

Original Research Article

Utilization patterns of Chiranjeevi Swasthya Bima Yojana in Rajasthan during financial year 2023 to 2024: a cross-sectional study at a tertiary care hospital

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ABSTRACT

Background: Publicly funded health insurance (PFHI) is considered a key policy tool to provide financial protection to households seeking healthcare. The state government of Rajasthan has launched Mukhya Mantri Chiranjeevi Swasthya Bima Yojana (CSBY), with a cover of 25,00,000 INR per family per year, that makes it one of the largest PFHI in world by cost-coverage. However, there is an evidence-gap on utilization patterns and consequent need of higher-rate packages in state-PFHIs. A study was designed with the objective to describe the utilization pattern of CSBY in Rajasthan.

Methods: The cross-sectional study was conducted at Sawai Man Singh Hospital in Jaipur, the highest public tertiary care institute of Rajasthan. The data on CSBY hospitalisations was collected from Chiranjeevi portal for financial year 2023-2024. Summary statistics were used to describe the variables such as age and gender of beneficiaries and medical specialities and cost details of packages utilised.

Results: The mean age of patients was 45.9 (± 20.0) years and 62.1% were males. The top specialty by volume of admission was general medicine (14.2%) and by cumulative cost of packages utilized was cardiology (22.0%). The median cost of packages utilized per hospitalization was 12,200 INR. 96.8% of beneficiaries utilized the services at a cumulative cost of up to 1 lakh INR and only 0.01% patients utilized more than 5 lakh INR.

Conclusions: The study found higher utilisation of highly-specialised services over broad-specialties and an underutilisation of higher-rate packages, demonstrating a gap in perceived need of higher-rate packages in the state.

Keywords: Chiranjeevi, Health insurance, Hospitalisation, PFHI, Rajasthan, Utilisation

INTRODUCTION

Universal health coverage ensures the access to quality health services while ensuring that the use of these services does not expose the users to financial hardship.¹ Publicly funded health insurance (PFHI) schemes are considered a key policy strategy for financial risk protection and averting catastrophic health expenditure.² Studies have shown that while the coverage of health insurance schemes in India has improved over recent years, they have produced mixed outcomes in financial protection of population sub-groups.² A wide range of PFHIs have been introduced in India over the years with

the common goal of reducing out-of-pocket expenditure (OOPE). The Government of India introduced Rashtriya Swasthya Bima Yojana (RSBY) in 2008 which offered a financial coverage of Rs. 30,000 to below poverty line families, for up to five members, for hospitalizations.³ The scheme faced a few criticisms including low enrolment rate, limited coverage and benefits, unviable economic model, and concerns regarding quality of care.^{4,5} The low cost-cap also led to increased likelihood of incurring OOPE.⁶ Consequently, Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (PMJAY) was introduced in 2018 to fill the coverage gaps and address challenges from RSBY. The scheme currently provides a

coverage of Rs. 5,00,000 per family for secondary and tertiary care hospitalisations in public and private empanelled hospitals.⁷ Compared to RSBY, PMJAY provides a larger financial coverage, wide range of packages and no restriction on family size. PMJAY also provides the benefits of inter-state portability and collaboration with state-PFHIIs.³

Many states have their own PFHIIs, with varying degrees of collaboration with PMJAY, and eligibility restricted to state residents and seeking care within the state. The state government of Rajasthan launched Mukhya Mantri Chiranjeevi Swasthya Bima Yojana (CSBY) (now renamed as Mukhya Mantri Ayushman Arogya Yojana) in 2021 with the goal to provide cashless hospitalisation to permanent residents of the state and reduce OOPe in the state.⁸ The financial coverage was enhanced to Rs. 25,00,000 per family per year in 2023 from the initial amount of Rs. 5,00,000, making it one of the largest PFHIIs by cost-coverage in the world.⁹ The enhanced coverage increased the range of packages to 3,219 across 1,798 procedures and 31 specialties. This also required an allocation of Rs. 3,500 crores, an increase of Rs. 1,272 crores from previous allotment, from the exchequer of second most debt-ridden state in the country.¹⁰

The increase in annual cover amount under PFHIIs is a rapidly evolving political discourse and design modification tool. Therefore, it is imperative to understand the effect of enhanced vertical coverage on utilisation and financial protection. However, there is an evidence-gap on utilisation patterns and consequent need of higher-rate packages in state-PFHIIs. In this context, a cross-sectional study was designed with the objective to describe the utilization pattern of CSBY at a premier public tertiary care hospital of Rajasthan in the financial year 2023 to 2024.

METHODS

Study design and setting

A facility-based descriptive cross-sectional study was conducted at Sawai Man Singh (SMS) Hospital, Jaipur. The hospital and its attached facilities have a capacity of 6,500 beds and is the largest public tertiary care hospital of Rajasthan and north-western India. The hospital is attached to the premier medical college of the state, Sawai Man Singh Medical College, and hence also provides wide range of high-cost advanced medical procedures and specialized services. Therefore, the utilization pattern of CSBY in the hospital can be considered as reflective of cost-coverage utilization, including upper limit of packages, under CSBY in the state.

Data collection

Medical records of all patients, who are eligible CSBY beneficiaries, admitted at SMS Hospital under CSBY

were collected from Chiranjeevi web-portal at the end of every month for the financial year 2023-2024 (April 2023 to March 2024), after obtaining necessary approval from the concerned authorities.¹¹ Publicly available data on the portal collected by the Government of Rajasthan was used and investigators had no role in the primary data-collection process. Key variables examined include age, gender and domicile district of beneficiaries, medical specialties where patients were hospitalized, and cost details of packages utilized. Age of the patients were categorized into age-groups as per WHO recommended age standards.¹² Cost of the packages were bracketed into 0-1 lakh INR and then at a class interval of 5 lakh INR up to 25 lakh INR (maximum coverage amount under CSBY).

Data analysis

The collected data was cleaned, consolidated and duplicates (13,409) removed using Microsoft Excel® version 16.80. Incomplete and duplicate entries were excluded from final analysis. Continuous data was summarized in terms of mean and standard deviation (SD) for normally distributed data and median and inter-quartile range (IQR) for non-normal distribution and costs, while discrete data was summarized in proportions.

The study followed all principles of the declaration of Helsinki and no human subjects were involved in the conduct of study. The study was approved by the institutional ethics committee, Sawai Man Singh Medical College and attached hospitals, Jaipur.

RESULTS

A total of 79,503 eligible CSBY beneficiaries were hospitalized at SMS Hospital during the study period, with an average of 6,625 hospitalizations per month. The mean age of patients was 45.9 (± 20.0) years and over half of them were males (62.1%). The patients were categorized into following age-groups: children (0-17 years), young (18-43 years), middle age (44-59 years), elderly (60-74 years) and senile (>75 years). The highest proportion of eligible CSBY beneficiaries admitted as patients were in the young age-group (18-43 years; 35.2%), while the least proportion were senile (>75 years; 5.8%), with males more than females in all age-groups (Tables 1 and 2).

Patients from 46 districts of Rajasthan, out of a total of 50 districts, were hospitalized under CSBY during the study period. However, over half (50.5%) of the admitted patients belonged to just three districts: Jaipur (including Jaipur rural) (32.6%), Alwar (10.1%) and Dausa (7.8%) (Table 1). The top five specialties by volume of admission were general medicine (14.2%), orthopedics (12.7%), cardiology (12.1%), general surgery (10.6%) and medical oncology (10.5%) (Table 1).

Table 1: Demographic profile of CSBY beneficiaries hospitalised at Sawai Man Singh Hospital, 2023-2024 (n=79,503).

Demographic characteristics	Frequency	Proportion (%)
Number of hospitalisations	79,503	100
Gender		
Male	49,373	62.1
Female	30,130	37.9
Age-group (years)		
Children (<18)	6,661	8.4
Young (18-43)	28,031	35.2
Middle-age (44-59)	20,714	26.1
Elderly (60-74)	19,485	24.5
Senile (>75)	4,612	5.8
Mean age (\pm SD)	45.9 (\pm 20.0) years	
Domicile district of beneficiaries		
Jaipur (including Jaipur rural)	25,921	32.6
Alwar	7,995	10.1
Dausa	6,240	7.8
Bharatpur	5,875	7.4
Siker	5,014	6.3
Karauli	4,103	5.2
Jhunjhunu	3,611	4.5
Tonk	3,530	4.4
Sawai Madhopur	3,149	4.0
Dhaulpur	2,558	3.2
Others	11,507	14.5
Specialty of availed services		
General medicine	11,251	14.2
Orthopaedics	10,120	12.7
Cardiology	9,626	12.1
General surgery	8,427	10.6
Medical oncology	8,375	10.5
Neurosurgery	6,323	8.0
Ophthalmology	5,948	7.5
Otorhinolaryngology	5,299	6.7
Neurology	2,813	3.5
Interventional radio	2,267	2.9
Plastic surgery	1,860	2.3
CTVS	1,603	2.0
Radiation oncology	1,352	1.7
Emergency package	1,227	1.5
Others	3,012	3.8

Female CSBY beneficiaries were most commonly admitted in general medicine (16.6%) while males were most commonly hospitalized in orthopedics (15.2%). Males utilized services more than females in all specialties except for medical oncology which had nearly equal gender distribution (Figure 1). The leading specialties by cumulative cost of packages utilized were cardiology (22.0%), neurosurgery (11.5%) and orthopedics (10.4%) (Figure 2).

The mean cost of packages utilized per hospitalization was 23,550 INR, with a median of 12,200 INR (IQR: 5,300-25,000 INR) (Table 2). A cost breakdown of health packages utilized by CSBY beneficiaries during hospitalization was done. The majority of beneficiaries (96.8%) utilized the services under CSBY at a cumulative cost of up to 1 lakh INR. Only 2,504 (3.15%) and 10 (0.01%) patients utilized CSBY packages in the cost bracket of 1-5 lakhs INR and 5-10 lakhs INR, respectively. Notably, only one patient ever availed

package of more than 10 lakhs INR (11 lakhs INR) during the study period, while none availed services

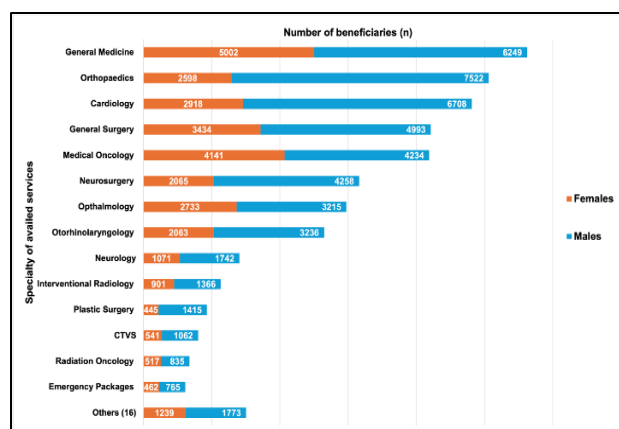


Figure 1: Gender-distribution of CSBY beneficiaries availing services under different specialties at Sawai Man Singh Hospital, 2023-2024 (n=79,503).

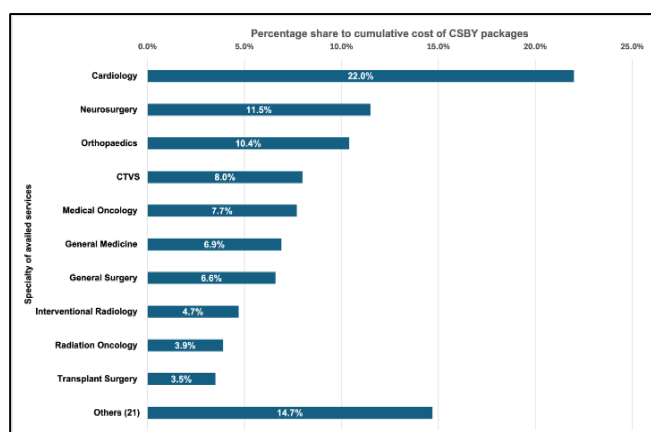


Figure 2: Specialty-distribution of percentage share to cumulative cost of packages under CSBY at Sawai Man Singh Hospital, 2023-2024 (Total = Rs. 1,872,307,750).

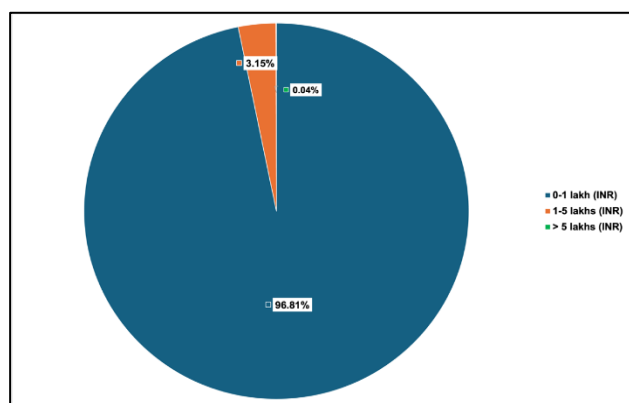


Figure 3: Percentage share of hospitalizations to different cost brackets under CSBY at Sawai Man Singh Hospital, 2023-2024

between 15-25 lakhs INR under CSBY (Table 2, Figure 3).

Table 2: Financial details of packages utilized by CSBY beneficiaries seeking care at Sawai Man Singh Hospital, 2023-2024 (n=79,503).

Hospitalisations	N
Total	79,503
Mean	6,625
Range	
Low	5,036 (November 2023)
High	8,041 (May 2023)
Summary measures (in INR)	
Cumulative	1,87,23,07,750
Mean	23,550
Median	12,200
Range	
Low	300
High	11,00,000
IQR (inter-quartile range)	5,300-25,000
Cost brackets	N (%)
0-1 lakhs INR	76,988 (96.84)
1-5 lakhs INR	2,504 (3.15)
5-10 lakhs INR	10 (0.01)
10-15 lakhs INR	1 (0.001)
15-20 lakhs INR	0 (0)
20-25 lakhs INR	0 (0)

DISCUSSION

The study findings provide a comprehensive assessment of how the CSBY health financing scheme in the state of Rajasthan at a premier public tertiary hospital was utilised for hospital admissions by its beneficiaries in the financial year 2023 to 2024. The demographic distribution of hospitalised CSBY beneficiaries indicate that the average age was older, males had greater access, and children and older age-groups had lower access compared to the projected population of the state of Rajasthan.¹³ The trend aligns with previous studies that have shown higher hospitalisation rates in males and working-age groups, probably due to increased access to healthcare services and better health-seeking behaviour.^{14,15}

There is a geographical disparity in access to services with over half of beneficiaries belonging to just three districts, despite overall wide utilisation from 46 out of 50 districts in the state. Although SMS Hospital is the premier public tertiary hospital of the state with referrals from across the state, particularly for advanced procedures, the hospital also serves as a crucial first-point of access for people in the region. This may be reflected in higher admissions from Jaipur and neighbouring districts.

The study found higher utilisation of CSBY packages in certain medical specialties. Cardiology admitted only 12% of all patients hospitalised under CSBY but contributed to 22% of total cost of services availed under the scheme. Other key specialties that had higher proportion of cumulative costs than admissions were neurosurgery, CTVS, interventional radiology and radiation oncology. These specialties encompass more intensive and higher-cost procedures. In contrast, the specialties such as general medicine, general surgery and medical oncology had higher proportion of admissions than share of costs entailed under CSBY. Orthopedics was the only specialty that had approximately equal proportion of admissions and costs. High-cost specialties may exacerbate financial strain on low-income households and they may avoid necessary treatments due to cost concerns, which could be reflected in higher utilisation when covered by insurance schemes.^{2,16} Moreover, the structure of PFHIs may create incentives for over-utilisation of specialised care and under-utilisation of primary healthcare.

The study revealed key insights in uptake of enhanced cost-cover under CSBY. The median costs of packages utilised during the study period was only 12,200 INR, with half of packages utilised in the range of 5,300-25,000 INR. Additionally, only around 3% of beneficiaries ever availed services worth more than 1 lakh INR and the highest package availed cost 11 lakhs INR. When compared to the maximum coverage assured under the scheme, currently 25 lakhs INR, the findings reveal a remarkable under-utilisation of higher-rate packages. This may suggest barriers such as lack of awareness and accessibility, or more importantly, a gap with perceived necessity. Previous studies have found that increased vertical cover or cost-coverage under state-PFHIs did not improve hospital care utilisation and financial protection.^{16,17}

Study limitations include reliance on administrative data, single-site sampling and absence of information on OOP or unmet need. The study findings have implications for the state budget and PFHI policy making. The limited uptake of higher-rate packages and lower median utilisation than intended can have long-term implications on the sustainability of the scheme and lead to underutilisation of resources. Effective PFHIs should aim to balance financial coverage with actual utilisation to ensure efficient use of resources.

The study underscores the need for targeted awareness campaigns to educate beneficiaries about the full range of services available under CSBY, particularly higher-rate packages. There is also a need for continuous monitoring to assess the utilisation of scheme and periodic changes in the policy. Lastly, the state government should consider policy adjustments based on utilisation data to ensure PFHIs remain reflective of population needs, particularly in terms of coverage limits and included services.

CONCLUSION

The study provides novel insights into the utilisation of enhanced vertical coverage under CSBY, a state-PFHI in Rajasthan. The study found higher utilisation of highly-specialised services over broad-specialties. However, there is a notable underutilisation of higher-rate packages, demonstrating a perceived gap with necessity and political messaging associated with the scheme. The study highlights the need for targeted awareness campaigns and evidence-based policy-designs. The findings are relevant to other states as well, intending to strengthen their PFHIs in tune with actual demand.

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