

Medicare NPI Physicians and Other Suppliers Payment Aggregate Report 2015

Introduction

According to the Department of Health and Human Services, the health services providers are defined as any person or organization that furnishes, bills, or is paid for health care in the normal course of business. To participate in the *Medicare program*, the provider needs to have a unique identifier which is the **NPI** (National Provider Identifier), issued by the ‘Centers for Medicare and Medicaid Services’. Health services providers include organizations (like hospital, clinics, home health agencies, nursing homes, residential treatment centers, laboratories, ambulance companies, group practices, health maintenance organizations, supplies related to health care, prosthetics, and orthotics, pharmacies) and individuals (like physicians, dentists, nurses, chiropractors, pharmacists, physical therapists).

**Medicare** program, designed to offer health services financial support for elder people (65 years and above), certain younger people with disabilities and people with End-Stage Renal Diseases. Groups of people or individuals belonging to low income families, qualified pregnant women and children and individuals receiving Supplemental Security Income (SSI) are covered through **Medicaid**. Any person who has health care insurance through the Medicare or Medicaid programs is generally considered a beneficiary of the one or both programs.

Centers for Medicare and Medicaid Services developed the Healthcare Common Procedure Coding System (**HCPCS**), a set of codes to identify medical procedures and services. The health services providers use the coding system and generate invoices and insurance claims associated with a total monetary value represented by the **Submitted Charges**. Centers for Medicare and Medicaid Services (CMS) establishes the **Total Medicare Allowed Amount** for every procedure and service covered through Medicare program. Based on the Medicare insurance claim the health services providers receive reimbursements represented by the **Medicare Payment Amount**.

Medicare NPI Physicians and Other Suppliers Payment Aggregate Report 2015 include Provider information; Services, cost and payment information; Demographic information of the beneficiaries including age, gender, race & Medicare/Medicaid entitlements; Chronic diseases and Health risk scores. The data provided by Centers for Medicare and Medicaid Services. <https://data.cms.gov/Medicare-Physician-Supplier/Medicare-Physician-and-Other-Supplier-National-Pro/p3uv-6dv4>

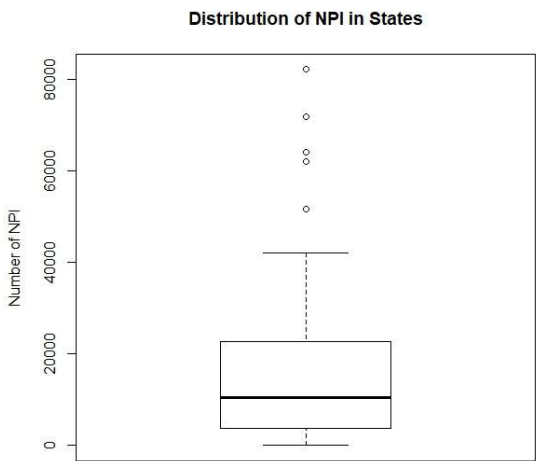
Charts

- 1. Distribution of NPI across states
- 2. Total number of beneficiaries, services, HCPCS codes in 2015 payment report
- 3. Total Submitted amount, Total Payment amount, Average of submitted amount, Average of payment amount
- 4. Total Allowed amount, Total Standardized amount, Average of Allowed amount, Average of Standardized amount
- 5. Drug, Medical, Total and Other Charges across States
- 6. Ratio of payment amount to beneficiary, services, HCPCS
- 7. Top Specialty types of provider
- 8. Age variations of beneficiaries and distribution across states
- 9. Gender of beneficiaries and distribution across states
- 10. Race distribution across states
- 11. Average Hierarchical Condition Category (HCC) risk score of beneficiaries attending the provider
- 12. Percentage of beneficiaries with certain chronic disease as reported by NPI

National Provider Identification

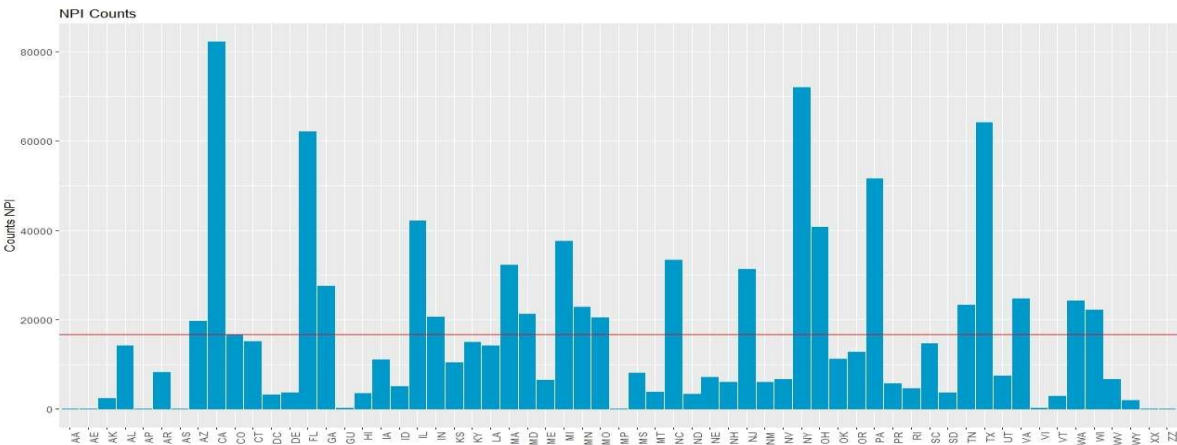
National Provider Identification represent the provider. The total number of NPI in 2015 is noted to be 1019442. It ranges from a minimum value of 3 in American Samoa to a maximum of 82263 providers in California. As noted from the boxplot 50% of the states have 10422 and less providers.

Boxplots represent the spread of no of providers across the states



The figure on the right represents the no of providers or NPI counts in each state and the red line denotes the average across states. Larger states have larger no of providers and smaller territories have lesser numbers.

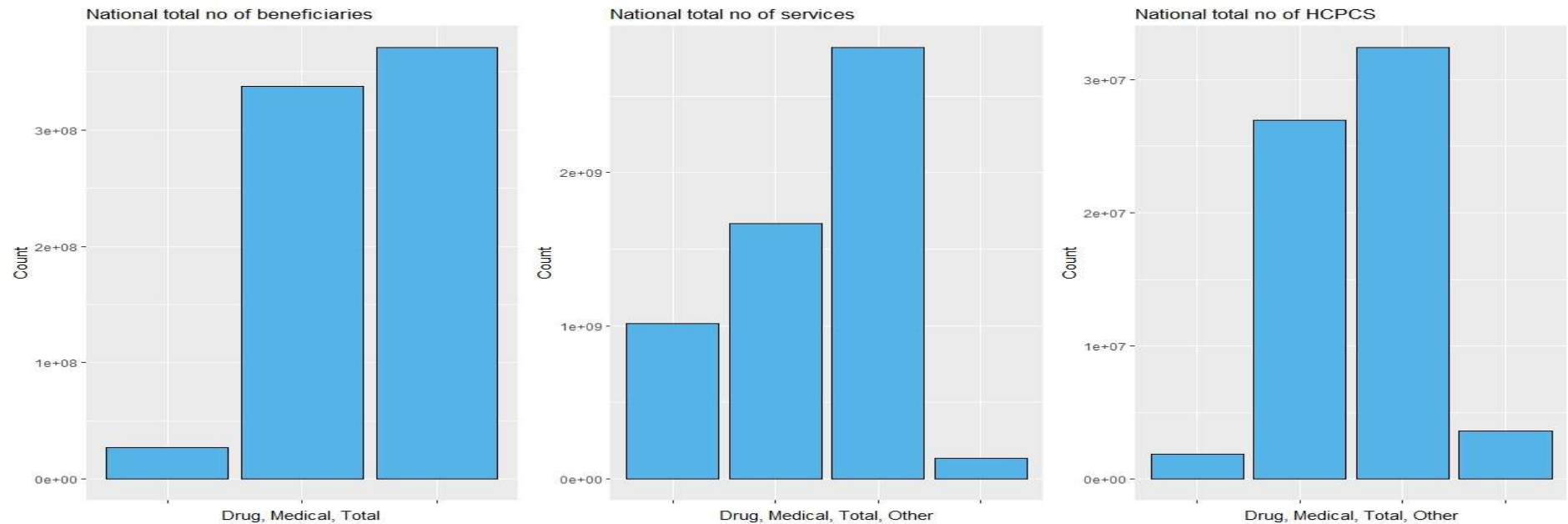
State	Count NPI	State	Count NPI	State	Count NPI	State	Count NPI	State	Count NPI
CA	82263	VA	24756	SC	14619	NV	6638	DC	3258
NY	72006	WA	24250	LA	14200	ME	6532	VT	2893
TX	64152	TN	23371	AL	14142	NH	6100	WY	1923
FL	62071	MN	22816	OR	12843	NM	6082	AK	247
PA	51650	WI	22280	OK	11231	PR	5753	GU	166
IL	42114	MD	21283	IA	11013	ID	5035	VI	163
OH	40700	IN	20605	KS	10422	RI	4603	ZZ	76
MI	37594	MO	20503	AR	8219	MT	3866	AE	39
NC	33427	AZ	19662	MS	8122	SD	3729	MP	30
MA	32319	CO	16574	UT	7403	DE	3706	AP	27
NJ	31339	CT	15114	NE	7193	HI	3520	XX	10
GA	27480	KY	15028	WV	6662	ND	3384	AA	9
								AS	3



Number of Beneficiaries, Services, HCPCS codes

Number of Total medical service comes to 1668907146 which is 59.21% of Total Medicare services. Number of total drug services comes to 1016962423 which is 36.08% of Total Medicare services. Other services come to 132843140 which is 4.71% of Total Medicare services. Total Medicare services come to 2818712709.

Total number of Medical HCPCS is the Total number of HCPCS codes associated with medical services is 26960682 in 2015 which comes to 83.12% of total HCPCS. Number of Drug HCPCS is the Total number of HCPCS codes for drug services, comes to 1847048 which is 5.69% of total HCPCS. Other HCPCS number comes to 3627847 which is 11.18% of total HCPCS. Total Medicare HCPCS comes to 32435577.



Cost

The report is aggregated to Total cost, Medical cost, and Drug costs. Also submitted charges, allowed amount, payment amount and standardized amount is provided for all the three types of costs. Other charges are calculated from the difference of total cost and medical & drug costs.

Data is summarized on the states for sum and average as required. It gives the distribution of the values across all the states and the state average. The spread of values across states, the minimum, maximum, median and mean values can be easily studied with help of boxplots. This helps to understand the variation between state performance. Presence of large states and very small territories or categories creates wide variations in the values. Bar graphs shows the National total and average of submitted amount, allowed amount, payment amount and standardized amount across states.

Submitted amounts and Medicare Payment amount

**Total drug submitted charges**, is the charges that the provider submitted for drug services. Total drug submitted charges for 2015 comes to \$29,105,277,103 which is 8.42% of 'Total Medicare submitted amount'. 50% states have drug submitted charge amount below \$296,700,000. It gives average of \$485,100,000 across states.

**Total medical submitted charges**, charges that the provider submitted for medical services amounts to \$287,345,000,000 which comes to 83.15% of 'Total Medicare submitted amount'. 50% of states have medical submitted charge amount below \$2,513,000,000. Average of \$4,711,000,000 noticed across states.

**Total Medicare Submitted Amt** is the total charges that the provider submitted for all services. In 2015 a total of \$345,577,000,000 was submitted.

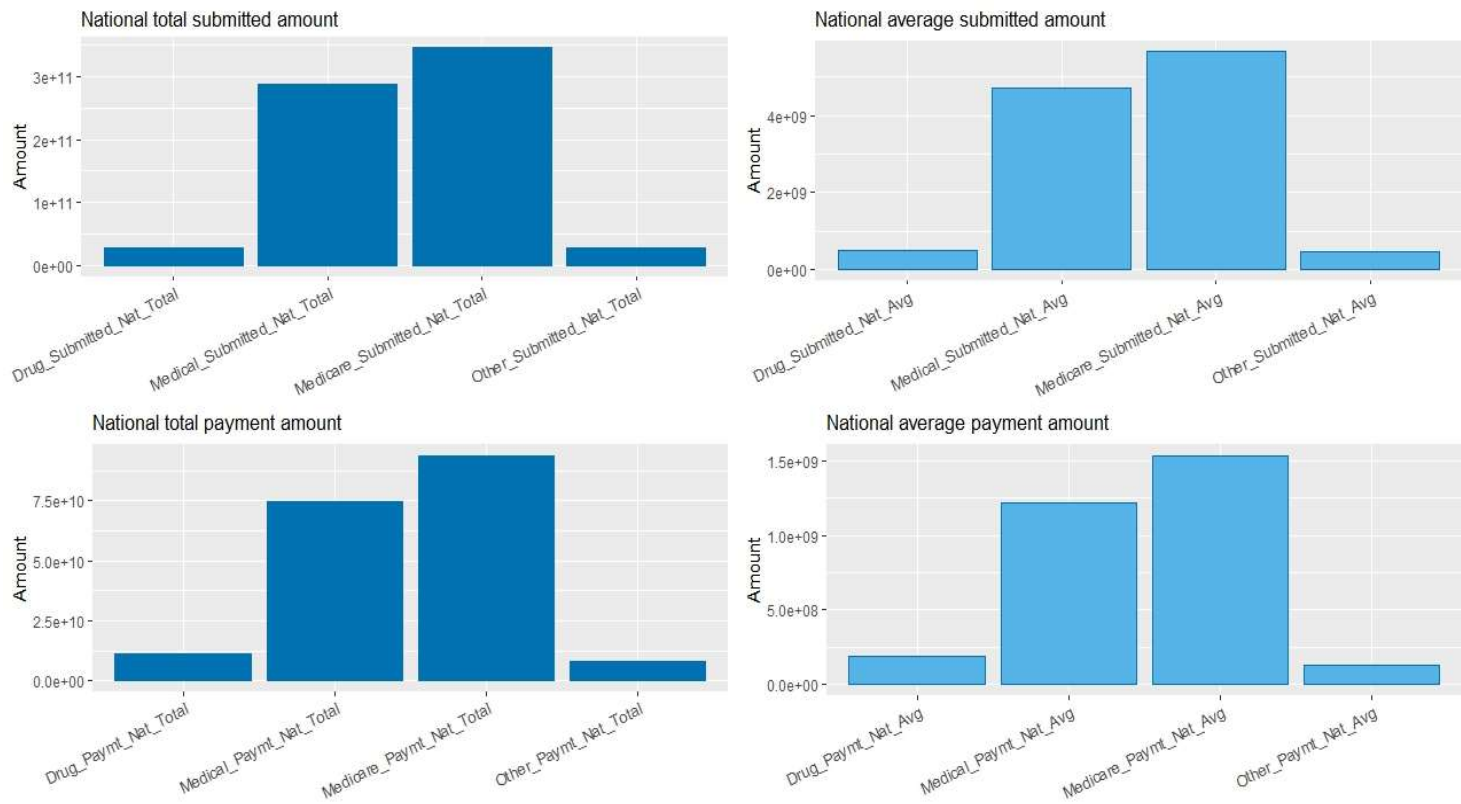
**Other submitted charges** are calculated by taking the difference of total and medical & drug charges. A total of \$29,126,001,244 is noticed which comes to 8.43% of total submitted charge amount. It can be noticed that the medical charges make the majority of the submitted charges.

**Total Drug Payment Amt** is the total amount that Medicare paid after deductible and coinsurance amount have been deducted for all the provider's line-item drug services and it amounts to \$11,116,927,681 which is 11.87% of the total Medicare payment amount. 50% of the values are below \$114,000,000 and average amounts to 185300000.

**Total Medical Payment Amt** is the total amount that Medicare paid after deductible and coinsurance amount have been deducted for all the provider's line item medical services. Total Medical payment amount comes to \$74,650,677,739 in 2015 which is 79.71% of the total Medicare payment amount. 50% of the states have a value lower than \$667,900,000 and the average comes to \$1,224,000,000 across states.

**Total Medicare Payment Amt** is the total amount that Medicare paid after deductible and coinsurance amount have been deducted for all the provider's line-item services and 2015 had a total of \$93,651,025,226

**Other Payment Amt** is the difference of total Medicare payment amount and medical & drug payment amounts which came to \$7,883,419,806. It comes to 8.42% of the total Medicare payment amount.



Medicare Allowed amounts and Medicare Standardized amount

**Total Drug Allowed Amt** is the Medicare allowed amount for drug services. This figure is the sum of the amount Medicare pays, the deductible and coinsurance amount that the beneficiary is responsible for paying, and any amounts that a third party is responsible for paying. In 2015, total drug allowed amount was \$14,005,687,286 which is 11.51% of the total Medicare allowed amount. 50% of the states have total drug allowed amount within \$144,200,000 and average of \$233,400,000 is also noticed across states.

**Total Medical Allowed Amt** is the Medicare allowed amount for medical services. This figure is the sum of the amount Medicare pays, the deductible and coinsurance amount that the beneficiary is responsible for paying, and any amounts that a third party is responsible for paying. A total of \$97,247,010,012 of total Medicare allowed amount is noticed. It comes to 79.90% of total Medicare allowed amount for 2015. 50% of states have total medical allowed amount below \$870,900,000. An average of total medical allowed amount comes to \$1,594,000,000.

**Total Medicare Allowed Amt** is the Medicare allowed amount for all provider services. This figure is the sum of the amount Medicare pays, the deductible and coinsurance amount that the beneficiary is responsible for paying, and any amounts that a third party is responsible for paying. For 2015 it comes to \$121,710,000,000.

**Other Allowed Amt** is the difference of total Medicare allowed amount and medical & drug allowed amounts which came to \$10,457,302,702. It shares 8.59% of the total allowed amount.

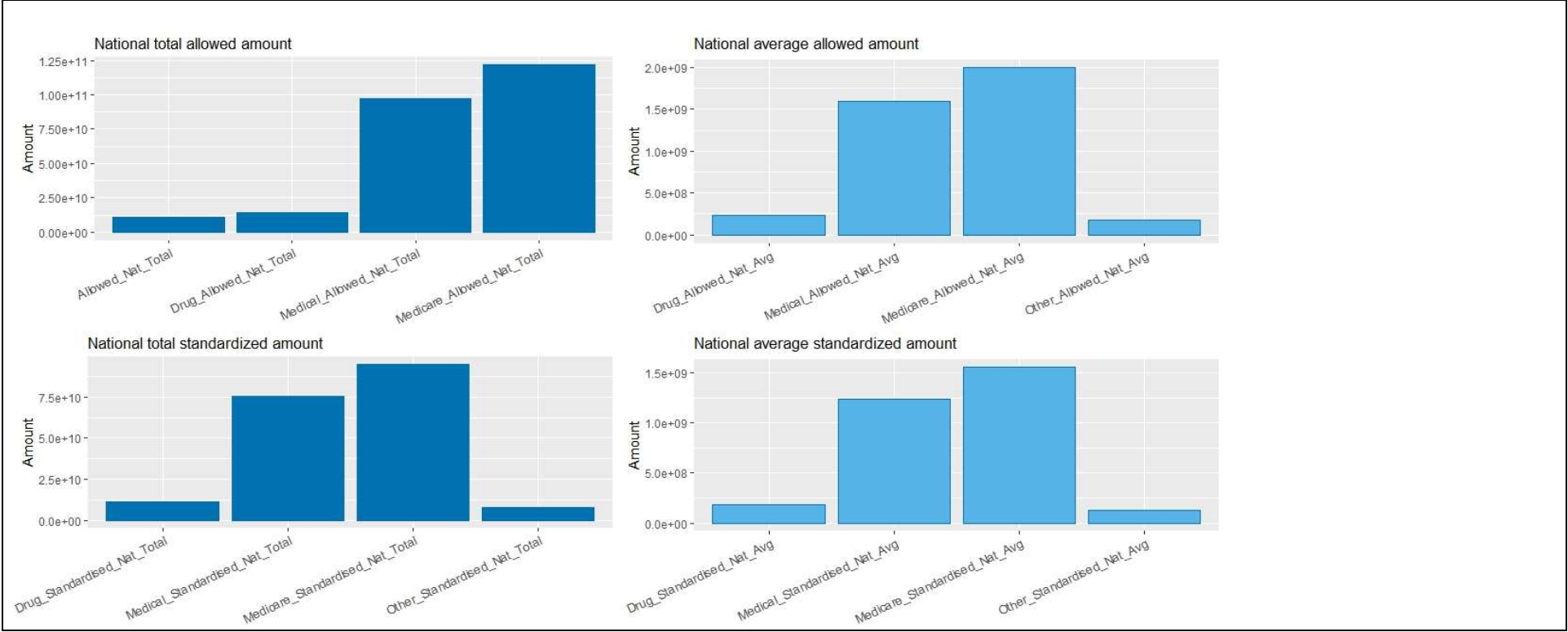
**Standardization** removes geographic differences in payment rates for individual services, such as those that account for local wages or input prices and makes Medicare payments across geographic areas comparable, so that differences reflect variation in factors such as physicians’ practice patterns and beneficiaries’ ability and willingness to obtain care.

**Total Drug Standardized Amt** is the total amount that Medicare paid after deductible and coinsurance amounts have been deducted for the line item drug service, as defined from the Medicare Part B Drug ASP File and after standardization of the Medicare payment has been applied. Total drug standardized amount comes to \$11,119,260,994, which is 11.74% of total Medicare standardized amount.

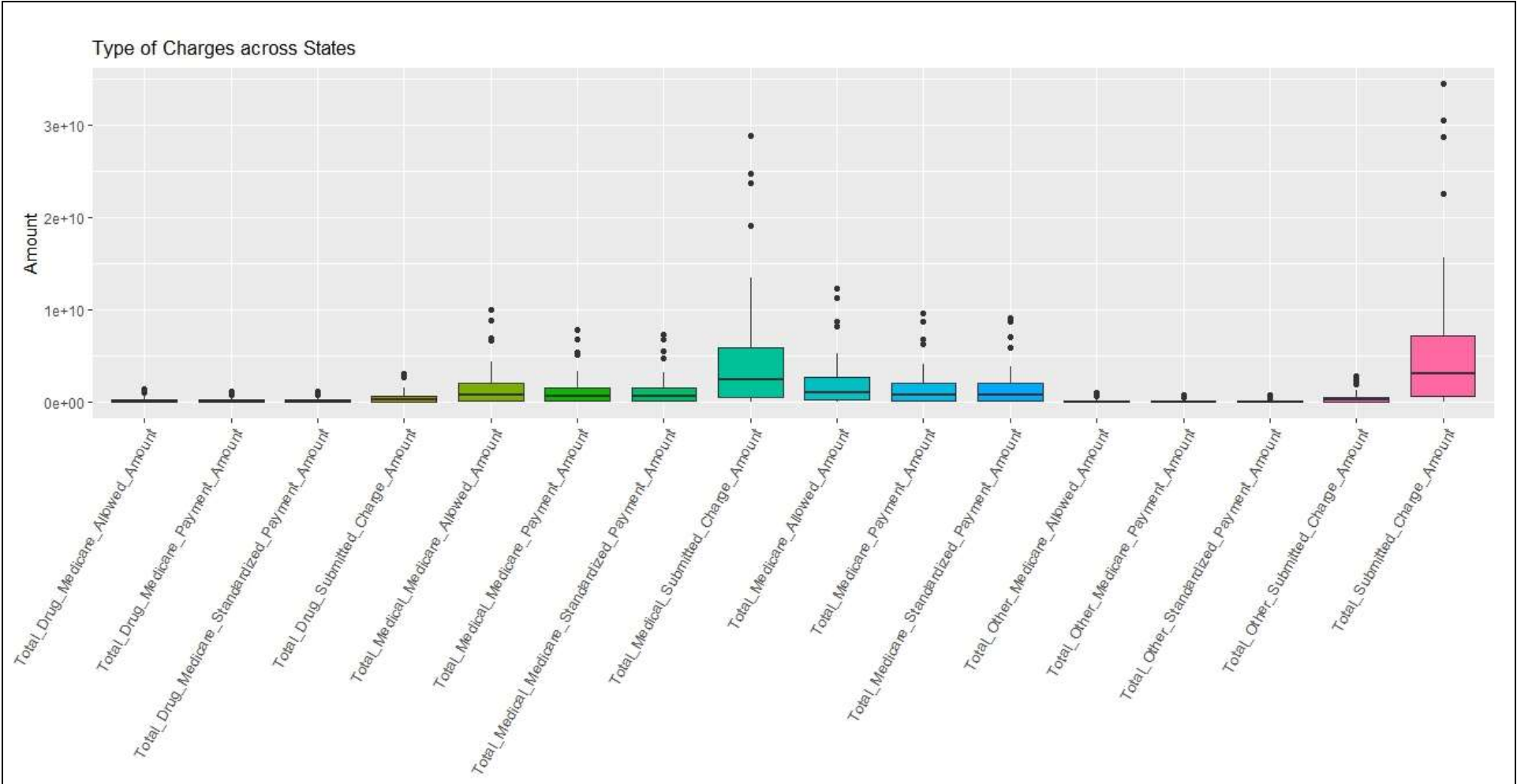
**Total Medical Standardized Amt** is the total amount that Medicare paid after deductible and coinsurance amounts have been deducted for the line item medical (non-ASP) service, as defined from the Medicare Part B Drug ASP File and after standardization of the Medicare payment has been applied. Total medical standardized amount came to \$75,587,963,478 in 2015 which is 79.81% of the total Medicare standardized amount

**Total Medicare Standardized Amt** is the total amount that Medicare paid after deductible and coinsurance amounts have been deducted for the line item service and after standardization of the Medicare payment has been applied. A total of \$94,714,136,623 was noted in 2015.

**Other Standardized Amt** is the difference of total Medicare payment amount and medical&drug payment amounts which came to \$8,006,912,152; 8.45% of total standardized amount.



Drug, Medical, Total and Other Charges across States





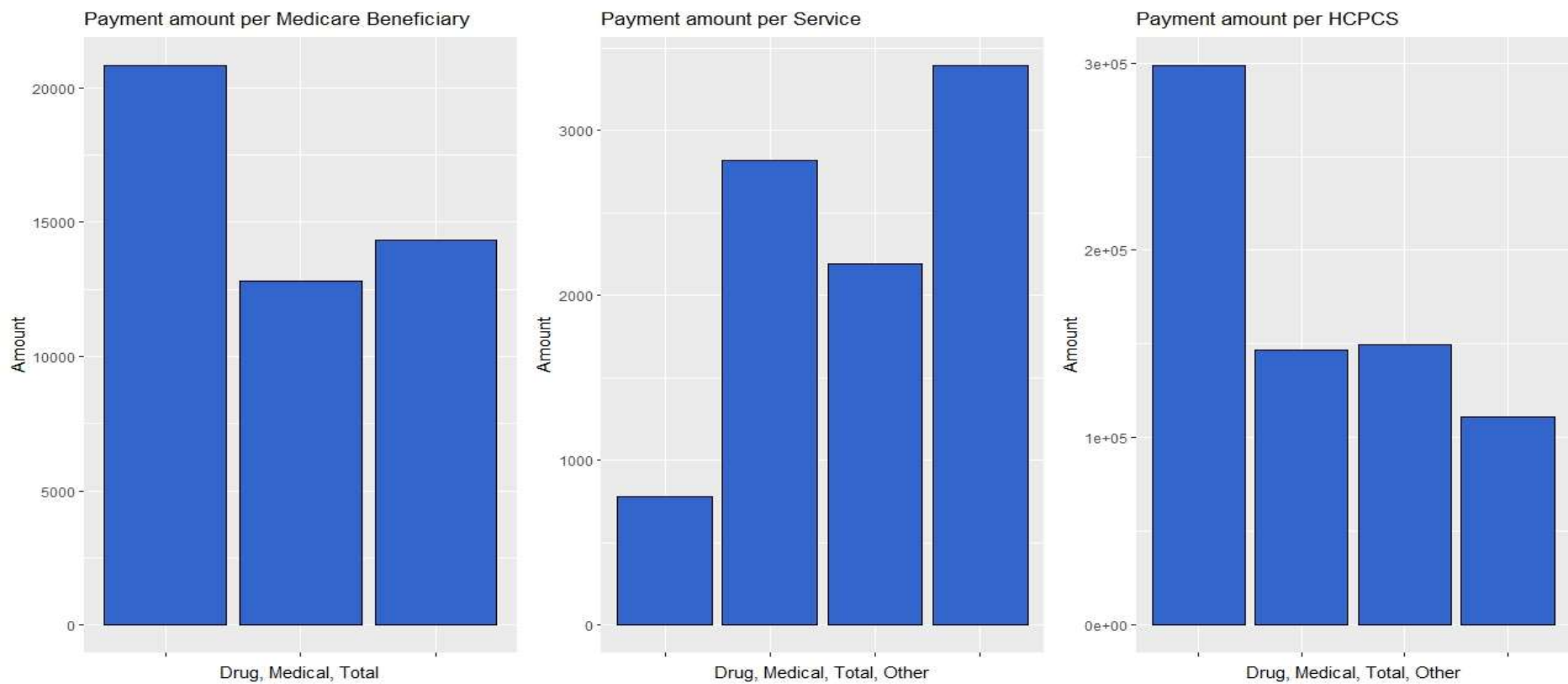
Ratio of payment amount to beneficiary, services, HCPCS or Payment amount per beneficiary, services, HCPCS

Total drug payment amount per beneficiary availing drug services comes to \$20,841.94 and Total drug payment amount per drug services is \$778.59. Total drug payment amount per drug HCPCS is \$298,876.26

Total medical payment amount per beneficiary availing medical services is \$12,810.43 and Total medical payment amount per medical services is \$2,821.53. Total medical payment amount per medical HCPCS is \$146,520.69

Total Medicare payment amount per Medicare beneficiary availing Medicare services comes to \$14,321.18 and Total Medicare payment amount per total services is \$2,193.57. Total Medicare payment amount per total HCPCS is \$149,945.01

Total other Medicare payment amount per other services is \$3,397.25 and Total other Medicare payment amount per other HCPCS is \$111,104.78.



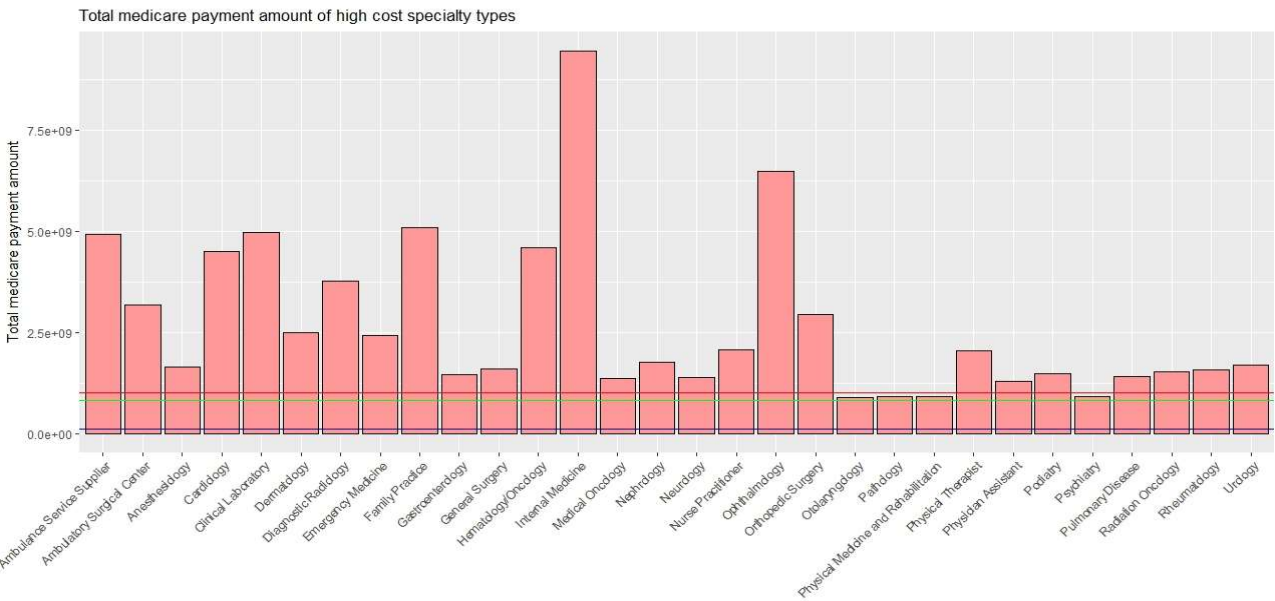
Specialty Types of Provider

Specialty Types

There are around 90 specialty categories noted in the dataset. Top 10 revenue generating specialties include Internal medicine, Ophthalmology, Family practice, Clinical laboratory, Ambulance service supplier, Hematology/Oncology, Cardiology, Diagnostic radiology, Ambulatory surgical center, and Orthopedic surgery. It contributes to 53% of the Total Medicare payment amount in 2015.

Specialty	Total Medicare payment amount of the specialty	Total Medicare payment amount share
Internal medicine	9452741011	10%
Ophthalmology	6485807378	7%
Family practice	5080167302	5%
Clinical laboratory	4980715000	5%
Ambulance service supplier	4920071641	5%
Hematology/Oncology	4606685198	5%
Cardiology	4508865233	5%
Diagnostic radiology	3767268398	4%
Ambulatory surgical center	3181531762	3%
Orthopedic surgery	2954715426	3%

Top categories of specialty types



The plot represents top 17 specialties with the total Medicare payment amounts. The red line, green line and blue line represents the average total Medicare payment, total medical payment and total drug payment amounts across different specialties respectively.

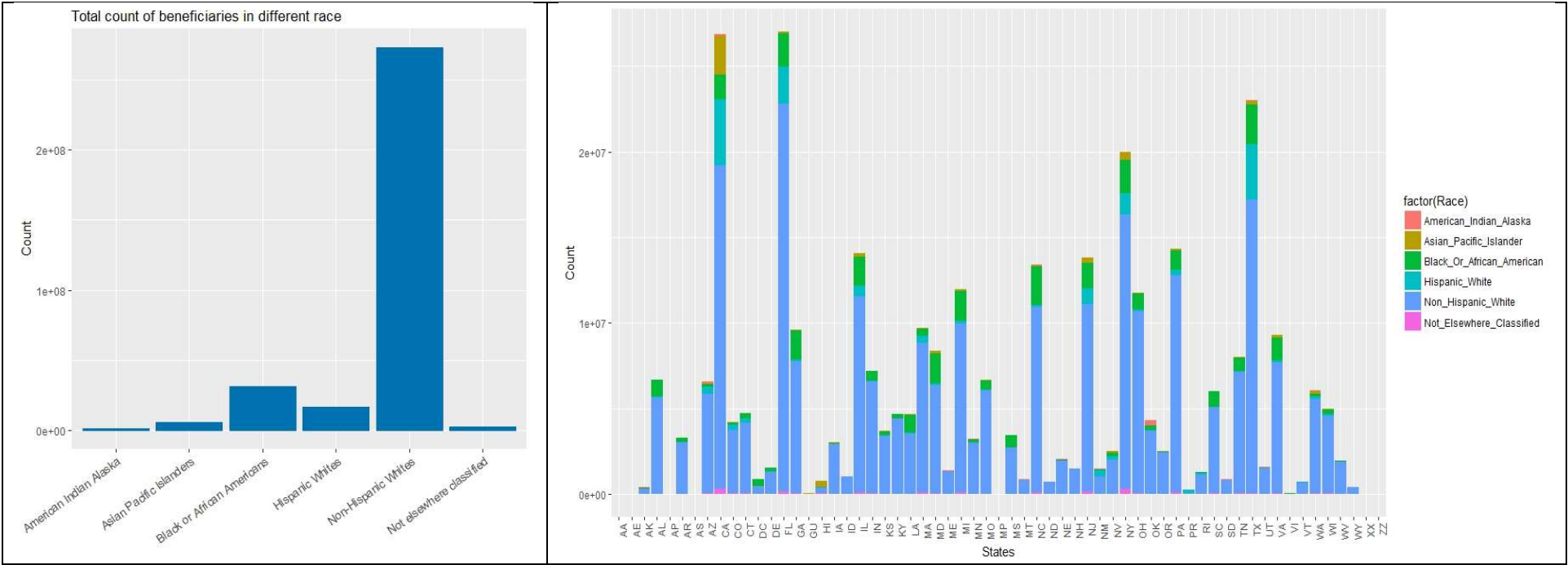
Race of the beneficiaries

Race	Total number
Non-Hispanic Whites	273356963
Black or African Americans	30882692
Asian Pacific Islanders	5258396
Hispanic Whites	16455642
American Indian Alaska	1066506
Not elsewhere classified	2432134

The demographic characters noted in the dataset include age, gender, and race. It helps study the predisposition to diseases or variation in health risk of the beneficiaries.

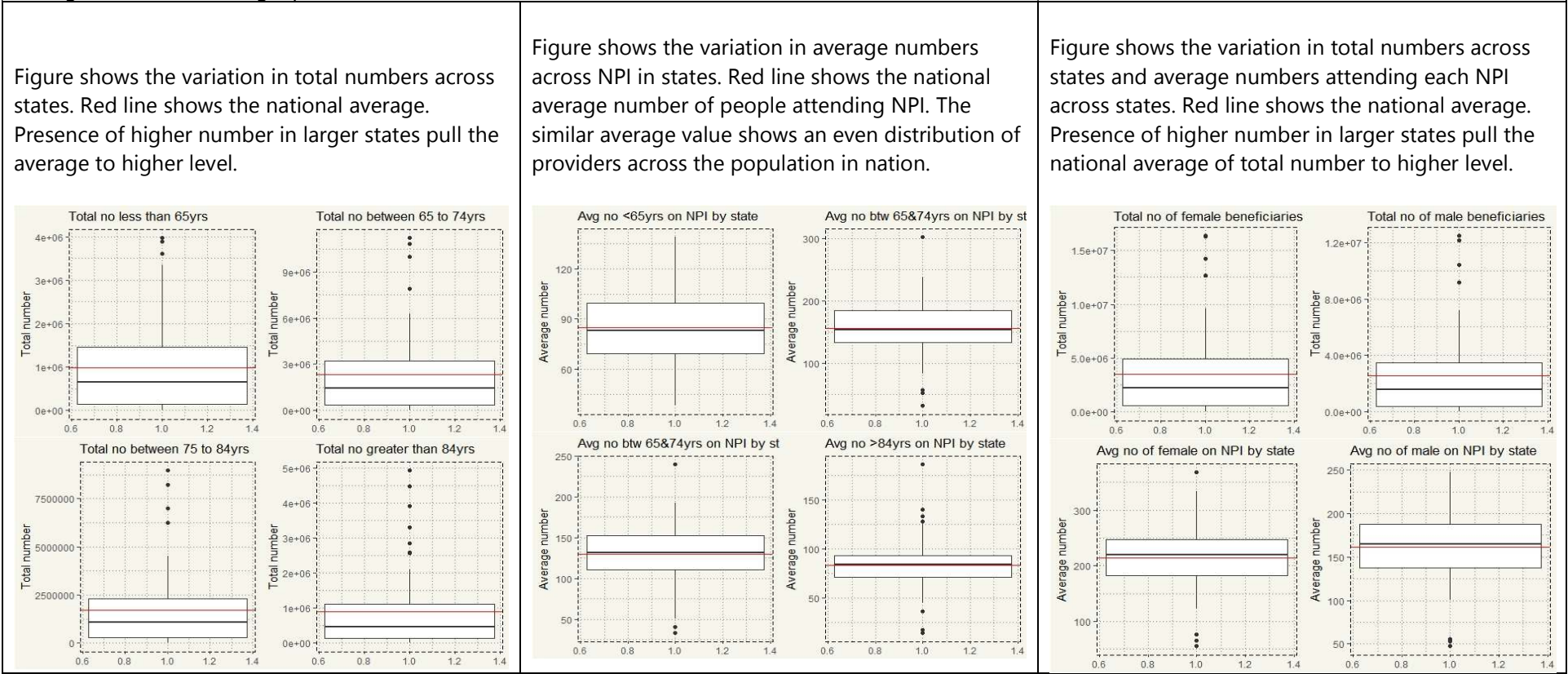
A total of 327020199 people has produced their race.

Chart shows the total number of beneficiaries in different race and the variation in different races across states.

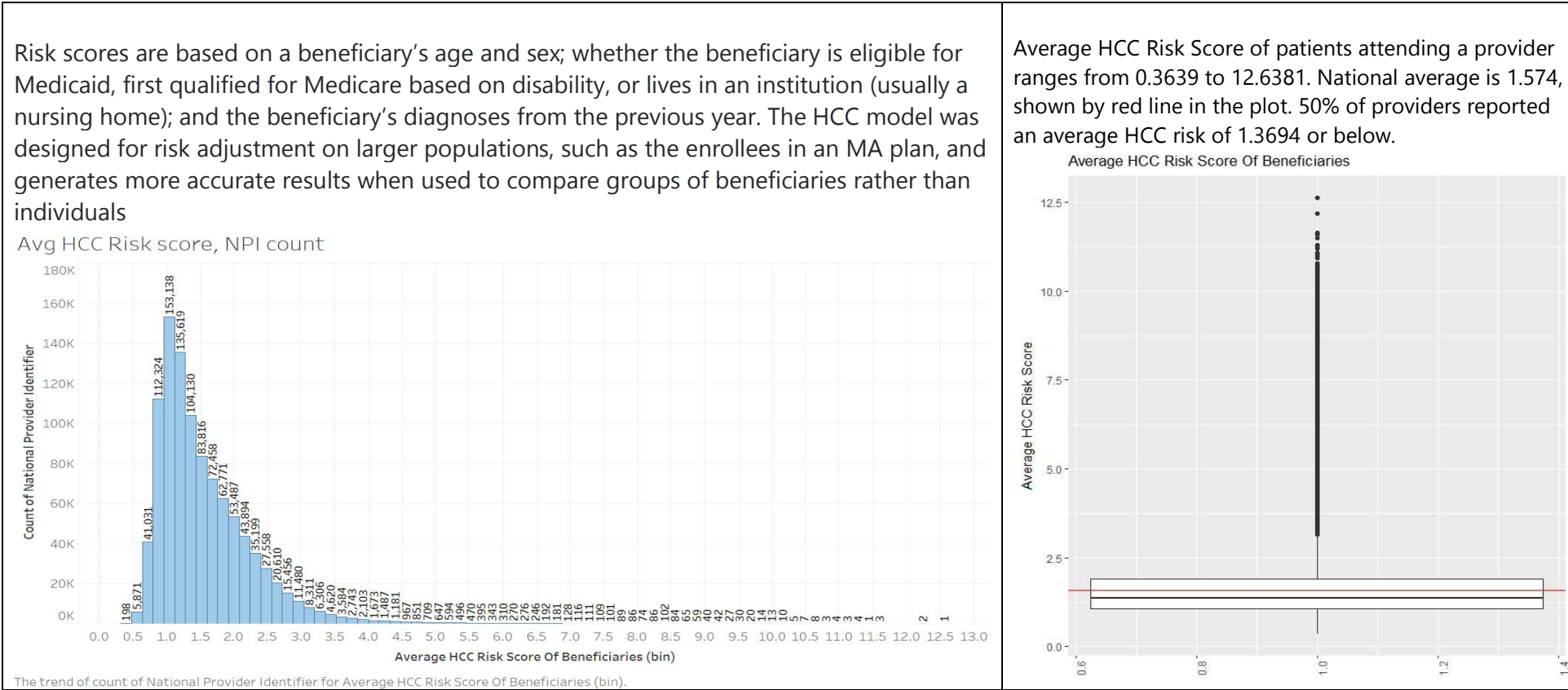


Age and Gender of beneficiaries availing services

<p>Total number of beneficiaries of age less than 65 is 60048087. It gives an average of 984395 across the states. Average number attending a provider comes to 84.82.</p> <p>Total number of beneficiaries of age 65 to 75 is 142650198. The average comes to 2338528 and average number attending a provider is 155.71.</p> <p>Total number of beneficiaries of age 75 to 84 is 103113983. The average comes to 1690393 and average number attending a provider is 130.</p> <p>Total number of beneficiaries of age greater than 84 is 54756121. The average comes to 897641 and average number attending a provider is 83.38.</p>	<p>Female beneficiaries:</p> <p>Total number of female beneficiaries is 212255520. State average comes to 3479599 and average no attending a provider is 214.3</p> <p>Male beneficiaries:</p> <p>Total number of male beneficiaries is 155256549. State average comes to 2545189 and average no attending a provider is 161.7</p>
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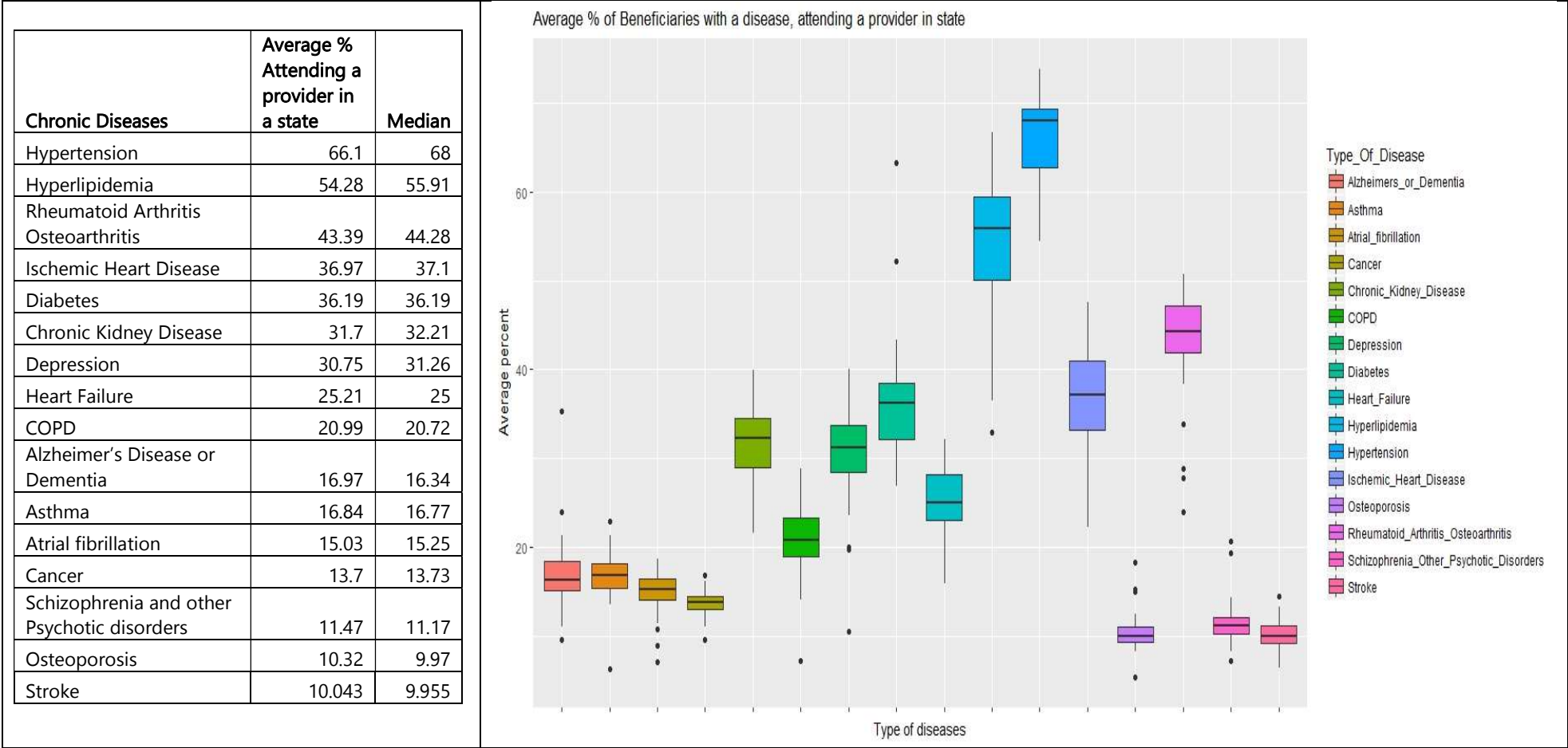
Average Hierarchical Condition Category (HCC) risk score of beneficiaries





Percent of beneficiaries with chronic disease

Percent of beneficiaries identified with different chronic diseases, attending a provider in a state  
Prevalence of chronic diseases can be studied here. Plot shows the variation in average % of people with certain disease across NPI in different states. Most of the cases the average equals or fall below the median across states which shows most of the values falling to the lower side, or less of high percentages across the NPI in states. This looks positive especially in case of highly prevalent diseases.



Summary statistics for 2015

Data is summarized on the states on sum and average as required. It should be noted that the information based on fewer than 11 beneficiaries is suppressed, and the information has been counter suppressed to prevent the recalculation of information suppressed due to fewer than 11 beneficiaries. This makes the rare situations unavailable for study. The presence of outliers is noticed which needs to be taken care while studying the data. Both these conditions need to be taken in to consideration while analyzing the data distribution. Visualization of data helps to analyze the trend and distribution of Medicare payments across different conditions. Valuable insights are observed on the medical services and the cost incurred across the state, providers, provider type, age, sex, race, drug services medical services, chronic conditions, and the Hierarchical Condition Category (HCC) risk scores.

The report is aggregated to Total cost, Medical cost, and Drug costs. Also submitted charges, allowed amount, payment amount and standardized amount is provided for all the three types of costs. Other charges are calculated from the difference of total cost and medical & drug costs. A total number of 1019442 providers have given a total 2818712709 Medicare services in 2015. Total medical service comes to 1668907146 which is 59.21% of Total Medicare services. Total drug service comes to 1016962423 which is 36.08% of Total Medicare services. Other services come to 132843140 which is 4.71% of Total Medicare services.

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For 2015, U.S. had 261995327 beneficiaries with Medicare entitlement alone and 91003744 beneficiaries with both Medicare & Medicaid entitlement

The demographic characters noted in the dataset include age, gender, and race. It helps study the predisposition to diseases or variation in health risk of the beneficiaries. The distribution of providers for various age groups and gender seemed balanced across the states. A total of 327020199 people has produced their race. There is high number of non-Hispanic whites followed by Black or African Americans and Hispanic whites. Asian pacific Islander and American Indian Alaska are minorities.

Top 10 revenue generating specialties include Internal medicine, Ophthalmology, Family practice, Clinical laboratory, Ambulance service supplier, Hematology/Oncology, Cardiology, Diagnostic radiology, Ambulatory surgical center, and Orthopedic surgery. It contributes to 53% of the Total Medicare payment amount in 2015.

Above 40% of beneficiaries attending a provider in a state is identified with chronic diseases like Hypertension, Hyperlipidemia, Rheumatoid Arthritis Osteoarthritis. 20%-40% of beneficiaries attending a provider in a state is identified with Ischemic Heart Disease, Diabetes, Chronic Kidney Disease, Depression, Heart Failure and COPD.

Average HCC Risk Score of patients attending a provider ranges from 0.3639 to 12.6381 and an average of 1.574 is noted across states.

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