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Assessment of Institutional and Management Capacities Against Health Conditions in Indian Early Intervention Centre

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Research

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Abstract

Background: Rashtriya Bal Swasthya Karyakram (RBSK) is aimed at screening children for 4 Ds - Defects at birth, Diseases during childhood, Deficiencies and Developmental delays including disabilities and early intervention of these conditions. The aim of this study is to discover the pattern of various health conditions screened under the 4D's approach and the institutional capacities like infrastructural, manpower and their training capacities.

Methods: This is an observational study done in District Early Intervention Centre (DEIC), Visakhapatnam, Andhra Pradesh, India for a period of one year. Children referred to DEIC were screened by the pediatrician as per Rashtriya Bal Swasthya Karyakram (RBSK) norms. The information of the children who attended the DEIC such as age, sex, source of referral, diagnosis, treatment given and outcome were tabulated and analyzed. An analysis of the manpower available existing at the center during the study period was also done.

Results: During the study period, a total number of 6572 children were found to have one of the listed 30 conditions under 4D's approach of screening. Developmental delays and disabilities were seen in 4801 (73.05%) children, followed by children with childhood diseases which were observed in 1277 (19.43%), children with defects at birth were 255 (3.88%) and children with deficiencies were 239 (3.63%). Among the defects at birth, congenital deafness was the most commonly screened condition found in 84 (1.27%) children. About 53 (0.80%) neonates were found to have club foot of varying grades. On analysis of deficiencies, severe acute malnutrition was observed in 236 (3.59%) children. There was 1(0.01%) child each with Vitamin A deficiency (Bitot's Spot), Vitamin D deficiency and Goiter (Due to Iodine Deficiency). On analysis diseases during childhood, dental caries were seen in 1219 (18.54%) children and skin conditions in 26 (0.39%) children. About 44 (0.6%) children were found to have rheumatic heart disease. On analysis of developmental delays and disabilities, language delay was the commonest screened condition seen in 941(14.31%) children. Hearing impairment was seen in 917 (13.95%) children, learning disorder in 704 (10.71%) children and neuro motor impairment in 584 (8.88%) children, vision impairment was seen in 505 (7.68%) children, motor delay was seen in 462 (7.02%) and cognitive delay was seen in 205 (3.11%). There were 68 (1.03%) cases of behavioral disorders (Autism) and were treated with multi modal therapy including sensory integration. Regarding manpower at the center, all the posts were occupied throughout the study period except medical officer, psychologist, dental hygienist and DEIC manager.

Conclusion: We observed that many curable diseases are undiagnosed among the children and hence they were deprived of treatment for the same. Promotion of Early Intervention Services is most beneficial for improvement in health status of children and therefore RBSK purview should be extended to reach every individual child.

Background

The structural or functional abnormalities, including genetic or metabolic disorders, which are present from birth, are illustrated as birth defects/congenital anomalies [1]. The Global Burden of Disease (GBD) study 2013 identified congenital anomalies to be one of the top ten causes of mortality in children less than five years of age [2]. The GBD study-2017 has declared that congenital anomalies accounted for highest deaths worldwide and the burden in years of life lost is higher [3]. India having a large number of infants born annually with birth defects bears a quarter of global neonatal deaths. In 2013, the country reported a neonatal mortality rate of 29 per 1000 live births, responsible for 753,000 neonatal deaths [4] and a national estimate of the birth prevalence of congenital anomalies also reported that an average of 472,177 births are affected by birth defects each year [5].

Special Newborn Care Units (SNCU) technical reports have estimated that approximately 20% of babies discharged from SNCU are found to suffer from developmental delays and/ or disabilities at a later life [6]. If these delays are not intervened early, they may lead to permanent disabilities in cognition, hearing and vision. In February 2013, the Government of India has launched Rashtriya Bal Swasthya Karyakram (RBSK) or child health screening and early intervention services as a new initiative which is aimed at screening children for 4 Ds - Defects at birth, Diseases, Deficiencies and Development delays

including disabilities [7]. Under its organizational structure, Accredited social health activists (ASHA's) and Mobile health teams (MHT) will do the community screening, while the DEIC located in the District headquarters will screen, diagnose and treat children referred from the community. DEIC has to establish institutional capacities like Infrastructural, manpower and their training capacities, as per guidelines by Ministry of Health & Family Welfare, Government of India. Accordingly DEIC has to acquire different type of equipment and specialist manpower for effective operationalization. The services provided by DEIC include occupational and physical, psychological, cognitive, audiological, language, vision, speech, and nutritional therapies apart from laboratory services. Different levels of training Programs conducted by the DEIC for staff, basic level of training and advanced level training was there. Children diagnosed with any of the 30 listed health conditions shall receive follow up treatment including surgeries at tertiary level, free of cost.

This study is aimed at finding out the pattern of various health conditions screened under the 4D's approach, among the children attending the DEIC in Visakhapatnam district and also to analyze the Institutional capacities including instruments and specialist manpower available during the study period.

Methods

The study was carried out collecting the data from the DEIC located in the King George Hospital, Visakhapatnam, Andhra Pradesh, India for a period of one year from January 2019 to December 2019. Mobile health teams (MHTs) which are headed by one male and one female doctor carry out the screening of children in their region and refer the children suspected or identified with any of the 30 conditions to the DEIC. The study population was formed by the children with any one of the 30 conditions referred to DEIC from the peripheral RBSK units, primary health care units, community health care units, area hospitals, neonates identified at delivery point screening in the hospital, children referred form the pediatric out-patient clinic and also children who come on their own. On arrival at DEIC, children were screened by the pediatrician as per RBSK operational guidelines and appropriate treatment was given. Elaborate guidelines for setting up and functioning of a DEIC are clearly given by RBSK [8]. An analysis of the institutional facilities available during the study period and the profile of the children who attended the DEIC like age, sex, place of referral, diagnosis, treatment given and outcome were tabulated and analyzed.

Results

The results are tabulated in Tables 1–5. During the study period, 6572 children who attended the DEIC were found to have one of the 30 conditions under 4D's approach of screening. There was no referral from ASHA's during the study period, as all the MHTs in the district were manned by medical graduates. On analysis of the 30 conditions screened under 4D's approach, Defects at birth were there in 255(3.88%) children followed by deficiencies in 239 (3.63%) children, diseases during childhood were seen in 1277 (19.43%) children and developmental delays and disabilities were observed in 4801 (73.05%) children.

Table 1
Profile of children attending DEIC, pattern of referral, human resources availability and surgically treated conditions

Age and sex distribution of study group			
Age group	Male	Female	Total (%)
0–6 weeks	508	432	940 (14.30)
6 weeks – 3 years	869	588	1457(22.16)
3 weeks – 6 years	647	475	1122 (17.07)
6–18 years	1640	1413	3053 (46.45)
Total	3664	2908	6572
Pattern of referral to DEIC			
Place of referral		No (%)	
Mobile health teams		3895 (59.26%)	
Health facility/Delivery point		859 (13.07%)	
Self-referral to DEIC		1818 (27.66%)	
Total		6572	
Human Resources available in DEIC			
Specialist		Availability	
Pediatrician		Available	
Medical Officer		Vacant	
Dental Surgeon		Available	
Physiotherapist		Available	
Psychologist		Vacant	
Optometrist		Available	
Audiologist cum Speech Therapist		Available	
Early Interventionist cum Special Educator		Available	
Lab technician		Available	
Dental Hygienist		Frequently Vacant	
DEIC Manager		Vacant	
Staff Nurse 1		Available	
Staff Nurse 2		Available	
Social Worker		Available	
Data enty operator		Available	
Infrastructural facilities available in DEIC			
Furniture		Available	
Equipments for Physiotherapy/Occupational Therapy		Available	

Age and sex distribution of study group	
Diagnostic Equipments/Tools for Vision, Hearing & Speech, Intellectual, Emotional & Behavioral Assessment	Streak Retinoscope for vision impairment and INCLEN DIagnostic Tool for Epilepsy (INDT – EPI) for Convulsive Disorders (Epilepsy) are not available.
Dental equipment	Available
Medical Equipments	Available
Toys For Play Area	Available
Lab Equipments	Digital Hemoglobinometer is not in working condition.
Sensory Integration Equipments	Available
4D's Conditions screened	
Defects at birth	255 (3.88%)
Deficiencies	239 (3.63%)
Diseases during Childhood	1277 (19.43%)
Developmental delays and disabilities	4801 (73.05%)
Total	6572
Conditions treated surgically	
Condition	Surgery done (No)
Club foot	5
Cleft palate & lip	36
Congenital Cataract	7
Congenital Deafness	50
Congenital Heart Diseases	27

Table 2
Distribution of children according to presence of birth defects.

S.no	Name of the Birth defect	Male					Female					Total
		0–6 wk	6wk-3yr	3 year-6yr	6 year-18yr	Total	0–6 wk	6wk-3yr	3 year-6yr	6 year-18yr	Total	
1	Neural Tube Defect	0	1	0	0	1	0	0	0	0	0	1
2	Down's Syndrome	0	4	3	3	10	1	5	4	6	16	26
3	Cleft Lip & Palate	7	9	0	1	17	10	7	1	2	20	37
4	Club Foot	7	29	1	1	38	2	12	0	1	15	53
5	Developmental Dysplasia of the hip	0	0	0	0	0	0	0	0	1	1	1
6	Congenital Cataract	0	1	0	0	1	0	0	0	1	1	2
7	Congenital Deafness	0	12	19	9	40	0	9	12	23	44	84
8	Congenital Heart Diseases	2	8	2	9	21	0	11	5	13	29	50
9	Retinopathy of Prematurity	1	0	0	0	1	0	0	0	0	0	1
Total		17	64	25	23	129	13	44	22	47	126	255

Table 3
Distribution of children according to presence of deficiencies.

S.no	Name of the deficiencies	Male					Female					Total
		0–6 wk	6wk-3yr	3 year-6yr	6 year-18yr	Total	0–6 wk	6wk-3yr	3 year-6yr	6 year-18yr	Total	
1	Severe Anemia	0	0	0	0	0	0	0	0	0	0	0
2	Vitamin A Deficiency (Bitot's spot)	0	0	0	0	0	0	0	0	1	1	1
3	Vitamin-D Deficiency	0	1	0	0	1	0	0	0	0	0	1
4	Severe acute malnutrition	0	38	51	25	114	0	45	49	28	122	236
5	Goiter	0	0	0	0	0	0	0	0	1	1	1
Total		0	39	51	25	115	0	45	49	30	124	239

Table 4
Distribution of children according to presence of diseases.

S.no	Name of the diseases	Male					Female					Total
		0–6 wk	6wk-3yr	3 year-6yr	6 year-18yr	Total	0–6 wk	6wk-3yr	3 year-6yr	6 year-18yr	Total	
1	Skin Conditions	0	3	1	10	14	0	2	3	7	12	26
2	Otitis Media	0	1	0	0	1	0	0	1	3	4	5
3	Rheumatic Heart Disease	0	0	0	0	0	0	0	0	0	0	0
4	Reactive Airway Disease	0	3	0	2	5	0	0	1	1	2	7
5	Dental Caries	0	2	103	540	645	0	1	90	483	574	1219
6	Convulsive Disorders	2	4	3	4	13	0	0	3	4	7	20
Total		2	13	107	556	678	0	3	98	498	599	1277

Table 5
Distribution of children according to presence of developmental delays and disabilities.

S.no	Name of the developmental delays and disabilities	Male					Female					Total
		0–6 wk	6wk-3yr	3 year-6yr	6 year-18yr	Total	0–6 wk	6wk-3yr	3 year-6yr	6 year-18yr	Total	
1	Vision impairment	1	20	16	226	263	0	10	28	204	242	505
2	Hearing impairment	284	213	16	11	524	241	134	5	13	393	917
3	Neuro Motor impairment	60	186	60	46	352	38	106	49	39	232	584
4	Motor Delay	0	168	62	41	271	0	103	50	38	191	462
5	Cognitive Delay	0	2	36	94	132	0	0	18	55	73	205
6	Language Delay	0	127	232	190	549	0	120	133	139	392	941
7	Behavior Disorder (Autism)	0	5	35	7	47	0	0	19	2	21	68
8	Learning Disorder	0	0	0	391	391	0	0	0	313	313	704
9	Attention Deficit Hyperactivity Disorder	0	0	0	2	2	0	0	0	2	2	4
10	Others	144	32	7	28	211	140	23	4	33	200	411
Total		489	753	464	1036	2742	419	496	306	838	2059	4801

From the results tabulated in Table-1, of the total 6572 children who were classified under the 4D's at the DEIC during the study period, 0–6 weeks age group children are 940, out of that males are 508 and females are 432. The age group of 6 weeks to 3 years children screened in 12 months are 1457, of which 869 are males and 588 are females, and in 3 year to 6 year group total screened children are 1122 in which 647 are males and 475 are females. A total of 3053 children between 6 years to 18 years of age reported at the center during study period, comprising of 1640 males and 1413 females.

On analysis of the institutional facilities available in the DEIC, the posts of pediatrician, dental surgeon, physiotherapist, optometrist, audiologist cum speech therapist, early interventionist cum special educator, lab technician, staff nurse 1, staff nurse 2 and social worker were occupied throughout the study period. The post of medical officer, psychologist and DEIC manager remained vacant throughout the study period. The services of dental hygienist were frequently not available during the study period. There were frequent resignations and new appointments in this post even during the past. The existing DEIC Staff was well trained in basic and advanced levels for organizing the center. The infrastructural facilities such as furniture, equipment for physiotherapy/occupational therapy, dental equipment, medical equipment, Toys for play area and sensory integration equipment were available, which were provided by the RBSK, child health screening and early intervention services under NHM programme, Government of India. The diagnostic equipment such as streak retinoscope

for vision impairment and INCLEN diagnostic tool for epilepsy (INDT-EPI) for convulsive disorders (Epilepsy) were not available. In the lab equipment, digital hemoglobinometer was not in working condition during the study period.

The major achievements of this DEIC were the surgeries done for club foot, cleft palate & lip, congenital cataract, congenital deafness and congenital heart diseases. Other facilities available in the DEIC include distribution of hearing aids and spectacles, growth hormone replacement therapy and transfusion and iron chelation for thalassemia.

Table-2 shows the number of children found with birth defects. Total 255 children had birth defects, out of which 129 were males and 126 were females. One male child of 6 weeks to 3 years age group had neural tube defect, 26 children have Down's syndrome of which the number of females are more than males, further females in the age group of 6–18 years are higher in number. 37 subjects of birth defects with cleft lip were accompanied with cleft palate, maximum 17 were in 0–6 weeks age group with more number in females. 53 children were found to have congenital talipes equino varus (CTEV) with 38 males and 15 females, 6 weeks to 3 years age group males are maximum in number and only 1 female child is found to have developmental dysplasia of the hip. 2 children had blindness due to congenital cataract and 84 children had congenital deafness comprising of 40 males and 44 females. Total 50 children had congenital heart disease including 2 male newborns of 0–6 weeks, 19 children of 6 weeks to 3 years, 7 children of 3 to 6 years and 22 children of 6 to 18 years age group. Percentage of congenital heart disease in total screened population was 0.76%. 1 male newborn of 0–6 weeks had retinopathi of pre-meturity.

Table-3 shows the number of children found with deficiencies. Maximum number of 236 children was found with severe acute malnutrition. Of them a majority of 100 children were in 3 to 6 years age group, with a bit more number in males and they were treated in the nutritional rehabilitation centre attached to the king George hospital. 1 female in 6–18 years age group was found to have Vitamin A deficiency, 1 male child was showing symptoms of Vitamin D deficiency in 6 weeks to 3 years age group and 1 female child was having goiter under the age group of 6 years to 18 years.

Table-4 shows the number of children found with diseases during childhood. Dental carries were found in highest number of children with 1219 (18.54%) cases. Skin diseases stands in second place and found in 26 (0.39%) children. Convulsive disorders were found in 20 (0.30%) children and reactive airway diseases was found in 7 children. 5 children with otitis media were also found.

Table-5 shows the number of children with developmental delays and disabilities which were found in 4801 (73.05%) children, out of which 2742 were males and 2059 were females. 941 children had defects of the language delay, 917 children had hearing impairment, 704 had learning disorder and 584 had neuro-motor impairment. 505 children were found with vision impairment, 462 with motor delay, 205 children had cognitive delay and there were 68 (1.03%) cases of behavioral disorders including autism screened during the study period. RBSK has given a great impetus to the treatment of children with disabilities like autism which was treated with multi modal therapy including sensory integration and occupational therapy. 4 children were found with Attention Deficit Hyperactivity Disorder (ADHD) and 411 children were found to have other disabilities like growing up concerns, substance abuse, feel depressed, delay in menstruation cycles, irregular periods, pain during menstruation, pain or burning sensation while urinating and discharge/Foul smelling discharge from the genito-urinary area. All the developmental delays like cognitive delays, language delays, behavioral disorders and learning disorders were diagnosed and treated with the help of Psychiatry department in the King George hospital.

Discussion

According to global report on birth defects, annually 7.9 million births occur with serious birth defects and 94% of these happen in the middle and low income countries [9]. In India, congenital anomalies were estimated to be the fifth largest cause of neonatal deaths and have contributed to 60699 neonatal deaths in 2013, which accounted for the highest global burden of neonatal mortality [10].

RBSK program has taken initiative for early identification and treatment of the defects at birth, which will yield rich dividends in nurturing the health of Indian children. In our study of screening of children under 4D's approach, during the study period, about 255 (3.88%) children had defects at birth, deficiencies were seen in 239 (3.63%) children, diseases during childhood were present in 1277 (19.43%) children and children with developmental delays/disabilities are 4801 (73.05%) out of the total 6572 children.

In the defects at birth, we found 84 congenital deafness (1.27%) cases, which are more prevalent in the children who approached this centre. One of the previous reports on community based disability survey supported by Indian council for medical research (ICMR) has detected the incidence of congenital hearing loss at 10/1000 in rural and 20/1000 in urban India [11]. Another community based study by Garg *et al*., also showed that in India, four in every 1000 children suffer from severe to profound hearing loss and 100,000 babies are born with hearing deficiencies every year [12]. The second most common disease under birth defects was Club foot found in 53 children. We found the highest number of club foot cases in males in the present study. Many authors have reported previously regarding preponderance of club foot in males. Bakalis *et al*., reported that the incidence of CTEV is four times more common in males compared to females (4:1) and it was statistically significant [13]. 50 children were found with congenital heart diseases, in which maximum were in 6–18 years age group and were females. Miranovic Vesna formerly reported in their study that incidence of Congenital heart diseases (CHDs) are the most frequent congenital anomalies among infants and account for approximately 4–10 in 1000 live births [14]. A total 0.56% of cleft lip and palate cases were reported in our study. Our findings are supported by the previous reports which show that the incidence of 1.09 in 1000 live births of cleft lip and palate are persisting in the state of Andhra Pradesh, South India [15]. In our study we have reported an incidence of 26 children with down's syndrome. Previously Gadhia Pankaj *et al*., reported that the advanced maternal age is classic risk factor attributed to the incidences of down's syndrome in Western India [16]. In the present study, two children (0.03%) were found with congenital cataract, in which one is male from 6 weeks to 3 years and one is female from 6–18 years age group. The findings are supported by Gilbert and Foster that the prevalence of cataract in children has been estimated between 1–15 out of 10,000 children [17]. Only one child was found with Neural tube defect from the study. Sharma *et al*., reported that their incidence of the disease ranges from 0.5–11/1000 births in different regions of India [18]. One female was reported to have developmental dysplasia of the hip from our study. The previous report by Dezateux and Rosendahl shows that female new-born respond to relaxing hormone releasing from maternal placenta, so they are more likely to develop hip displacement disorders [19].

On analysis of deficiencies, the incidence of severe acute malnutrition was observed in 236 children out of 6572 children. Global Hunger Index, 2013 has also reported that, in India, 5 million children die every year due to direct or indirect influence of malnutrition (1 child death for every 10 seconds) [20]. The nutritional rehabilitation Centre attached to this institute in the year 2015, which is present in King George hospital, Visakhapatnam is effective in improving the nutritional status of severely acute malnourished children and the follow-up also shows the children are having catch-up growth [21]. In the present study, deficiency of iodine causing goiter was found in 1female child of the age of 6–18 years. Our results are supported by the surveys conducted by Directorate General of Health Services, which reported that the prevalence of iodine deficiency disorders (IDDs) is more than 5% in India [22]. In our study, one male child of 6 weeks to 3 years age group was found with Vitamin D deficiency and one female of 6 years-18 years age group with Vitamin A deficiency showing Bitot's spot. A previous report by National Institute of Nutrition, ICMR reported in their data that largest part of preschool children had subclinical Vitamin A deficiency and are associated with public health problems [23]. In our study, from the childhood diseases, dental caries were found to be very prevalent and observed in 1219 (18.54%) children. Among them, highest number of cases was found among the children under 6–18 years age group. Mittal *et al*., supported the findings of our study showing that the prevalence of dental caries in 5 to 12-year-old school children in India were 55.5% and it jumped to 68% in the 1960 and climbed to 89% in subsequent years [24]. Skin diseases totaling to a number of 26 (0.39%) children were the second most common disease observed among childhood diseases. Our findings are in contrast to the previous report by Tiwari *et al*., Madhya Pradesh, India who found that the skin diseases (64%) were more prevalent than dental caries (6.8%) [25]. The prevalence varied from study to study depending on the study populations.

20 (0.30%) children are found to have convulsive disorders. Third most common disease in children was convulsive disorders 20 (0.30%), which are mostly observed in children of 6–18 years age group. Prasad *et al*., also reported previously in a community survey from South India, the prevalence of active epilepsy was high [26]. 7 reactive air way disease cases were identified by our study with more number of cases in males. Previously Madhusudhan *et al*., also reported that the prevalence of reactive air way disease among children to be 0.24 percent [27]. 5 number of otitis media children were found in the study. Chronic suppurative otitis media (CSOM) is a common infectious ear disease in India resulting in serious complications, especially hearing impairment [28].

On analysis of developmental delays and disabilities, during the study, language delay was observed to be the highest with 941 (14.31%) children. Previously there is a study which has described a high prevalence of language delays and reported that speech and language delay was found in 42 out of 1658 children who attended the OPD of a tertiary care teaching hospital in India [29]. Hearing impairment was the second highest and was observed in 917 (13.95%) cases. Another community based disability survey support by Garg et al. reported that India certainly faces a worse situation regarding childhood deafness [30]. Third most prevalence was Learning disorder with 704 (10.71%) cases, followed by neuro-motor impairment with 584 (8.88%) cases, Vision impairment in 505 (7.68%) cases, motor delay in 462 (7.02%) cases, others (Developmental delays and disabilities) in 411 (6.25%) cases, cognitive delay in 205 (3.11%), autism observed in 68 (1.03%) cases and attention deficit hyperactivity disorder in 4 (0.06%) cases were shown in the study. Globally, 200 million children do not reach their developmental potential in the first five years because of poverty, poor health, nutrition and lack of early stimulation [31].

Institutional facilities are important for providing quality services to the children and they include manpower and infrastructural facilities. The manpower analysis shows that the medical officer, psychologist and DEIC manager were not available throughout the study period. The post of dental hygienist was frequently vacant during the study period.The shortage of specialist manpower in semi-urban and rural locations is adversely affecting the treatment of children with disabilities. All the remaining staff from DEIC, Visakhapatnam was well trained by the technical committee of the Ministry of Health & Family Welfare, Government of India. On analysis of the infrastructural facilities available during the study period, we found that furniture, equipment for physiotherapy/occupational therapy, dental equipment, medical equipment, toys for play area and sensory integration equipment were available. There was lack of some of the equipment required for identification of the diseases like vision impairment and convulsive disorders (Epilepsy). Digital hemoglobinometer was not in working condition in the study period. The complete infrastructural facilities are necessary for high quality health systems. Previous studies also reported that the poor availability of laboratory facilities and diagnostic equipment are also obstacles to patient assessment and diagnosis, even when providers are aware of the necessary tests [32]. India learned this with Janani Suraksha Yojana, a cash incentive programme for facility births, which massively increased facility delivery but did not measurably reduce maternal or newborn mortality [33]. High-quality care is determined by thorough assessment, detection of asymptomatic and co-existing conditions, precise diagnosis, proper and timely treatment, referral when needed for hospital care and surgery, and the ability to follow the patient and regulate the treatment course as needed.

Conclusion

With this study we observed that even today, there are many children who are left undiagnosed and deprived of timely treatment of curable diseases. These children with defects, diseases or deficiencies who are not detected during the early stages constitute a major part in child mortality. Child health screening and promotion of Early Intervention Services is more important for improvement in health status of children. Through RBSK, India has taken a giant step for screening and early intervention of childhood defects, diseases, deficiencies and disabilities. The unique feature of the RBSK Services is the continuum of care extending from birth to first 18 years of age. Inspite of the progressive steps taken, the shortage of specialist manpower like medical officer, psycologist etc., is of concern and qualified youngsters should be motivated to take up these service oriented fields as a career option. To improve DEIC infrastructural facilities, it is necessary to replace the damaged equipment for enrichment of the program. The findings of the present study will be useful input for early

intervention centers to improve emergency action plans in child disease management programmes. They can also serve as an outlook for the health care managers and policy makers in their future plans and programs to face the challenges identified by early Intervention centers.

List Of Abbreviations

(RBSK): Rashtriya Bal Swasthya Karyakram

(MHTs): Mobile health teams

(GBD): Global Burden of Disease

(SNCU): Special Newborn Care Units

(ASHA): Accredited social health activists

(NHM): National health mission

(CTEV): Congenital talipes equino varus

(ADHD): Attention Deficit Hyperactivity Disorder

(ICMR): Indian council for medical research

(CHDs): Congenital heart diseases

Declarations

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Authors' contributions: KRP conceptualized the study, monitored the survey and performed data analysis. TR was the supervisor of the survey and supported to write the discussion.

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