of Participants
2.01.2017	Faculty Improvement Programme on Growth, Immunization & Preventive Cardiology	Auditorium , CDC	40
01.01.2017 & 31.01.2017	Medex exhibition – CDC Actively participated in the exhibition is from 1st to 31st January	Medical College	
3.01.2017 & 06.01.2017	Training Programme for School Counsellors conducted by Social Justice Department in association with CDC	Auditorium , CDC	35
9.01.2017	Dist. Panchayat-Creative workshop for tool preparation -Aksharamala -a project for children	Auditorium , CDC	20
9.01.2017 & 12.01.2017	Training Programme for School Counsellors conducted by Social Justice Department in association with CDC	Auditorium , CDC	35
18.01.2017	Akshramala Project – conducted FGD, in-depth interview, anonymous response analysis- pilot study conducted by CDC & District Institute of Education &Training-Jillapanchanyath	SKVHSS, Nanniyodu	30
19.01.2017	Akshramala Project – conducted FGD, in-depth interview, anonymous response analysis- pilot study conducted by CDC & District Institute of Education &Training-Jillapanchanyath	St Michels HSS Kadinamkulam	32
20.01.2017	Akshramala Project – conducted FGD, in-depth interview, anonymous response analysis- pilot study-	Govt HSS, Thonnakkal	30

	Conducted by CDC & District Institute of Education &Training-Jillapanchanyath		
30.01.2017	Training Programme for School Counsellors conducted by Social Justice Department in association with CDC	Auditorium , CDC	40
3.02.2017 & 4.02.2017	Dist. Panchayat in association with CDC- Creative workshop for school teachers - Aksharamala -a project for children 2nd batch	Auditorium , CDC	36
6.02.2017 to 9.02.2017	Training Programme for School Counsellors conducted by Social Justice Department in association with CDC	Auditorium , CDC	40
9.02.2017 to 10.02.2017	Participated in Career Guidance Exhibition organized by Social Justice Department	Central Stadium, Thiruvananthapuram	Around 500

Date	Programme	Venue	No of Participants
9.02.2017 & 10.02.2017	Dist. Panchayat in association with CDC - Creative workshop for school teachers - Aksharamala -a project for children 2nd batch	Auditorium IV, Child Development Centre	50
21.03.2017	World Down Syndrome Day Awareness programme for children and parents Drawing & Music competition for the kids & CME for Paediatricians and students	Tulip Auditorium, CDC	80
17.04.2017	Adolescent awareness programme	Alathara, Sreekaryam	150
21.04.2017	Translating the world health day 2017- Depression Let's talk organized by Community Medicine, OB & G, CDC	Diamond Jubilee Auditorium, Govt. Medical College	250
28.04.2017	World Immunization Week- An update on Newer vaccines – Quality	Tulip Auditorium, CDC	92

	improvement in health care –power of positive thinking Organized by Dept. of Paediatrics, SAT Hospital & Child Development Centre (CDC) & Indian Academy of Paediatrics, TVPM		
3.05.2017	Medical Camp & Program on health awareness and Life Skill Education for BEd Students, Kerala University College of Teacher Education Kariavattom, Thiruvananthapuram	Tulip Auditorium, CDC	60
15.05.2017	18th Family Day Oration & Seminar on "Learning Disability" Shri. PrabhaVarma, Poet, Lyricist and Journalist	Tulip Auditorium, CDC	60
16.07.2017	Training of Trainers (TOT) Programme on Learning Disability conducted by IAP, Thiruvananthapuram & CDC.	Hotel Hycinth, Thampanoor	62
16.07.2017	Workshop on: Bayley Scales of Infant and Toddler Development – Third Edition	Auditorium , Child Development Centre	16
18.07.2017 to 21.07.2017	Training Programme for School / Hostel Counselors of Scheduled Tribe Child Development Centre in association with ST Department	Agricultural Co-operative Staff Training Institute (ACSTI),Manvila, Kulathoor, Thiruvananthapuram	40
17.09.2017	Pednutricon 2017- National Conference Of Nutrition Chapter IAP organized by Dept. of Paediatrics, CDC, IAP, IAP nutrition chapter	Gulmohar, Auditorium IV , CDC, TVPM	150

Date	Programme	Venue	No of Participants
18.09.2017 to 27.09.2017	Master of Hospital Administration 3rd year – 11th Batch – 1st PCP	Auditorium, CDC	40
28.09.2017	Programme - Adolescent Care & Counselling & Adolescent health check up	Govt HSS, Kumarapuram	50
09.10.2017	Programme -Adolescent Care & Counselling & Adolescent health check up	Govt. Vocational & Higher Secondary school, Kattakkada	160
12.10.2017	Teenage Day Oration & Seminar on Learning disability for BEd students Govt. College of Teacher Education, Thycaud, Thiruvananthapuram	Tulip Auditorium, CDC	100
14.10.2017	Programme - Adolescent Care & Counselling	CSC Church, Vellanad	30
6.10.2017 to 15.10.2017	3rd Year 2nd PCP class Master of Hospital Administration	Tulip Auditorium, CDC	45
14.11.2017	Adolescent Medical Evaluation camp for Higher Secondary school students	Govt. Higher Secondary School, Kumarapuram	180
17.11.2017	Student Support and Guidance Programme – Training of Nodal Officers – KUHS in association with CDC	Tulip Auditorium, CDC	90
19.11.2017	World Prematurity Day Celebrations- Best practices in preterm care	Tulip Auditorium, CDC	85
21.11.2017	Adolescent Medical Evaluation camp for Higher Secondary school students	Govt. Higher Secondary School, Kumarapuram	61
22.11.2017	FIP Series No 1: Activities of Daily Living (ADL) for children with ASD -	The Tulip, CDC	50

	Ms. Annie Charles Occupational Therapist Center for Autism and other Disabilities Rehabilitation Research and Education (CADRRE),		
29.11.2017	Connect To Collaborate Mr.SanthoshBalakrishnan Regional Nutrition Training Manager Nestlé India Limited, Chennai Branch	Tulip Auditorium, CDC	50
6.12.2017	Improving Patient Satisfaction - Providing Quality Services Mr.Ajith Kumar, Administration Directorate of Health Services	Tulip Auditorium, CDC	50
7.12.2017	Indo-US symposium on Human Genetic Disorders of Prenatal and Post natal growth - 4th National Conference of Society for Indian Academy of Medical Genetics (SIAMG) – Pre conference workshop	Tulip- Auditorium I, CDC Gulmohar, Auditorium IV, CDC	50 60

Date	Programme	Venue	No of Participants
8.12.2017 to 10.12. 2017	Indo-US symposium on Human Genetic Disorders of Prenatal and Post natal growth - 4th National Conference of Society for Indian Academy of Medical Genetics (SIAMG) –conference	Mascot Hotel, Thiruvananthapuram	130
13.12.2017	Paediatric Palliative care – An overview Dr.P.G. Hariprasad, Additional Professor, Department of Paediatrics, SAT Hospital, Medical College	Tulip Auditorium, CDC	50

13.12.2017 to 16.12. 2017	Trainers training programme for Souhrdaco-ordinators Higher Secondary Education Dept in association with CDC	The Tulip & The Daffodil, CDC	45
20.12.2017	Achieve Proficiency In Healthcare Through Mind Management- Dr.A. Abraham Master Practitioner in Neuro Linguistic Programming (Director, Mind Masters, MBC 30 Museum Bains Compound, Nathancode,	The Tulip & The Daffodil, CDC	50
27.12.2017	Intrapersonal and interpersonal intelligence Shri. Praveen S.K. Business Partner, CL Educate Ltd, Chennai	The Tulip & The Daffodil, CDC	50
03.01.2018	Rational Emotive Behavior Therapy (REBT) Fr. Joye James, Rector & Manager, Loyola College of Social Sciences, Sreekariyam,	The Tulip & The Daffodil, CDC	50
10.01.2018	Cytogenetics –Trisomy 21 Counselling the distressed parents Dr.Santhi S.&Ms.Remya S. Dr.Naveen Jain Sr. Consultant &Neonatologist KIMS Hospital Anayara P.O,Trivandrum	The Tulip & The Daffodil, CDC	50
17.01.2018	Life skill education for Adolescent children Dr.V. Reghu Consultant, Edl. Training & Career	The Tulip & The Daffodil, CDC	50

	Former Dean of Research & Controller of Examinations Rajiv Gandhi National Institute of Youth Development (RGNIYD)		

Date	Programme	Venue	No of Participants
28.01.2018	Child Abuse Prevention Programme Child Development Centre in association with Indian Academy of Paediatrics, Kerala	The Tulip & The Daffodil, CDC	75
31.01.2018	Autism - A Neurodevelopmental Journey from Genes to Behaviour 21st Child Development Oration Dr.ValsaEappen Chair, Infant Child and Adolescent Psychiatry, University of New South Wales Head, Academic Unit of Child Psychiatry, South West Sydney (AUCS)	Tulip Auditorium, CDC	100
07.02.2018	School Counselling Ms.Jaya Elizabeth Ninan Counselor, St. Thomas School	Tulip Auditorium, CDC	60
14.02.2018	Learning Disability Dr.P.A.MohamedKunju Professor & Head Dept. of Paediatrics Neurology SAT Hospital, Medical College	Tulip Auditorium, CDC	55
21.02.2018	Preparation of synopsis for Research Dr.V. Reghu Consultant, Edl. Training & Career	Tulip Auditorium, CDC	55

	Former Dean of Research & Controller of Examinations Rajiv Gandhi National Institute of Youth Development (RGNIYD) University, Tamil Nadu		
28.02.2018	Undertaking Bio-medical Research I Dr.AnishT.S. Assistant Professor Dept. of Community Medicine Medical College, Thiruvananthapuram Phone: 9946039211	Tulip Auditorium, CDC	55
07.03.2018	Man power management in hospitals – Challenges Dr.Thomas Mathew Principal, Medical College, Thiruvananthapuram	Tulip Auditorium, CDC	55
14.03.2018	Paediatric headache - imaging of common and uncommon pathology Dr.Roy G. Jacob Paediatrician&Radiologist (Neuroradiology, Paediatric Radiology) University Medical Center, Texas Tech University, Texas, USA	Tulip Auditorium, CDC	100

Date	Programme	Venue	No of Participants
17.03.2018	Sensitization of Paediatricians - Regarding Certification for Disability Department of Paediatrics, IAP Thiruvananthapuram, IAP Kerala & Child Development Centre & Sponsorship from State Commissionerate for Persons with Disabilities, Kerala	Tulip Auditorium, CDC	70
21.03.2018	Down Syndrome Day Symposium on Prenatal Screening and Genetic Counselling of Down Syndrome Organized by Genetics Division, Department of paediatrics, SAT Hospital, Thiruvananthapuram CDC, Thiruvananthapuram & Indian Academy of Paediatrics (IAP) Thiruvananthapuram	Tulip Auditorium, CDC	100
24.03.2018 & 25.03.2018	IAP-Advanced Life support course (Provider Level), IAP in association with CDC	Tulip Auditorium, CDC	40
28.03.2018	Undertaking Bio-medical Research II Dr.AnishT.S. Assistant Professor Dept. of Community Medicine, Medical College,	Tulip Auditorium, CDC	40
4.04. 2018	Adolescent Nutrition Dr.Anitha Mohan Former Programme Officer State IDD Control Cell Directorate of Health Services	Tulip Auditorium, CDC	40
11.04.2018	National Trust Act and Schemes Mr. R. Venugopalan	Tulip Auditorium, CDC	40

	Former Board Member & Co-ordinator - National Trust for the welfare of persons with Autism, Cerebral palsy, Mental Retardation & Multiple disabilities, Ministry of Social Justice and Empowerment, Government of India Chairman & Executive Trustee Ashraya, Kollam		
18.04.2018	Team building and Interpersonal relationship at CDC Mr.M C Rajilan Certified Designer of Training, Govt. of India & Head Coach, RACE Institute	Tulip Auditorium, CDC	40

Date	Programme	Venue	No of Participants
25.04.2018	Undertaking Bio-medical Research III Dr.AnishT.S. Assistant Professor Dept. of Community Medicine Medical College, Thiruvananthapuram	Tulip Auditorium, CDC	40
29.04.2018	Vaccine Update Organized by Indian Academy of Paediatrics TVPM, Dept of Paediatrics& CDC	Tulip Auditorium, CDC	100
2.05.2018	Locomotor Rehabilitation of CP children Dr.George Zachariah Asst. Professor, Dept. of Physical Medicine & Rehabilitation Medical College, Thiruvananthapuram	Tulip Auditorium, CDC	100

8.05.2018	Medical Camp &Programme on Health Awareness and Life Style Diseases	Tulip Auditorium, CDC	80
9.05.2018	Foetal Therapy Dr.P.Y. Henry Professor of Paediatric Surgery SreeGokulam Medical College and Research Foundation, Venjaranmoodu	Tulip Auditorium, CDC	40
16.05.2018	ADHD Diagnosis & Management Behavioural Modification Therapy for Children Dr.Anil Kumar T V Professor Dept. of Psychiatry Medical College, Thiruvananthapuram	Tulip Auditorium, CDC	40
19.05.2018	Sensitization Programme for Paediatricians Palliative Care for Children with Multiple Disabilities	Tulip Auditorium, CDC	100
23.05.2018	Early identification & Management of Learning Disability Ms.P. Nirmala House No 2 Subramonium Nagar CIT Road, Killipalam Thiruvananthapuram-02	Tulip Auditorium, CDC	40
30.05.2018	Sexuality in children with special needs Behaviour modification techniques Dr. S.K. Harikumar Director, SK Consultancy Thiruvananthapuram	Tulip Auditorium, CDC	40

Date	Programme	Venue	No of Participants
6.05.2018	Conducting Systematic Review and Meta-Analysis with Secondary Data **Dr.AnishT.S.** Assistant Professor Dept. of Community Medicine Medical College, Thiruvananthapuram	Tulip Auditorium, CDC	40
13.06.2018	Activities of daily living MithenDev, MPT[musc& sports]Associate Professor Neuro developmental therapy Velmurugan G, MPT [Neuro] Associate Professor Bethany Navajeevan College of Physiotherapy	Tulip Auditorium, CDC	40
16.06.2018	National Paediatric Nephrology conclave 2018 - Workshop	Tulip Auditorium, CDC	100
20.06.2018	FIP – Interesting Cases in Paediatric Endocrinology Dr. PSNMenon, Senior Paediatric Endocrinologist and Former Professor of Paediatrics, AIIMS, New Delhi	Tulip Auditorium, CDC	125
27.06.2018	FIP- Learning Disability Diagnosis and Management Dr. BinduThankappan Asst. Professor Dept. of Paediatric Neurology SAT Hospital	Tulip Auditorium, CDC	50

28 to 30.06. 2018	"Capacity Enhancement for Paediatricians for Early Screening of Autism Spectrum Disorder and Strategies for Early Intervention	Tulip Auditorium, CDC	82
14.07.2018	FIP-Training programme on SPSS Mr. Mithun D.J Statistician, Bangalore Phone: 9844284240 kmithun.sharp@gmail.com	Tulip Auditorium, CDC	30
15.07.2018	Training program on "Bayley Scales of Infant and Toddler Development – Third Edition" Pearson, Bangalore	Tulip Auditorium, CDC	25
18.07.2018	FIP-Genetic Counselling Genetic Tests – Application Dr.V.H.Sankar Addl. Professor, Dept. of Paediatrics & Geneticist, CDC Medical College, Thiruvananthapuram	Tulip Auditorium, CDC	100

Date	Programme	Venue	No of Participants
25.07.2018	Statistical Analysis • Basis of statistical inference sampling distribution- Statistical inference, Type I & Type II Error • Test of significance & estimation chi-square test, T- Test, F-Test., Probability value, odds Ratio and Relative Risk Dr.K. Syamalan Professor of Biostatistics &HOD Research Division Sree Gokulam Medical College & Research Foundation	Tulip Auditorium, CDC	50
1.08.2018	FIP- Conducting Systematic Review and Meta-Analysis with Secondary Data II	Tulip Auditorium, CDC	42

	Dr.AnishT.S. Assistant Professor Dept. of Community Medicine Medical College,		
8.08.2018	FIP-Income tax Applicable laws to CDC Employees TDS. Form No. 16, TDS Traces- Form No 16 A, Return Filing PAN Number & TAN Number, Question & Answer sessionMr.BijuP.Nair Biju P Nair & Associates Chartered Accountant	Tulip Auditorium, CDC	54
29.08.2018	FIP-Growth Monitoring – Infants to Adolescent Children Recognition and Management of Faltering, Growth in Children- Dr.Riaz I, Assistant Professor, Department of Paediatrics, SAT Hospital	Tulip Auditorium, CDC	53
5.09.2018	FIP- Undertaking research-writing a project proposal Dr.K.Rajamohanan Professor i/c, School of Health Policy & Planning Kerala University of Health Sciences	Tulip Auditorium, CDC	60
6 & 7.09.2018	CDC-Preschool Project – Capacity Building Activities for Students of Government Pre-primary Teachers Training Institute, Cotton Hill, Thiruvananthapuram	Tulip Auditorium, CDC	70
12.09.2018	FIP- Life Skills Education for Children and Adolescents in Schools Introduction (Guidelines to Facilitate the Development and Implementation of Life Skills Programmes) Dr.Bindu R.L, Associate Professor and Head, Dept. of Education, University of Kerala,	Tulip Auditorium, CDC	60

	Secretary, Indian Association of Life Skills Education, Kerala Chapter		

Date	Programme	Venue	No of Participants
13 & 14.09.2018	"Capacity Enhancement for Paediatricians for Early Screening of Autism Spectrum Disorder and Strategies for Early Intervention "- comprehensive Resource book with special reference to addressing communication issues in ASD Project in association with KSSM	Tulip Auditorium, CDC	10
18 & 19.09. 2018	"Capacity Enhancement for Paediatricians for Early Screening of Autism Spectrum Disorder and Strategies for Early Intervention "-comprehensive Resource book with special reference to addressing behavioural issues in ASD	Tulip Auditorium, CDC	10
19.09.2018	Diet- Prevention of non-communicable diseases Dr. Sivasankaran,Professor (Senior Grade),Dept. of Cardiology, SCTIMST	Tulip Auditorium, CDC	50
26.09.2018	Learning Disability Dr.Vimal Kumar S.V. Clinical Psychologist, Thiruvananthapuram	Tulip Auditorium, CDC	50
27 & 28.09.2018	"Capacity Enhancement for Paediatricians for Early Screening of Autism Spectrum Disorder and Strategies for Early Intervention"Addressing Neuro developmental issues and Comorbid condition in ASD - Project in association with KSSM	Tulip Auditorium, CDC	10

29 & 30.09.2018	PG Teaching Programme of SAT Hospital organized in association with CDC, Main topic – Growth, Development & Genetics	Tulip Auditorium, CDC	60
1.10.2018	CME Perinatal and Infant Mental Health Services (PIMS), Depts. of Psychiatry Obstetrics & Gynecology Paediatrics, Community Medicine , Govt. Medical College, Thiruvananthapuram & CDC	Tulip Auditorium, CDC	60
21.11.2018	Protocol Finalization Dr. Remadevi S. Former Associate Professor of Medico Sociology, Govt. Medical College	Tulip Auditorium, CDC	60
24.11.2018	BSLP Training for Senior residents	Tulip Auditorium, CDC	40
28.11. 2018	Questionnaire Development & Ethical Consideration Dr. Remadevi S. Former Associate Professor of Medico Sociology, Govt. Medical College,Tvpm	Tulip Auditorium, CDC	60

Date	Programme	Venue	No of Participants
1.12.2018	22nd Child Development Oration Seminar on Preschool Child CDC-Preschool Project – Capacity Building Activities for Students of Government Vocational Higher Secondary School (Crèche and Preschool Management), Manacadu, Thiruvananthapuram	Tulip Auditorium, CDC	100
5.12.2018	Protocol Discussion & Finalization Dr. Remadevi S. Former Associate Professor of Medico Sociology	Tulip Auditorium, CDC	60
12.12.2018	Transactional analysis in Daily life	Tulip Auditorium, CDC	60

	Dr.VijayanPillai PsychologistmINFERERNCE, Puthenkavu P.O., Chengannur		
18.12.2018	Community Based Infant Disability Screening - Training Programme for CDPO's, Supervisors &RBSK Nurses of Selected 30 ICDS of Kerala Thiruvananthapuram, Kollam, Pathanamthitta, Alappuzha &Kottayam (10 ICDS)CDC in association with KSSM, anuyathra	Tulip Auditorium, CDC	50
19.12.2018	Quality Research Dr. Remadevi S. Former Associate Professor of Medico Sociology	Tulip Auditorium, CDC	60
19.12.2018	Community Based Infant Disability Screening - Training Programme for CDPO's, Supervisors &RBSK Nurses of Selected 30 ICDS of Kerala Idukki, Ernakulam, Thrissur, Palakkad & Malappuram (11 ICDS) CDC in association with KSSM, Anuyathra,	Tulip Auditorium, CDC	50
20.12.2018	Community Based Infant Disability Screening -Training Programme for CDPO's, Supervisors & RBSK Nurses of Selected 30 ICDS of Kerala Kozhikode, Wayanad, Kannur &Kasargode (9 ICDS) CDC in association with KSSM, Anuyathra,	Tulip Auditorium, CDC	50
26.12.2018	Dietary Guidelines for Keralitis Dr.Anitha Mohan, Former Programme Officer State IDD Control Cell, Directorate of Health Services, Kerala	Tulip Auditorium, CDC	50

Date	Programme	Venue	No of Participants
1.01.2019 to 4.01.2019	Trainers Training programme for Souhrda co-ordinators- Higher Secondary Education Department in association with CDC, Medical College, Thiruvananthapuram	Tulip Auditorium, CDC	45
2.01.2019	Yogic Sciences Dr.Vijayan Pillai Psychologist, INFERERNCE, Puthenkavu P.O., Chengannur	Tulip Auditorium, CDC	60
7 to 10.01.2019	Four day training programme on Laboratory management & Internal Audit as per ISO 15189-2012/NABL112Trainer :Dr. Piyush Tailor, Associate professor , Government Medical College, Surat, Gujarat	Tulip Auditorium, CDC	30
9.01.2019	POCSO Act Dr.Suseela Mathew Former Assistant Professor, Dept. of Psychiatry	Tulip Auditorium, CDC	60
14 to 15.01.2019	Training Programme for Paediatricians on Early Screening of ASD and Strategies for Early Intervention Kollam, Alappuzha, Thiruvananthapuram Pathanamthitta, Kottayam	Tulip Auditorium, CDC	20
20.th December 2018	Community Based Infant Disability Screening -Training Programme for CDPO's, Supervisors &RBSK Nurses of Selected 30 ICDS of Kerala Kozhikode, Wayanad, Kannur &Kasargode (9 ICDS) CDC in association with KSSM, Anuyathra,	Tulip Auditorium, CDC	50
26th	Dietary Guidelines for Keralitis	Tulip Auditorium, CD	48

December 2018	Dr.Anitha Mohan Former Programme Officer State IDD Control Directorate ofHealth Services		
1st January 2019 to 4th January 2019	Trainers Training programme for Souhrdaco-ordinators- Higher Secondary Education Department in association with CDC, Medical College, Thiruvananthapuram	Tulip Auditorium, CDC	45
2nd January 2019	Yogic Sciences Dr.VijayanPillai Psychologist, INFERERNCE, Puthenkavu P.O., Chengannur	Tulip Auditorium, CDC	60
7th to 10th January 2019	Fourday training programme on Laboratory management & Internal Audit as per ISO 15189-2012/NABL112Trainer: Dr. Piyush Tailor, Associate professor, Government Medical College, Surat, Gujarat	Tulip Auditorium, CDC	30

Date	Programme	Venue	No of Participants
9th January 2019	POCSO Act Dr.Suseela Mathew Former Assistant Professor, Dept. of Psychiatry	Tulip Auditorium, CDC	60
14th to 15th January 2019	Training Programme for Paediatricians on Early Screening of ASD and Strategies for Early Intervention Trivandrum., Kollam, Alappuzha, Pathanamthitta, Kottayam	Tulip Auditorium, CDC	20
16th January 2019	Intrapersonal and interpersonal intelligence Shri. Praveen S.K. Business Partner, CL Educate Ltd, Chennai	Tulip Auditorium, CDC	60

16th to 17th January 2019	Training Programme for Paediatricians on Early Screening of ASD and Strategies for Early Intervention Idukki, Ernakulam Thrissur, Malappuram, Palakkad	Tulip Auditorium, CDC	30
18th to 19th January 2019	Training Programme for Paediatricians on Early Screening of ASD and Strategies for Early Intervention Kozhikode, Kannur, Wayanad, Kasargod	Tulip Auditorium, CDC	30
16th to 18th January 2019	RBSK training programme for Nurses and other mobile team members	Tulip Auditorium, CDC	90
18th& 19th January 2019	Two Day Biostatistics Training Programme For KUHS Faculty with Ph.D/M.Phil (Clinical Epidemiology) KUHS in association with CDC	The Gulmohar - CDC	80
19th& 20th January 2019	Genomics in Clinical Medicine- workshop, CSII Institute of Genomics and Integrative Biology New Delhi & Society for advancements in Genomics, Regenerative Medicine and Stem ce Research-India In association with Genetic & Metabolic Unit, Child Development Centre, TVPM, Indian Medical Association, Thiruvananthapuram	Tulip Auditorium, CDC	100
20th January 2019	Pedclinic 2018-19, Department of Paediatrics association with CDC	Tulip Auditorium, CDC	60
21st March 2019	World Down Syndrome Day Parents Meeting and Awareness ProgrammeGenetic& Metabolic Unit, Child Development Centre, Thiruvananthapuram Department of paediatrics, SAT Hospital &IAP	The Gulmohar - CDC	200
23rd March, 2019	Breast Feeding Promotion Program	Tulip Auditorium, CDC	47

	Conducted by University of Health Sciences (KUHS), Thrissur, Indian Academy of Paediatrics (IAP), Kerala Chapter & CDC		

Date	Programme	Venue	No of Participants
27th March 2019	Premarital – Guidance & counseling Adv.Mohanraj Member CWC Juvenile Justice, SJD	Tulip Auditorium, CDC	46
3rd April 2019	World Autism Awareness Week 2019 Parents Meeting and Exhibition of Creative Work of children & the 20th Teenage Day Oration, Prof.GopinathMuthukad, Executive Director, Magic Academy	The Gulmohar, CDC	162
7th April 2019	Research Methodology workshop in connection with the proposed PhD Entrance Examination of KUHS Organized by Child Development Centre & Dept. of Community Medicine, MCT	Tulip Auditorium, CDC	99
10th April 2019	FIP - Delivering bad news to parents & relatives and effectively counseling Dr. Oommen Philip	Tulip Auditorium, CDC	47
17th April 2019	FIP- Developmental Therapy for tone abnormalities Ms.PoornimaGopan PT & Fitness Trainer,Pain free Physio& Sports Rehab Nalanchira	Tulip Auditorium, CDC	48
24th April 2019	Project Management Dr.KannanSreenivasan Professor, AchuthaMenon Centre for Health Science Studies,SCTIMST	Tulip Auditorium, CDC	48

8th May 2019	Grief Counselling Dr.SushaJanardanan Consultant Counsellor, Head of Department (Former), Dept. of CounsellingPsychology Loyola College of Socia Sciences, &Ms.Aroline,K.Tom, Asst. Professor	Tulip Auditorium, CDC	48
14th May 2019	Medical Camp & Program on General Health Awareness and Life Skill Education for Adolescents	Tulip Auditorium, CDC	55
15th May 2019	Improving Leadership Qualities Mr.Sathish P. Kurup	Tulip Auditorium, CDC	47
22nd May 2019	Emotional Intelligence Mr.Rajamohan M. Management Consultant –HR, Thiruvananthapuram	Tulip Auditorium, CDC	51
25th May 2019	Adolescent Meet: "Parenting and Improving Study Habits of Children"	Tulip Auditorium, CDC	56
29th May 2019	ALD, Ms.Arya S,Senior Faculty,NISH	Tulip Auditorium, CDC	49

Date	**Programme**	**Venue**	**No of Participants**
6th June 2019	CDC programme conducted in connection with the pravesanoltsavam' at Government Medical College Higher Secondary School Class take by - 'Mr.PraveenS.K., Carrer Counsellor	Government Medical College Higher Secondary School, Kumarapuram	150
12th June 2019	Immunological Insights into vaccination	Tulip Auditorium, CDC	70

	Quiz – GayathriIyer Sparsham – Muhammad Rishad Mr. Amogh B. J, 3 rd year MBBS student, Govt. Medical College		
17th& 18th June 2019	Research Methodology workshop, KUHS	Tulip Auditorium, CDC	80
19th June 2019	Scholastic Backwardness Dr.Arun B. Nair Asst. Professor, Dept. of Psychiatry, Medical College Hospital	Tulip Auditorium, CDC	48
25th June 2019	Workshop on "Internal Quality Control & External Quality Assurance in clinical laboratories	Tulip Auditorium, CDC	30
29th June 2019	Parenting – ASD Children Parents Meeting and Awareness Programme	Tulip Auditorium, CDC	30
3rd July 2019	GAIT Analysis Dr.George Zachariah Asst. Professor, Dept. of Physical Medicine & Rehabilitation, MC, TVPM	Tulip Auditorium, CDC	49
09th July 2019	One day Sensitation Programme for Principals and Souhrda Co-ordinators of Higher Secondary Schools of Thiruvananthapuram Non-Communicable Disease Risk Factors among School Children in TVPM District"	Tulip Auditorium, CDC	45
10th July 2019	Horticulture Therapy Dr.Vijendrabhas	Tulip Auditorium, CDC	66
16th July 2019	International Symposium on Rare Diseases- Lysosomal storage disorder	The Gulmohar- CDC	100

17.07.2019 Wednesday	Neuro Developmental Therapy- Agnes Anna Mathew, Occupational Therapists	Tulip Auditorium, CDC	56
24.07.2019 Wednesday	Sensory dysfunction among children with ASD and Sensory Integration Therapy Agnes Anna Mathew, OT	Tulip Auditorium, CDC	56
1st August 2019	One day orientation programme for school teachers of Kerala	Tulip Auditorium, CDC	40
2nd to 3rd August 2019	Two day orientation programme for resource teachers identification tool for specific learning disabilities in children	Tulip Auditorium, CDC	56

Date	Programme	Venue	No of Participants
2nd August 2019	Lactation management training for Nurses in Kerala	The Gulmohar CDC	90
14th August 2019	Latest Technology Trends in Medicine, Overview of Artificial Intelligence with focus on Robotic Surgery, Wireless brain sensors, Artificial Organs, Tele-health, Blockchain in Healthcare, IoT - Hospital Beds etc. Manoj Philip Mathen Technology Director, Emerging Technologies Oracle IDC,	Tulip Auditorium, CDC	40
7th August 2019	Bayley Scales of Infant development	The Gulmohar CDC	45
18th to 28th September 2019	PGDDN Distance Education class	Tulip Auditorium, CDC	60
28th& 29th September 2019	Training Programme for Parents of Disabled Children- Amma-teacher	Auditorium, Priyadarsini Planetarium, PMG Jn, Thiruvananthapuram	100
10th	Conclave on Preventive Cardiology	Tulip Auditorium, CDC	73

November 2019	in the Young		
21st& 22nd November 2019	Two day Training Program on Early Detection of Disability for CDPOs& Supervisors –for CDPOs and ICDS supervisors	Tulip Auditorium, CDC	50
28th& 29th November 2019	Two day Training Program on Early Detection of Disability for CDPOs& Supervisors –for CDPOs and ICDS supervisors	Tulip Auditorium, CDC	50
30th November 2019	'Awareness programme for parents of children with Autism Spectrum Disorder'	Tulip Auditorium, CDC	34
05th& 06th December 2019	Two day Training Program on Early Detection of Disability for CDPOs& Supervisors –for CDPOs and ICDS supervisors	Tulip Auditorium, CDC	53
9th& 10thDecember 2019	Two day Training Program on Early Detection of Disability for CDPOs& Supervisors –for CDPOs and ICDS supervisors	Tulip Auditorium, CDC	47
12th & 13th December 2019	Two day Training Program on Early Detection of Disability for CDPOs& Supervisors –for CDPOs and ICDS supervisors	Tulip Auditorium, CDC	45
16th & 17th December 2019	Two day Training Program on Early Detection of Disability for CDPOs& Supervisors –for CDPOs and ICDS supervisors	Tulip Auditorium, CDC	48

Date	Programme	Venue	No of Participants
19th & 20th December 2019	Two day Training Program on Early Detection of Disability for CDPOs& Supervisors –for CDPOs and ICDS supervisors	Tulip Auditorium, CDC	49
28th December, 2019	State level Young innovative programme (YIP) Conducted by CDC & KDISC	The Tulip & Daffodil-auditorium CDC.	50 45
30th & 31st December 2019	Two day Training Program on Early Detection of Disability for CDPOs& Supervisors –for CDPOs and ICDS supervisors	Tulip Auditorium, CDC	45
1st January 2020	TOT Newborn screening Dr.Praveen KS, Senior Paediatrician	Tulip Auditorium, CDC	49
3th& 4th January 2020	Two day Training Program on Early Detection of Disability for CDPOs& Supervisors –for CDPOs and ICDS supervisors	Tulip Auditorium, CDC	49
6th& 7th January 2020	Two day Training Program on Early Detection of Disability for CDPOs& Supervisors –for CDPOs and ICDS supervisors	Tulip Auditorium, CDC	48
8th January	Environmental Conservation – the role of citizens Mr.Divin M, Former Research , Associate in Kerala State Bio Diversity Board UNDP- HRML Project	Tulip Auditorium, CDC	45
9th& 10th January 2020	Two day Training Program on Early Detection of Disability for CDPOs&	Tulip Auditorium, CDC	53

	Supervisors –for CDPOs and ICDS supervisors		
13th& 14th January 2020	Two day Training Program on Early Detection of Disability for CDPOs& Supervisors –for CDPOs and ICDS supervisors	Tulip Auditorium, CDC	46
15th January 2020	Communicating with Children and Adolescents with Hearing Impairment Ms.Chithra Prasad A.N, Senior Lecturer, S Degree Programme(H	Tulip Auditorium, CDC	65
10th& 11th February 2020	Two day Training Program on Early Detection of Disability for CDPOs& Supervisors –for CDPOs and ICDS supervisors	Tulip Auditorium, CDC	41

Date	Programme	Venue	No of Participants
13th& 14th February 2020	Two day Training Program on Early Detection of Disability for CDPOs& Supervisors –for CDPOs and ICDS supervisors	Tulip Auditorium, CDC	37
17th& 18th February 2020	Two day Training Program on Early Detection of Disability for CDPOs& Supervisors –for CDPOs and ICDS supervisors	Tulip Auditorium, CDC	41
11th to 21st February 2020	Post Graduate Diploma in Developmental Neurology (PGDDN) Second Spell Contact class	The Gulmohar- CDC	60
22nd January	Parenting the Adolescents	Tulip Auditorium, CDC	41

	Dr.Preetha S, Asst. Professor Govt College of Nursing, TVPM		
29th January 2020	Budget, Registrar,CDC	Tulip Auditorium, CDC	41
5th February 2020	Statistics Dr.K.Syamalan Professor of Biostatistics &HOD Research Division, Sree Gokulam Medical College & Research Foundation	Tulip Auditorium, CDC	52
12th February 2020	Solid Waste Management -Issues and Challenges Shri.P.Kesavan Nair, Managing Director, Clean Kerala Company Ltd. Vazhuthacad	Tulip Auditorium, CDC	52
19th February 2020	Healthy Heart Diet Dr.Anitha Mohan, Former Programme Officer State IDD Control Cell Directorate of Health Services, Kerala	Tulip Auditorium, CDC	50
1st March 2020	Child Rights Conference Organized by IAP Thiruvananthapuram & Child Development Centre, Medical College, TVPM	The Gulmohar CDC	200
29th February to 3rd March 2020	DASII Training Workshop	Tulip Auditorium & The Gulmohar CDC	33
01.04.2021	"Sambodhi 2021"- National Webinar on Autism Classes taken by Dr.Deepa Bhaskaran & Ms.Prasanna G.L.	Online programme	12
03.04.2021	Autism Day Awareness programme Classes taken by Dr.DeepaBhaskaran & Ms.Prasanna G.L.	Online programme	25 parents

08.06.2021	Doctoral Committee	Online programme	5 Members

Date	Programme	Venue	No. of Participants
16.06.2021	Mobile App on Intervention for Autism during Lockdown	Tulip Auditorium, CDC	15
01.07.2021	Stress Management during covid pandemic - for parents and children -Govt LPS Kadampanad Class taken by Ms.Parvathy Prasenajith Clinical Psychologist, CDC	Online programme	44
05.07.2021 to 29.07.2021	PGDCAFC – Personal Contact Programme	Online Programm	32
19.07.2021	First Thousand Days TOT Programme for CDPOs and ICDS Supervisors Conducted by CDC in association with WCD Importance of 1st 1000 days- Preconception preparations, Planning a Pregnancy	Online Programme Dr.Manjula Associate Professor, Dept of O&G Govt Medical College, Idukki	45
21.07.2021	First Thousand Days TOT Programme for CDPOs and ICDS Supervisors Conducted by CDC in association with WCD Antenatal care II- Exclusive breastfeeding & addressing breast feeding issues	Online Programme Dr.Manjula Associate Professor, Dept of O&G Govt Medical College, Idukki	46
22. 07.2021	First Thousand Days TOT Programme for CDPOs and ICDS Supervisors Conducted by CDC in association with WCD Care of newborn Common childhood diseases (0-2 yrs)	Online Programme Dr.Sobha Kumar Dr.Jawahar, IAP Fellow, CDC	41
23.07.2021	Immunization	Online Programme	45

	Growth monitoring & Early detection and early intervention for nutrition issues Dr.SheejaSugunan, Associate Professor, Dr.Riaz I. Associate Professor, SAT Hospital		
24.07.2021	Early detection & early Intervention of developmental delay/disability Parenting newborn, infants and toddlers. Care of newborn with special needs (preterm & LBW). Development Therapist CDC Dr.Deepa Bhaskaran Associate Professor, CDC	Online Programme	44
26.07.2021	Importance of 1st 1000 days Preconception preparations, Planning a Pregnancy Antenatal care I Dr.Hema Nair Prof of O&G,SATH Medical College, Thiruvananthapuram	Online Programme	47

Date	Programme	Venue	No. of Participants
27.07.2021	Exclusive breastfeeding & addressing breast feeding issues. Dr.HemaNair, Prof of O&G, SATH, Medical College, Tvm	Online Programme	41
28.07.2021	Care of newborn Common childhood diseases (0-2 yrs) Infant and young child nutrition Dr.Sobha Kumar	Online Programme	42

	Prof of Paediatrics SAT Hospital, Dr.Meera IAP Fellow CDC Dr.Shermin, Associate Professor SAT Hospital		
29. 7.2021	Immunization Growth monitoring & Early detection and early intervention for nutrition issues Dr Sheeja Sugunan, Associate Professor, Dr.Riaz I. Associate Professor, SAT Hospital, Medical College, Tvm	Online Programme	43
30. 7.2021	Early detection & early Intervention of developmental delay/disability Parenting newborn, infants and toddlers. Care of newborn with special needs (preterm & LBW) Development Therapist CDC Dr.M.K.C. Nair Formerly Vice Chancellor, KUHS Director, NIMS Spectrum	Online Programme	45
2. 8.2021	Importance of 1st 1000 days Preconception preparations, Planning a Pregnancy Antenatal care I Dr.Hema Nair Prof of O&G, SAT Hospital Dr.Hema Nair Prof of O&G, SAT Hospital	Online Programme	46
3. 8.2021	Antenatal care II Exclusive breastfeeding & addressing breast feeding issues	Online Programme	48

	Dr.Hema Nair, Prof of O&G,SAT H Ms.Asmi S.S. Assistant Professor, Govt College of Nursing,TD Medical College, Alappuzha		

Date	Programme	Venue	No. of Participants
4. 8.2021	Care of newborn Common childhood diseases (0-2 yrs) Infant and young child nutrition Dr.Sobha Kumar Prof of Paediatrics SAT Hospital Dr.Jawahar IAP Fellow CDC Dr.Shermin Associate Professor SAT Hospital	Online Programme Medical College, TVPM	43
5. 8.2021	Immunization Growth monitoring & Early detection and early intervention for nutrition issues Dr.SheejaSugunan, Associate Professor, SAT Hospital Dr.Riaz I, Associate Professor, SAT Hospital	Online Programme	42
6. 8.2021	Early detection & early Intervention of developmental delay/disability Parenting newborn, infants and toddlers. Care of newborn with special needs (preterm & LBW)	Online Programme	41

	Development Therapist CDC Dr.M.K.C .Nair Formerly Vice Chancellor, KUHS Director, NIMS Spectrum		
9. 8.2021	Importance of 1st 1000 days Preconception preparations, Planning a Pregnancy Antenatal care I Dr.Manjula Associate Professor,Dept of O&G Govt Medical College, Idukki	Online Programme	44
10. 8.2021	Antenatal care II Exclusive breastfeeding & addressing breast feeding issues	Online Programme	45

Date	Programme	Venue	No. of Participants
11. 8.2021	Care of newborn Common childhood diseases (0-2 yrs) Infant and young child nutrition Dr.Manjula Associate Professor, Dept of O&G Ms.Asmi S.S. Assistant Professor, Govt College of Nursing,TD Medical College Alappuzha Dr.Sobha Kumar Prof of Paediatrics	Online Programme	47

	SAT Hospital, Medical College Tvm Dr.Meera,IAP Fellow CDC Dr.Shermin, Associate Professor, SAT		
12. 8.2021	Immunization Growth monitoring & Early detection and early intervention for nutrition issues Dr.Sheeja Sugunan, Associate Professor, SAT Hospital Dr.Riaz I,Associate Professor, SAT Hospital	Tulip Auditorium, CDC	44
13. 8.2021	Early detection & early Intervention of developmental delay/disability Parenting newbornn, infants and toddlers. Care of newborn with special needs (preterm & LBW) Developmental Therapist CDC Dr.M.K.C.Nair Formerly Vice Chancellor, KUHS Director, NIMS Spectrum	Tulip Auditorium, CDC	46
07.09.2021 to 09.09.2021	Preparedness for the anticipated surge of Covid 19 in children- Hands on workshop for Medical Officers and Staff Nurse Dr.Riaz I, Asso.Professor Dr.Bindusha, Asso.Professor Dr.Ajith Krishnan, Professor & Head Dr.Susy Joseph, Asso.Professor Dr.SheejaSugunan,Asso.Professor Mrs.Manjumol VS, Co-ordinator, CNEU		30

Date	Programme	Venue	No. of Participants
29.09.2021	E-Sanjeevani OP Started Dr.Deepa Bhaskaran Asst.Professor in Developmental Paediatrics, CDC & Ms.Parvathy Prasenajith		
04.09.2021	18th Governing Body Meeting	Online meeting	15
05.09.2021	MBBS students training Programme	The Tulip, CDC & Clinic	20 students
01.11.2021 to 03.11.2021	Refresher Training Programme on Psychosocial Counselling for School Counselors of Women and Child Development Department Batch I	Online mode	75
08.11.2021 to 10.11.2021	Refresher Training Programme on Psychosocial Counselling for School Counselors of Women and Child Development Department Batch II	Online mode	75
15.11.2021 to 17.11.2021	Refresher Training Programme on Psychosocial Counselling for School Counselors of Women and Child Development Department	Through Online mode	75
22.11.2021 to 24.11.2021	Refresher Training Programme on Psychosocial Counselling for School Counselors of Women and Child Development Department	Through Online mode	75
29.11.2021 to 01.12.2021	Refresher Training Programme on Psychosocial Counselling for School Counselors of Women and Child Development Department	Through Online mode	75
06.12.2021 to 08.12.2021	Refresher Training Programme on Psychosocial Counselling for School Counselors of Women and Child Development Department	Through Online mode	75
6.12.2021	Clubfoot International Conference	Through online mode	500

	Theme – "Clubfoot free Kerala"-None shall be disabled due to clubfoot conducted by Health & Family Welfare Department, Government of Kerala -Knowledge partner - CDC	Station – Mascot Hotel, Thiruvananthapuram	
26th& 27th February 2022	National Conference on Management of Genetic Disorders conducted by Child Development Centre, Dept of Paediatrics, SATH & IAP	Through online mode	95
18.02.2022 to 19.02.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala Orientation programme for Paediatricians Programme conducted by CDC in association with Higher Secondary Education	Through online mode	196

Date	Programme	Venue	No. of Participants
21.2.2022 Training Schedule for Souhrida Coordinators	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala-Orientation programme for Souhrida co-ordinators. Programme conducted by CDC in association with Higher Secondary Education	Through online mode	52
22.2.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala-Orientation programme for Souhrida co-ordinators Programme conducted by CDC in association with Higher Secondary Education	Through online mode	48
23.2.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School	Through online mode	49

	Students in Kerala-Orientation programme for Souhrida co-ordinators Programme conducted by CDC in association with Higher Secondary Education		
24.2.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala-Orientation programme for Souhrida co-ordinators. Programme conducted by CDC in association with Higher Secondary Education	Through online mode	43
25.2.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala. Orientation programme for Souhrida co-ordinators Programme conducted by CDC in association with Higher Secondary Education	Through online mode	49
26.2.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala. Orientation programme for Souhrida co-ordinators Programme conducted by CDC in association with Higher Secondary Education	Through online mode	60
28.2.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala. Orientation programme for Souhrida co-ordinators. Programme conducted by CDC in association with Higher Secondary Education	Through online mode	78

Date	Programme	Venue	No. of Participants
01.03.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala. Orientation programme for Souhrida co-ordinators. Programme conducted by CDC in association with Higher Secondary Education	Through online mode	69
02.03.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala. Orientation programme for Souhrida co-ordinators. Programme conducted by CDC in association with Higher Secondary Education	Through online mode	68
03.03.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala.Orientation programme for Souhrida co-ordinators.Programme conducted by CDC in association with Higher Secondary Education	Through online mode	80
04.03.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala.Orientation programme for Souhrida co-ordinators.Programme conducted by CDC in association with Higher Secondary Education	Through online mode	78
7.3.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program For Higher Secondary School Students in Kerala- Training programme for School counsellors, Kollam &Pathanamthitta	Through online mode	96
9.3.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program For Higher Secondary School	Through online mode	73

	Students in Kerala- Training programme for School counsellors Thiruvananthapuram Ernakulam + Idukki		
11.3.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program For Higher Secondary School Students in Kerala- Training programme for School counsellors, Thrissur+ Idukki	Through online mode	88
14.3.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program For Higher Secondary School Students in Kerala- Training programme for School counsellors-Palakkad	Through online mode	60

Date	Programme	Venue	No. of Participants
15.3.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program For Higher Secondary School Students in Kerala- Training programme for School counsellors- Kozhikode+ Wayanad	Through online mode	83
16.3.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program For Higher Secondary School Students in Kerala- Training programme for School counsellors -Malappuram	Through online mode	74
17.3.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program For Higher Secondary School Students in Kerala- Training programme for School counsellors - Kannur	Through online mode	89
18.3.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program For Higher Secondary School	Through online mode	42

	Students in Kerala- Training programme for School counsellors - Kasargode + Wayand		
19.03.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program For Higher Secondary School Students in Kerala- Training programme for School counsellors- Thiruvananthapuram	Through online mode	63
21.3.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program For Higher Secondary School Students in Kerala- Training programme for School counsellors Alappuzha+ Kottayam	Through online mode	88
02.04.2022	World Autism Awareness Week- 2022 Parents Meeting	Tulip Auditorium, CDC	27
16.04.2022	Research Methodology Workshop	Tulip Auditorium, CDC	35
27.04.2022	Evaluated 30 projects YIP	Tulip Auditorium, CDC	45
28.04.2022	Basic Neonatal Resuscitation for Doctors & nurses Organized by Dept of Paediatrics, IAP & CDC	Tulip Auditorium, CDC	35
9.06.2022	One day training workshop for Doctors on Spinal Muscular Atrophy (SMA) Conducted by CDC and NH	Dr M.K.C. Nair Auditorium, CDC,	20
23.05.2022 to 18.06.2022	Post Graduate Diploma in Developmental Neurology –1st PCP	Through online mode	107
10.06.2022	One day training workshop for Physiotherapists on Spinal Muscular Atrophy (SMA) Conducted by CDC and NHM	Dr M.K.C.Nair Auditorium, CDC	40

Date	Programme	Venue	No. of Participants
18.07.2022-27.07.2022	Post Graduate Diploma in Child Adolescent and Family Counselling (PGDCAFC)- 13th Batch Second Spell Class	Gulmohar Auditorium	32
27.07.2022	Faculty Improvement Programme on Parenting By Shri. Praveen S.K. Business Partner, CL Educate Ltd, Chennai	Dr M.K.C.Nair Auditorium, CDC	60
30.07.2022 to 31.07.2022	IAP Advanced Life support course In association with CDC	Gulmohar Auditorium	76
2.08.2022	Lactation counselling- Hands on training for nurses in association with World breast feeding week Organized by IAP in association with CDC	Gulmohar Auditorium	65
3.08.2022	Capacity Enhancement of Paediatricians for Early Screening of Autism Spectrum Disorder and Strategies for Early Intervention and Preparation of a Comprehensive Resource Book in Autism Management-Resource Book Finalization Workshop -1	Dr M.K.C.Nair Auditorium, CDC,	10
06.08.2022	21st Teenage Day Oration "Media and the Adolescent" Dr.P.K.Jameela Former Director of Health Services, Kerala, Expert Member, Kerala State Planning Board	Dr M.K.C.Nair Auditorium, CDC	78
31.08.2022	Faculty Improvement Programme Stress Management Dr.Preetha S., Associate Professor, Govt. Nursing College, Thiruvananthapuram	Dr M.K.C.Nair Auditorium, CDC	52

28.08.2022	Block level- Comunity Extension Prgramme – Kilimanoor- CDC Stall	Kilimanoor	1000
1.09.2022	21st CDC Family Day Oration Shri.C. Jayakumar IAS, Director, IMK, TVPM	Dr M.K.C.Nair Auditorium, CDC,	88
28.09.2022	Team Building FIP Shri.Rajilan M.C. Certified Trainers trainer on TNA and Designer Training, DoOT Govt of India	Dr M.K.C.Nair Auditorium, Child Development Centre,	56
19.10.2022	Substance Abuse Awareness among School going children Shri Ashok Kumar SI of Police Narcotic Cell, Thiruvananthapuram	Dr M.K.C.Nair Auditorium, Child Development Centre	82
31.10.2022	Training Program on Management of ADHD in Children for Care Takers of District Child Protection Unit, Thiruvananthapuram	Dr M.K.C.Nair Auditorium, CDC	35
25.10.2022 19.11.2022	Post Graduate Diploma in Adolescent Paediatrics (PGD-AP)(12th Batch)	Dr M.K.C.Nair Auditorium, CDC	25
3.11.2022	Say to no Drugs,FIP programme Mr.Ambidas K. Karetter (Teacher & Writer) Mr.Swaminathan K. (Rtd. Head Master)	Dr M.K.C.Nair Auditorium, CDC	58

Date	Programme	Venue	No. of Participants
14.11.2022	Children's Day Celebration	Gulmohar Auditorium	86
15.11.2022 to 25.11.2022	Post Graduate Diploma in Developmental Neurology (PGD-DN) (10 th Batch) – second spell classes	Gulmohar Auditorium	105
16.12.2022	Orientation programme on TDSC	ICDS Block, Nedumangadu	98

	Early detection of Developmental Disabilities ICDS Block, Nedumangadu		
23.12.2022	LEST & TDSC training for Medical Officers (Homeo) – Kunnimani Project	Dr M.K.C.Nair Auditorium, CDC	20
19.12.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala- Thiruvananthapuram	Through online mode	80
20.12.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala-Kollam	Through online mode	61
21.12.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala- Alappuzha, Pathanamthitta	Through online mode	77
23.12.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala- Ernakulam	Through online mode	67
26.12.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala,Thrissur	Through online mode	71
27.12.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala Palakkad	Through online mode	62
28.12.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala Malappuram	Through online mode	85
29.12.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention	Through online mode	64

	Program for Higher Secondary School Students in Kerala Kozhikode		
30.12.2022	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala Wayanad& Kochi	Through online mode	67

Date	Programme	Venue	No. of Participants
3.01.2023	Prevention of Non Communicable Diseases: Life Style Disease Screening and Intervention Program for Higher Secondary School Students in Kerala, Kottayam	Through online mode	40
05.01.2023	Anti drug- Substance Abuse programme- Mukthi- handle classes for 7th standard students at Arya Central School, Pattom	Arya Central School, Pattom	107
09.01.2023	One day Medical camp and awareness programme for BEd students, Hindi Prachar Sabha, Thiruvananthapuram	Gulmohar Auditorium, CDC	80
20th& 21st January, 2023	Two Day Training Program for CDPOs and ICDS Supervisors on Early Detection of Disability	Gulmohar Auditorium	47
24th& 25th January, 2023	Two Day Training Program for CDPOs and ICDS Supervisors on Early Detection of Disability	Gulmohar Auditorium	46
26th January 2023	DIA EDU 2023 Organized by Department of Paediatrics SATH & CDC	Gulmohar Auditorium	92
31st Jan & 1st February, 2023	Two Day Training Program for CDPOs and ICDS Supervisors on Early Detection of Disability	Gulmohar Auditorium	50
7th& 8th February, 2023	Two Day Training Program for CDPOs and ICDS Supervisors on Early Detection of Disability	Gulmohar Auditorium	41

9th& 10th February, 2023	Two Day Training Program for CDPOs and ICDS Supervisors on Early Detection of Disability	Gulmohar Auditorium	41
10th February 2023	FIP Cortical Visual Impairment Dr.Anitha	Dr M.K.C.Nair Auditorium, CDC	57
14th& 15th February, 2023	Two Day Training Program for CDPOs and ICDS Supervisors on Early Detection of Disability	Gulmohar Auditorium	49
16th& 17th February, 2023	Two Day Training Program for CDPOs and ICDS Supervisors on Early Detection of Disability	Gulmohar Auditorium	57
20th February 2023	Medical Camp for students at Balavikas Special School, Peroorkada	Balavikas Special School, Peroorkada	20 students
21st& 22nd February, 2023	Two Day Training Program for CDPOs and ICDS Supervisors on Early Detection of Disability	Gulmohar Auditorium	50
24th& 25th February, 2023	Two Day Training Program for CDPOs and ICDS Supervisors on Early Detection of Disability	Gulmohar Auditorium	57
25.02.2023	Awareness programme for parents Anti Drug Programme	Dr M.K.C.Nair Auditorium, CDC	88
28thFeb& 1st March, 2023	Two Day Training Program for CDPOs and ICDS Supervisors on Early Detection of Disability	Gulmohar Auditorium	48
3rd& 4th March 2023	Two Day Training Program for CDPOs and ICDS Supervisors on Early Detection of Disability	Gulmohar Auditorium	45
14th& 15th March 2023	Two Day Training Program for CDPOs and ICDS Supervisors on Early Detection of Disability	Gulmohar Auditorium	50
26.06.2023	Applied Behavior Analysis (ABA)	Online Programme	47

1.30 pm to 3.30 pm	Ms Prasanna GL Developmental Therapist & ASD Clinic In-charge, CDC		

Date	Programme	Venue	No. of Participants
27.06.2023 1.30 pm to 3.30pm	Medical Management of ASD and its comorbidities Dr Muhammed Kunju Professor of Paediatric Neurology (Rt) & Consultant Paediatric Neurologist, CDC	Online Programme	44
07.07.2023 & 8.07.2023	Autism Management Training Programme Training programme handled by Ms. Prassana G L, Ms. Sharon Susan Sam, Ms. Bismi David, and Ms. Preema Mahendran	SMGS Hospital Jammu Kashmir	60
26.08.2023	Workshop on Overview of Neurofibromatosis-I	Dr MKC Nair Auditorium	60
05.09.2023	Adolescents from Mitai clinic- Counselling sessionFaculty: Ms Parvathy Prasenajith, Clinical Psychologist, CDC	Dr MKC Nair Auditorium	30
20.09.2023	Faculty Improvement Programme: Topic: ICFOSS-writing assessment device presentation	Dr MKC Nair Auditorium	40
September 11th, 12th, 18th & 19th 2023	Training Program for District Early Intervention Centre Functionaries in Kerala on Diagnosis and Management of Neurodevelopmental Disorders among Children	Gulmohar Auditorium, CDC	100
22.09.2023	Awareness session for Parents of children with ASD Faculty: Ms Prasanna G.L	Dr MKC Nair Auditorium	30
14.10.2023	Workshop on Rational Genetic Testing in Clinical Practice	Dr MKC Nair Auditorium	100

18.10.2024	Awareness session for Parents of children with ASD Faculty: Ms Prasanna G.L	Dr MKC Nair Auditorium	30
30.10.2023	Class for LKG students- Dr Indu Viswanathan, IAP FDBP	Kido Play School Kowdiar	10
31.10.2023	22nd Adolescent Day Oration Dr Mohammed Haneesh IAS Principal Secretary, Health and Family Welfare	Dr MKC Nair Auditorium	100
13,14 November 2023	Admission- PGDDN- 12th and 13th Batch	Gulmohar Auditorium, CDC	80
14.11.2023	Children's Day celebration- classes and assessment of children	Government LPS Aattipra	80
16.11.2023 to 17.11.2023	IAP Fellowship programme- all India level examination	Gulmohar Auditorium, CDC	14
25.11.2023	Teen Club Meeting	Gulmohar Auditorium, CDC	30
30.11.2023	CDC CME- Adolescents with ASD- The Way Forward Team CMC Vellore	Dr MKC Nair Auditorium	110

Date	Programme	Venue	No. of Participants
13.12.2024	Awareness session for Parents of children with ASD Faculty: Ms Prasanna G.L	Dr MKC Nair Auditorium	30
23.12.2023	How to ensure wellbeing of care-givers- Programme in association with Manasa Kerala	Dr MKC Nair Auditorium	100
30.12.2023	Teen club meeting -2	Gulmohar Auditorium, CDC	30

	Sugar free cake masking and other activities		
1.1.2024	Inauguration of CVI clinic – Diya by Dr MKC Nair	5th Floor, Diya Clinic	CDC staff
17.01.2024	Inauguration of family supportive care unit, named as Koode at CDC	Gulmohar Auditorium, CDC	100
27.01.2024	Faculty Improvement Programme Topic: Exam Stress management Faculty: Dr Vani Devi P.T	Dr MKC Nair Auditorium	30
31.01.2024	Early detection and early intervention of developmental delay, disability among children aged 0-6 years: Training programme for caretakers of Ammathottil	Gulmohar Auditorium, CDC	100
01.02.2024	Family Day Oration – Changing Parenting styles Orator: Dr Rishi Raj Singh IPS	Dr MKC Nair Auditorium	100
15.02.2024	Training by fire fighters	Gulmohar Auditorium, CDC	65
15, 16 & 17 February 2024	Career Guidance Expo CDC courses- display	University College, Palayam	
12th-22nd February 2024	PGDDN batch 11 First spell of classes	Gulmohar Auditorium, CDC	60
10.03.2024	Awareness Programme and CME on management of Rare Genetic Disorders	Dr MKC Nair Auditorium	100
11.03.2024 to 21-03-2024	PGDCAFC classes- first spell	Dr MKC Nair Auditorium	20
21.03.2024	Down Syndrome Day- Parents meeting and awareness programmes	Dr MKC Nair Auditorium	50
30.03.2024	Teen Club meeting Class by Dr Sobha Mathew	Dr MKC Nair Auditorium	20

08-04-2024	Autism Awareness Month- Poster competition judgment by Mrs Jalaja Kumari, Cine Actor	Dr MKC Nair Auditorium	31
12-04-2024	Parents meeting and awareness program, part of Autism Awareness month Faculty: Dr TV Anil Kumar	Dr MKC Nair Auditorium	50
16-04-2024	Awareness session for Parents of children with ASD Faculty: Ms Preema Mahendran	Dr MKC Nair Auditorium	30

Date	Programme	Venue	No. of Participants
15-04-2024- 25-04-2025	PGDDN batch 12 First spell of classes	Gulmohar Auditorium, CDC	56
21-04-2024	Artistic Spectrum, Exhibition of arts and crafts by children having ASD	YMCA hall, Thiruvananthapuram	100
03-05-2024	CDPO training Faculty: DrIndu Viswanathan	Online	70
13-07-2024	DIA EdU 2.0 2024	Gulmohar auditorium, CDC	50
3-09-2024	Release of ASD Resource book by Dr R Bindu, Hon'ble Minister for Higher Education and Social Justice, Government of Kerala	NISH	25
7-09-2024	Faculty Improvement Programme Topic:- Hospital infection contro Faculty– Mr Radhakrishnan, HI, FHC, Puthukuruchi	Dr MKC Nair Auditorium	25

Directors of CDC Thiruvananthapuram

Dr MKC Nair Founder Director	**1995- 2014**
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