

## PROFILE OF CHILDREN VISITING DISTRICT EARLY INTERVENTION CENTRE LOCATED AT A GOVERNMENT MEDICAL COLLEGE HOSPITAL IN TAMILNADU, INDIA

David Thanka Edison <sup>1</sup>, Subasakthi A<sup>2</sup>, Alph Shirley S<sup>3</sup>

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Corresponding Author:

**Dr. Alph Shirley S,**  
Email: alphshirley@gmail.com

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<sup>1</sup>Assistant Professor, Department of Paediatric Surgery, Tirunelveli government medical College, Tirunelveli, Tamilnadu, India

<sup>2</sup>Assistant Professor, Department of Paediatrics, Kanyakumari government medical College, Asaripallam, Nagercoil, Tamilnadu, India

<sup>3</sup>Assistant Professor, Department of Paediatrics, Kanyakumari government medical College, Asaripallam, Nagercoil, Tamilnadu, India

### Abstract

**Background:** Under Rashtriya Bal Swasthya Karyakram (RBSK) launched by the Ministry of Health & Family Welfare in 2013, screening of children is done from birth to 18 years of age for selected health conditions distributed under 4Ds: Defects at birth, Diseases, Deficiencies and Developmental Delays including Disabilities. Screening is done at delivery points, home visits by Village Health Nurses (VHN) and Anganwadi workers, at Anganwadi centers and at schools by mobile health team. Confirmation of diagnosis, evaluation, management, referral support and follow up are done at District Early Intervention Centres (DEIC) functioning at district level. This study was done with the objective of determining the profile of children visiting District Early Intervention Centre (DEIC) located at Kanyakumari Government Medical College Hospital in Tamilnadu, India. **Materials and Methods:** This retrospective record based descriptive study was done at District Early Intervention Centre located at Kanyakumari Government Medical College Hospital, Tamilnadu, India. Details of children who visited the District Early Intervention Centre for a period of one year from January 2023 to December 2023 was collected retrospectively from DEIC records and suitable statistical analysis done. **Result:** Total number of new registrations at Kanyakumari DEIC during the study period was 6956 cases with majority of the referrals from RBSK mobile health teams. Of the total of 6956 new registrations, 27.04% of the cases had delays and disabilities, 19.38% had diseases and 8.12% of the cases had defects at birth. Only 4.11% of the cases detected had deficiencies. 2876 cases (41.35%) had other diagnosis. The commonest condition observed under delay was vision impairment and under defect was congenital heart diseases. Severe acute malnutrition was the commonest deficiency observed and majority of the children with childhood diseases had dental problems. 216 cases underwent surgical interventions during the study period including 19 newborn with retinopathy of prematurity. Comprehensive care of patients with blood disorders, hemophilia prophylaxis programme, prevention of hemoglobinopathies programme and Palli Sirar Kannoli Kappom Thittam are coordinated through DEIC. **Conclusion:** This study highlights the local pattern of referral of childhood disorders by 4Ds approach at DEIC located at Kanyakumari Government Medical College, Tamilnadu, India. The findings from the study contribute to improving the screening and management components of the commonly identified childhood disorders in the district.

## INTRODUCTION

Rashtriya Bal Swasthya Karyakram (RBSK) was launched by the Ministry of Health & Family Welfare, Government of India, under the National Health Mission in February 2013. Under the scheme,

Screening of children is done from birth to 18 years of age for selected Health conditions distributed under 4Ds: Defects at birth, Diseases, Deficiencies and Developmental Delays including Disabilities. Screening is done at delivery points, home visits by Village Health Nurses (VHN) and Anganwadi

workers, at Anganwadi centers and at schools by mobile health team.<sup>[1]</sup> Confirmation of diagnosis, evaluation, management, referral support and follow up are done at District Early Intervention Centres (DEIC) functioning at district level at Government Medical College Hospitals or at district headquarters hospitals in districts where government medical colleges are not established. This study was done with the objective of determining the profile of children visiting District Early Intervention Centre (DEIC) located at Kanyakumari Government Medical College Hospital in Tamilnadu, India.

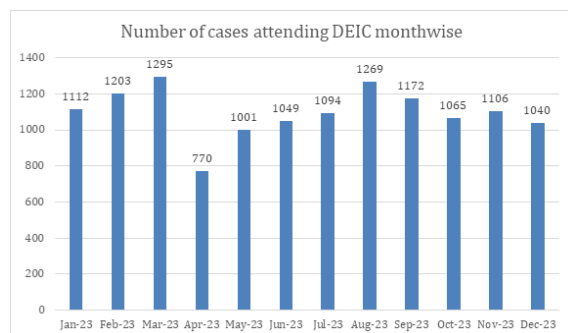
## MATERIALS AND METHODS

This retrospective record based descriptive study was done at District Early Intervention Centre located at Kanyakumari Government Medical College, Tamilnadu, India. Details of children who visited District Early Intervention Centre (DEIC) located at Kanyakumari Government Medical College Hospital for a period of one year from January 2023 to December 2023 was collected retrospectively from DEIC records. Demographic details, details of screening, point of screening, diagnosis and intervention details of the children who visited DEIC during the study period was collected. Statistical analysis of the collected data was done by suitable statistical methods using SPSS 23 software.

## RESULTS

The total number of new registrations in DEIC during the study period was 6956 cases. This included both pediatric and newborn cases. The gender distribution of the new pediatric and newborn cases registered at DEIC is shown in [Table 1].

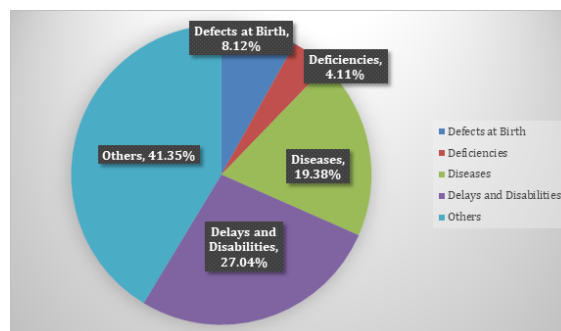
The age wise distribution of the cases visiting DEIC month wise is shown in Table 2. The details of the new registration and follow up cases seen month wise is tabulated in Table 3. The total number of cases visiting DEIC was least in the month of April 2023 (770 cases) and maximum in the month of March 2023 (1295 cases) [Figure 1].



**Figure 1: Total number of cases attending DEIC month wise.**

As per RBSK guidelines, Cases are screened under the 4Ds approach of childhood disorders under

defects at birth, deficiencies, childhood diseases and delays and disabilities. The 4Ds wise distribution of the newly detected cases identified at various screening points and referred to DEIC is shown in Table 4. Of the total of 6956 new registrations, 2876 cases (41.35%) had other diagnosis not covered under 4Ds. 27.04% of the cases had delays and disabilities, 19.38% had diseases and 8.12% of the cases had defects at birth. Only 4.11% of the cases detected had deficiencies. [Figure 2]



**Figure 2: 4Ds Wise distribution of cases identified**

Of the 565 cases identified under defects at birth, the most common diagnosis was congenital heart diseases (38.41%). [Table 5]. Of the 286 cases identified under deficiencies, 27.27% had Severe Acute Malnutrition followed by severe anemia in 20.28% and obesity in 20.28% of the cases. [Table 6].

As shown in [Table 7], of the 1348 children with childhood diseases, the most common childhood disease identified was dental conditions (41.69%) followed by skin conditions (24.56%). Among the 1881 children with delays and disabilities, vision impairment (38.22%) was the most common diagnosis [Table 8].

Majority of the referrals to DEIC was from RBSK Mobile Health Teams (43.42%) and from Government Delivery Points (36.72%) [Table 9].

A total of 216 cases underwent surgical procedures coordinated and followed up by DEIC during the study period. Of the 216 cases, 25% had defects at birth of which 20 cases underwent surgical intervention for congenital heart diseases and 16 cases with Retinopathy of prematurity was treated. [Table 10]

The line list of patients with hemophilia and hemoglobinopathies in the district including those treated at government and private facilities is maintained at DEIC. In addition, children enrolled in the Hemophilia Prophylaxis Programme at Kanyakumari Integrated Centre for Hemophilia and Hemoglobinopathies are regularly monitored and followed up by the DEIC team [Table 11]. In addition to this DEIC also plays a major role in the prevention of Hemoglobinopathies Programme with respect to school screening, antenatal screening, counseling and referrals for diagnosis. Amniocentesis was done for 3 antenatal mothers during the study period and one of

the fetuses was diagnosed with thalassemia minor. [Table 12].

The details of children with endocrine disorders registered and followed up by DEIC is shown in [Table 13].

Under Palli Sirar Kannoli Kappom Thittam scheme by the Government of Tamilnadu, school children are screened for refractive error and prescription glasses

provided for the required children. These services are coordinated by the district DEIC [Table 14].

A total of 267 new cases were screened for ROP during the study period. 417 follow up ROP screenings were done. Of the screened newborn, 258 cases (45 new cases and 213 follow up cases) had ROP of varying grades. 16 newborn with ROP underwent treatment including laser treatment and Intravitreal bevacizumab injection. [Table 15]

**Table 1: Gender wise distribution of new cases registered in DEIC**

	Male (n = 3652)	Female (n = 3304)	Total (n = 6956)
Pediatric Cases	2175 (59.56%)	1931 (58.44%)	4106 (59.03%)
Newborn Cases	1477 (40.44%)	1373 (41.56%)	2850 (40.97%)

**Table 2: Age Wise Distribution of cases attending DEIC**

Month	Less than one year (n = 3711)	1 to 3 years (n = 2843)	4 to 6 years (n = 2227)	6 to 18 years (n = 4395)
January 2023 (n = 1112)	305 (27.43%)	187 (16.82%)	246 (22.12%)	374 (33.63%)
February 2023 (n = 1203)	319 (26.52%)	257(21.36%)	181(15.05%)	446(37.07%)
March 2023 (n = 1295)	345(26.64%)	361(27.87%)	250(19.31%)	339(26.18%)
April 2023 (n = 770)	235(30.52%)	198(25.71%)	90(11.69%)	247(32.08%)
May 2023 (n = 1001)	333(33.27%)	197(19.68%)	133(13.29%)	338(33.76%)
June 2023 (n = 1049)	372 (35.46%)	161(15.35%)	212(20.21%)	304(28.98%)
July 2023 (n = 1094)	338(30.90%)	323(29.52%)	198(18.10%)	235(21.48%)
August 2023 (n = 1269)	337(26.56%)	238(18.75%)	199(15.68%)	495(39.01%)
September 2023 (n = 1172)	268(22.87%)	340(29.01%)	254(21.67%)	310(26.45%)
October 2023 (n = 1065)	308(28.92%)	245(23.00%)	168(15.78%)	344(32.30%)
November 2023 (n = 1106)	281(25.41%)	160(14.46%)	135(12.21%)	530(47.92%)
December 2023 (n = 1040)	270(25.96%)	176(16.92%)	161(15.48%)	433(41.64%)

**Table 3: New registration and follow up cases at DEIC month wise**

Month	New Registration (n = 6956)	Follow up cases (n = 6220)
January 2023 (n = 1112)	580(52.16%)	532(47.84%)
February 2023 (n = 1203)	687(57.11%)	516(42.89%)
March 2023 (n = 1295)	676(52.20%)	619(47.80%)
April 2023 (n = 770)	443(57.53%)	327(42.47%)
May 2023 (n = 1001)	532(53.15%)	469(46.85%)
June 2023 (n = 1049)	574(54.72%)	475(45.28%)
July 2023 (n = 1094)	581(53.11%)	513(46.89%)
August 2023 (n = 1269)	653(51.46%)	616(48.54%)
September 2023 (n = 1172)	553(47.18%)	619(52.82%)
October 2023 (n = 1065)	518(48.64%)	547(51.36%)
November 2023 (n = 1106)	641(57.96%)	465(42.04%)
December 2023 (n = 1040)	518(49.81%)	522(50.19%)

**Table 4: 4Ds Wise distribution of cases identified**

4Ds	Number of Cases (n = 6956)
Defects at Birth	565 (8.12%)
Deficiencies	286 (4.11%)
Diseases	1348 (19.38%)
Delays and Disabilities	1881 (27.04%)
Others	2876 (41.35%)

**Table 5: Cases identified under Defects at birth**

Defects at birth	Number of Cases identified (n = 565)
Neural Tube Defect	5 (0.89%)
Down Syndrome	19 (3.36%)
Cleft Lip and Palate	10 (1.77%)
Club Foot	23 (4.07%)
Developmental Dysplasia of Hip	5 (0.89%)
Congenital Cataract	11(1.94%)
Congenital Deafness	17(3.01%)
Congenital Heart Diseases	217 (38.41%)
Retinopathy of Prematurity (New Cases)	45 (7.96%)
Retinopathy of Prematurity (Follow up Cases)	213 (37.70%)

**Table 6: Cases identified under Deficiencies.**

Deficiencies	Number of Cases (n = 286)
Severe Anemia	58 (20.28%)
Vitamin A Deficiency	2 (0.70%)
Vitamin D Deficiency	36 (12.59%)
SAM	78 (27.27%)
Severe thinning	13 (4.55%)
Obesity	58 (20.28%)
Goitre	41 (14.34%)

**Table 7: Cases identified under Diseases**

Childhood Diseases	Number of Cases (n = 1348)
Skin conditions	331 (24.56%)
Otitis Media	105 (7.79%)
Rheumatic heart disease	16 (1.19%)
Reactive airway disease	205 (15.21%)
Dental Conditions	562(41.69%)
Convulsive disorders	129(9.57%)

**Table 8: Cases identified under Delays and Disabilities.**

Delays and Disabilities	Number of Cases (n = 1881)
Vision impairment	719 (38.22%)
Hearing Impairment	25 (1.33%)
Neuro motor impairment	62 (3.23%)
Motor delay	127(6.75%)
Cognitive delay	402(21.37%)
Language delay	397(21.11%)
Autism Spectrum Disorder	86(4.57%)
Learning disability	1(0.05%)
Attention deficit hyperactivity disorder	62(3.23%)

**Table 9: Referral point Details**

Referral Point	Number of Cases referred (n = 6956)
Delivery Point (Government)	2554(36.72%)
Delivery Point (Private)	94(1.35%)
RBSK Mobile Health Team	3020(43.42%)
Self/Pediatric OP/Pediatric Ward	1288(18.52%)

**Table 10: Profile of cases who have undergone surgical procedures coordinated through DEIC**

	Number of cases who have undergone surgical procedures (n = 216)
Defects at Birth	54 (25.00%)
Neural Tube Defect	1
Cleft Palate	4
Cleft Lip	2
Club Foot	1
Congenital Cataract	3
Congenital Deafness	7
Congenital Heart Diseases	20
ROP - Laser treatment	9
ROP – Intravitreal Bevacizumab therapy	7
Deficiencies	1(0.46%)
Goitre	1
Diseases	8(3.70%)
Otitis Media	3
Rheumatic Heart Disease	5
Others	153(70.84%)
Tonsillitis/Adeno Tonsillitis	52
Phimosis	23
Tongue Tie	23
Appendicitis	11
Inguinal Hernia	7
Congenital Hydrocele	3
Septoplasty	5
Abscess	3
Neuroblastoma	1
Hypospadias	1
Thyroglossal cyst	1
Other procedures	23

**Table 11: Number of Children and Adults with blood disorders whose line list is maintained in DEIC**

Blood Disorder	Number of Adults (> 12 years)	Number of Children (< 12 years)
Hemophilia A (n = 42)	37	5
Hemophilia B (n = 11)	6	5
Factor 7 Deficiency (n = 1)	0	1
Von Willebrand disease (n = 2)	2	0
Thalassemia (n = 5)	2	3
Pyruvate Kinase Deficiency (n = 1)	0	1
Beneficiaries of Hemophilia Prophylaxis Program (n =9)	5	4

**Table 12: Beneficiaries of Prevention of Hemoglobinopathies Programme**

	Number of Cases
Total number of school children screened	530
Screen positive school children	7
Antenatal mothers screened	2749
Screen positive antenatal mothers	32
Screen positive couples	3
Amniocentesis done	3
Amniocentesis Positive	1 (Thalassemia Minor)

**Table 11: Number of children with endocrine disorders followed up by DEIC**

Endocrine Disorder	Number of Children (n = 89)
Growth Hormone Deficiency	5 (5.62%)
Hypothyroidism	56 (62.92%)
Type 1 Diabetes Mellitus	28 (31.46%)

**Table 14: Beneficiaries of Palli Sirar Kannoli Kappom Thittam**

	Number of beneficiaries
Number of children with refractive error identified under Palli Sirar Kannoli Kappom Thittam	1373
Prescription glasses provided under Palli Sirar Kannoli Kappom Thittam	493

**Table 15: ROP screening**

	Number of cases
Number of new neonates screened for ROP	267
Number of follow up ROP screening done	417
Retinopathy of Prematurity (New Cases)	45
Retinopathy of Prematurity (Follow up Cases)	213
ROP - Laser treatment	9
ROP - Intravitreal Bevacizumab injection	7

## DISCUSSION

RBSK Programme operates with the objective of providing comprehensive care to children of the community. Under the Scheme, screening of newborn for birth defects is done at health care facility level by doctors and community level during home visits by peripheral health workers. Screening of children in the age group 0 – 6 years enrolled at Anganwadi centers and children enrolled in Government and Government aided schools are done by dedicated mobile health teams. Children are screened for selected health conditions under 4Ds (Defects, Deficiencies, Diseases, Disabilities). Further early intervention, management and referral services are provided at district level through district early intervention centres.<sup>[2]</sup> Over 6 years (2014 - 2020), cumulatively 45,64,31,984 children < 6 years were screened, 13,95,618 delays /disabilities identified, and 3,04,300 children managed appropriately.<sup>[3]</sup> In our study, we have analyzed the profile of children attending the district early intervention centre located at Kanyakumari Government Medical College at Tamilnadu.

Screening is done at delivery point, anganwadi centres and Government and Government aided schools and detected cases are referred to DEIC. In addition, cases are received through self-referral. Kanyakumari district has a total of nine blocks. Each block has two mobile health teams headed by a RBSK doctor and supporting team. Detected cases from Anganwadis and schools are brought to DEIC through RBSK vehicle by mobile health team. At DEIC registration, evaluation, management, referrals and follow up of the cases are done. DEIC located at Kanyakumari Government Medical College Hospital in Tamilnadu, India operates with a dedicated team of DEIC pediatrician, DEIC medical officer, Physiotherapist, Clinical Psychologist, Speech therapist, Physiotherapist, Optometrist, Dental Hygienist, Lab technician and other supporting staffs. DEIC at Kanyakumari district is fully equipped for early intervention services and coordinates with various departments of the medical college providing holistic health services for the children. Sensory garden is also being maintained at the DEIC. A total of 6956 new cases screened and referred from various referral points were evaluated at DEIC over the study period, of which maximum referrals were

through mobile health teams headed by RBSK doctors (43.42%) followed by Government delivery point (36.72%). The number of cases attending DEIC were the least during April 2023 (770 cases) corresponding with the school vacation and the maximum number of cases was seen in March 2023 (1295 cases).

Of the 6956 new cases registered, majority (41.35%) had a diagnosis other than those covered under 4Ds. Of the diseases covered under 4Ds, majority of the cases were detected under Delays and Disabilities [1881 cases (27.04%)], followed by Diseases [1348 cases (19.38%)] and Defects [565 cases (8.12%)]. The least number of cases were detected under Deficiencies compared to other categories of 4Ds. [286 cases (4.11%)]. But in a study done at DEIC at Dharmapuri, Tamilnadu in 2018, majority of the children were detected under Diseases followed by Delays, Deficiencies, Delays and Defects at birth.<sup>[4]</sup> Similar result was observed in the study at done at Devendranagar block of Panna District, Madhya Pradesh, India and at Chitoor DEIC at Andra Pradesh where majority of the screened children had childhood diseases.<sup>[5,6]</sup> However, in an observational study done at DEIC, Visakhapatnam, Andhra Pradesh, Developmental delays and disabilities were seen in majority of the children followed by diseases, defects at birth and deficiencies similar to our study.<sup>[7]</sup> Though the pattern of conditions screened under 4Ds observed at the nodal DEIC is an indirect indicator of the prevalence of childhood disorders in the particular district, these studies are limited by the fact that being hospital-based studies, they cannot accurately predict exact prevalence of the conditions at community level.

Among the children detected under childhood Diseases, majority had dental conditions (41.69%) and skin conditions (24.56%). Similar results were observed at Dharmapuri and Vishakapatnam DEIC. 4,7 57.1% of the children with childhood diseases were identified dental problems at Chitoor DEIC. 6 64% of the children with childhood diseases has skin diseases in the study done at Devendranagar block, Madhya Pradesh.<sup>[5]</sup> These results observed at various DEICs across the country indicates the need for more widespread awareness among general public at national level regarding dental and skin problems of childhood and to take more intense steps for prevention, screening and management of childhood dental and skin diseases.

Vision impairment (38.22%) was the most common condition diagnosed under delay category in our study. A study done in a nodal DEIC at Uttar Pradesh by anam masood (2023) suggested that in children with ocular morbidity, younger children, and the presence of developmental delay significantly predict greater disability.<sup>[8]</sup> Language delay was the commonest screened delay in the study done at Vishakapatnam DEIC (2020) while Vision impairment was the commonest observed delay at Dharmapuri DEIC (2018).<sup>[4,5]</sup> Under Palli Sirar Kannoli Kappom Thittam by the Government of

Tamilnadu, 1373 children with refractive error were identified and 493 children provided prescription glasses during the study period coordinated by Kanyakumari DEIC.<sup>[9]</sup>

The prevalence of Severe acute malnutrition is at 5.5% in Tamil Nadu, according to the National Family Health Survey- 5 (NFHS-5) data released in 2021. 10 The community prevalence of severe acute malnutrition was 2.8% in a study at field level at Chennai Tamilnadu.<sup>[11]</sup> Severe acute malnutrition (78 children) was the commonest Deficiency detected at Kanyakumari DEIC. All the 78 children detected with Severe Acute Malnutrition were thoroughly evaluated, nutritional advice and family support provided. Regular follow up was ensured for all the cases through RBSK Mobile Health Team and Anganwadis. In addition to the 78 children with SAM, 13 children with severe thinness and 58 children with obesity were also evaluated and appropriate advice and follow up ensured.

A thorough understanding of the local prevalence of birth defects in a particular region and analyzing the factors contributing to it helps in planning to strengthen the diagnostic and management aspects of the birth defects in the particular region through intense screening, improved infrastructure, trainings. At the study done at Visakhapatnam DEIC of Andhra Pradesh from 2016 to 2020, it was observed that the prevalence rate of cleft lip & palate, club foot, and congenital deafness cases was much higher compared to other birth defects.<sup>[12]</sup> The commonest birth defect diagnosed in our study was congenital heart diseases (38.41% of the birth defects). Similar results were observed at Dharmapuri DEIC also.<sup>[4]</sup> Sensitizing primary care physicians and peripheral health workers of the district regarding early recognition of congenital heart diseases will improve the early detection and management of congenital heart diseases.

19 newborns with ROP during the study period underwent therapeutic interventions at Kanyakumari DEIC of which 9 neonates were treated with laser treatment and 7 with Intravitreal bevacizumab injection. 20 children with congenital heart diseases underwent appropriate surgical intervention during the study period.

86 children with autism spectrum disorder, 1 child with learning disability and 62 children with attention deficit hyperactivity disorder were identified during the study period. They were evaluated and appropriate multimodal therapies and family support was provided by the DEIC team.

The overall prevalence of ankyloglossia was 3.4% and that among patients with speech problem was 80% in a study done at the Department of Dental Surgery in association with DEIC of a tertiary care hospital at Tamilnadu over a period of one year.<sup>[13]</sup> Tongue tie release was done for 23 children during the study period at Kanyakumari DEIC.

DEIC plays a major role in providing comprehensive care to both adults and children with hematological disorders. In collaboration with Integrated Centre for

Hemophilia and Hemoglobinopathies (ICHH) functioning at Kanyakumari Medical College Hospital, DEIC maintains line list of patients with hemophilia and hemoglobinopathies, follows up the beneficiaries of hemophilia prophylaxis programme and coordinates the activities of Prevention of Hemoglobinopathies Programme at field and tertiary care level.<sup>[14]</sup>

## CONCLUSION

Rashtriya Bal Swasthya Karyakram (RBSK) has been operating successfully at Kanyakumari district with the combined team effort of mobile health teams, delivery point doctors, village health nurses, anganwadi workers and the DEIC team. A total of 6956 new cases were detected during the study period with majority of the referrals from RBSK mobile health team. The commonest childhood condition detected under 4Ds approach at Kanyakumari district was delay and disabilities with vision impairment being the commonest condition diagnosed under delay. Skin conditions and dental conditions were the commonest conditions diagnosed under childhood diseases. This study highlights the local pattern of referral of childhood disorders by 4Ds approach. The findings from the study contribute to improving the screening and management components of the commonly identified childhood disorders within the district.

## REFERENCES

1. Singh, A. K., Kumar, R., Mishra, C. K., Khera, A., & Srivastava, A. (2015). Moving from Survival to Healthy Survival through Child Health Screening and Early Intervention Services Under Rashtriya Bal Swasthya Karyakram (RBSK). *Indian journal of pediatrics*, 82(11), 1012–1018. <https://doi.org/10.1007/s12098-015-1823-2>
2. Setting up district early intervention centres Operational Guidelines Available from: [https://nhm.gov.in/images/pdf/programmes/RBSK/Operational\\_Guidelines/Operational-Guidelines-DEIC-RBSK.pdf](https://nhm.gov.in/images/pdf/programmes/RBSK/Operational_Guidelines/Operational-Guidelines-DEIC-RBSK.pdf). Accessed on 22nd January 2024
3. Mukherjee, S. B., Mukherjee, S., Ghosh, S., & Singh, A. (2021). Providing Services for Indian Children With Developmental Delay and Disabilities in the Community: Rashtriya Bal Suraksha Karyakram. *Indian pediatrics*, 58 Suppl 1, S73–S79.
4. Rameshbabu B, Kumaravel K, Balaji J, Sathya P, Shobia N. Health Conditions screened by the 4D's Approach in a District Early Intervention Centre (DEIC) under Rashtriya Bal Swasthya Karyakram (RBSK) Program. *Pediatr Oncall J*. 2019;16: 73-78. doi:10.7199/ped.oncall.2019.48
5. Tiwari J, Jain A, Singh Y, Soni AK. Estimation of magnitude of various health conditions under 4Ds approach, under RBSK Programme in Devendranagar block of Panna District, Madhya Pradesh, India. *Int J Community Med Public Health*. 2015 Aug;2(3):228-33.
6. Darivemula SB, Nagoor K, John KR, Kahn PS, Chittooru CS. Morbidity profile of children from birth to 18 years of age referred for intervention to the district early intervention centre in a District Hospital, Andhra Pradesh. *Indian Journal of Public Health*. 2020 Jan 1;64(1):55-9.
7. RAO TR. Assessment of Institutional and management capacities against health conditions in District Early Intervention Centre (DEIC), Visakhapatnam.
8. Masood, A., Amitava, A. K., Khalid, A., Firdaus, U., Gupta, Y., Raza, S. A., & Bose, A. (2023). Ocular morbidity and comorbidities in children attending a nodal district early intervention center in Uttar Pradesh. *Indian journal of ophthalmology*, 71(1), 203–208. [https://doi.org/10.4103/ijo.IJO\\_1637\\_22](https://doi.org/10.4103/ijo.IJO_1637_22)
9. [https://cms.tn.gov.in/sites/default/files/documents/health\\_family\\_welfare\\_0\\_0.pdf](https://cms.tn.gov.in/sites/default/files/documents/health_family_welfare_0_0.pdf). Accessed on 22nd January 2024
10. National Family Health Survey- 5 (NFHS-5) Available from: [https://main.mohfw.gov.in/sites/default/files/NFHS-5\\_Phase-II\\_0.pdf](https://main.mohfw.gov.in/sites/default/files/NFHS-5_Phase-II_0.pdf). Accessed on 22nd January 2024
11. Naresh S, Maiya GR. A cross-sectional study to assess acute malnutrition among under-5 children in the field practise area of a teaching hospital in Chennai. *Journal of Family Medicine and Primary Care*. 2021 Jan;10(1):218
12. Pagolu KR, Tamanam RR. Patterns of occurrence and management abilities of birth defects: A study from a highly urbanized coastal district of India. *Clinical Epidemiology and Global Health*. 2022 May 1;15:101062.
13. Chandrasekaran PV, Palaniappan J, Rajendran A, Venugopal B, Gnanamoorthy P. Prevalence of ankyloglossia among children reporting with speech pathology to district early intervention centre (DEIC): an observational study. *J Evol Med Dent Sci*. 2020 Mar 16;9(11):860-2.
14. Blood Services and Blood Disorders Available from: <https://nhm.gov.in> Accessed on 22nd January 2024