

## A Retrospective Cohort study on Utilization of Rashtriya Bal Swasthya Karyakram (RBSK) Services among Children Screened at an Urban Health Centre (UHC) of Ahmedabad Municipal Corporation (AMC)

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### Abstract:


**Introduction :** Rashtriya Bal Swasthya Karyakram (RBSK) is a systemic approach of 4'D's (Defect, Diseases, Deficiency, Developmental delay) for early identification and linkage with care, support and treatment. **Objectives :** (1) Document utilization of RBSK services within a year of referral, (2) Assess reasons for non-utilization of services and (3) Assess out of pocket expenditure (OOPE) among users and non-users of the program. **Method:** Retrospective Cohort Study was conducted at an Urban Health Centre (UHC) taking two cohorts of children referred for 4'D's during April 2018-March 2020 under RBSK. A total of 102 cases were sampled. Probability Proportionate to size (PPS) method was used to ensure proportionate representation of each of 4'D's in the sample. Required number of participants in each category were selected randomly. **Results:** Out of 102 sampled cases, 97 were covered. Utilization of services was 50.5%; major reasons for non-utilization were preference for private providers and reluctance to stay at Comprehensive Malnutrition Treatment Centre (CMTC). Mean OOPE in users was Rs. 21545, significantly less ( $p < .05$ ) than Rs. 70198 in non-users. **Conclusion:** After referral by RBSK team, only half utilized the services. Among users, OOPE was less for total cost incurred and also for direct cost incurred like consultation charges, medicines, consumables etc. Counselling those parents whose children are detected with any of 4Ds, to visit Child Malnutrition Treatment Center (CMTC)/ District Early Intervention Center (DEIC) remains a challenge.

**Keywords:** Out of pocket expenditure (OOPE), Rashtriya Bal Swasthya Karyakram (RBSK), Urban Health Centre (UHC)

### Introduction:

Rashtriya Bal Swasthya Karyakram(RBSK) is an ambitious and innovative program for children (0-18 years) to cover 4 'D's namely birth defects, chronic diseases, disability and developmental delays.<sup>[1]</sup> Under it, field staff such as Accredited social health activists (ASHA's) and mobile health teams do the community screening, while District Early Intervention Center (DEIC) mostly located at District headquarters screen, diagnose and treat children referred with 4'D's. Together these 4'D's contribute

significantly to the childhood mortality, morbidity and out of pocket expenditure (OOPE). These 4'D's, if not corrected timely, result in permanent disabilities with regard to cognitive or hearing or visual defects.<sup>[1]</sup> Most studies on RBSK, either focussed on knowledge, attitude and practice (KAP) of service providers such as medical officers<sup>[2]</sup> or Accredited Social Health Activist (ASHA)<sup>[3]</sup> or evaluated the gaps in infrastructure, equipment and manpower or the outcome of the program at the District Early Intervention Centre (DEIC).<sup>[4,5]</sup> Very few studies are

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there documenting the outcome of children with 4'D's registered under the program based on the client inputs. Availability of limited data necessitates the need of such a study to identify the reasons for non-utilization of services and bridge the gaps to improve its utilization. Study was planned with the objectives to (1) document utilization of RBSK services, within a year of referral, (2) study reasons for non-utilization of services, suggest remedial measures and (3) compare out of pocket expenditure (OOPE) among users and non-users of the program.

**Method:**

Ahmedabad city, with a population of 55.77 lakhs<sup>[6]</sup> is governed by Ahmedabad Municipal Corporation (AMC) and is divided into 7 administrative zones (each zone with 10-12 Urban Health Centers). A Retrospective Cohort Study was conducted at Ognaj, UHC which is also the Urban Health training Center (UHTC) of Community Medicine Department, GMERS Medical College, Sola, Ahmedabad. Study population comprised of two cohorts of children registered and referred for 4Ds between April 2018-March 2019 (cohort 1) and April 2019-March 2020 (cohort 2) were listed from UHC and as shown in figure 1, there were 177 cases registered in first cohort while 131 in second cohort.

Considering the feasibility in terms of resources and time availability, it was decided to cover 50 children in each cohort. Probability Proportionate to Size (PPS) sampling technique was applied to ensure proportionate representation of each of 4'D's in the sample. While rounding off the numbers in each category while applying PPS, actual sample size became 51 for each cohort. Required number of participants in each of 4 D categories, then were selected randomly from the list. Cases from the study area whose Parent/ Care taker could be contacted and were willing to participate (gave informed written consent) were interviewed.

Home visits with prior appointment (as per convenience of care giver) were undertaken by trained investigators. Interview of main care taker was conducted to document the detail of utilization / non utilization on pre designed pretested semi-structured proforma. In order to address refusal and non-availability of subjects, at least one repeat visit was conducted. Study was approved by Institutional Ethics Committee and local health authority. While fixing the appointment, oral consent was taken for home visit on telephone, and written consent was obtained before taking the personal interview. During the visits, those needed medical assistance were referred to our hospital and their visits were facilitated by the investigators.

**Results:**

Out of total 102 cases selected from two cohorts for the study (Figure 1), 97 cases could be covered as rest (5) refused to participate. Out of 97 cases, 31 were detected by private practitioners/ Trust hospital followed by 25 detected by MO RBSK/ DEIC/ govt. delivery point, 23 by frontline workers and 16 by family members themselves. (Figure 2)

Out of 97 cases, 48 did not avail the RBSK services; rest (49) used it with utilization rate of 50.5%. Most cases were of defects among utilisers followed by those of deficiency while among non-utilisers, most cases were of deficiency followed by defect. (Table 1) Among the utilizers (49), 1 was expired, 22 were on treatment/ rehabilitation, 13 were cured against 0, 18 and 7 respectively among non-users (48). (Figure 3) When compared for these 3 outcomes, they were

**Figure 1 : Flow chart with sample size and sampling Technique**

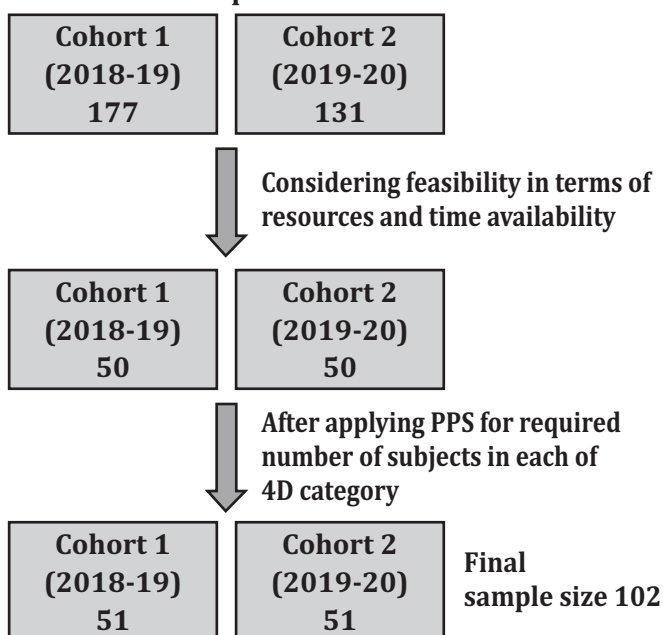


Figure 2: Detection of 4 Ds registered under RBSK program (N=97)

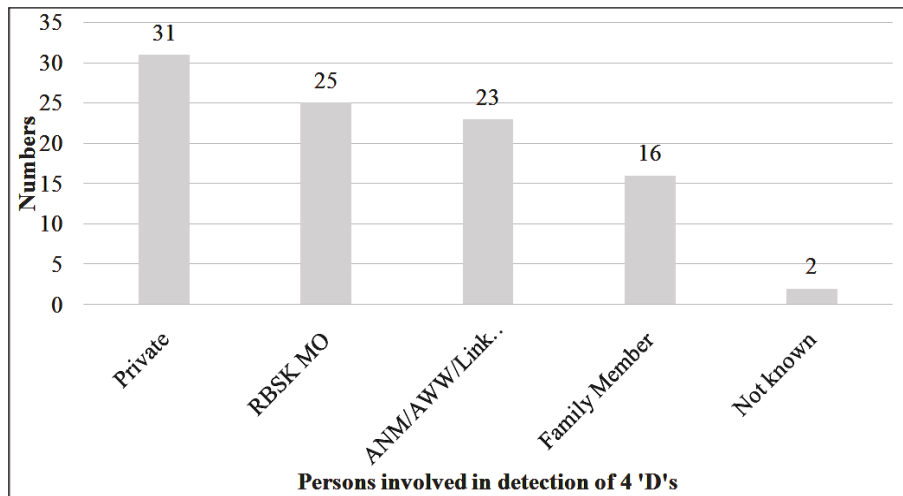


Figure 3: Current status of children based on Utilization of RBSK services (n=97)

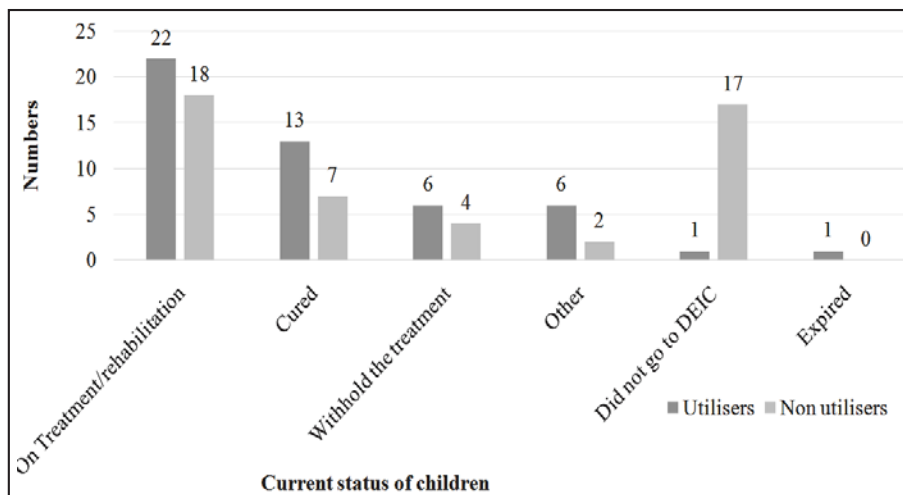


Table 1: Profile of beneficiaries who utilised and did not utilise RBSK services (N=97)

4 D Categories	Beneficiaries who utilised RBSK services (N = 49) No (%)	Beneficiaries who did not utilise RBSK services (N = 48) No (%)
Defect	27 (55.1)	20 (41.7)
Deficiency	18 (36.7)	21 (43.8)
Disease	3 (6.1)	7 (14.6)
Developmental delay	1 (2.0)	0

comparable among those who availed RBSK and those who did not and the difference was statistically “not significant” (p= 0.5333)

Among utilizers, reasons for withholding treatment were COVID 19 in 5 cases and unwillingness for surgery in 1 case. In six cases, status of beneficiaries was mentioned as ‘Others’. Of these, one was a diabetic Child who having completed 18 years, was no more eligible for treatment under RBSK, three congenital deafness cases were late enrolments where no treatment was possible, one case was operated for cleft lip/palate under RBSK and was waiting for speech therapy and one case was having tongue tie not requiring treatment. A case having Deficiency as well as Disease availed service for deficiency only but didn’t go to DEIC for his disease.

**Table 2: Out of pocket expenditure (OOPE) in INR among utilizers and non-utilizers of RBSK**

Type of charges	Expenditure (INR) for utilizer of RBSK (n=45*)		Expenditure (INR) for non-utilizer of RBSK (n=39#)		p Value
	Mean	SD	Mean	SD	
Consultation	1510.2	7645.0	9935.9	24112.1	0.029 <sup>§</sup>
Surgery	1933.3	8968.1	5657.9	21058.8	0.28
Medicines & Consumables	7122.2	30670.9	32056.4	76895.1	0.049 <sup>§</sup>
Investigations	3464.4	11218.4	9661.5	21027.0	0.09
Any other	1217.8	7455.2	3674.3	13268.1	0.3
Direct cost	15230.0	48943.8	60402.6	110988.8	0.016 <sup>§</sup>
Transportation	3144.4	10790.3	2129.5	4392.1	0.6
Food	377.8	2241.5	117.9	493.6	0.5
Stay	382.2	2240.5	0.0	0.0	Not Applicable
Wage Loss	3596.7	9356.7	2635.9	6217.6	0.59
Tip To Staff	11.4	75.4	0.0	0.0	Not Applicable
Any Other	50.0	316.2	0.0	0.0	Not Applicable
Indirect cost	7490.0	18562.3	8960.3	26206.7	0.77
Total OOPE	21545.1	60071.6	70198.7	124554.3	0.02 <sup>§</sup>
Range	0-265000 (INR)		0 - 440000 (INR)		

\*one not requiring surgery & three late enrolments excluded.

#one normal child, one child with unaware parent and one with superstitious parents and rest SAM children who didn't use any service were excluded

<sup>§</sup> p value < 0.05 considered significant.

Among non-utilizers, 17 beneficiaries 'didn't go to any health facility/did not continue treatment'. Of which, 16 were cases of Severe Acute Malnutrition (SAM) where 9 Parents did not consider it as health issue, 3 gave a reason of wage loss if they go to CMTC, 2 parents were superstitious and 2 parents denied any referral /approach by health functionary. In one case of microcephaly, parents were unwilling for surgery due to the uncertainty of success of surgery. Among 25 who were cured or on treatment / rehabilitation, 18 took /were taking treatment from

private, 6 from govt/ trust hospital while 1 case improved without any treatment. Four cases withheld treatment due to COVID. Among 'others', one was normal child wrongly detected as defect and in another child having Downs syndrome, mother was not aware about the condition and denied any referral by health functionary.

OOPE was highly variable and mean OOPE was Rs 21545 ± 60071 among RBSK users which was "significantly less" (p<0.05) than Rs. 70198 ± 124554 among non-utilizers (Table 2). It was more among those who didn't utilize mainly for consultation charges, surgery or investigations. But for transportation, food and stay it was higher to who were beneficiaries of RBSK services.

### Discussion:

Out of 102 cases, 97 (95%) were covered with a refusal rate of 5% only. Nearly half of the cases were detected through RBSK program and other government health functionaries while nearly one third were detected by private practitioners/ Trust hospitals. It was comparable with another study from Ahmedabad where 48% cases of CHD were diagnosed through RBSK.<sup>[7]</sup>

Utilization rate for RBSK services were 50.5% in this study. A study from two districts of Chhattisgarh namely Raipur and Raigarh<sup>[5]</sup>, found that among all referred cases, only 31.5% - 38.9% reached DEIC. As per a review article,<sup>[8]</sup> till Dec 2014, in all over India about 35% of referred beneficiaries availed tertiary care services. Those with defects (birth) had highest utilization rate as compared to other 3 Ds. While most of the non-utilisers were of deficiency. It can possibly be due to the fact that defect (s) most of the times are either visible or interfere in daily routine of child which lead the parents to avail services and the less OOPE involved, while deficiency disorders by many parents are not perceived as a matter of concern. A study from Pune<sup>[9]</sup> also documented that service uptake was good (up to 60%) for major anomalies like congenital heart diseases, Congenital Talipes Equino Varus (CTEV) etc while for developmental disabilities, it was around 17%. Combined uptake of RBSK services for Defect and developmental delays, in this study was found around 32%.



Among the service utilizers, there were more cases cured or on treatment or on rehabilitation than those who were the non-utilizers. It is treatment seeking behavior which also matters. Among non-utilizers, more than one third did not go to any health facility/did not continue treatment. It indicates that to increase utilization of RBSK services, counselling is must after issuing the RBSK card. Most of these reluctant parents had children with SAM and the reasons given by parents were (1) denial of health issue, (2) no referral /approach by health functionary or (3) social/ economic issues like wage loss, superstition. Similar reasons were mentioned in a study in Pune<sup>[9]</sup> for lack of treatment or lack of compliance. Among those who were cured or on treatment / rehabilitation, more than two third took /were taking treatment from private hospitals indicating the preference for private health facility. Other studies<sup>[10,11]</sup> in India on health seeking behaviour have also shown this distinct preference for private facilities.

OOPE in this study was high and highly variable and is the matter of concern. This finding relates well with preference to private providers.

### **Conclusion and recommendations:**

Utilization of RBSK services was found 50.5%. Among users, OOPE is significantly less as compared to non-users. Among non-users, major reasons were preference for private providers and reluctance to stay at CMTC either due to ignorance about malnutrition or wage loss. Private practitioners need to be informed about services available under RBSK specially for poor, they may refer poor patients. Various professional bodies can be approached for the same. Counselling among parents regarding the need of treatment especially of deficiency disorders (SAM) and sequelae of untreated is required. Satisfied Utilizers can be motivated to act as motivator for the non-utilizers by sharing their experience with them.

### **Declaration:**

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Conflict of Interest: One of the authors was involved with implementation of this program in the study area.

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