

# Assessment and management capacities for the child health screening and intervention initiative in Visakhapatnam, India

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## Research article

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# Abstract

**Background:** Early detection and early intervention of diseases can significantly improve child quality of life. The most often a diagnosis of Developmental Delay (DDs) made by a doctor based on strict guidelines. The aim of present survey is to decide the commonness of the conditions screened and institutional facilities through the RBSK activity among the children going to the DEIC focus at Visakhapatnam, India.

**Methods:** This observational study was conducted in Visakhapatnam, District Early Intervention Centre (DEIC) one of the north coastal district of India for one year period and 6572 children aged 2 months-18 years were taken in the study. Norms were developed by the Ministry of Health and Family Welfare, India to DEIC, according to the norms the pediatrician will examine the children who came to the center. Existing manpower analysis in the center was also done. Present study was done the multivariate logistic regression analysis were done to identify the predictors for DDs.

**Results:** The examination of the 30 conditions screened under 4D's methodology, defects during childbirth were there in 255(3.88%), followed by deficiencies in 239 (3.63%) children, diseases during childhood were seen in 1277 (19.43%) children and disabilities and DDs were seen in 4801 (73.05%) children. From the diseases, dental caries were found in most elevated number of youngsters with 1219 (18.54%) cases. The mostly occurring DDs are language delay 941(14.31%) children had imperfections of these were observed. On analysis of deficiencies, most extreme number of 236 (3.59%) children was found with serious intense unhealthiness of severe acute malnutrition. Among the defects at birth, congenital deafness was the most frequently screened stipulation found in 84 (1.27%) children. The post of medical officer, Psychologist and DEIC manager stayed empty all through the examination time frame.

**Conclusion:** In the present study we have undiagnosed that many curable diseases in children are not identified at all in a timely manner. Early intervention services on children's health are very useful and in future these services are extent for every individual child.

## Background

Birth defects or intrinsic peculiarities are utilitarian or auxiliary variations from the norm including metabolic or hereditary issues present during childbirth [1]. The Global Burden of Disease (GBD) study 2013 recognized inborn abnormalities to be one of the main ten reasons for mortality in kids less than five years old [2]. As indicated by the GBD study (2017) inherent abnormalities represent the most elevated passings globally and the weight in long stretches of life lost [3]. Nations or locales that have an expanded weight of infection "India having an enormous number of newborn children conceived every year with birth defects bears a fourth of neonatal passing's worldwide". In 2013, the nation announced a neonatal death pace of 29 for every 1000 live births with a sum of 753,000 neonatal passing's detailed inside that year [4]. Public assessments of the commonness of congenital inconsistencies uncovered pervasiveness figures as high as 472177 every year [5].

By the specialized reports from Special Newborn Care Units (SNCU) assessed that 20 % of released children are endured with deferrals of redevelopments and later life lasting inabilities in vision, hearing and perception [6]. Rashtriya Bal Swasthya Karyakram (RBSK) has been dispatched in 2013 by Government of India focused on early intercession administrations in kid wellbeing screening is to be accomplished through District Early Intervention Centers (DEICs) which are being built up in all areas the nation over [7]. Network location achieved by Mobile health groups and Accredited social health activists (ASHA's) and alluded to DEIC central command for complete screen,

analyze and treat youngsters, for this inside needs to build up institutional limits like expert labor, led preparing Programs at cutting edge level for viable operationalization and diverse kind of gear. The inside offered various types of assistance like vision, intellectual, discourse, language, and dietary treatments separated from lab tests. Youngsters treated with the 30 recorded wellbeing conditions including medical procedures at tertiary level, liberated from cost.

This examination is planned to a) determine the prevalence of the conditions screened through the RBSK initiative among the children going to the DEIC focus at Visakhapatnam area b) determine institutional and management capacities to provide child health screening and mediation administrations; and c) staff training capacities of fundamental level and progressed level for productive operationalization of birth defects.

## Methods

It was a cross-sectional investigation directed at DEIC, Visakhapatnam of South India from December 2018 to December 2019. The rundown of children selected at DEIC, Visakhapatnam was acquired from separate focus with the earlier authorization by the medical officer. The investigation populace was shaped by the children with any of the 30 conditions alluded to DEIC from the fringe RBSK units, essential medical services units, network medical care units, region emergency clinics, children distinguished at conveyance point screening in the emergency clinic, kids alluded structure the pediatric out-tolerant center and furthermore kids who please their own alongside their folks/parental figures. On advent at DEIC, pediatrician were screened the children as per RBSK outfitted course of action and suitable treatment was given. The test comprised of children enlisted at the chose DEIC and examining was done and children were isolated into four age gatherings (<6 weeks, 6 Weeks to 3 years, 3 to 6 years and 6 to 18 years), the children were chosen by the layers gatherings, along these lines in every layers the same number of children as come were set. In the investigation recurrence examination was done in information assortment and testing. Consequently, the example size came out to be 6572 children selected the investigation. The contrast among male and female was additionally watched, Pattern of referral, 4D Conditions screened, carefully treated conditions and an investigation of the institutional offices accessible during the examination time frame were classified.

Subjective and quantitative examination philosophies were utilized to evaluate the administration rehearses on (developmental delays) DD's at the chosen health facilities, with this expressive measurements were introduced in the recurrence with rates (for downright data). The study instruments were office agenda; record survey for specific administrations over the most recent one year; and semi-organized schedule of interview for administration providers. The system incorporated the basics as set somewhere around the setting up and working of a DEIC is unmistakably given by RBSK [8]. Security and privacy was kept up during and after the review. Information passage and investigation were done in SPSS Software Version 19 (SPSS South Asia Pvt. Ltd, Bangalore, Karnataka).

## Result

During the investigation time frame, 6572 children who went to the DEIC were found to have one of the 30 conditions under 4D's methodology of screening. From the results tabulated in **Figure-1**, of the total 6572 children who were classified under the 4D's at the DEIC during the investigation time frame, below 6 weeks age children are 940, out of that males are 508 and females are 432. The age gathering of about a month and a half to 3 years kids screened in a year is 1457, of which 869 are guys and 588 are females, and in long term to long term bunch all out

screened children are 1122 in which 647 are males and 475 are females. A sum of 3053 children between 6 years to 18 years old announced at the inside during study period, involving 1640 male and 1413 females.

**Figure-2** shows the examination of the 30 conditions screened under 4D's methodology, defects during childbirth 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 disabilities and DDs were seen in 4801 (73.05%) children. **Figure-3** illustrates that the kids drew nearer to the DEIC Center from an assortment of ways like 3895 (59.26%) mobile health groups, 859 (13.07%) delivery points and 1818 (27.66%) self-referral.

**Figure-4** specifies the HR accessible at DEIC. On investigation of the institutional facilities accessible in the DEIC, the posts of pediatrician, dental specialist, physiotherapist, optometrist, audiologist cum speech therapist, early interventionist cum exceptional instructor, lab technician, staff nurture 1, staff nurture 2 and social worker were involved all through the examination time frame. The post of medical officer/clinical official, Psychologist and DEIC manager stayed empty all through the examination time frame. The administrations of dental hygienist were regularly not accessible during the investigation time frame. There were regular renunciations and new arrangements in this post in any event, during the past. The current DEIC Staff was all around prepared in fundamental and progressed levels for arranging the middle. Regarding the basic level training observational skills, proper usage and good understanding of tool assessment and developmental screening, techniques of intervention, ongoing evaluation and efficiently communication of results to professionals and families, good rapport maintains with both children and parents and knowledge on early development. As regards the advanced level training, specific to the concerned training is given. These are developmental assessment for psychologist and vision related information for optometrist.

The infrastructural amenities, for example, furniture, hardware for physiotherapy/word related treatment, dental gear, clinical hardware, Toys for play territory and tangible coordination gear were accessible, which were given by the RBSK, kid wellbeing screening and early intercession benefits under NHM program, Government of India. The symptomatic hardware, for example, streak retinoscope for vision hindrance and INCLIN indicative apparatus for epilepsy (INDT-EPI) for convulsive issues (Epilepsy) were not accessible. In the lab hardware, advanced hemoglobinometer was not in working condition during the investigation time frame.

**Figure-5** indicates the significant accomplishments of this DEIC were the medical procedures accomplished for club foot, congenital cleft palate and lip, congenital cataract, congenital deafness and inborn heart maladies. Different facilities accessible in the DEIC incorporate dissemination of portable amplifiers and scenes, development hormone substitution treatment and bonding and iron chelation for thalassemia.

**Graph-1** shows the quantity of kids found with birth defects. Complete 255 children had birth defects, out of which 129 were guys and 126 were females. One male offspring of about a month and a half to 3 years age bunch had neural tube imperfection, 26 children have Down's condition of which the quantity of females are more than guys, further females in the age gathering of 6-18 years are higher in number. 37 subjects of birth defects with cleft lip were accompanied with cleft palate; greatest 17 were in 0 a month and a half age bunch with more number in females. 53 children were found to have congenital talipes equinovarus with 38 males and 15 females, a month and a half to 3 years age bunch guys are greatest in number and just 1 female child is found to have formative dysplasia of the hip. 2 kids had visual deficiency because of inborn waterfall and 84 children had congenital deafness containing 40 males and 44 females. Complete 50 children had intrinsic coronary illness including 2 male babies of 0-6 weeks, 19 offspring of about a month and a half to 3 years, 7 offspring of 3 to 6

years and 22 offspring of 6 to 18 years age gathering. Level of inborn coronary illness altogether screened populace was 0.76%. 1 male infant of 0 a month and a half had retinopathy of prematurity.

**Graph-2** shows the quantity of children found with deficiencies. Most extreme number of 236 children was found with serious intense unhealthiness of severe acute malnutrition. Of them a greater part of 100 children were in 3 to 6 years age gathering, with more number in males and they were treated in the healthful recovery place appended to the king George hospital medical clinic. 1 female in 6-18 years age bunch was found to have Vitamin A deficiency, 1 male child was demonstrating manifestations of Vitamin D lack in about a month and a half to 3 years age gathering and 1 female child was having goiter under the age gathering of 6 years to 18 years.

**Graph-3** shows the quantity of children found with diseases during childhood. Dental caries were found in most elevated number of youngsters with 1219 (18.54%) cases. Skin maladies remains in runner up and found in 26 (0.39 %) kids. Convulsive issues were found in 20 (0.30 %) youngsters and reactive airway diseases was found in 7 kids. 5 kids with otitis media were likewise found.

**Graph-4** shows the quantity of kids with developmental delays and disabilities which were found in 4801 (73.05%) children, out of which 2742 were male and 2059 were females. 941 children had imperfections of the language delay, 917 children had hearing hindrance, 704 had learning issue and 584 had neuro-moter impairment. 505 youngsters were found with vision debilitation, 462 with motor delay, 205 kids had cognitive delay and there were 68 (1.03%) instances of behavioral disorders including autism screened during the investigation time frame. RBSK has given an incredible stimulus to the treatment of children with inabilities like autism which was treated with multi model treatment including sensory integration. 4 kids were found with Attention deficit hyperactivity disorder (ADHD) and 411 kids were found to have different inabilities like growing up concerns, substance abuse, feel depressed, delay in period cycles, torment during period, agony or copying sensation while peeing and release/Foul smelling release from the genitourinary zone. All the developmental delays like language delays, cognitive delays and learning issues were determined and treated to have the assistance of Psychiatry division in the King George hospital clinic.

## Discussion

RBSK program has stepped up for early detection and treatment of the imperfections during childbirth, which will yield rich profits in supporting the strength of Indian children. In our investigation of screening of children under 4D's methodology, during the examination time frame, around 255 (3.88%) children had surrenders during childbirth, deficiencies were seen in 239 (3.63%) youngsters, diseases during adolescence were available in 1277 (19.43%) kids and children with disabilities/DDs are 4801 (73.05%) out of the all out 6572 children.

In the defects at birth during childbirth, we discovered 84 congenital deafness (1.27%) cases, which are more pervasive in the children who moved toward this middle. One of the past reports on community based disability overview upheld by Indian gathering for clinical examination (ICMR) has recognized the occurrence of innate hearing misfortune at 10/1000 in country and 20/1000 in metropolitan India [9]. Another people group based investigation by Mathers et al., likewise indicated that the ill effects of hearing misfortune was in the sixth position among the burden of diseases worldwide [10]. The second most basic malady under birth abandons was club foot found in 53 children. We found the most elevated number of club foot cases in guys in the current examination. Numerous creators have detailed already with respect to prevalence of club foot in males. Bakalis et al., announced that the occurrence of CTEV is multiple times more normal in guys contrasted with females (4:1) and it was

factually noteworthy [11]. 50 youngsters were found with congenital heart maladies, in which most extreme were in 6-18 years age gathering and were females. Congenital heart maladies collaborators earlier announced in their examination that rate of congenital heart infections are the most continuous inborn oddities among newborn children and record for around 589479 lived globally with disability up to the year of 2017 [12]. A complete 0.56% of cleft lip and palate cases were accounted for in our examination. Our discoveries are upheld by cleft lip and palate past reports which show that the rate of 1.09 in 1000 live births of cleft lip and palate of taste are persevering in the province of Andhra Pradesh, South India [13]. In our examination we have announced an occurrence of 26 kids with down's condition. Already Gadhia pankaj et al., detailed that the serious maternal age is exemplary danger factor credited to the rates of down's condition in Western India [14]. In the current examination, two kids (0.03%) were found with congenital cataract, in which one is male from about a month and a half to 3 years and one is female from 6-18 years age gathering. The discoveries are upheld by Limburg and Gilbert that the predominance of cataract in kids has been assessed between 7.6 out of 10,000 kids [15]. Just a single kid was found with neural tube deformity from the investigation. Cherian et al., announced that their rate of the ailment ranges from 3.39-8.88/1000 births in various areas of India [16]. One female was accounted for to have developmental dysplasia of the hip from our examination. The past report by Dezateux and Rosendahl shows that female new-conceived react to loosening up hormone delivering from maternal placenta, so they are bound to create hip displacement disorders [17].

On examination of deficiencies, the frequency of severe acute malnutrition was seen in number 236 out of 6572 children. In India, 2.8% of kids kick the bucket each year because of immediate or roundabout impact of ailing health (1 kid demise for at regular intervals) [18]. The nutritional rehabilitation center connected to this foundation in the year 2015, which is available in King George hospital, Visakhapatnam is powerful in improving the dietary status of seriously intense malnourished kids and the follow-up likewise shows the youngsters are having make up for lost time development [19]. In the current examination, lack of iodine causing goiter was found in 1 female offspring of the age of 6-18 years. Our outcomes are upheld by the studies led by Directorate General of Health Services, which detailed that the predominance of iodine inadequacy issues is over 5% in India [20]. In our examination, one male offspring of about a month and a half to 3 years age bunch was found with Vitamin D lack and one female of 6 years-18 years age bunch with Vitamin A deficiency demonstrating Bitot's spot. A past report by National Institute of Nutrition, ICMR detailed in their information that biggest piece of preschool children had subclinical Vitamin A insufficiency and are related with general medical issues [21].

In our investigation, from the child illnesses, dental caries were discovered to be exceptionally common and seen in 1219 (18.54%) youngsters. Among them, most noteworthy number of cases was found among the children under 6-18 years age gathering. Mittal et al., upheld the discoveries of our examination demonstrating that the pervasiveness of dental caries in 5 to 12-year-old younger students in India were 55.5% and it hoped to 68% in the 1960 and moved to 89% in ensuing years [22]. Skin infections adding up to number of 26 (0.39%) children were the second most normal illness saw among youth maladies. Our discoveries are as opposed to the past report by Tiwari et al., Madhya Pradesh, India who found that the skin illnesses (64%) were more common than dental caries (6.8%) [23]. The predominance shifted from study to consider contingent upon the investigation populaces. Third most basic illness in kids was convulsive disorder issues 20 (0.30%), which are generally seen in offspring of 6-18 years age gathering. Prasad et al., likewise detailed beforehand in a network review from South India, the pervasiveness of dynamic epilepsy was high [24]. 7 reactive air way sickness cases were recognized by our examination with more number of cases in males. Beforehand the global asthma report-2018 additionally detailed that the commonness of reactive air way diseases among youngsters to be <5 percent in Indian sub-content [25]. 5

number of otitis media youngsters were found in the examination. Interminable suppurative otitis media is a typical irresistible ear infection in India bringing about genuine confusions, particularly hearing hindrance [26].

On investigation of disabilities and DDs formative deferrals and incapacities, during the examination, language delay was seen to be the most elevated with 941 (14.31%) children. Beforehand there is an examination which has depicted a high pervasiveness of language delays and detailed that discourse and language postpone was found in 42 out of 1658 kids who went to the OPD of a tertiary consideration showing medical clinic in India [27]. Hearing impedance was the second most noteworthy and was seen in 917 (13.95%) cases. Another people group based incapacity study upholds by Garg et al. detailed that India positively faces a more terrible circumstance with respect to childhood deafness [28]. Third most predominance was learning disorder issue with 704 (10.71%) cases, trailed by neuro-motor impairment with 584 (8.88%) cases, vision impedance 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 saw in 68 (1.03%) cases and attention deficit hyperactivity disorder issue in 4 (0.06%) cases were appeared in the investigation. Around the world, 200 million children don't arrive at their formative potential in the initial five years due to neediness, unforeseen weakness, nourishment and absence of early incitement [29].

Institutional facilities are significant for offering quality types of assistance to the children and they incorporate labor and infrastructural facilities. The manpower examination shows that the medical officer, psychologist and DEIC manager were not accessible all through the investigation time frame. The post of dental hygienist was much of the time empty during the investigation time frame. With the help of Accredited social health activist (ASHA) workers, mobile health teams have been able to identify a large number of DD's and provide them with health support. The lack of master manpower in semi metropolitan and country areas is unfavorably influencing the treatment of kids with incapacities. Medical officer lack was dreadful effect on the sounding network and his quality in DEIC is essential in network inclusion for better administration of birth defects. All the rest of the staff from DEIC, Visakhapatnam was very much prepared by the specialized board of the Ministry of Health and Family Welfare, Government of India. On investigation of the infrastructural offices accessible during the examination time frame, we found that furnishings, hardware for physiotherapy/word related treatment, dental equipment, clinical equipment, toys for play area and sensory integration equipment were accessible. There was absence of a portion of the hardware required for distinguishing proof of the ailments like vision impairment and convulsive issues (Epilepsy). Computerized hemoglobinometer was not in working condition in the examination time frame. The total infrastructural amenities are important for top notch health frameworks. Past examinations likewise detailed that the helpless accessibility of laboratory amenities and diagnostic apparatus are additionally deterrents to quiet appraisal and finding, in any event, when suppliers know about the fundamental tests [30]. India took in this with Janani Suraksha Yojana, a money motivating force program for facility births, which hugely expanded facilities conveyance however didn't quantifiably diminish maternal or infant mortality [31]. Great consideration is controlled by exhaustive appraisal, discovery of asymptomatic and coinciding conditions, exact finding, legitimate and convenient treatment, referral when required for medical clinic care and medical procedure, and the capacity to follow the patient and direct the therapy course varying.

## Conclusion

With this examination we saw that there are numerous children who are left undiscovered and denied of opportune treatment of congenital anomalies done from part of therapeutic diseases. These children with deformities, sicknesses or inadequacies who are not recognized during the beginning phases, doesn't prompt mortality however handicap ensuing decreased personal satisfaction and expanded reliance on a parental figure. Child health

screening and advancement of early intervention services is more significant for development in health status of children. Through RBSK, India has made a monster stride for screening and early mediation of childhood defects, ailments, inadequacies and inabilities. The interesting element of the RBSK services is the continuum of care stretching out from birth to initial 18 years old. In spite of the dynamic advances taken, the lack of expert manpower like medical officer, psychologist and so forth, is of concern and qualified youths ought to be inspired to take up this administration situated fields as a lifelong alternative. To improve DEIC infrastructural facilities, it is important to trade the harmed gear for advancement of the program. The discoveries of the current examination will be valuable contribution for early mediation places to improve crisis activity plans in child disease supervision programs. They can likewise fill in as a standpoint for the medical care supervisors and strategy producers in their tentative arrangements and projects to confront the difficulties distinguished by early intervention habitats.

## Declarations

**Ethics approval and consent to participate:** The study was approved by the Institutional Ethics Committee Andhra University, Visakhapatnam. Moreover present study has not involving human participants or any animal models. It is purely survey based study. "Informed consent was obtained from all individual participants included in the study". Special ethical committee permission was taken from Andhra medical college-King George hospital (AMC-KGH), visakhapatnam for the present study. Because of district DEIC running with association and monitoring of KGH.

**Consent for publication:** Not applicable.

**Availability of data and material (data transparency):** 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.

**Competing interests:** Not applicable.

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**Authors' contributions:** Substantial contributions to the design and interpretation of data for the work. Dr.K.R.Pagolu conceptualized the study, monitored the survey and performed data analysis. Prof. T.R. Rao was the supervisor of the survey and supported to write the manuscript.

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## Tables

<b>Table 1. Profile of children attending DEIC, pattern of referral, human resources availability and surgically treated conditions</b>			
<b>Age and sex distribution of study group</b>			
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
<b>Pattern of referral to DEIC</b>			
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
<b>Human Resources available in DEIC</b>			
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 entry operator			Available
<b>Infrastructural facilities available in DEIC</b>			
Furniture			Available
Equipments for Physiotherapy/Occupational Therapy			Available
Diagnostic Equipments/Tools for Vision, Hearing & Speech, Intellectual, Emotional & Behavioral Assessment			Streak Retinoscope for vision impairment and INCLIN 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
<b>4D's Conditions screened</b>			
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
<b>Conditions treated surgically</b>			
Condition			Surgery done (No)
Club foot			5
Cleft palate & lip			36
Congenital Cataract			7
Congenital Deafness			50
Congenital Heart Diseases			27

S.no	Name of the Birth defect	Male					Female					Total
		0-6 wk	6wk-3yr	3yr-6yr	6yr-18yr	Total	0-6 wk	6wk-3yr	3yr-6yr	6yr-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

S.no	Name of the deficiencies	Male					Female					Total
		0-6 wk	6wk-3yr	3yr-6yr	6yr-18yr	Total	0-6 wk	6wk-3yr	3yr-6yr	6yr-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

S.no	Name of the diseases	Male					Female					Total
		0-6 wk	6wk-3yr	3yr-6yr	6yr-18yr	Total	0-6 wk	6wk-3yr	3yr-6yr	6yr-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

S.no	Name of the developmental delays and disabilities	Male					Female					Total
		0-6 wk	6wk-3yr	3yr-6yr	6yr-18yr	Total	0-6 wk	6wk-3yr	3yr-6yr	6yr-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

## Figures

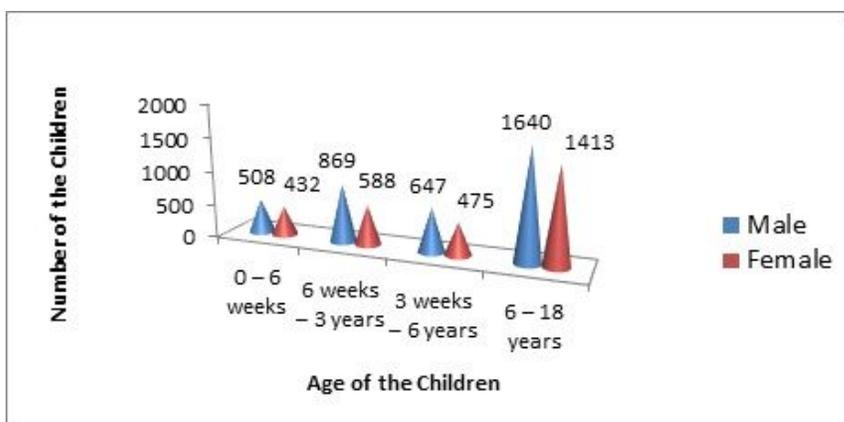


Figure 1

Profile of children attending at DEIC

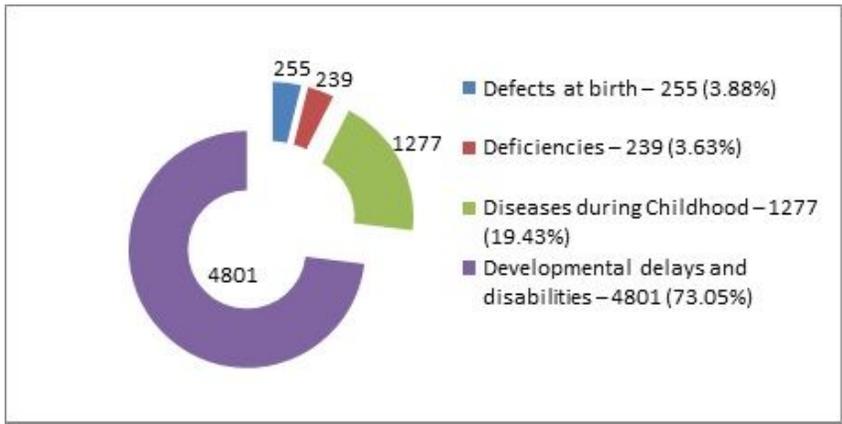


Figure 2

4D conditions screened at DEIC

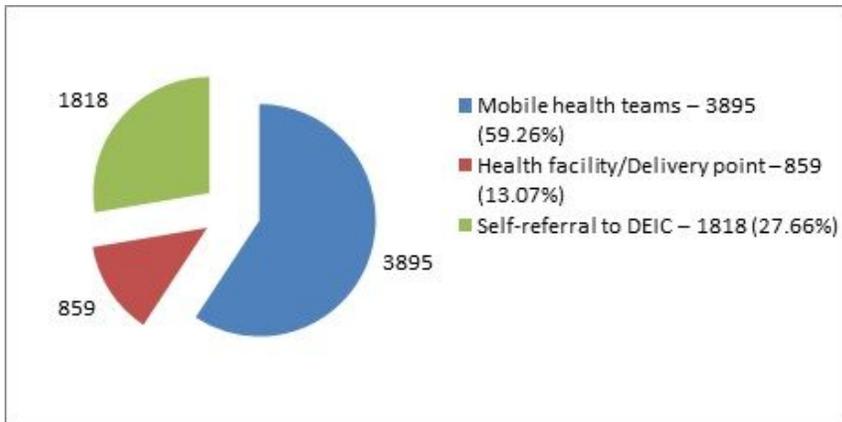


Figure 3

Pattern of referral to DEIC

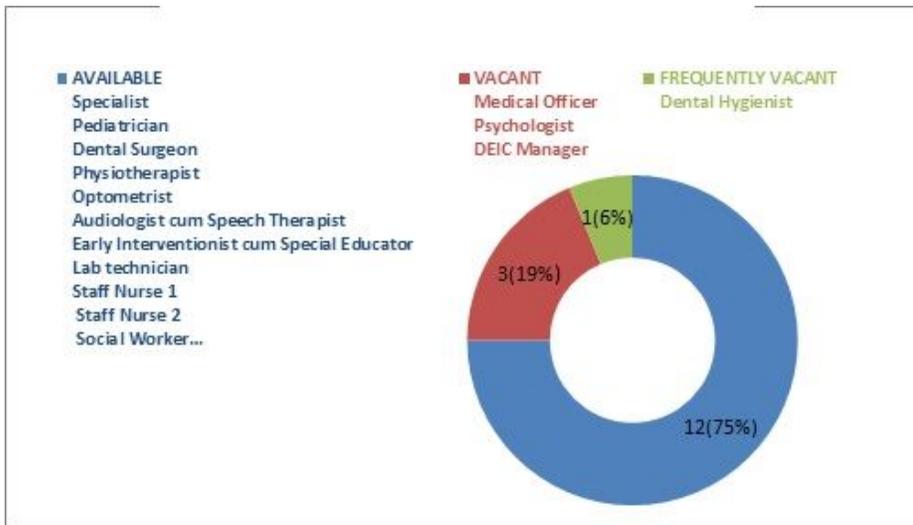
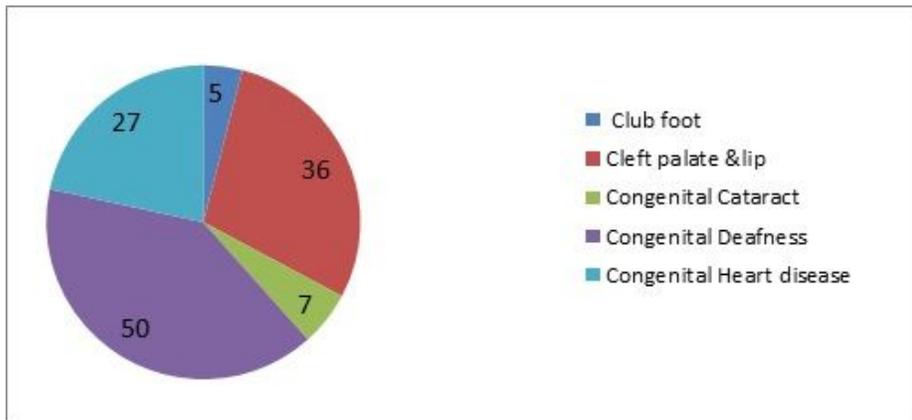


Figure 4

Human resource availability at DEIC



**Figure 5**

Medical procedures accomplished for different defects at DEIC

## Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Graphs.pdf](#)