

# Demographic Analysis of Ayushman Bharat Beneficiaries

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**Abstract**—This study conducts a comprehensive demographic analysis of beneficiaries enrolled in the Ayushman Bharat scheme, focusing on identifying trends, disparities, and the overall impact of the program. Leveraging anonymized data from Ayushman Bharat, the analysis examines demographic characteristics such as age, gender, location, and socioeconomic status among beneficiaries. Through descriptive statistics, visualizations, and statistical tests, the study uncovers patterns in healthcare utilization, access, and outcomes across different demographic groups. Additionally, the study evaluates disparities in healthcare access and utilization, highlighting areas for improvement and targeted interventions. By providing insights into the demographic profile of Ayushman Bharat beneficiaries, this analysis informs policymakers and healthcare stakeholders about the effectiveness and equity of the program, facilitating evidence-based decision-making and resource allocation strategies to enhance healthcare delivery and outcomes for vulnerable populations.

## I. INTRODUCTION

Pradhan Mantri Jan Arogya Yojana (PMJAY), popularly known as Ayushman Bharat, is a major initiative of the Indian government to provide health insurance to vulnerable groups across the country. Underpinning the performance is a lack of understanding of beneficiary demographics, which play an important role in improving care utilization, access, and outcomes. This study provides a rigorous demographic analysis of Ayushman Bharat beneficiaries and focuses on revealing the trends, gaps and overall impacts of the programme.

Examining publicly available data of Ayushman Bharat, this analysis aims to explore various aspects of the beneficiary profile. The basis of this effort is parameters such as age, gender, geography and socioeconomics that create a detailed profile of beneficiaries. Through statistical analysis, visualization and comparative analysis, this research aims to reveal key patterns and differences between beneficiaries.

Additionally, this analysis aims to evaluate the impact of demographics on healthcare utilization and outcomes in Ayushman Bharat. This study aims to identify patchwork for intervention and policy development by examining differences in access to care and differences in healthcare utilization across demographic groups. This information will be useful to policymakers, healthcare administrators, and stakeholders as they navigate the complex healthcare landscape and seek to ensure equity and care for all beneficiaries.

More importantly, this study is an important step towards understanding the demographics of Ayushman Bharat beneficiaries, providing evidence-based access, informing policy decisions and improving business performance, ultimately improving health outcomes for the poor across India.

## II. METHODOLOGY

This study employs a systematic methodology to conduct a demographic analysis of beneficiaries enrolled in the Ayushman Bharat scheme. The methodology encompasses several key steps aimed at capturing and analyzing demographic characteristics, healthcare utilization patterns, and disparities among beneficiaries.

## III. STUDY AREA AND POPULATION

The analysis of Ayushman Bharat beneficiaries spans across the entirety of a certain country, illustrating the widespread reach of the healthcare program. This nation, known for its extensive and varied populace, poses a multifaceted environment for healthcare management and policy enactment.

Factors such as demographic diversity and geographic dispersion significantly influence healthcare accessibility, utilization, and resultant outcomes. In this context, a comprehensive overview of the study region and its population attributes is presented:

**Geographic Diversity:** India is a geographically diverse country, with varying landscapes, climates, and levels of urbanization. The population is distributed across states, union territories, districts, and rural-urban areas, each presenting unique challenges and opportunities for healthcare delivery.

**Population Size:** India is the second-most populous

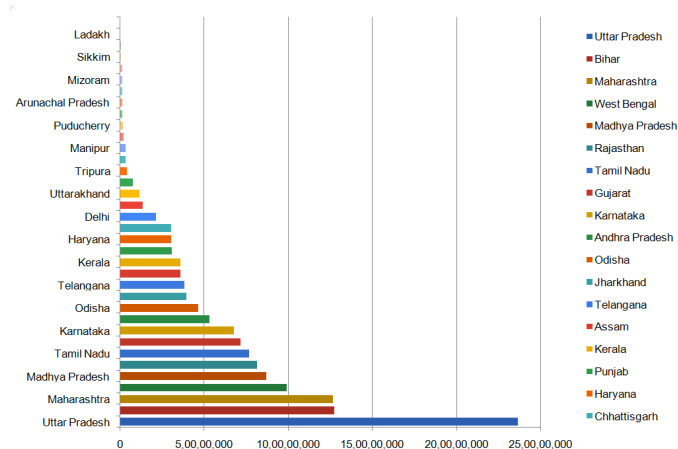


Fig. 1: Population of each state of India

country globally, with a population exceeding 1.3 billion people. The sheer size and density of the population pose significant challenges in ensuring universal access to healthcare services, particularly for underserved and remote communities.

**Demographic Composition:** India's population exhibits remarkable diversity in terms of age, gender, ethnicity, language, religion, and socioeconomic status. Understanding these demographic characteristics is essential for tailoring healthcare interventions and addressing disparities in access and utilization.

**Socioeconomic Factors:** Socioeconomic factors such as income inequality, education levels, employment opportunities, and social determinants of health significantly influence healthcare outcomes. Marginalized populations, including scheduled castes, scheduled tribes, and other disadvantaged groups, often face barriers to accessing quality healthcare services.

Distribution of Ayushman Card Holders by Gender

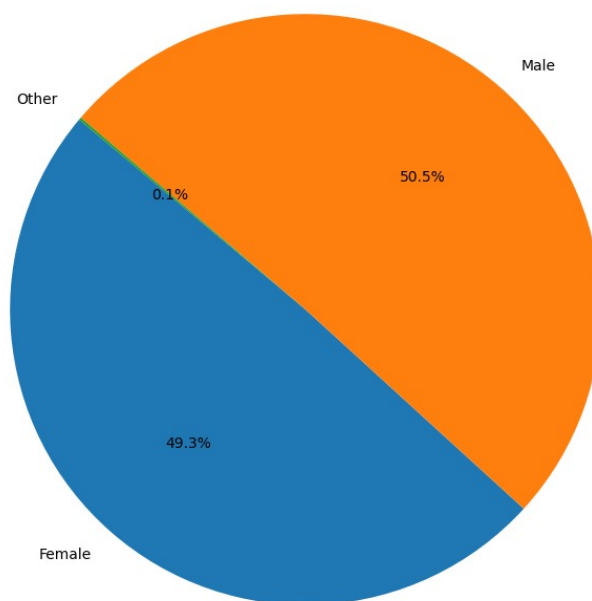


Fig. 2: Demographics Composition

**Urban-Rural Divide:** India's population is distributed unevenly between urban and rural areas, with distinct healthcare infrastructure and service delivery challenges in each setting. Rural populations, in particular, may have limited access to healthcare facilities and face barriers such as transportation and healthcare workforce shortages.

**Healthcare Infrastructure:** The availability and quality of healthcare infrastructure vary across different regions of India. While urban areas typically have better-equipped hospitals and healthcare facilities, rural and remote areas may lack essential services, medical professionals, and diagnostic facilities.

**Healthcare Utilization Patterns:** Healthcare utilization patterns also vary across demographic groups and geographic regions. Factors such as proximity to healthcare facilities, affordability of services, cultural beliefs, and health literacy influence individuals' healthcare-seeking behavior.

By considering these factors, the study aims to provide insights into the demographic dynamics, healthcare utilization patterns, and disparities among Ayushman Bharat beneficiaries across different regions and population groups in India. This

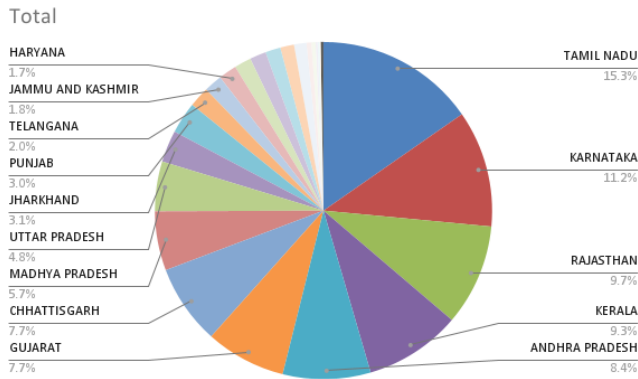


Fig. 3: Authorized Hospital admission

comprehensive understanding is essential for designing targeted interventions, improving healthcare access and quality, and advancing the goal of universal health coverage under Ayushman Bharat.

#### IV. DATASETS AND EVALUATION METRICS

Through initiatives like Socio-Economic Caste Census (SECC) 2011, beneficiary identification is meticulously carried out, considering deprivation and occupational criteria, ensuring the inclusion of the most vulnerable populations. Additionally, Ayushman cards are issued to eligible beneficiaries, facilitating seamless access to healthcare services. Continuous monitoring and evaluation of data enable policymakers to refine strategies, expand coverage, and enhance the quality of healthcare delivery.

#### V. STATISTICAL ANALYSIS

The statistical analysis applied in this study is how the demographic composition and health care utilization of Ayushman Bharat beneficiaries are studied. Thus, it relies on several methods like descriptive statistics for data generation, inferential statistics to find links, regression analysis to discover predictors of health outcomes, and others. Among other techniques are geospatial and time-series analytics to identify trends, as well as machine learning to forecast. Contacted analysis helps policy makers make informed decisions regarding the safety during the reach of providing health services to marginalized persons in India.

The implementation of Ayushman Bharat Yojana has resulted in a remarkable expansion of healthcare

coverage across India. Now with over 500 million individuals from vulnerable households are benefiting from the scheme.

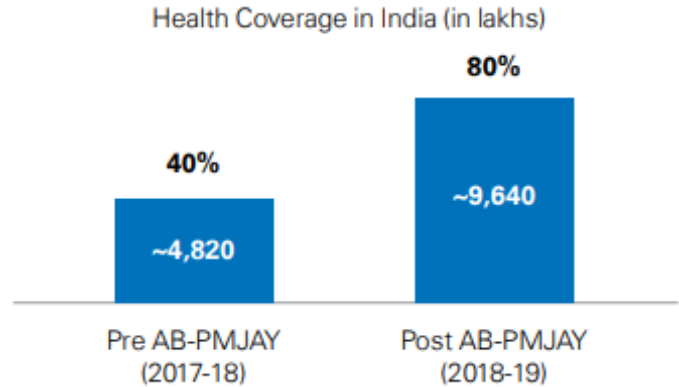


Fig. 4: Healthcare coverage in India

**Healthcare:** Inception in 2018 has reduced out-of-pocket expenses by 15-20% for 500 million of the poor and vulnerable beneficiaries of Ayushman Bharat Yojana. The scheme has enabled access to critical medical procedures such as surgeries at 10.7% rate and specialized treatments through more than 24000 hospitals across India. Ayushman Bharat also set up 30,054 Health and Wellness Centers (HWCs) which have since conducted many screenings and health awareness sessions leading to early detection of diseases. This is not only the reason why healthcare access has improved in rural areas through it; the approach has also contributed to providing employment opportunities for diverse healthcare professionals in all parts of the country thereby encouraging inclusive growth.

#### Ayushman Bharat Card Holder Statewise:

Millions of Ayushman cards are issued regularly in every state courtesy of AB-PMJAY which is one way that India's national health insurance provides care across the country. Here is some recent data:

Uttar Pradesh leads with approximately 14.19 million cards issued, reflecting the significant healthcare needs of its population. Assam follows closely with over 12.42 million cards created, indicating the widespread adoption of the scheme in the northeastern region. The state of Madhya Pradesh has issued almost 24.79 million cards, a commendable effort in

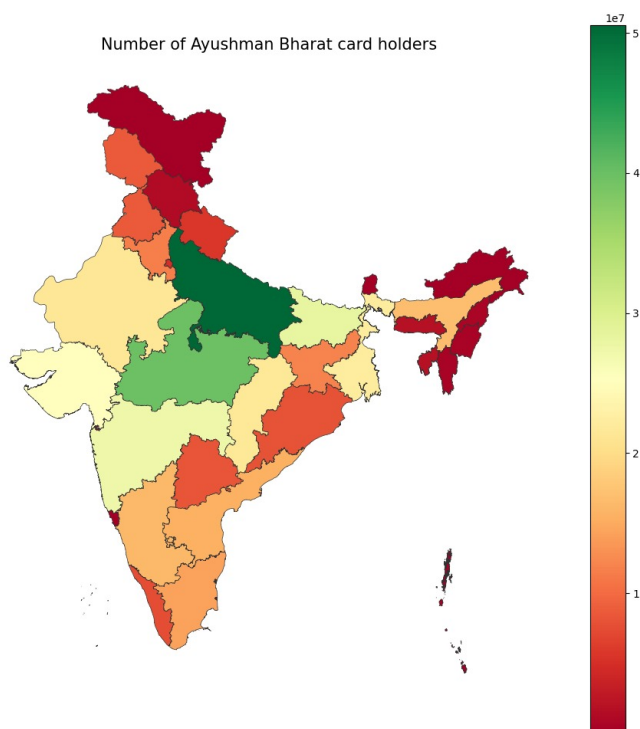


Fig. 5: Number of Ayushman Bharat card holders

the expansion of healthcare accessibility in central India.

Tamil Nadu and Karnataka have shown strong involvement too, with 24.73 million and 9.78 million cards respectively as indicators of the program's penetration into southern states.

Even smaller states such as Himachal Pradesh and Sikkim have witnessed huge card production with the respective creation of one point zero eight million and three six lakh cards showing that AB-PMJAY has gone beyond the boundaries.

These figures confirm that this program has been widely embraced across different parts of India thus moving step by step towards universal health coverage for all Indians.

#### Distribution of total count by speciality

Ayushman Bharat Pradhan Mantri Jan Arogya Yojana is a national scheme that provides us a vast range of specialized medical services in India. The program is one of the most intensive, involving 1,669 surgeries in 26 specialties and focusing on people's diverse health needs.

The program includes some special specialties

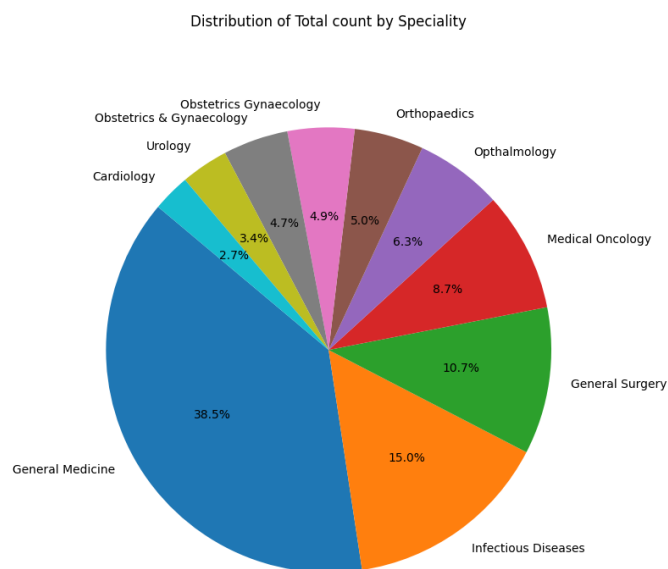


Fig. 6: Distribution of total count by speciality

such as cardiology, general surgery, orthopedics and urology. The four specialties mentioned above account for approximately 31.5% of all surgeries performed, protecting society from cardiovascular diseases and providing medical, surgical, bone and joint surgery and urological treatment.

In addition, key areas such as medical oncology, radiation oncology and surgical oncology provide information on combating cancer. Our specialty provides comprehensive care, including medical, radiation, and surgical, providing approximately 158 types of surgeries, accounting for 9.5% of the total.

Similarly, specialties such as neurosurgery, interventional neuroradiology and plastic surgery provide advanced medical care to patients by treating major diseases, vascular diseases and reconstruction. They contribute to the better behavior of approximately 240 patients and constitute 14.4% of all types.

Other disciplines in the program include obstetrics and gynecology, pediatrics, ophthalmology and ear, nose and throat, maternal health, child health, eye care and pediatrics, ear, nose and throat. These patients and caregivers performed approximately 744 procedures, or 44.6% of the total.

Therefore, the expertise of the AB-PMJAY

program is broad and comprehensive. It takes into account various ailments and offers various treatments to beneficiaries across the country. In addition, special topics included in the program include organ and tissue transplants and various injuries. They focus on critical cases requiring organ transplantation or serious infections requiring complex surgical interventions McGill, C., 2020. Thus, all 29 procedures, or about 1.7%, ensure that people with life-threatening diseases receive the best medicine and save their lives. Additionally, some other specialized packages, such as psychology, encourage the integration of all types of treatments by recognizing the importance of spirituality and providing appropriate treatment for many mental illnesses. This section includes 10 specific studies on mental health, accounting for approximately 0.6% of the total, demonstrating the important role of mental health in the AB-PMJAY system.

#### Procedure under Ayushman Bharat Yojna

AB-PMJAY's comprehensive medical program includes a total of 1669 surgeries in 26 medical specialties. This comprehensive system meets different medical needs, providing beneficiaries with access to a wide range of treatments, from routine treatments to specialized services. With this expansion, AB-PMJAY acts as a beacon of hope by providing vital healthcare services to millions of people in India, thereby promoting well-being through better hygiene and improved quality of life.

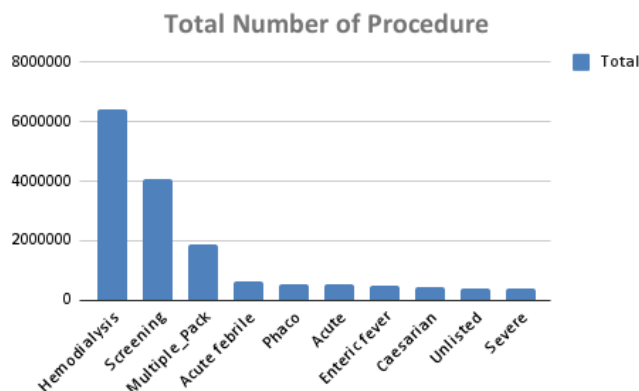


Fig. 7: Total number of procedures

The 1,669 surgeries performed at AB-PMJAY are huge and require careful planning for many situations. These services include treatments ranging from general medicine and surgery to specialties such as cardiology, urology and orthopedics. An average of over 64 surgeries are required depending on the specific treatment, ensuring that beneficiaries receive a comprehensive treatment program, ensuring they receive the necessary treatment tailored to their specific needs.

#### • Paving the Path for a Robust Healthcare System in India

India's growing emphasis on healthcare presents a unique chance to overhaul and bolster its health system. To ensure effective implementation of reforms, we need to prioritize the following steps:

- **1. Increase Government Health Spending:** To make programs like the "Ayushman Bharat Program" (ABP) successful, there's a critical need to boost government investment in healthcare. Achieving universal coverage requires substantial annual investments, aiming for approximately 2.5% of India GDP. In current its around 1.5-2.1% of India GDP. Both national and state governments must consistently increase budget allocations by 20-25% annually. Relying solely on promises of future funding may discourage governments from promptly implementing programs, hence measuring health spending as a percentage of GDP provides a clearer picture of commitment.
- **2. Strengthen and Expand Ongoing Initiatives:** Strengthening existing initiatives such as free medicines and diagnostics schemes and expanding services for noncommunicable diseases are crucial. Urban areas face unique challenges like limited public spaces, air pollution, and migratory populations, which require tailored healthcare solutions. Improved existing urban Primary Health Centers (PHC) to Health and Wellness Centers (HWC) is essential, alongside substantial capital investments to expand primary healthcare infrastructure. Urban initiatives

like 'Mohalla Clinics' and 'Basthi Devakhana's' should be expanded to other urban settings in India.

- **3. Establish Institutional Mechanisms for Stakeholder Engagement:** Engaging with the community and civil society organizations is vital for accountability and continuity in initiatives. Academic and research institutions can offer valuable insights and help design local solutions. The success of Ayushman Bharat Yojna (ABY) depends on its alignment with other flagship programs like the National Rural Health Mission (NRHM), the Smart Cities Mission and Gram Swaraj Abhiyan. Creating more inclusive and dedicated institutional mechanisms, drawing lessons from experiences like Thailand's national health assemblies, is necessary.
- **4. State Government Leadership in Advancing Universal Health Coverage (UHC):** States should take the lead in implementing UHC initiatives, supported by exploring legislative frameworks like the Pradhan Mantri Rashtriya Swasthya Suraksha Mission and many other schemes. Legislative support is vital for ensuring the sustainability and enduring continuity of social health insurance schemes. Since we know according to Indian constitution healthcare is a state function work, the uptake of ABP relies heavily on the interest and leadership of state governments. Exploring the possibility of placing health on the concurrent list of the Indian constitution could be beneficial in the long run.
- **5. Utilize ABP as a Platform for Comprehensive Health System Reforms:** ABP's success lies in its shift towards people-centered integrated services and financial protection. While ABP focuses on specific initiatives, it's crucial to strengthen the overall health system. Converging ABP with the National Health Mission (NHM) can address supply- and demand-side challenges, ultimately leading to a stronger healthcare system across all states.

Implementing these steps will pave the way for a resilient and inclusive healthcare system in India, ensuring better health outcomes for all citizens.

## VI. CONCLUSION

India has made progress towards global health through the Ayushman Bharat initiative, providing healthcare services to both urban and rural parts of India. Ayushman Bharat has implemented a strategic plan to address disparity in availability, access and productivity in rural India. The program has direct benefits in improving healthcare and financial protection while encouraging the development of medical procedures. This could become a global standard for equitable healthcare. Additionally, the program has proven its value by providing financial protection to millions of people during the COVID-19 pandemic. Although progress has been made, fundamental problems need to be addressed, such as the gap between the supply and demand of health services, rising government spending, and shortages of rural health centers. As part of the effective plan, there should be a focus on prevention and early detection, link the Ayushman program with other regional schemes, and conduct public awareness campaigns to increase the effectiveness of beneficiaries. By overcoming these challenges, Ayushman Bharat can achieve its goal of providing equitable and affordable healthcare to all Indians and fulfill its mission to support the achievement of universal health as one of the Sustainable Development Goals.

## REFERENCES

<https://data.gov.in/keywords/ayushman>  
<https://data.gov.in/resource/district-wise-number-eligible-beneficiary-families-under-ayushman-bharat-pradhan-mantri>  
<https://data.gov.in/resource/district-wise-number-authorized-hospital-admissions-under-ayushman-bharat-pradhan-mantri>  
<https://data.gov.in/resource/state-wise-number-authorized-hospital-admissions-under-ayushman-bharat-pradhan-mantri>  
<https://data.gov.in/resource/state-wise-details-central-release-under-pradhan-mantri-ayushman-bharat-health>  
<https://idronline.org/article/health/evolution-of-ayushman-bharat-as-indias-healthcare-initiative/>  
<https://idronline.org/article/health/evolution-of-ayushman-bharat-as-indias-healthcare-initiative/>

<https://www.businesstoday.in/union-budget/story/interim-budget-2024-govt-may-double-insurance-cover-under-ayushman-bharat-health-insurance-scheme-ahead-of-ls-polls-413739-2024-01-17>