

## **Comparing Commercial Systems for Characterizing Episodes of Care\***

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## ABSTRACT

Payers are increasingly using episodes of care to measure and reward efficiency in health care. Much attention has been paid to the effects of different rules for assigning episodes to providers, but little to how individual costs are assigned to episodes. In this paper, we studied the extent to which the two most widely-used commercially available episode groupers differ in the episodes they construct. In particular, we compare how much of, and how, the two groupers allocate claims/spending to episodes of care and, for grouped claims, compare the 25 clinical episodes accounting for the greatest share of total spending. Using multi-payer data from the MarketScan Commercial Database, we applied the two most widely used commercial episode groupers: Episode Treatment Groups (ETGs) by Symmetry and Medical Episode Groups (MEGs) by Thomson-Reuters (Medstat).

The groupers varied in their ability to allocate spending to episodes: MEG allocated 82% and ETG allocated 86% of spending to episodes. Of episodes ending in 2006, MEG classified 69% (corresponding to 53% of costs) as acute, 21% of episodes (43% of costs) as chronic, and the remainder as preventive or administrative. In contrast, ETG classified 54% of episodes (corresponding to 39% of costs) as acute, 36% of episodes (59% of costs) as chronic, and the remainder as preventive or administrative. Five percent of MEGs and 6% of ETGs accounted for half of each grouper's allocated spending. The 25 most expensive episodes accounted for 49% and 46% of total spending on ETGs and MEGs, respectively.

Comparative application of the two most widely used episode groupers to the same commercial claims data shows important differences between the two approaches. As the use of episode-based payment expands, payers should be aware that differences between groupers may affect the allocation of spending to episodes, as well as episode classification, thereby impacting the services and providers that are assigned to an episode.



## INTRODUCTION

Rapid health care cost growth, combined with large variations in health outcomes, is motivating payers to pursue strategies to measure and reward efficiency. As part of these efforts, payers are increasingly recognizing the need for resource use measures which span across inpatient and outpatient settings to account for the costs of all care for a given condition.<sup>1-4</sup> Episode “groupers” are proprietary software programs designed specifically for such purposes. Grouper software is so named because it groups together (or bundles) chronologically all of a patient’s claims related to a given diagnosis for the duration of its treatment (the “episode of care”).<sup>5,6</sup>

Conceptually, episodes of care represent a meaningful unit of medical care output (e.g., ‘the product’) for both cost and quality purposes.<sup>7-12</sup> As such, the proprietary episode groupers have enjoyed rapid and widespread market penetration, and are central to many provider profiling and payment reform efforts.<sup>13-18</sup> However, little is known about the reliability, validity, or agreement between currently available commercial episode groupers.<sup>19-21</sup>

To date, research has focused primarily on which provider to attribute the episode’s outcome(s) to and how to ensure fair comparisons across providers with little to no work comparing the underlying tools themselves.<sup>14,17,22-24</sup> An exception is MaCurdy<sup>25,26</sup>, who demonstrated substantial variation in the outputs of the two most widely used commercial episode groupers when applied to the claims of Medicare fee-for-service beneficiaries. Similar comparisons in commercially-insured non-Medicare populations – the populations for and from which these groupers were developed – have not yet been published.



The aim of this study is to compare the outputs of the two most widely used commercial episode groupers applied to the same set of commercial claims data. We start by describing similarities and differences between the two groupers, using clinical examples to illustrate key differences. We compare the two groupers with respect to their ability to group claims into episodes of care and, for grouped claims, we compare the cost, quantity and mix of episodes output by each grouper. Finally, we compare and contrast the 25 clinical episodes accounting for the greatest share of total spending.

## **METHODS**

### ***Compare and Contrast MEG and ETG Groupers***

Episodes of care are meant to provide a conceptually meaningful unit of analysis for measuring the outputs of medical care.<sup>11,12,27,28</sup> An episode of care can be defined as the set of services required to manage a condition over a specific time window.<sup>5,8</sup> Theoretically, a full episode of care runs from a condition's initial diagnosis until the condition is resolved. Ideally, episodes of care for a given condition would be cost-homogenous so that episode-based payment and profiling efforts would be sensitive only to providers' actions.<sup>12,17,29</sup> However, no evidence-based criteria currently exist to define episodes, leaving them to be operationalized by the commercial firms who develop them.

The two commercial episode groupers in most widespread use<sup>17</sup>-- Episode Treatment Groups (ETGs) developed by Symmetry<sup>30</sup> and Medical Episode Groups (MEGs) developed by Thomson-Reuters (Medstat)<sup>31</sup> -- are conceptually similar in many ways. Both use software algorithms which sift through and organize claims data chronologically into



discrete episodes of care.<sup>5</sup> Both use ICD-9-CM diagnosis codes as the basis of their episode classification, although ETGs also use procedure codes. Both close episodes after a sufficient amount of time has passed without a claim, however, the required length of these "clean periods" may vary.<sup>22,32</sup> Both have modules that allow for risk adjustment when episodes are used for provider profiling but their underlying clinical logic differs. Both groupers classify their episodes as chronic, acute, or preventive; and both have rules for handling episodes of care for chronic diseases (usually setting them at 1 year). Both groupers also allow patients to experience more than one episode at the same time.<sup>26,33</sup>

Despite these similarities, each grouper uses its own proprietary logic to map claims to its own (i.e., its vendor's) taxonomy of episode groups, so the two groupers may differ in their outputs (e.g., episode costs, quantities and mix) even when applied to the same data. To some extent, this reflects underlying philosophical differences in how the groupers classify diseases and their severity. While both use clinical information for episode building, the ETG considers procedure use, comorbidities and complications when considering which claims to assign to which conditions.<sup>34</sup> For example, underlying the ETG episode group for ischemic heart disease (IHD) are 20 subETGs that further break out episodes into those with and without complications, and with and without different procedures, such as angioplasty, bypass surgery, or valve replacement.

In contrast, the MEG takes a 'disease staging' approach, using information on the natural history and progression of a disease to gauge the severity of an illness when forming episodes. The MEG disease stages range from least severe (stage 1) to most severe (stage 4) and, in contrast to the ETG approach, the MEG does not use information on procedures or comorbidities in forming severity stages.<sup>35</sup> For example, underlying the



MEG's IHD episode group are 23 subMEGs which progress in severity from asymptomatic chronic ischemic heart disease to coronary artery disease with death; unstable angina, inferior wall acute myocardial infarction (AMI), and anterior AMI with ventricular aneurysm are 3 subMEGs of increasing severity falling between these two extremes.

In addition to differences in their use of procedures and comorbidities, there are also important differences in their underlying clinical logic. The groupers vary in the number of disease categories employed, as well as in the combination of ICD-9 codes mapping into a given disease group. For example, while MEGs have distinct episodes for asbestosis and byssinosis, ETGs roll up the ICD-9 codes for these conditions into "occupational and environmental pulmonary diseases" episodes. In some cases, the groupers label episodes using the same disease name, but include different diagnoses in the episodes. For example, the MEG episode for dementia includes Alzheimer's disease, while the ETG has a separate episode category for this condition. Similarly, ETG episodes for otitis media include claims for conditions related to Eustachian tubes, while the MEG grouper puts these into "other ear, nose and throat disorders." These differences in what conditions or codes are included in otherwise seemingly identical disease groups may result in the groupers generating different numbers of episodes and prices per episode.

There are differences between the two groupers in their required input data as well. Both groupers use medical (inpatient and outpatient) and pharmacy claims files, but the ETG grouper also requires CPT-4 procedure codes to group claims into episodes. The groupers differ in the types of records that can begin an episode. While both groupers recommend against using pharmacy, lab or diagnostic imaging claims to start an episode,



the user can opt to allow some or all of these claims types to act as ‘anchor records’ to initiate episodes.

The two groupers use different amounts of information from claims. MEG can handle an unlimited number of diagnosis codes, whereas ETG only allows up to four codes per claim. If there is no diagnosis code, ETG will use a procedure code (provided it is not from a drug or facility record) to assign a claim to an episode, whereas MEG will not. The groupers also vary in the length of time allowed to pass for inclusion of pharmacy and other ancillary claims (such as lab and diagnostic imaging) in episodes. MEG will assign a pharmacy or ancillary claim to the most relevant episode regardless of the amount of time that has elapsed between the episode and the new claim. The ETG on the other hand only assigns these claims to an existing episode if they are within 365 days of the episode.

### ***Data and Study Sample***

To understand the importance of these differences in practice, we employed data drawn from the 2005 to 2007 MarketScan® Commercial Claims and Encounters Database from Thomson Reuters, which includes patient-level enrollment and claims data for approximately 31 million individuals in 2006. The data for this period include insurance claims from very large employers (about half of all enrollees) and from insurance plans that include both large and small firms. The enrollment files include patient demographics, enrollment windows, and types of coverage (including whether drug coverage is present). The claims data contain inpatient, outpatient, and prescription drug claims, and include dates and types of services, diagnosis (ICD-9-CM) and procedure (CPT-4) codes, types of providers, and costs of services. The maximum number of diagnoses recorded varies by



claim type. Hospital and outpatient claims contain up to two diagnoses; and prescription drug claims do not contain diagnosis codes.

We selected a sample of 4.46 million individuals who were between 18 and 63 years old in 2006, were continuously enrolled in commercial insurance products between 2005 and 2007 *and* had prescription drug coverage. We excluded individuals in capitated plans, as their prices are often listed as zero. While the data include information on both costs and charges, all analyses used the actual amount received by the provider, including payments from both the insurer and the patient.

### ***Episode Creation***

We started by grouping our sample's claims into episodes of care using ETG version 7.6 and MEG version 7.25. The ETG grouper creates 524 base ETGs, of which 10 are ungroupable and 14 are administrative or preventive. The MEG grouper creates 575 MEGs, of which 3 are ungroupable and 3 are administrative or preventive. A number of input parameters must be set prior to applying the episode groupers to the data; we used the recommended parameter settings for the ETG grouper and specified the MEG parameters to be as consistent as possible across the two groupers. Following recommended practice, we did not allow either grouper to use pharmacy, lab or imaging claims to initiate episodes of care. For both groupers, chronic episodes were required to start on January 1 of the calendar year and could not exceed 365 days in length; the clean periods for chronic episodes were restricted to 365 days as well (the MEG default is 999 days) to increase comparability of the two groupers' episodes. For both groupers, the start and end dates of



non-chronic episodes were assigned to the earliest start date and the latest end date of all claims grouped into that episode.

## ***Analyses***

We used all claims between 2005-2007 to assess each grouper's ability to assign claims to episodes of care and to explore features of claims that could not be allocated to episodes. We then formed two databases containing only those records that the respective groupers could allocate to episodes. While episode construction used three years of claims, analyses focused on complete episodes ending in the middle year – 2006. This practice (recommended by both groupers) provides the data before and after the period of interest needed to look forward and backward to initiate and complete episodes of care.

We compare the number of episodes, the mean cost per episode, and the mix of episodes output by each grouper. We designated episodes as *acute*, *chronic* or *other* using MEG's definition of "acute" and ETG's designation of chronic or not chronic. The 'other' category includes a mix of preventive and administrative episodes; because the ETGs in this category are not readily disaggregated into preventive (or not), we report on them together in summary statistics but individually when we examine high spending episodes. We compare the portion of episodes and spending each grouper classified into each of these categories and the agreement between the two groupers in this classification.

Finally, for each grouper, we selected the 25 episodes accounting for the greatest share of total spending to explore in more detail. We calculated a coefficient of variation for each condition to assess the extent of variability in the mean cost per episode within



that episode type. For each grouper's most expensive episodes, we examined where the other grouper allocated that spending. Analyses were conducted using SAS® version 9.2 (SAS Institute, Inc., Cary, NC) and Microsoft Office Excel 2010 (available at [office.microsoft.com/](http://office.microsoft.com/)).

## RESULTS

**Table 1** presents summary statistics for the 4.46 million people in our study sample. Between 2005 and 2007, total spending was \$64.4 billion for about 534 million claims. The MEG allocated \$53.1 billion of spending to 42 *million* episodes, leaving 22 percent of claims and 18 percent of costs ungrouped. In contrast, the ETG allocated \$55.7 billion of spending to 45 *million* episodes, leaving 20 percent of claims and 14 percent of costs ungrouped. The groupers agreed on whether or not to group 69% of claims (corresponding to 77% of total spending) to episodes (kappa 0.45). Broken out by claim type, the percentage of spending allocated by both groupers was very high (97 – 100%) for claims that involved clinicians (facility, management and surgery) and lower for claims for ancillary services and drugs (72 and 61 percent, respectively).

Most of the spending that could not be grouped to episodes of care was on claims with missing or invalid diagnoses. Almost half of the ETG's ungrouped spending was for drug claims with no corresponding clinical encounter; of this \$3.8 billion classified by ETG as "Ongoing Drug Care," MEG allocated a little over half to episodes of care, with the remainder ungroupable.



Of the 2005-2007 spending allocated to episodes by the two groupers, a third (representing about \$18 billion in spending) was for episodes ending in 2006 (**Table 2**). Of these, the mean cost per episode was slightly greater for MEGs than ETGs (\$1,281 vs. \$1,242, respectively). However, total ETG spending (\$18.5 billion) exceeded total MEG spending (\$17.7 billion) because more episodes were formed by ETG than MEG (14.9 and 13.8 million, respectively).

There were notable differences between the two groupers in their classification of episodes as acute or chronic (**Table 2**). ETG classified 54% of episodes (corresponding to 39% of costs) as acute, 36% of episodes (59% of costs) as chronic, and the remainder as preventive or administrative. In contrast, MEG classified 69% of episodes (53% of costs) as acute, 21% of episodes (43% of costs) as chronic, and the remainder as preventive or administrative. Agreement between the two groupers in their allocation of claims to 'acute', 'chronic' or 'other' episodes of care was moderate to good (kappa 0.63).

Total MEG spending exceeded total ETG spending on acute episodes (\$9.4 vs. \$7.2 billion, respectively), with both the mean cost per acute episode and the average number of acute episodes per beneficiary higher with MEG than ETG. For chronic episodes, the mean cost per episode was higher with MEG than ETG; however, total ETG spending on chronic episodes exceeded total MEG spending (\$5.7 vs. \$3.1 billion, respectively) because beneficiaries had twice as many chronic episodes with ETG than with MEG (1.2 vs. 0.6 episodes per annum, respectively).

Spending was concentrated in a small number of episodes with both groupers. The top 5% (N=29) and 13% (N=73) of MEGs accounted for 50% and 75% of total spending,



respectively. With ETG, the top 6% of episodes (N=27) accounted for 50% of spending and the top 17% of episodes (N=79) accounted for 75% of the total.

**Table 3** shows the 25 highest-spending ETGs (**panel A**) and MEGs (**panel B**), which accounted for 49% and 46% of total costs, respectively. Well care was among both groupers' 25 top spending episode types. The 25 most expensive ETGs included 9 acute, 15 chronic, and 1 routine care episodes. In contrast, of the 25 most expensive MEGs, 14 were acute, 10 chronic, and 1 was for preventive health services. Chronic episodes common to both groupers' top 25 included coronary disease, hypertension, diabetes, and breast cancer (among others). Acute episodes common to both groupers' top 25 included pregnancy, gallstones and kidney stones. While depression appeared among both groupers' 25 most expensive episodes, it was considered chronic by ETG and acute by MEG.

There was substantial dispersion in the mean cost per episode within each of the top 25 MEGs and top 25 ETGs. However, the extent of this variation varied and appeared to be far greater in chronic episodes than in acute episodes with both groupers. The coefficients of variation for MEGs ranged from 0.79 for vaginal deliveries to 3.9 for hyperlipidemia; for ETGs, the coefficients of variation ranged from 0.75 for pregnancy with delivery to 3.3 for chronic renal failure.

Costs per episode varied widely for some conditions. For example, asthma had nearly twice the cost per episode with MEG than with ETG (\$2,274 vs. \$1,225); there were far more asthma ETGs than MEGs (152,000 vs. 99,124 episodes), though. In contrast, the cost per episode of gallstones was nearly identical for MEG and ETG (\$7,928 vs. \$7,878).



For some conditions, the two groupers agreed fairly well on aggregate spending but not on the underlying cost per episode or quantity of episodes formed. For example, total hypertension expenditures from ETG and MEG were quite close (\$765 vs. \$724 million, respectively), but the cost per episode was 28% lower (\$805 vs. \$1,119 million) and the quantity of episodes 32% higher (950,672 vs. 647,389 episodes) with ETG than with MEG. In contrast, aggregate breast cancer spending was 20% higher with ETG than MEG, reflecting both a 10% higher cost per episode *and* a 10% greater quantity of episodes with ETG compared to MEG.

**Figure 1** shows the spending on the 5 most expensive ETGs (**panel A**) and 5 most expensive MEGs (**panel B**) and where that spending was allocated by the other grouper. The most expensive ETG was Ischemic Heart Disease (IHD), with total spending of \$1,120 million; the MEG allocated 57% of this spending to Maintenance of Chronic Angina and 18% to Acute Myocardial Infarction (AMI). 7.1 percent of ETG spending on IHD could not be allocated to episodes by MEG. Indeed, of the 25 highest spending ETGs, the portion of spending that could not be allocated to episodes by MEG ranged from 4.5% for Adult Rheumatoid Arthritis (24<sup>th</sup> most expensive ETG) to 17.9% for Diabetes (2<sup>nd</sup> most expensive ETG). In contrast, of the 25 highest spending MEGs, the portion of spending that could not be allocated to episodes by ETG ranged from 0.2% for AMI (18<sup>th</sup> most expensive MEG) to 26.8% for Encounters for Preventive Care (3<sup>rd</sup> most expensive MEG). Even when spending on the most expensive episodes could be allocated by both groupers, those allocations did not necessarily make sense. For example, of the \$86.8 million spent on non-malignant neoplasms of the female genital tract (13<sup>th</sup> most expensive ETG), MEG allocated 9.4% of that spending to episodes of malignant cancers.



## DISCUSSION

Analyzing the pattern and efficiency of medical spending is a central challenge in medical care. While many payers are looking to episodes of care to help with this analysis, we know relatively little about the commercial episode grouping programs already in widespread use.<sup>4,14,15,17,18</sup> We found that the two leading episode groupers (MEG and ETGs) are not consistent in the episode quantities or prices output when applied to the same commercially insured population. Further, there were notable differences between the groupers in the distribution of spending within episodes of specific diseases and in the distribution of spending across different diseases.

Prior research comparing episode groupers is scant.<sup>19</sup> While a growing body of research examines post-grouping issues (such as how to attribute episodes to providers), there has been little work comparing the actual groupers themselves.<sup>24,36</sup> MaCurdy and colleagues demonstrated some important differences between MEGs and ETGs when applied to the claims of Medicare fee for service beneficiaries.<sup>25,26</sup> They attributed this mismatch to the fact that the episode groupers were designed specifically for analysis of data from the commercially insured population, appearing to perform less well in Medicare beneficiaries, who tend to have higher resource use secondary to multiple comorbidities. However, our study suggests that concordance between the two groupers is less than ideal in the commercially insured population as well.

With the growing emphasis on episodes of care for provider profiling and payment reform, differences in the outputs of the two most widely used episode groupers can have important policy implications. Providers caring for patients covered by multiple payers



may actually be profiled simultaneously using different groupers for a given disease. Yet, the choice of grouper appears to result in implicit tradeoffs between quantities and prices of services — tradeoffs that should be made explicit particularly if public payers are to start paying based upon episodes of care. Until then, great caution should be exercised when contemplating which grouper to use and when. Further, the notable differences in the within-episode distribution of costs suggest that for some diseases ETGs may be preferable, while for other diseases MEGS may be preferable for provider profiling purposes.<sup>37</sup>

Our study had several limitations. First, while we compared the two most widely used commercial episode groupers, other episode groupers exist or are under development.<sup>17,18</sup> Second, because our analyses were restricted to a largely employed population, they are not nationally representative. They are, however, representative of a large share of private spending and did not need to be nationally representative for our purposes, as both groupers were applied to the same data. Finally, this paper focused on the two groupers' ability to construct and to assign costs to episodes of care, and did not examine their application (e.g., for payment reform, provider profiling, etc.) in practice.

## ***Conclusions***

The need for fundamental changes in the financing and delivery of health care has stimulated efforts to better define and organize healthcare utilization data into appropriate units of health care output. Application of the two most widely used episode grouper programs to the same set of commercial claims data demonstrates differences in the clinical logic and the output of the two approaches, suggesting the need for additional



research aimed at improving comparability and transparency. Payers engaged in episode-based profiling or payment should pay as much attention to constructing episodes as to using them.



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**Table 1. Summary Statistics for Claims and Costs, 2005-2007**

	ETG	MEG
<b>Total Claims (millions)</b>	533.9	533.9
<b>Ungrouped Claims</b>	108.4 (20%)	119.9 (22%)
<i>Invalid/Ungroupable Record</i>	61.8 (12%)	119.9 (22%)
<i>Ongoing Drugs</i>	46.5 (9%)	--
<b>Claims Grouped to Episodes</b>	425.6 (80%)	414.1 (78%)
<i>Diseases</i>	407.3 (76%)	385.9 (72%)
<i>All Other*</i>	18.3 (3%)	28.1 (6%)
<b>Total Spending (billions)</b>	\$64.4	\$64.4
<b>Ungrouped Spending</b>	\$8.7 (14%)	\$11.4 (18%)
<i>Invalid/Ungroupable Record</i>	\$4.9 (8%)	\$11.4 (18%)
<i>Ongoing Drugs</i>	\$3.8 (6%)	--
<b>Spending Grouped to Episodes</b>	\$55.7 (86%)	\$53.1 (23%)
<i>Diseases</i>	\$54.6 (85%)	\$51.1 (79%)
<i>All Other*</i>	\$1.1 (2%)	\$1.9 (3%)

\**All Other* Episodes are comprised of both preventive and administrative episodes that are not readily disaggregated into their component parts.



**Table 2. Descriptive Statistics for Episodes Ending in 2006 by Type of Care**

<b>Episodes:</b>	<b>Total Number (millions)</b>	<b>Total Spending (billions)</b>	<b>Spending per Episode (dollars)</b>	<b>Mean Length (days)</b>	<b>Number per Beneficiary</b>
<b>All Episodes</b>					
<b>ETG</b>	14.9	\$18.5	\$1,242	53	3.3
<b>MEG</b>	13.8	\$17.7	\$1,281	43	3.1
<b>Acute</b>					
<b>ETG</b>	8.1	\$7.2	\$894	22	1.8
<b>MEG</b>	9.6	\$9.4	\$980	22	2.1
<b>Chronic</b>					
<b>ETG</b>	5.4	\$10.9	\$2,009	112	1.2
<b>MEG</b>	2.9	\$7.7	\$2,652	110	0.6
<b>All other</b>					
<b>ETG</b>	1.4	\$0.4	\$265	9	0.3
<b>MEG</b>	1.4	\$0.7	\$483	52	0.3

*\*All Other Episodes are comprised of both preventive and administrative episodes that are not readily disaggregated into their component parts.*



**Table 3, Panel A. Descriptive Statistics for 25 Highest Spending ETGs**

		Dollars (millions)	Episodes (number)	Dollars per Episode		Episode Length Mean (days)
				Mean	Median	
Ischemic heart disease	Chronic	\$1,120.2	155,338	\$7,211	\$1,875	130
Joint degeneration, localized - back	Chronic	\$770.1	243,151	\$3,167	\$921	126
Hypertension	Chronic	\$765.0	950,672	\$805	\$491	124
Diabetes	Chronic	\$718.8	330,745	\$2,173	\$1,404	169
Malignant neoplasm of breast	Chronic	\$516.6	43,005	\$12,014	\$2,418	199
Pregnancy, with delivery	Acute	\$496.3	46,813	\$10,602	\$9,307	231
Hyperlipidemia, other	Chronic	\$390.0	562,178	\$694	\$538	95
Joint degeneration, localized - neck	Chronic	\$368.8	144,518	\$2,552	\$760	127
Mood disorder, depressed	Chronic	\$365.4	248,429	\$1,471	\$808	154
Joint degeneration, localized - knee & lower leg	Chronic	\$348.1	101,130	\$3,442	\$625	93
Routine exam	Well	\$286.1	1,200,642	\$238	\$181	5
Inflammation of esophagus	Acute	\$275.2	165,991	\$1,658	\$1,082	47
Non-malignant neoplasm of female genital tract	Acute	\$263.8	79,344	\$3,324	\$797	49
Chronic renal failure	Chronic	\$257.5	19,728	\$13,052	\$733	163
Joint derangement - knee & lower leg	Acute	\$253.5	61,192	\$4,142	\$2,401	77
Chronic sinusitis	Chronic	\$235.0	252,023	\$933	\$337	104
Cholelithiasis	Acute	\$213.1	27,054	\$7,878	\$6,558	33
Non-malignant neoplasm, intestines & abdomen	Acute	\$210.6	93,225	\$2,259	\$1,666	25
Kidney stones	Acute	\$208.4	46,048	\$4,525	\$1,857	37
Cerebral vascular accident	Chronic	\$190.9	32,688	\$5,841	\$1,318	94
Asthma	Chronic	\$186.1	152,000	\$1,225	\$534	95
Gastroenterology diseases signs & symptoms	Acute	\$180.1	216,805	\$831	\$413	12
Conditions associated with menstruation	Acute	\$175.5	191,032	\$919	\$419	20
Adult rheumatoid arthritis	Chronic	\$175.1	30,878	\$5,669	\$1,234	182
Multiple sclerosis	Chronic	\$159.2	13,163	\$12,091	\$12,322	176



**Table 3, Panel B. Descriptive Statistics for 25 Highest Spending MEGs**

		Dollars (millions)	Episodes (number)	Dollars per Episode		Episod Length
				Mean	Median	Mean (da
Angina Pectoris, Chronic Maintenance	Chronic	\$753.0	115,800	\$6,502	\$2,253	119
Essential Hypertension, Chronic Maintenance	Chronic	\$724.1	647,389	\$1,119	\$662	111
Encounter for Preventive Health Services	Well	\$617.1	1,297,399	\$476	\$280	55
Diabetes Mellitus Type 2 & Hyperglycemic State Maintenance	Chronic	\$529.0	232,333	\$2,277	\$1,579	165
Osteoarthritis, Except Spine	Chronic	\$472.2	160,572	\$2,941	\$745	107
Delivery, Vaginal	Acute	\$440.4	43,600	\$10,100	\$8,594	118
Neoplasm, Malignant: Breast, Female	Chronic	\$417.4	38,268	\$10,908	\$2,424	197
Other Arthropathies, Bone and Joint Disorders	Acute	\$410.7	522,062	\$787	\$287	19
Osteoarthritis, Lumbar Spine	Chronic	\$346.3	69,133	\$5,009	\$1,267	120
Lipid Abnormalities	Chronic	\$310.0	398,564	\$778	\$356	96
Depression	Acute	\$285.2	203,797	\$1,399	\$652	123
Hernia, Hiatal or Reflux Esophagitis	Acute	\$274.6	176,256	\$1,558	\$846	13
Renal Failure	Chronic	\$268.7	17,211	\$15,611	\$1,296	162
Other Spinal and Back Disorders: Low Back	Acute	\$261.6	369,710	\$708	\$175	38
Complications of Surgical and Medical Care	Acute	\$253.1	31,096	\$8,140	\$1,784	17
Sinusitis	Acute	\$235.4	492,208	\$478	\$196	17
Asthma, chronic maintenance	Chronic	\$225.5	99,124	\$2,274	\$1,282	86
Acute Myocardial Infarction	Chronic	\$210.6	7,922	\$26,579	\$20,430	17
Other Disorders of Female Genital System	Acute	\$203.0	225,479	\$900	\$335	13
Cholecystitis and Cholelithiasis	Acute	\$198.9	25,093	\$7,928	\$6,514	33
Bursitis	Acute	\$195.5	201,824	\$969	\$220	33
Intervertebral Disc Disorders: Lumbar and Lumbosacral	Acute	\$193.8	49,729	\$3,897	\$796	65
Calculus of the Urinary Tract	Acute	\$191.7	46,271	\$4,142	\$1,578	27
Other Inflammation/Infection of Skin & Subcutaneous Tissue	Acute	\$187.6	612,065	\$307	\$160	11
Neoplasm, Benign: Adenomatous Polyps, Colon	Acute	\$183.8	102,828	\$1,787	\$1,380	10



**Figure 1, Panel A. How Spending on the 5 Most Expensive ETGs is Allocated by MEG**

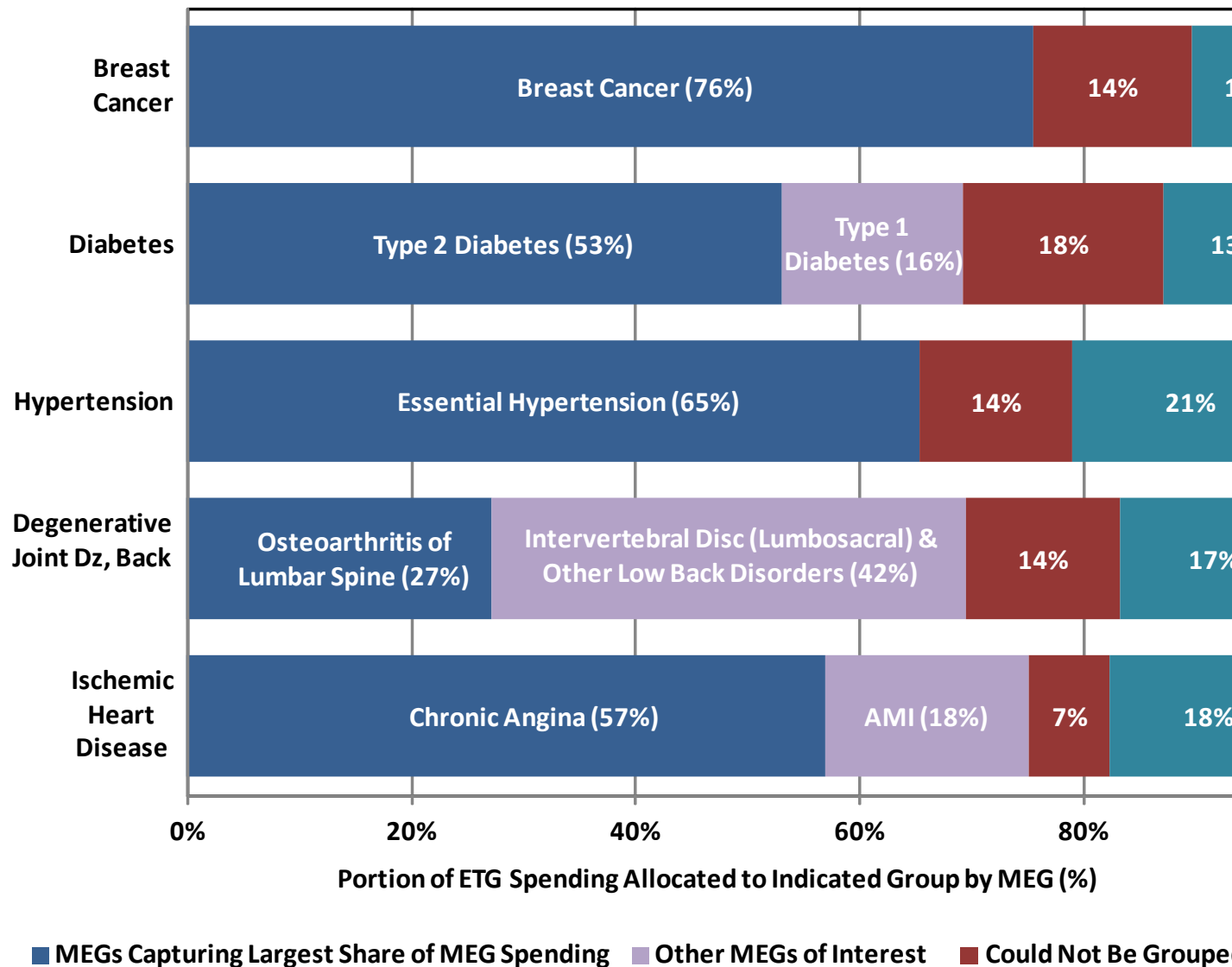




Figure 1, Panel B. How Spending on the 5 Most Expensive MEGs is Allocated by ETG

