Summary of Findings on Episode Costs for Medical Groups Eligible to Receive 2011 Supplemental QRURs

August 1, 2013

Purpose of Presentation

- Provide summary information on episode-based costs for the medical groups eligible to receive 2011 Supplemental QRURs
- Summarize and provide results on the group attribution rules and identification of a suggested lead EP
- Provide reliability and validity information on the initial version of the CMS Episode Grouper
- Discuss how this information can be used by the medical groups
- Discuss next steps

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Episode Types in 2011 Supplemental QRURs

1. Pneumonia
   2. Pneumonia without inpatient (IP) hospitalization
   3. Pneumonia with IP hospitalization
4. Acute myocardial infarction (AMI)
   5. AMI without percutaneous coronary intervention (PCI) or coronary artery bypass graft (CABG)
   6. AMI with PCI,
   7. AMI with CABG
8. Coronary artery disease (CAD)
   9. CAD without acute myocardial infarction (AMI)
   10. CAD with AMI
11. Percutaneous coronary intervention (PCI) without AMI
12. Coronary artery bypass graft (CABG) without AMI

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National Sample Comparisons of Medicare Episode Costs in 2011

- **National sample**: a large random sample of FFS Medicare beneficiaries who had a claim in 2011 that triggered an episode of interest, used as benchmark for comparisons to groups' Medicare payments (costs).

All costs presented are payment-standardized, and all costs are risk-adjusted unless otherwise noted.

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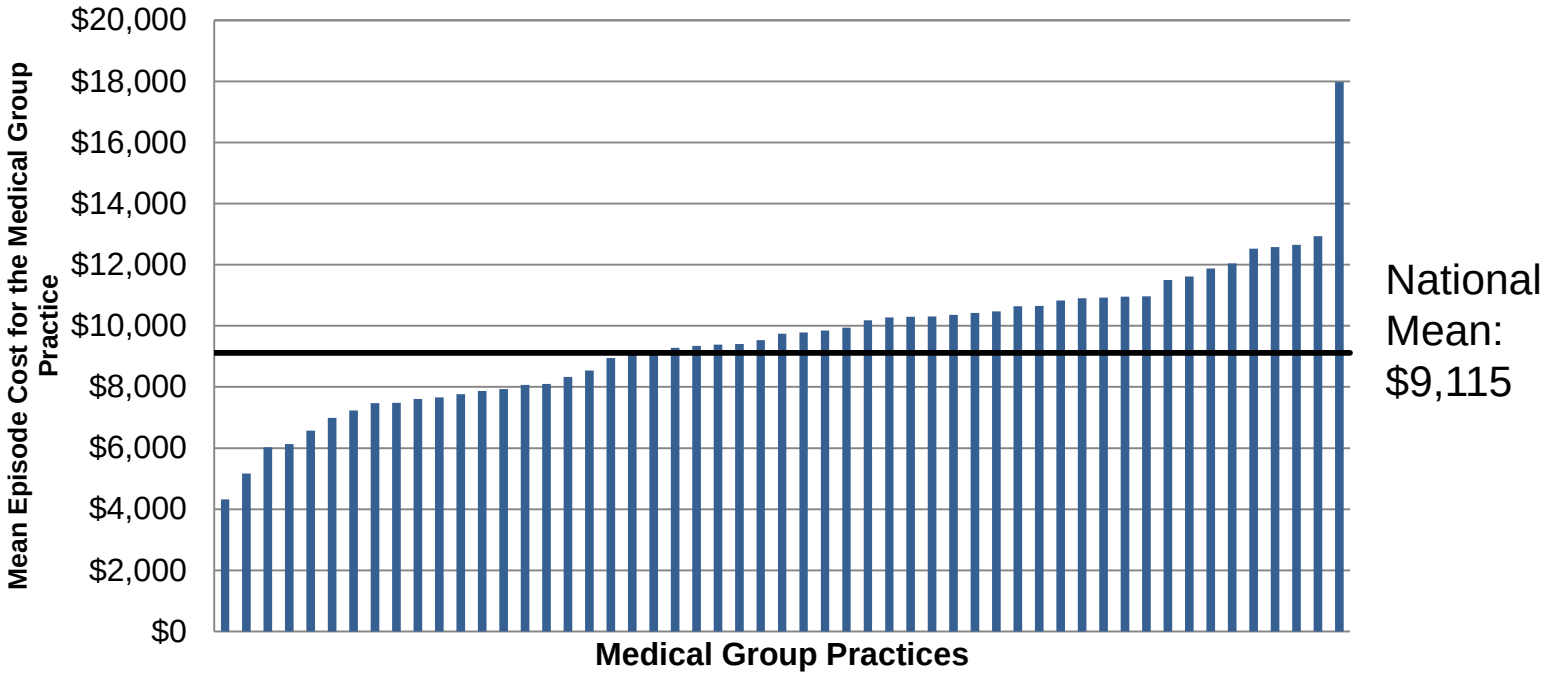
Risk-Adjusted Costs for Group Population and National Sample

Episode Type	**Mean Cost** for Episodes Attributed to 54 GPRO Medical Groups	**80th Cost Percentile** for Episodes Attributed to 54 GPRO Medical Groups	**Mean Cost** for All Episodes Nationally	**80th Cost Percentile** for All Episodes Nationally
Pneumonia	$9,322	$13,404	$9,115	$13,238
Pneumonia without IP	$1,696	$3,641	$1,602	$3,606
Pneumonia with IP	$16,862	$22,948	$17,580	$24,827
AMI	$23,727	$33,003	$21,944	$30,233
AMI without PCI or CABG	$16,752	$24,055	$17,247	$24,447
AMI with PCI	$21,395	$27,229	$21,101	$26,713
AMI with CABG	$58,264	$67,750	$56,195	$68,876
CAD	$4,131	$4,619	$3,727	$4,157
CAD without AMI	$3,562	$3,895	$3,283	$3,647
CAD with AMI	$17,242	$23,781	$16,391	$22,943
PCI without AMI	$15,387	$18,509	$14,922	$17,899
CABG without AMI	$41,579	$51,762	$42,697	$51,671

- This table presents the mean and 80th cost percentile of the 54 medical groups and the national sample. The following slides are presented to show the distribution of the 54 groups' mean costs.

Mean Risk-Adjusted Pneumonia Episode Costs for the 54 Groups

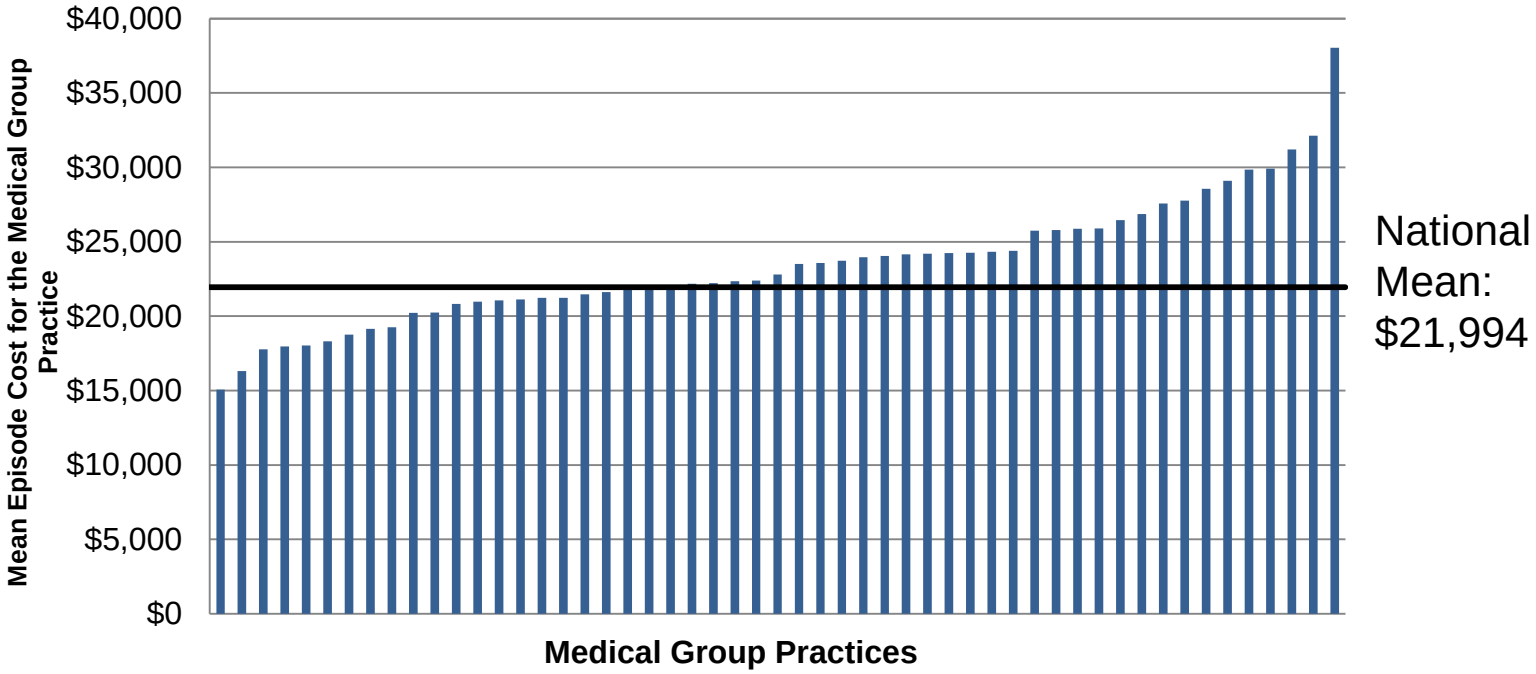


This and the following three slides compare the mean risk-adjusted episode costs for each of the 54 groups to the national mean.

Episode Subtypes:

- Mean pneumonia without IP episode costs range from about $1,000 to $3,000
- Mean pneumonia with IP episode costs range from about $7,000 to $23,000

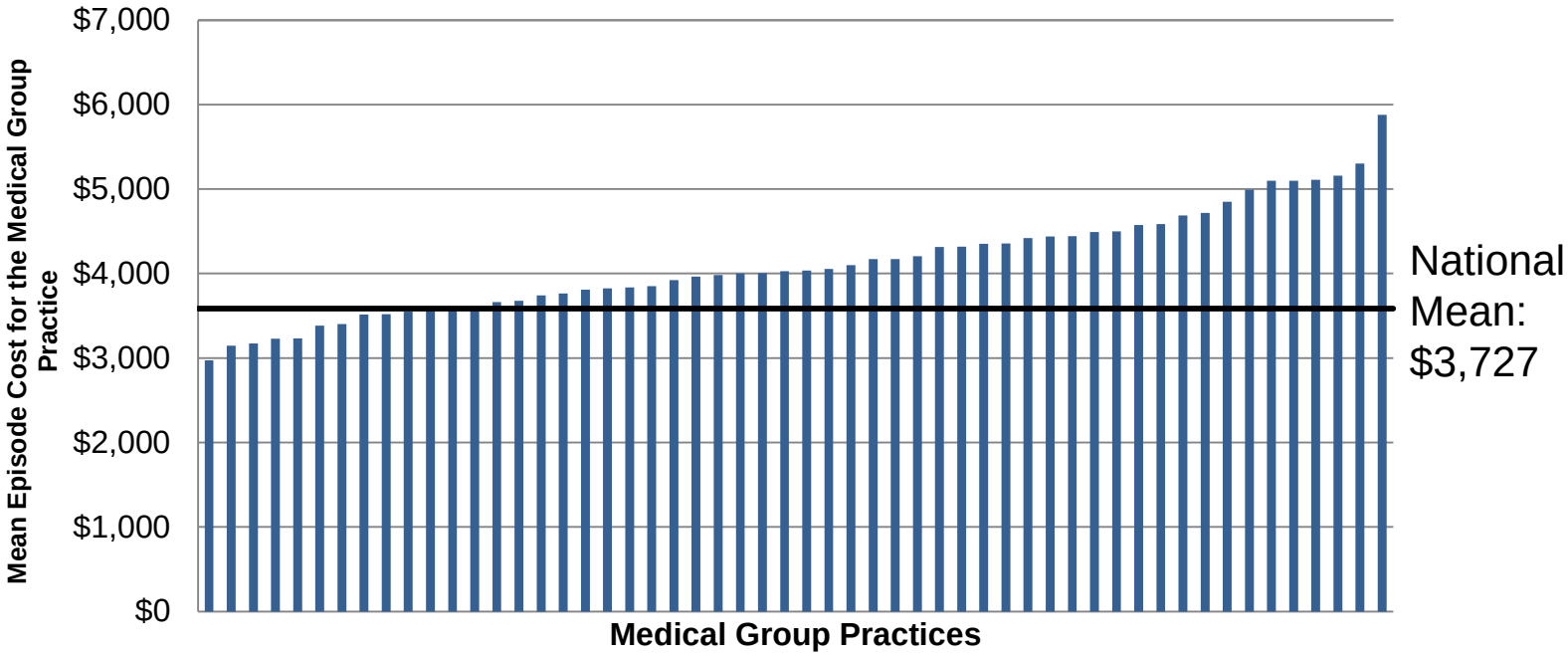
Mean Risk-Adjusted AMI Episode Costs for the 54 Groups



Episode Subtypes:

- Mean AMI without PCI or CABG episode costs range from about $10,000 to $24,000
- Mean AMI with PCI costs range from about $14,000 to $35,000
- Mean AMI with CABG costs range from about $37,000 to $120,000

Mean Risk-Adjusted CAD Episode Costs for the 54 Groups



Episode Subtypes:

- Mean CAD without AMI episode costs range from about $2,700 to $4,900
- Mean CAD with AMI costs range from about $12,000 to $25,000

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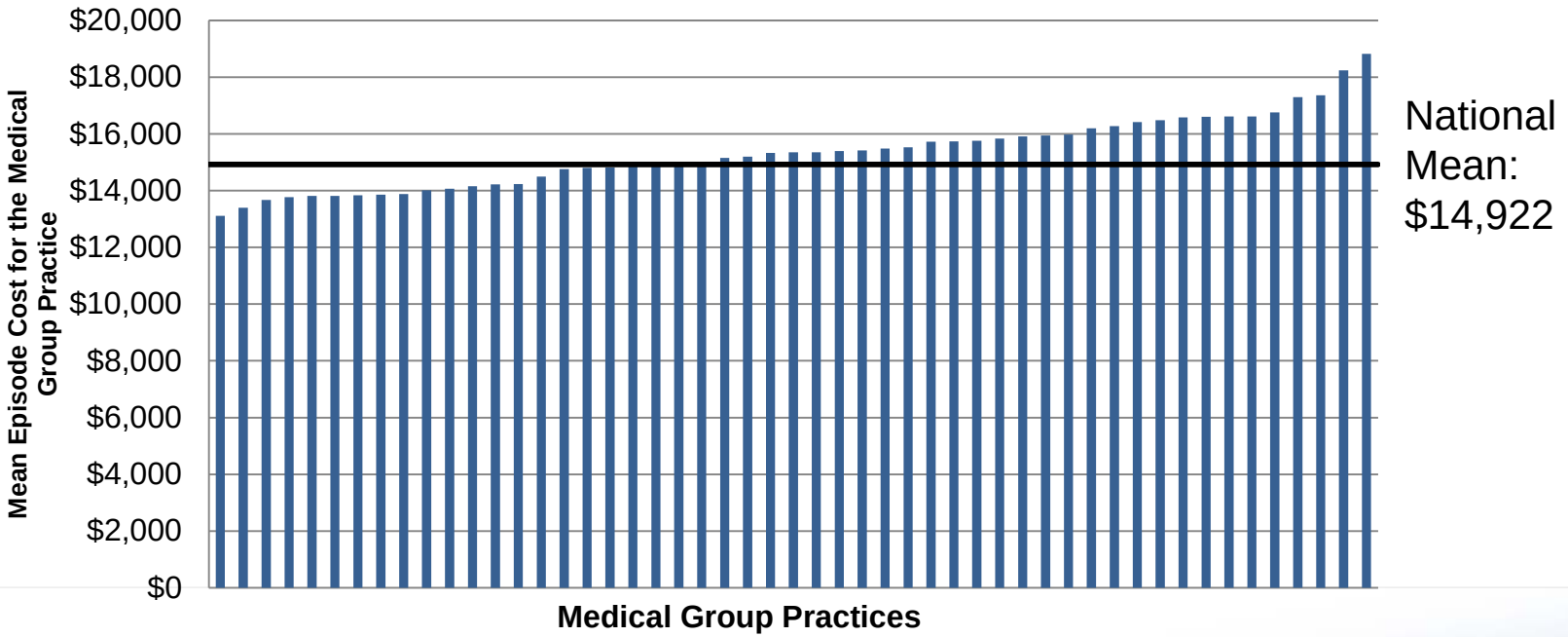
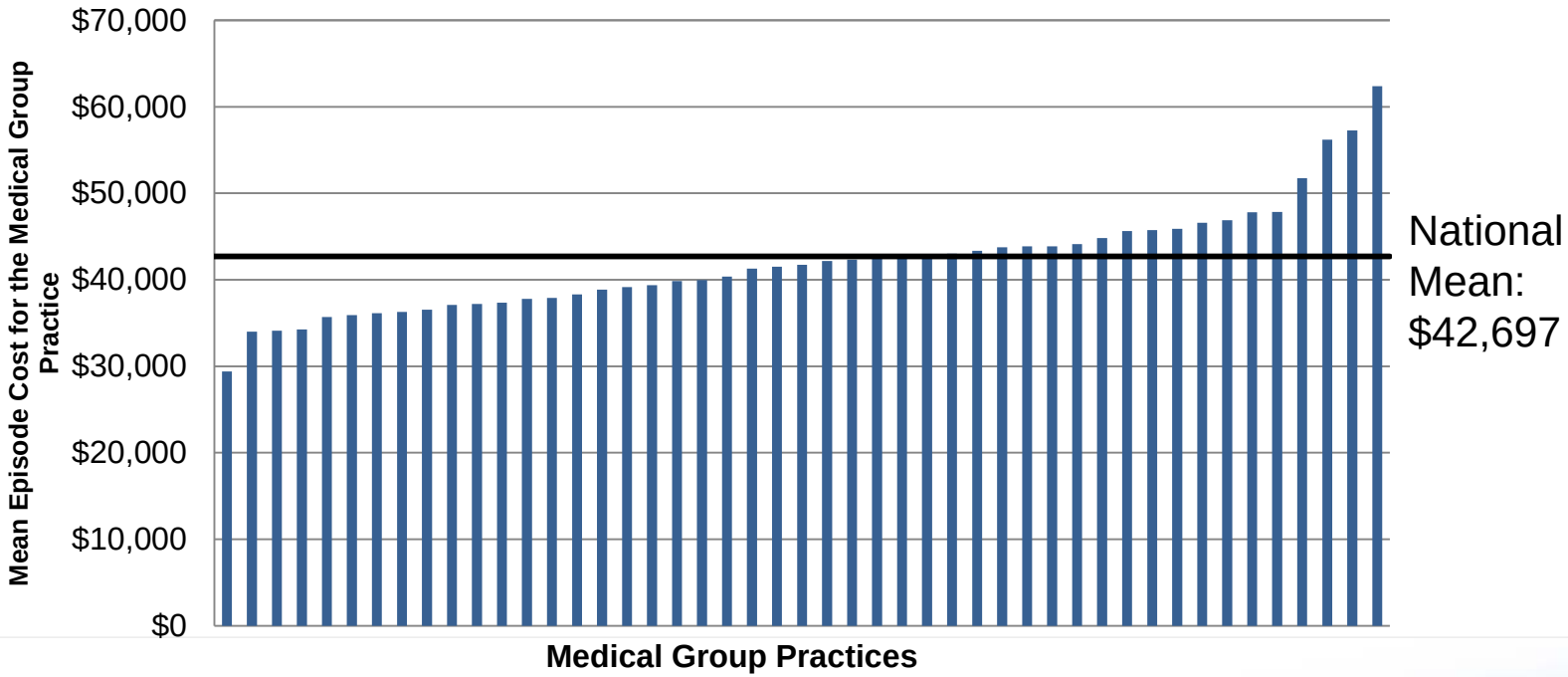
Mean Risk-Adjusted PCI without AMI Episode Costs for the 54 Groups



Mean Risk-Adjusted CABG without AMI Episode Costs for the 54 Groups



Episode Costs National Comparison

- For four of the five major episode types, about half of the groups have a mean episode cost that is above the national episode mean, while about half are below.
  - The exception is all CAD, for which only about 20% of the groups have a mean episode cost that is below the national episode mean.

Summary of the Performance of the 54 Groups

Percent of Groups with Mean Cost Statistically Significantly Different from the National Mean

Episode Subtype	Higher than National Mean	Lower than National Mean
Pneumonia	28%	28%
Pneumonia without IP	26%	13%
Pneumonia with IP	6%	33%
AMI	15%	13%
AMI without PCI or CABG	2%	11%
AMI with PCI	6%	13%
AMI with CABG	0%	22%
CAD	46%	13%
CAD without AMI	39%	17%
CAD with AMI	9%	7%
PCI without AMI	4%	6%
CABG without AMI	4%	17%

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Service Category Composition for Pneumonia Episodes for the 54 Groups

Average Share of Episode Costs (Within Cost Classification) Across 54 Groups

Episode: Cost Classification		Mean Non-Risk Adjusted Cost	E&M	Non-ER Procs	Index (Trigger) IP Stay	Other IP Stays	OP - Hosp	PAC - SNF	PAC - Rehab	PAC - HH
Pneumonia:	Median	$1,834	23%	1%	0%	0%	23%	1%	0%	35%
	High-Cost	$28,058	7%	1%	26%	19%	1%	26%	12%	2%
Pneumonia without IP:	Median	$1,124	22%	1%	0%	0%	24%	0%	0%	30%
	High-Cost	$3,739	30%	1%	0%	0%	19%	1%	0%	36%
Pneumonia with IP:	Median	$16,017	7%	1%	36%	19%	2%	22%	3%	4%
	High-Cost	$35,969	7%	1%	23%	19%	1%	26%	16%	2%

- "High-cost" episodes are those above the 90th percentile of costs for episodes attributed to the 54 groups of that subtype.
- The mean costs presented for each cost classification are not risk-adjusted because risk adjustment occurs at the episode level and not at the service category/claim level.

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Service Category Composition for AMI, PCI without AMI, and CABG without AMI Episodes for the 54 Groups

Average Share of Episode Costs (Within Cost Classification) Across 54 Groups

Episode: Cost Classification		Mean Non-Risk Adjusted Cost	E&M	Non-ER Procs	Index (Trigger) IP Stay	Other IP Stays	OP - Hosp	PAC - SNF	PAC - Rehab	PAC - HH
AMI:	Median	$18,136	6%	4%	58%	10%	2%	10%	2%	2%
	High-Cost	$63,343	5%	6%	54%	15%	1%	6%	8%	2%
AMI without PCI or CABG:	Median	$15,245	7%	1%	57%	7%	2%	16%	1%	2%
	High-Cost	$32,141	7%	1%	41%	11%	1%	25%	8%	1%
AMI with PCI:	Median	$20,775	4%	6%	64%	9%	3%	4%	1%	1%
	High-Cost	$37,493	6%	4%	52%	17%	2%	7%	5%	1%
AMI with CABG:	Median	$52,581	4%	7%	57%	16%	1%	6%	2%	2%
	High-Cost	$109,777	5%	4%	52%	14%	0%	5%	16%	1%
PCI without AMI:	Median	$15,240	2%	7%	38%	4%	39%	2%	1%	1%
	High-Cost	$23,753	4%	6%	44%	14%	19%	4%	3%	1%
CABG without AMI:	Median	$40,161	3%	8%	67%	3%	3%	6%	3%	2%
	High-Cost	$67,540	5%	5%	59%	4%	1%	8%	13%	1%

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Service Category Composition for CAD Episodes for the 54 Groups

Average Share of Episode Costs (Within Cost Classification) Across 54 Groups

Episode: Cost Classification		Mean Non-Risk Adjusted Cost	E&M	Non-ER Procs	All IP Stays	OP - Hosp	PAC - SNF	PAC - Rehab	PAC - HH
CAD:	Median	$3,645	12%	3%	27%	30%	3%	1%	9%
	High-Cost	$14,639	7%	4%	51%	13%	7%	3%	5%
CAD without AMI:	Median	$3,601	11%	3%	26%	32%	3%	1%	1%
	High-Cost	$9,043	8%	4%	38%	23%	4%	3%	0%
CAD with AMI:	Median	$17,772	7%	4%	60%	6%	9%	2%	1%
	High-Cost	$41,564	6%	4%	57%	6%	11%	6%	0%

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Summary of Service Category Composition for Episodes Attributed to the 54 Groups

- Pneumonia: differs in service category composition by episode subtype
  - Pneumonia without IP: high-cost and low-cost episodes mainly composed of E&M visits, OP hospital stays, and HH
  - Pneumonia with IP: high-cost episodes driven by SNF and IRF
- AMI: high-cost episodes driven by post-acute spending (SNF and IRF)
- CAD: differs in service category composition by episode subtype
  - CAD without AMI: high-cost episodes contain a larger share of IP costs and a smaller share of OP costs than median-cost episodes
  - CAD with AMI: driven by post-acute spending (SNF and IRF)
- PCI without AMI: high-cost episodes driven by IP stays
- CABG without AMI: high-cost episodes driven by post-acute spending (IRF)

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Summary of Medical Practice Group Attribution Rules

Episodes are attributed to medical practice groups for the Supplemental QRURs based on one or more of the following three criteria:

1. The performance of specific procedures;
2. Billing at least 35% of total physician fee schedule (PFS) costs during the episode; or
3. Making at least 35% of total evaluation and management (E&M) visits during the episode.

Episodes may be attributed to more than one group.

Episode Type	Medical Group Attribution Criteria
Pneumonia	PFS costs and E&M visits
AMI	PFS costs and E&M visits
CAD	Outpatient E&M visits
PCI	Physician performing surgery
CABG	Physician performing surgery

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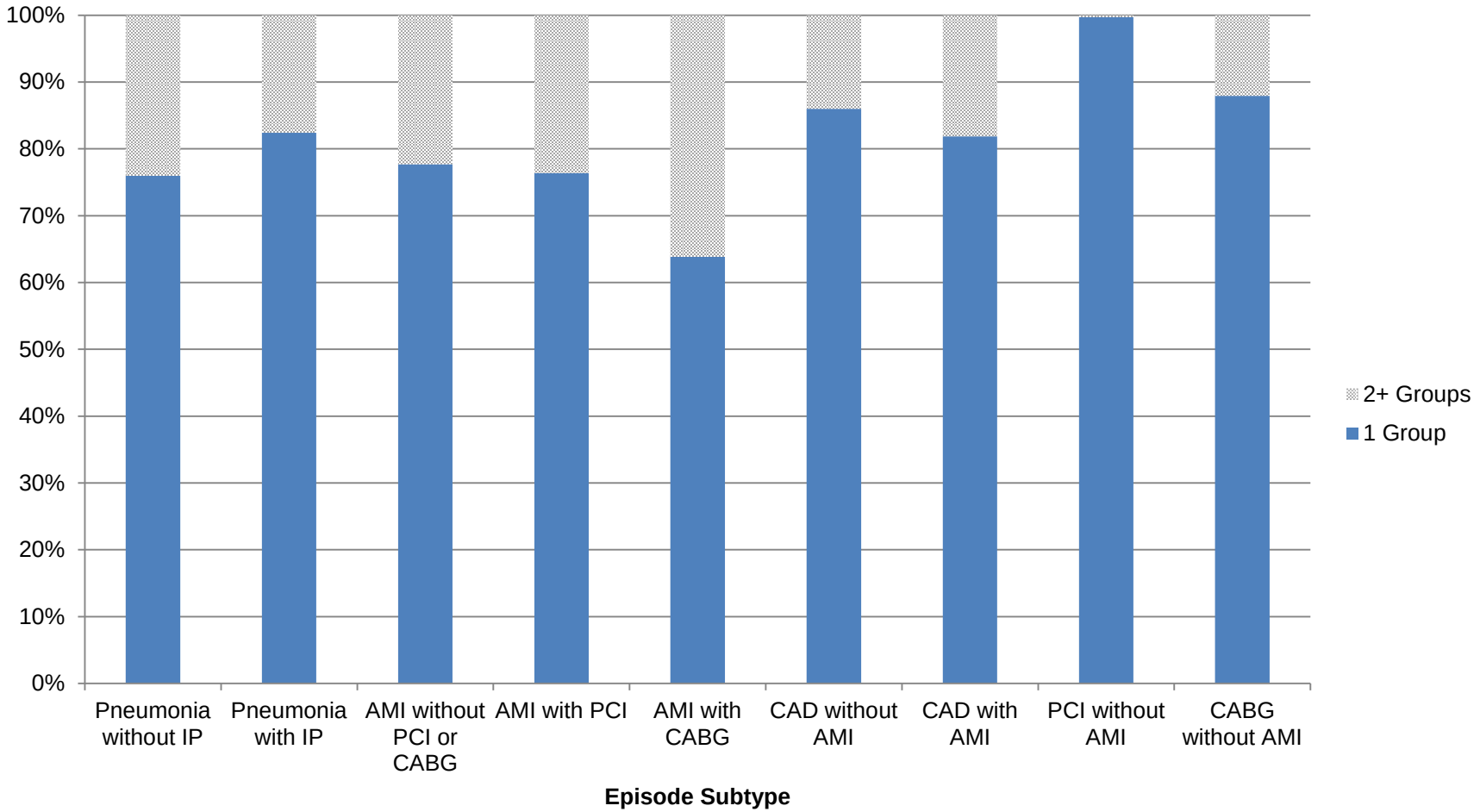
Percent of Episodes Attributed to Multiple Group Practices



- About 85 percent of all episodes are attributed to exactly one medical group practice.

Summary of Suggested Lead EP Identification Rules

- The Supplemental QRURs also identify a suggested lead eligible professional (EP) for each episode attributed to a medical group practice.

Episode Type	Suggested Lead EP Identification Method
Pneumonia	E&M visits
AMI	Attending on trigger inpatient hospital claim
CAD	Outpatient E&M visits
PCI	EP performing surgery
CABG	EP performing surgery

Suggested Lead EP Specialties Identified with at least 5% of Episodes

Episode Subtype	Specialty	Percent of Episodes Assigned	Mean Risk-Adjusted Cost
Pneumonia without IP admission	Internal Medicine	34%	$1,713
	Family Practice	30%	$1,491
	Nurse Practitioner	9%	$1,106
	Pulmonary Disease	5%	$2,426
	Cardiology	5%	$2,570
Pneumonia with IP admission	Internal Medicine	60%	$15,991
	Family Practice	18%	$14,085
	Pulmonary Disease	7%	$27,990
AMI without PCI or CABG	Internal Medicine	43%	$16,596
	Cardiology	37%	$16,376
	Family Practice	10%	$15,925
AMI with PCI	Cardiology	64%	$20,588
	Internal Medicine	24%	$21,534
AMI with CABG	Cardiac Surgery	33%	$54,130
	Cardiology	27%	$60,050
	Internal Medicine	21%	$63,345
CAD without AMI	Cardiology	37%	$4,100
	Internal Medicine	33%	$3,176
	Family Practice	20%	$3,045
CAD with AMI	Cardiology	42%	$17,866
	Internal Medicine	28%	$16,395
	Family Practice	20%	$16,043
PCI without AMI	Cardiology	99.6%	$15,352
CABG without AMI	Thoracic Surgery	50%	$42,131
	Cardiac Surgery	48%	$40,676

- Specialty designations are based on CMS specialty codes.

Summary of Group Attribution and Identification of Suggested Lead EP

- Most (85%) episodes are attributed to only one group.
- The suggested lead EP identification methodology is for informational purposes only. The methodology assigned most episodes to only a few specialties within each episode type.
  - Pneumonia: primarily internal medicine and family practice specialties
  - AMI: primarily cardiologists, surgeons, and internal medicine specialists
  - CAD: primarily cardiologists and internal medicine specialists
  - PCI without AMI: primarily cardiologists
  - CABG without AMI: primarily thoracic and cardiac surgeons

Reliability Testing

- **Reliability** is a measure of precision and therefore evaluates the extent to which the performance of one group can be confidently distinguished from another based on the episode grouping and attribution methodologies.
- A higher ratio means that relatively more variation in episode costs is due to differences in performance across groups.

Episode Type	Reliability of Risk-Adjusted Cost
(1) All Pneumonia	0.87
(2) Pneumonia without IP Hospitalization	0.81
(3) Pneumonia with IP Hospitalization	0.81
(4) All AMI	0.78
(5) AMI without PCI or CABG	0.56
(6) AMI with PCI	0.69
(7) AMI with CABG	0.60
(8) All CAD	0.89
(9) CAD without AMI	0.90
(10) CAD with AMI	0.68
(11) PCI without AMI	0.56
(12) CABG without AMI	0.65

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Reliability Summary

- Most episodes have a high or moderate reliability, indicating that the episode grouping and attribution methodologies consistently distinguish performance between groups.
  - All CAD and CAD without AMI have the highest reliability scores (0.89 and 0.90, respectively).
  - The episode types that have a more moderate reliability score (AMI without PCI or CABG, AMI with CABG, PCI without AMI, and CABG without AMI) also have a low average number of episodes per group, which can affect the reliability score.

Validity Testing

- **Validity** measures the accuracy of the episode costs and the attribution methods by comparing results to separate supported measures of provider efficiency.
  - Measuring the validity of episodes is difficult because there are few existing validated episode constructs.
- To test validity, the five major episode types were compared to group per capita cost measures (total costs per capita and CAD costs per capita) drawn from the 2011 Group QRURs.
  - The per capita measures are currently undergoing the NQF endorsement process.

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Validity Testing, continued

- The table presents the Pearson correlation between the per capita measures and the episodes.
- The per capita cost measures are more closely correlated with the acute and chronic condition episodes than with the procedural episodes.

Episode Type	Total Per Capita Measure	CAD Per Capita Measure
Pneumonia	0.53	0.62
AMI	0.46	0.41
CAD	0.45	0.35
PCI without AMI	0.10	0.06
CABG without AMI	0.12	0.05

Validity Summary

- Higher total per capita costs within groups are moderately associated with higher pneumonia, AMI, and CAD costs.
- Higher CAD per capita costs within groups are moderately associated with higher pneumonia, AMI, and CAD costs.
- Both per capita measures were weakly correlated with CABG without AMI and PCI without AMI costs. These procedural episode types, however, may be less closely related to total costs for a patient because they reflect a very specific course of care.

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How the 2011 Supplemental QRURs Can Be Used

- To support medical groups in efforts to improve the efficiency of medical care provided to the Medicare fee-for-service patients they treat.
- To examine group-specific information on
  - Volume,
  - Actual episode costs,
  - Relative episode costs, and
  - Episode subtype composition.
- To obtain information on the utilization of specific services types and the costs of those services.
- To compare a medical group's episode costs with the national mean to help improvement efforts by identifying possible factors contributing to higher than national mean costs.

Next Steps

- The 2011 Supplemental QRURs were supplied for informational purposes.
- CMS looks forward to continuing to receive feedback from the medical groups about the
  - Types and adequacy of information included in the reports,
  - Understandability of the reports,
  - Actionability of the reports, and
  - Summary information provided about the reports.
- As mentioned during the July 23 call, the CMS Episode Grouper will continue to evolve over the next three years, and there will be other opportunities to provide clinical feedback in the future.
  - The number of episodes will be expanded, and
  - The clinical logic and risk adjustment methodology will be refined.
- Comments can be provided through the QRUR episodes web portal discussion board for the 2011 groups or by emailing QRUREpisodes@AcumenLLC.com.
  - Comments you provide through either mechanism can only be seen by your medical group practice, Acumen, and CMS.

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