



## Acute Unscheduled Care Model (AUCM): Enhancing Appropriate Admissions

### A Physician-Focused Payment Model (PFPM) for Emergency Medicine

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## Abstract

The ACEP proposed Physician-Focused Payment Model (PFPM) model, *Acute Unscheduled Care Model (AUCM): Enhancing Appropriate Admissions* will enable emergency physicians to participate in Advanced Alternative Payment Models (AAPMs) by accepting financial risk that is directly attributable to their discharge disposition decisions. ED services for acute unscheduled care represent a segment of Medicare expenditures that has not yet received focused attention by the Centers for Medicare and Medicaid Services (CMS) as it attempts to drive payment models that reward physicians for providing value over volume. The model provides incentives to safely discharge Medicare beneficiaries from the emergency department (ED) by facilitating and rewarding postdischarge care coordination. This represents the next step beyond the Hospital Readmission Reduction program as it seeks to reward appropriate admission to the hospital for Medicare beneficiaries who present to the emergency department for acute unscheduled care. The AUCM PFPM ensures that emergency physicians who make the decision regarding hospital or outpatient care have the necessary tools to support this transformation and are rewarded for their decision making.

In a review of 6.9 million FFS Medicare ED visits in 2014, 35.8% resulted in admission, 7.3% in observation stays, and 54.7% of beneficiaries were discharged to home. Variation was seen in admission rates across clinical categories. For examples, the interquartile difference in admission rates was 15% for patients with an ED diagnosis of syncope. In aggregate, there was a postdischarge event (i.e. death, repeat ED visits, inpatient admission, observation stay) rate of 8.8% at 7 days, and 19.9% of 30 days. Within some clinical categories, as many as 45% of ED visits discharged home and without any evidence of postdischarge events (received no other Medicare services within 7 days of discharge; at 30 days, this remained as high as 17% for some categories of discharge diagnoses.

The core model is focused on rewarding clinicians for reducing costs in three ways. The first is by reducing hospital inpatient admissions or observation stays. The second is by enhancing the ability of emergency physicians to coordinate, manage and avoid unnecessary postdischarge services, when appropriate. The third is by avoiding post-ED visit patient safety events and their associated costs. The proposed monitoring of postdischarge events (death, repeat ED visits, inpatient admissions and observation stays) protects Medicare beneficiaries and will ensure that attempts to decrease the cost of care do not result in decreased quality. The AUCM model will also honor patient preference to avoid hospitalization and observation stays (when appropriate) through provision of transitional follow-up care.

The proposed methodology is built using an episode framework that is in alignment with other CMS and private payer AAPM models. It includes a robust set of outcome metrics that can be calculated by CMS using claims data and a proposed set of patient safety metrics. When combined, these metrics can be used to set a minimum floor for qualifying for shared-savings as well as to provide safeguards against inappropriate discharges that result in potential patient harm or additional cost.

# I. Background and Model Overview

## Background

Since the Centers for Medicare and Medicaid Services (CMS) implemented the Hospital Readmission Reduction Program, significant efforts have been focused on reducing readmissions.<sup>1,2,3</sup> This approach is only one in a multi-faceted strategy to increase value of health care provided to Medicare beneficiaries, with some evidence of success in reducing readmissions.<sup>4</sup> However, CMS has identified that in some cases readmissions are being avoided by shifting potential readmissions towards another form acute care.<sup>5</sup> Recently, CMS has developed a new metric, *Excess Days in Acute Care*<sup>6</sup>, in recognition of a significant number of cases where an inpatient admission is avoided, while beneficiaries receive observation care as the alternative. The *Excess Days* measure set also tracks postdischarge emergency department (ED) visits as part of this broader approach to monitoring utilization of acute care services.

Overall, nearly 20% of the US population visits the ED each year.<sup>7</sup> There were over 25.5 million emergency department (ED) visits by Medicare beneficiaries in 2013,<sup>8</sup> amounting to \$3.5 billion<sup>9</sup> in total program payments. By 2015, the number of ED visits by Medicare beneficiaries

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<sup>1</sup> Thompson MP. Most hospitals received annual penalties for excess readmissions, but some fared better than others. *Health Aff (Millwood)*. 2017 May 1;36(5):893-901

<sup>2</sup> Wasfy JH, Zigler CM, Choirat C, et al. Readmission rates after passage of the hospital readmissions reduction program: a pre-post analysis. *Ann Intern Med*. 2017;166(5):324-31.

<sup>3</sup> Demiralp B, He F, Koenig L. Further evidence on the system-wide effects of the hospital readmissions reduction program. *Health Serv Res*. 2017 May 8. doi: 10.1111/1475-6773.12701

<sup>4</sup> Ryan AM, Krinsky S, Adler-Milstein J, et al. Association between hospitals' engagement in value-based reforms and readmission reduction in the Hospital Readmission Reduction Program. *JAMA Intern Med*. 2017 Apr 10. doi: 10.1001/jamainternmed.2017.0518. [Epub ahead of print]

<sup>5</sup> The Lewin Group. CMS Bundled Payments for Care Improvement (BPCI) Initiative Models 2-4: Year 1 Evaluation & Monitoring Annual Report. February 2015.

<https://innovation.cms.gov/Files/reports/BPCI-EvalRpt1.pdf>

<sup>6</sup> CMMI. "Quality and the Pay-for-Performance Methodology." *Acute Myocardial Infarction (AMI) Model*. <https://innovation.cms.gov/initiatives/ami-model/>

<sup>7</sup> Table 74; Emergency department visits within the past 12 months among adults aged 18 and over, by selected characteristics: United States, selected years 1997–2014. In: National Center for Health Statistics, *Health United States, 2015*. Hyattsville, MD, 2016.

[https://www.cdc.gov/nchs/data/15.pdf#074](https://www.cdc.gov/nchs/data/hus/15.pdf#074)

<sup>8</sup> Rui P, Kang K, Albert M. National Hospital Ambulatory Medical Care Survey: 2013 Emergency Department Summary Tables. National Center for Health Statistics.

[http://www.cdc.gov/nchs/data/ahcd/nhamcs\\_emergency/2013\\_ed\\_web\\_tables.pdf](http://www.cdc.gov/nchs/data/ahcd/nhamcs_emergency/2013_ed_web_tables.pdf)

<sup>9</sup> Medicare Outpatient Facilities: Utilization and Program Payments for Original Medicare Beneficiaries, by Type of Outpatient Facility and Type of Service, Calendar Year 2013. CMS

had grown to approximately 28 million.<sup>10</sup> These episodes of unscheduled acute care provided by emergency physicians represents a segment of Medicare expenditures that has not yet received focused attention by CMS, as it attempts to drive new payment models that reward physicians for providing value over volume.

ED care is targeted only indirectly in the currently-recognized CMS Advanced Alternative Payment Models (AAPMs), such as shared savings and accountable care organizations (population-based), specialty-based, disease-based, surgery focused, and medical and procedural care episodes.<sup>11</sup> These latter models sweep in emergency care at the start of an episode, and penalize emergency care that occurs in the post-acute care period. The emphasis has been on avoiding readmissions from the ED in Medicare beneficiaries with recent inpatient stays. To date, there is little recognition of contribution by the emergency department physician to the quality of care during the initial diagnosis, stabilization and treatment prior to inpatient admission. In fact, this work-up can play an essential and complementary role to a robust primary care system, and result in appropriate management of complex Medicare beneficiaries with potentially severe medical problems.<sup>12</sup>

Practice intensity has increased in EDs, in part because they are treating older and sicker Medicare beneficiaries, and in part because emergency physicians are incorporating more sophisticated and costly technology, such as more aggressive use of computerized tomographic (CT) scanning and other diagnostic tests, in managing Medicare beneficiaries' problems.<sup>13</sup> In 2014, 77.8% of evaluation and management claims submitted by emergency medicine physicians were in the top two tiers, Level 4 or 5, reflecting this higher level of acuity.<sup>14</sup> This intensity reflects the increasingly important role of the ED as a diagnostic center that compliments primary care practices. Although there may be limited savings achievable during the ED visit itself, improved coordination that prevents postdischarge events such as return visits to the ED can reduce costs.

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Program Statistics, 2013. Available at <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/CMSProgramStatistics/2013/Utilization.html>

<sup>10</sup> MEDPAC. Chapter 8. Stand-alone Emergency Departments. Report to the Congress: Medicare and the Health Care Delivery System. June 2017. [http://www.medpac.gov/docs/default-source/reports/jun17\\_reporttocongress\\_sec.pdf?sfvrsn=0](http://www.medpac.gov/docs/default-source/reports/jun17_reporttocongress_sec.pdf?sfvrsn=0)

<sup>11</sup> Centers for Medicare and Medicaid Services Innovation Center (CMMI) Accountable Care Organizations (ACOs), Oncology Care Model, Comprehensive ESRD Care Model, Comprehensive Care for Joint Replacement Model, and Episode Payment Models (proposed for cancellation). More information is available at <https://innovation.cms.gov/>.

<sup>12</sup> Morganti KG, Bauhoff S, Blanchard JC et al. The Evolving Role of Emergency Departments in the United States. *Rand Health Q.* 2013 Jun 1;3(2):3. eCollection 2013 Summer. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4945168/>

<sup>13</sup> Pitts SR. Higher-complexity ED billing codes—sicker patients, more intensive practice, or improper payments? *N Engl J Med* 2012; 367:2465-7.

<sup>14</sup> Internal ACEP analysis.

The Acute Unscheduled Care Model (AUCM) proposed by the American College of Emergency Physicians (ACEP) is a physician-focused payment model (PFPM) that moves upstream the “value” target. Once the evaluation, diagnosis and management is completed in the emergency department, it is the ED discharge disposition decision for either inpatient or outpatient care that drives additional cost. The model is not simply designed to reduce admissions. The AUCM seeks to address the lack of tools available to ED physicians, to ensure that Medicare beneficiaries receive safe and high-quality care, while avoiding unnecessary costs during and following the ED visit. Thus, it is designed to facilitate and reward ED physicians who choose the right care, for the right patient, in the right setting.

To date, emergency physicians have felt increasingly uneasy about the potential patient harm that may result from the measurement of (and penalties associated with) acute care outcomes. This focus is perceived as pressure to discharge Medicare beneficiaries into a healthcare system where timely appropriate testing and follow-up may be a challenge instead of admitting them to inpatient or observation services. If the healthcare system is to minimize the risk of adverse outcomes in these beneficiaries, any changes in practice patterns must be accompanied by changes in payment policy that support care coordination and reward utilization of tools such as care transition services and health information technology at this care transition

A precedent exists for enabling better post-inpatient care coordination and services in other CMS APMs, such as the Comprehensive Care for Joint Replacement (CJR) program, Next Generation ACOs and proposed Episode Payment Model (EPM) for cardiac care. These include including sharing opportunities that reward physician commitment to quality projects and economic stewardship, supplemental fees for care coordination, waivers for telehealth services, and payment for postdischarge visits by non- HHA providers. The use of such methods are not currently allowed or reimbursed by CMS following discharge from the ED.

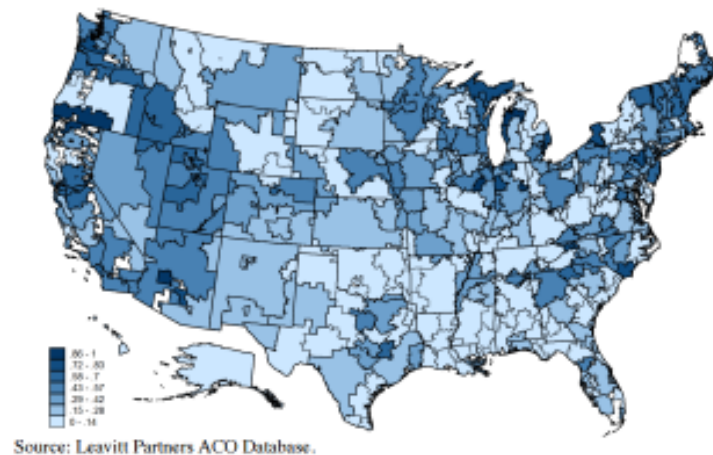
Why is the AUCM necessary? In their September 2017 report, Leavitt Partners, explicitly called out emergency physicians as a provider category with **“no avenues to participate in a Medicare APM”**, defined using consensus criteria of the Healthcare Learning and Action Network that was created by the Department of Health and Human Services to advance the APM agenda. Moving beyond fee-for-service, only pay for reporting and pay-for-performance models are widely available to emergency physicians.<sup>15</sup> Anecdotally, a limited number of emergency physicians are eligible APM participants through the landmark Medicare Shared Savings Program. However, there are broad swathes of the country where limited penetration of APM-qualified ACOs exist. For those ED providers who do not practice in areas with significant ACO penetration (see Figure 1) or where barriers to ACO and other APM penetration exist, the AUCM provides an important opportunity. CMS has taken steps to recently expand access to advanced APMs, such as through their proposed expansion of the designation of affiliated practitioners in the CJR model to include any physician who has a contract with the hospital and is engaged in activities to meet the cost and quality goals of CJR. The AUCM model when

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<sup>15</sup> Leavitt Partners. Medicare Alternative Payment Models: Not Every Provider Has a Path Forward. September 2017.

coupled with this proposed rule, expands the opportunity for physicians who participate in hospital-based APMs and will enable emergency physicians to reach the threshold for QP in an APM.

**Figure 1.** Proportion of hospital beds affiliated with an ACO<sup>16</sup>



It should be acknowledged that simply including emergency physicians in many current APM models as they expand will not be sufficient. Provision of ED care is particularly sensitive to patient choice and geographic mobility. In a review of 23 million ED visits by 11.3 million Medicare beneficiaries in 2014, 7.5% of Medicare beneficiaries with ED visits had at least one out-of-state visit. Nationally, 5.8% of ED revisits occurred outside the patient's home state.<sup>17</sup> The unique nature of acute unscheduled care also means that Medicare beneficiaries and other Medicare beneficiaries often receive care at multiple facilities over time, due to ambulance diversion<sup>18,19</sup> or the need for specialized trauma, stroke or cardiac services available only at designated tertiary care centers.

ED physicians are pivotal decision makers, driving half of all admissions; and these inpatient stays account for nearly a third of healthcare costs.<sup>20</sup> The development of the AUCM would be in alignment with CMS goals, as:

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<sup>16</sup> Leavitt Partners. Impact of Accountable Care: Origins and Future of Accountable Care Organizations. May 2015. <https://www.brookings.edu/wp-content/uploads/2016/06/Impact-of-Accountable-CareOrigins-052015.pdf>.

<sup>17</sup> MPA Healthcare Solutions analysis of the CMS Limited Data Set (LDS) for 2014. ED visits were identified using a physician claim for ED services.

<sup>18</sup> Hsia RY, Asch SM, Weiss RE, et al. California hospitals serving large minority populations were more likely than others to employ ambulance diversion. *Health Aff.* 2012;31(8):1767-76.

<sup>19</sup> Burt CW, McCaig LF, Valverde RH. Analysis of ambulance transports and diversions among US emergency departments. *Ann Emerg Med.* 2006;47(4):317-26.

<sup>20</sup> Morganti et al.

- Approximately 48,000 emergency medicine physicians and advanced practice professionals<sup>21</sup> could now participate in an AAPM;
- Variations in cost and quality of care for Medicare beneficiaries who visit emergency departments and are discharged may be addressed; and
- Incentives may be appropriately expanded to enable emergency department physicians to coordinate postdischarge care in new ways.

As a result of the proposed model, an expanded number of Medicare beneficiaries will have access to acute unscheduled care that is focused on value and not volume. Because commercial payers have not yet developed emergency specific payment models,<sup>22</sup> the AUCM also provides an important opportunity for CMS to provide crucial leadership in this area.

## Model Specifications

The proposed PFPM (Figure 2) seeks to enable ED physicians to improve the quality and cost effectiveness of acute, unscheduled care of Medicare beneficiaries. The AUCM will enable CMS to effectively engage emergency physicians, to **avoid the initial admission while ensuring safe discharge of Medicare beneficiaries to the home environment, to foster care coordination regarding postdischarge workups and to reduce post-ED patient safety events.**

The model will also enable CMS to reward physicians for cost savings when Medicare beneficiaries are discharged, to attribute costs to ED physicians who are the sole provider of services for an episode of care, and to share in savings that result from better care coordination and hand-offs for outpatient workups. It is flexible enough to exclude Medicare beneficiaries in other AAPM programs as well as those beneficiaries in hospice, end-stage renal disease programs, or undergoing active treatment for cancer. The AUCM can be rolled out as a stand-alone AAPM or can serve as a model for including emergency physicians in other AAPMs. The AUCM complements or expands upon current Medicare value-based care models and methodologies. Examples of alignment appear in Table 1 below.

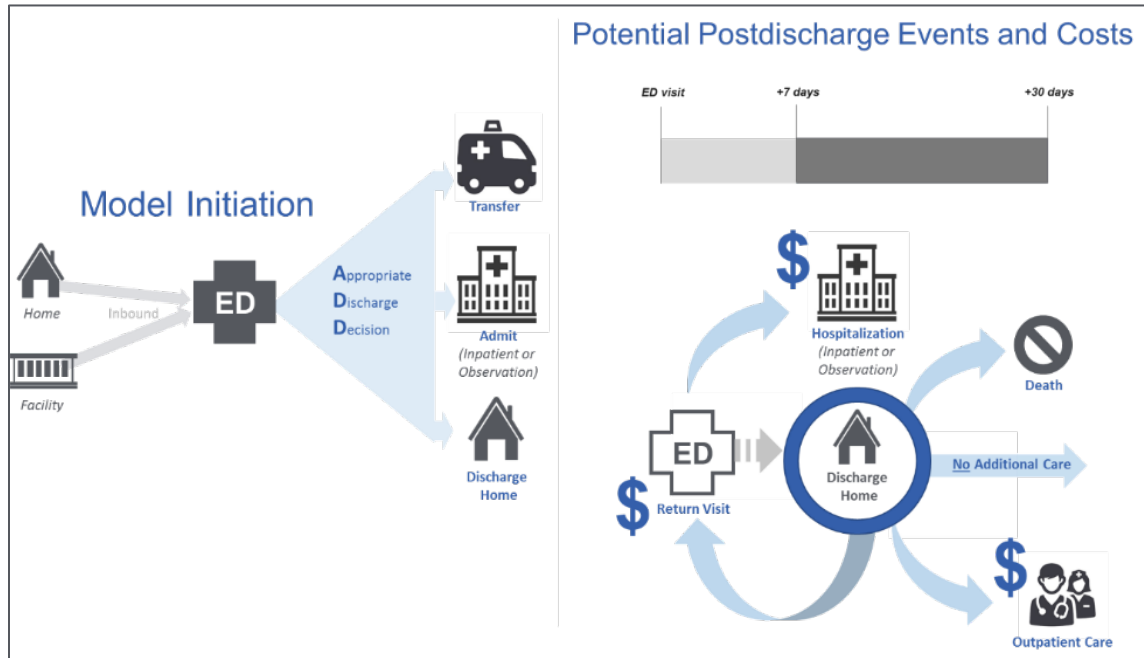
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<sup>21</sup> Number of physicians with Emergency Medicine as primary specialty (Provider Specialty Taxonomy code 207P00000X), and physician assistant/advanced practice nurses with Specialty Taxonomy code 364SE0003X. Based on NPPES full replacement file for April 2017.

<sup>22</sup> Leavitt Partners, 2017.



**Figure 2. Overview of model: measurement of potential postdischarge events and costs\***



\*Hospitalizations include admissions either from ED or direct from the community.

**Table 1. Alignment of AUCM with other CMS programs and methodologies**

CURRENT CMS MODEL	FOCUS	AUCM FOCUS
<b>Readmission Reduction Program</b>	Reduce acute care readmissions	Reduce post-ED visit admissions or observation stays
<b>Hospital Acquired Condition Reduction Program</b>	Reduce HAC	Reduce post-ED Patient Safety Events
<b>Transitional Care Payment</b>	Improve post-acute care transitions	Improve unscheduled care transitions
<b>CJR And Proposed Cardiac AAPMs</b>	Incentivize telehealth and post-discharge visits by non HHA providers	Incentivize telehealth and post-discharge visits by non HHA providers
<b>MACRA Cost of Care Metrics</b>	30 Day post-inpatient discharge costs	7-day post-discharge costs (although CMS may wish to expand to 30-days)

Model specifications are presented in Table 2. Several elements are closely patterned after other Medicare AAPM models such as the CJR and the proposed cardiac care EPM. It uses a retrospective reconciliation methodology to calculate changes in admission rates and cost savings. A composite quality score that includes post-ED event rates, and patient safety metrics sets a baseline for qualification for sharing payments. If the participant meets or exceeds targeted reduction rates (savings) in admissions, or targeted reductions in spending associated with

postdischarge events, and meets a minimum threshold on a composite quality score, the participant may receive an additional payment from Medicare or be required to repay Medicare for a portion of the episode spending exceeding the aggregate target price. It is anticipated that ACEP will work with CMS on determining the actual targets, stop gain and stop loss parameters with potential modifications for rural hospitals, Medicare-dependent hospitals and a group of low-volume hospitals. We have not provided a specific quality scoring methodology, as CMS has indicated a desire to revisit quality scoring<sup>23</sup>; the AUCM can be informed by the result of this process, to ensure program alignment.

**Table 2. Overview of model specifications**

<b>Model Parameter</b>	<b>Specifications</b>
<b>Population</b>	Medicare FFS beneficiaries who were not admitted for an acute care stay within 90 days prior to the ED visit excluding Medicare beneficiaries in hospice. (Dual eligible beneficiaries will be rolled into the AUCM in year two.)
<b>Postdischarge Events</b>	In the 7 (30) days following discharge home: <ul style="list-style-type: none"> <li>• Return ED visit</li> <li>• Observation stay</li> <li>• Inpatient admission</li> <li>• Death</li> </ul>
<b>Patient Safety Metrics</b>	Repeat ED visit, inpatient or observation stay within 7 days for: <ul style="list-style-type: none"> <li>• Injuries</li> <li>• Adverse drug reaction</li> <li>• Post-ED procedure complications</li> </ul>
<b>Cost Metrics</b>	Avoided admissions and postdischarge costs at 7 (30) days
<b>Included Visits</b>	All live ED discharges where the first-listed ED diagnosis does not result in admission over 90% of the time. <ul style="list-style-type: none"> <li>• Program Limited Test Years (One-Two): A select group of episodes for a basket of targeted symptoms or diagnoses</li> <li>• Program Implementation Years (Three): All episodes of acute unscheduled care rolled into program</li> </ul>
<b>Waivers And Incentives</b>	Participating ED physicians become eligible to provide telehealth services, transitional care payments and postdischarge visits (non-home health) (See Appendix)
<b>Potential Exclusions</b>	Patient transfers, deaths in ED, hospice cases, Medicare beneficiaries with an inpatient admission 1-90 days prior to the index ED visit.

<sup>23</sup> CMS. Cancellation of Advancing Care Coordination Through Episode Payment and Cardiac Rehabilitation Incentive Payment Models; Changes to Comprehensive Care for Joint Replacement Payment Model. Proposed Rule. 82 FR 39310. <https://www.federalregister.gov/d/2017-17446>

In the table below, we have provided a brief overview of the model from the perspective of different participants.

*Table 3. Anticipated model experience for different participant groups*

<b>Perspective</b>	<b>Model Experience</b>
<b>Patient</b>	The Medicare beneficiary in the ED receives timely treatment of their acute needs. Preference to avoid hospitalization and observation stays can be honored through provision of additional services that ensure a safe discharge and follow-up care until they can access care through their PCP or required specialist.
<b>Eligible Professional (e.g. ED Physician)</b>	ED physicians are empowered to make the right disposition decision for the right patient at the right time. In cases where socioeconomic factors might otherwise prevent a physician from discharging the beneficiary home, the AUCM toolbox including care transition and telehealth services helps to ensure appropriate follow-up (and reduced risk for patients facing barriers to appropriate care)
<b>Patient's PCP</b>	The AUCM provides an opportunity for PCPs to obtain more timely information about their patients who receive acute care, through direct outreach from a ED-based care coordinator. In this model, the PCP can also receive assistance in scheduling any necessary specialist follow-up for patients.
<b>Hospital</b>	A reduction in admissions has the potential to adversely impact hospital revenue. However, in a broader context of value-based reimbursement, there are several potential benefits. The AUCM program provides a mechanism through which the hospital can more effectively engage ED physicians in improving outcomes and reducing costs within hospital-based APMs and health system ACOs. With adoption of metrics and penalties for readmissions and other excess days in acute care, hospitals have opportunity to improve their scores in other CMS programs. The use of care coordination and telehealth services also have opportunity to positively impact patient satisfaction.
<b>Other Providers</b>	Specialists will receive more timely and accurate information about the patient's condition, treatment provided in the ED, and the urgency of follow-up care. This shifts the burden from the patient and will improve physician-physician care coordination especially when providers are out of network.

## **Model Implementation**

We have outlined in Table 4 below a potential implementation plan, including a program evaluation timeline preceding full program implementation. The evaluation would occur between years two and three in order to determine expansion and to evaluate actual cost savings and potential postdischarge events associated with the models. Quality and cost targets will be set at the facility level.

**Table 4. Model implementation timeline**

<b>Y</b>	<b>Geography</b>	<b>Population</b>	<b>Cost</b>	<b>Quality</b>	<b>Patient Safety</b>
<b>1-2</b>	Regional	FFS	Target set based upon 3 or 8% reduction in risk-adjusted admission rates compared to prior 3 years. Reconciliation payment methodology implemented.	Measure postdischarge events (ED visits, mortality, inpatient admissions and observation stays)	Measure frequency of post-ED patient safety events and set targets
<b>3</b>	National	Add dual eligibles	Downside-risk begins	Same	Finalize targets; metrics included in quality score; weighting increased over time.

In year one, the model would set institutional baseline performance for quality improvement and shared financial risk at the facility level, based upon 3 years of prior performance. Four high-volume diagnoses would be selected for testing. All visits that meet criteria would be eligible starting in year two.

We proposed that the model be tested in two census areas where there is different scale of opportunity to impact risk-adjusted admission rates, as defined by the interquartile range for a diagnostic area. For example, a difference in risk-adjusted admission rates of 15% between 25<sup>th</sup> percentile and 75<sup>th</sup> percentile hospitals represents an opportunity to reduce admissions up to 15% while preserving levels of care appropriate to the risk profile of the patient population. Based on a preliminary review, ACEP suggests the West North Central and East North Central regions.

## **II. Scope of Proposed PFPM (High Priority Criterion)**

There are nearly 48,000 physicians and advanced practice professionals for have self-identified as specializing in emergency medicine. Emergency physicians are not recognized as providers within ACO and MSSP frameworks. Although gainsharing models exist in CJR and proposed EPMs for cardiac disease, the ED physician is not recognized for the critical work in diagnosing and stabilizing Medicare beneficiaries. Beginning with FFS beneficiaries, and then with the addition of dual-eligibles, long-term care residents and Medicare Advantage enrollees, ED physicians will be able to meet MACRA qualifying provider thresholds for AAPM participation. The AUCM acknowledges and embraces the role ED physicians provide in servicing all Medicare beneficiaries.

In our analysis of ED visits in 2014 by a subset of 5.3 million Medicare FFS patients, we identified 178,571 distinct providers<sup>24</sup> billing Part B claims for ED evaluation and management or observation services. We estimate that **25.8% of these ED providers would** have an estimated AUCM case volume in this population that amounts to at least 25% of their total annual Medicare FFS ED case volume.<sup>25</sup>

We propose that a limited number of conditions should be included for testing in the first two years. Proposed conditions are high volume, high cost, symptom-driven diagnoses that were identified as showing marked variation in risk-adjusted readmission rates<sup>26</sup>. Researchers have found that many symptom-based diagnostic categories are also associated with an increased risk of death in the thirty days following discharge,<sup>27</sup> including those we have selected for model limited testing:

- Chest pain (33.0% of FFS ED visits in our 2014 data sample),
- Abdominal pain (23.7% of FFS ED visits),
- Syncope (13.2% of FFS ED visits), and
- Altered mental status (6.6% of FFS ED visits).

### **III. Quality and Cost (High Priority Criterion)**

The model focuses on improving quality of care provided to Medicare beneficiaries through a focus on:

- avoiding hospitalization in low-risk populations,
- providing incentive for development of care models to enable intermediate-risk Medicare beneficiaries to be discharged safely, and
- avoiding postdischarge events in high-risk populations that are not admitted.

Our preliminary analysis demonstrates opportunity for cost savings based on these appropriate discharge decisions and follow-up.

#### **Appropriate Hospitalization**

To evaluate the opportunity for improvement in outcomes and reductions in costs for ED visits, we sampled a one-year (2014) Medicare experience of all ED visits made by FFS beneficiaries. (See Appendix A for the complete Opportunity Analysis.) We used 6,995,818 ED ED visits by Medicare FFS beneficiaries for our study population, with a secondary analysis of dual-eligible beneficiaries. Cases were segregated into Major Diagnostic Categories (MDCs) to provide

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<sup>24</sup> Providers are defined as the number of unique National Provider Identifiers (NPIs) on the Part B claim for ED services. This total is not filtered by specialty.

<sup>25</sup> Our analysis includes a floor of 11 FFS cases for each provider, due to data use restrictions.

<sup>26</sup> See Appendix A. Opportunity Analysis

<sup>27</sup> Obermeyer Z, Cohn B, Wilson M, Jena AB, Cutler DM. Early death after discharge from emergency departments: analysis of national US insurance claims data. *BMJ*. 2017;356:j239.

comparability with the MS-DRG methods used by Medicare in other AAPMs. Patient associations within specific MDC categories resulted in the recognition of specific International Classification of Disease (ICD-9) codes that were very high frequency events. Abdominal pain, chest pain, altered mental status, and syncope and collapse were clearly recognized as high frequency events associated with morbidity and mortality, and these specific symptom-based conditions were analyzed in parallel with the parent MDC categories for these diagnoses.

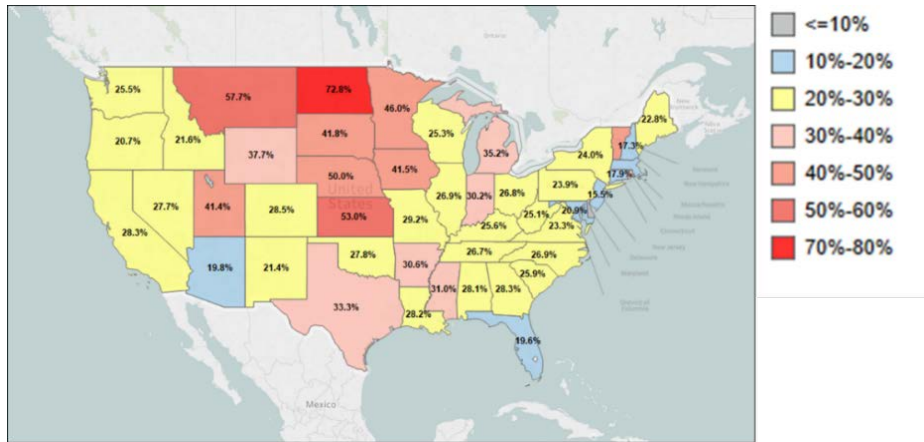
Within each MDC and within each of the specific diagnoses, total cases were identified and the total percentage of Medicare beneficiaries discharged home, placed into observation status, or admitted were computed. Hospital-level admission rates within each MDC and specific symptom-based condition were adjusted for the clinical risk of beneficiaries at the time of admission, using the CMS Hierarchical Condition Categories (HCC) risk score. Scores were created at the level of the individual beneficiary, using diagnosis codes and demographic factors. Comparison of risk-adjusted rates by hospital permitted the identification of high and low performing hospitals. This comparison permits the identification of those admissions that were potentially avoidable; i.e., the differences of the 25<sup>th</sup> percentile to the 75<sup>th</sup> percentile as a reflection of realistically preventable admissions. To illustrate the opportunity presented by the AUCM, we we present here results for syncope ED visits.

We combined observation stays and inpatient admissions as the availability and structure of observation units varies; some hospitals have advanced observation service capabilities, while others lacking these capabilities may routinely admit Medicare beneficiaries when higher acuity care is required. Combined admission/observation rates for syncope were 16.7% for hospitals at the 10<sup>th</sup> percentile, 36.4% in the 25<sup>th</sup> percentile, 53.6% in the 50<sup>th</sup> percentile, 68.1% in the 75<sup>th</sup> percentile, and were 80% in the 90<sup>th</sup> percentile. By application of the CMS HCC risk adjustment model, the risk-adjusted differences demonstrated an absolute 15 % difference in admission/observation rates between the 25<sup>th</sup> (49.0%) and 75<sup>th</sup> percentile (64.2%) of hospitals. A hospital-level analysis of the interquartile range for admission and observation rates is presented for syncope by a national map in Figure 3. Risk-adjusted admission/observation rates are presented in Figure 4.<sup>28</sup> Similar differences between the 25<sup>th</sup> and 75<sup>th</sup> percentiles were identified in each of the MDC and specific diagnoses groups.

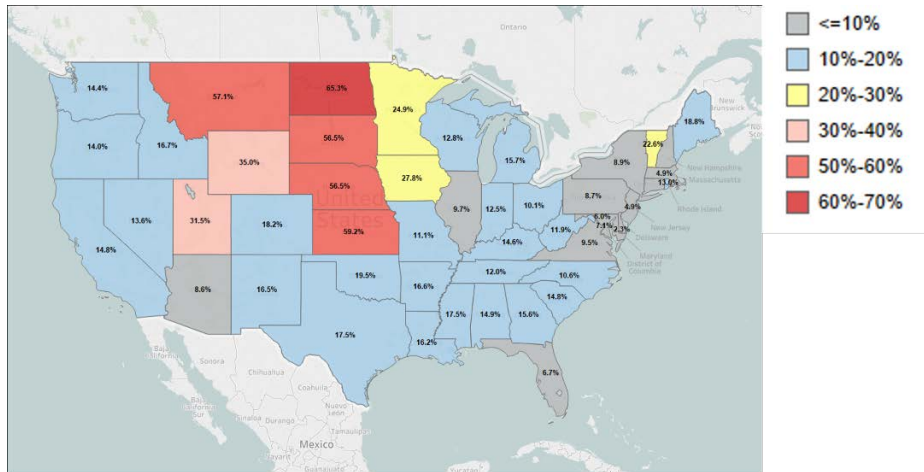
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<sup>28</sup> The spread in risk-adjusted rates is anticipated with any risk-adjustment method used. For an overview of our use of standard Hierarchical Condition Category (HCC) risk adjustment methodologies, see Appendix A: Opportunity Analysis.

**Figure 3. Interquartile range of ED admission rates for syncope across hospitals, by state**



**Figure 4. Risk-adjusted interquartile range for ED admission rates for syncope across hospitals, by state**



**Figure 5. Hospital-level variation in observed and risk-adjusted rates of admission to inpatient or observation stay**

Hospital Variation in % ED Index Cases Admitted to IP or Observation Stays								
Group Name	Total # ED Cases	Total % Admitted to IP or Obs	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	Interquartile Range
Syncope	175,281	58.8%	16.7%	36.4%	53.6%	68.1%	80.0%	31.7%
Chest Pain	436,264	58.4%	20.4%	37.9%	54.7%	69.1%	80.7%	31.1%
Abdominal Pain	313,267	31.2%	0.0%	14.3%	25.4%	35.7%	47.0%	21.4%
Altered Mental Status	87,024	73.8%	25.0%	53.1%	72.7%	85.1%	100.0%	32.0%

Variations in Risk Adjusted ED-IP/Obs Admission Rates across Hospitals						
Group	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	Interquartile Range
Syncope	30.1%	49.0%	58.7%	64.2%	67.8%	15.2%
Chest Pain	35.3%	50.0%	59.3%	64.7%	68.0%	14.7%
Abdominal Pain	0.0%	17.6%	28.4%	35.6%	42.0%	18.0%
Altered Mental Status	52.6%	71.6%	77.1%	79.6%	81.3%	8.0%

This variation (of up to 15%) in admission rates for symptom-based ED discharge diagnoses, corresponds to an estimated opportunity for reduction of 3-8%. There is likely variation in readiness to coordinate care of patients who might safely be discharged if services or follow-up care are available. A recent study<sup>29</sup> determined that few facilities Michigan have resources currently in place to coordinate post-discharge care with ED physicians. The implementation of transition of care programs, telehealth, and post-ED visit programs that are included in the proposed model will take time to implement.

### **Metrics: Focus on Patient-focused Postdischarge Events**

A strength of this model is that it continues a focus postdischarge outcomes, rather than process measures, of importance to patients. These outcomes can be measured at 7 and 30 days, using claims data, to ensure that quality of care is preserved as practice changes are implemented return to ED, postdischarge death, admission for inpatient acute care hospital stay, and admission to observation status.

An important consideration is the relationship between the admission rate of the index ED visit and the subsequent postdischarge event rates of beneficiaries that were discharged home. An argument can be made that hospitals with low-admission rates should have admitted more beneficiaries and that they will have higher postdischarge event rates. Similarly, high admission-rate hospitals may well make the case that they will have lower postdischarge event rates as justification for more frequent admissions. We used linear regression to examine the relationship of admission rates to subsequent postdischarge event rates at 30 days in syncope beneficiaries, and found no relationship ( $p = 0.68$ ,  $R^2=0.00005$ ).<sup>30</sup> Figure 6 illustrates this lack of relationships between the initial ED admission rate and the 30-day postdischarge event rate for syncope ED visits by Medicare beneficiaries.

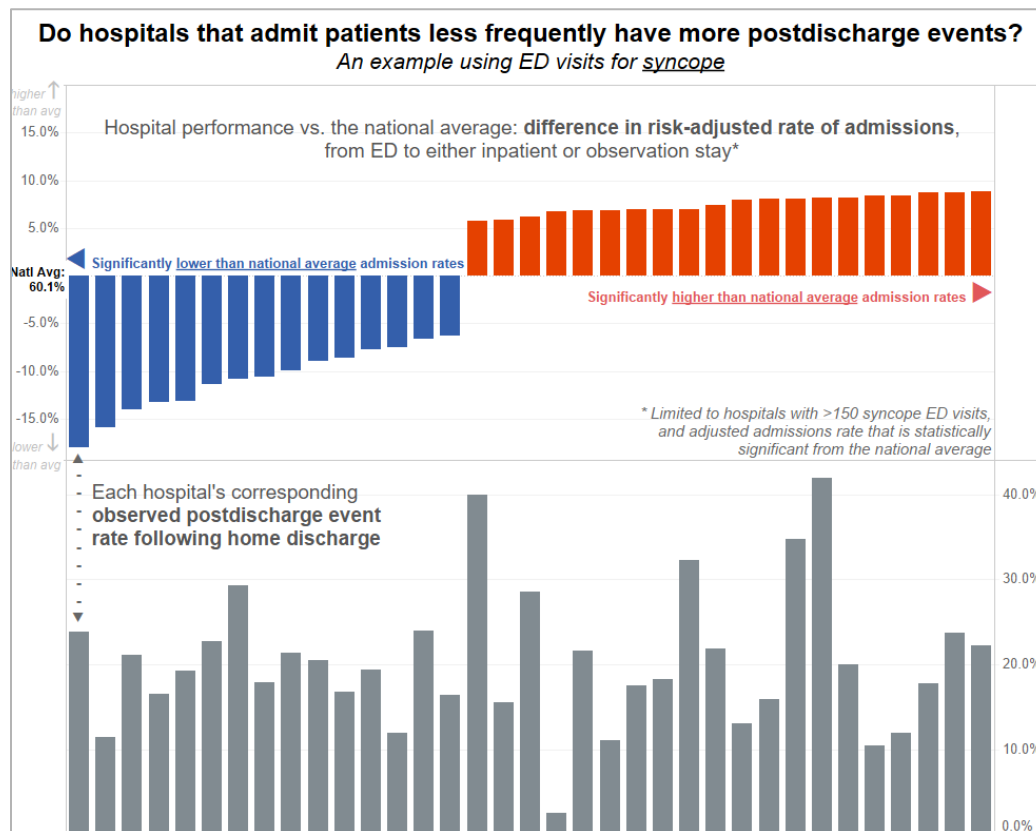
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<sup>29</sup> Kocher K. An Assessment of Needs and Resources Related to Developing Alternatives to Hospitalization: A Statewide Survey of Michigan Emergency Departments. Presented at the 2017 meeting of the Society of Academic Emergency Medicine.

<sup>30</sup> Supporting scatterplot is not shown, in adherence to CMS data privacy requirements that require suppression of cells with an N of < 11.



**Figure 6.** There is no relationship between rate of ED admissions (to inpatient or observation) and 30-day postdischarge event rates for ED visits discharged home



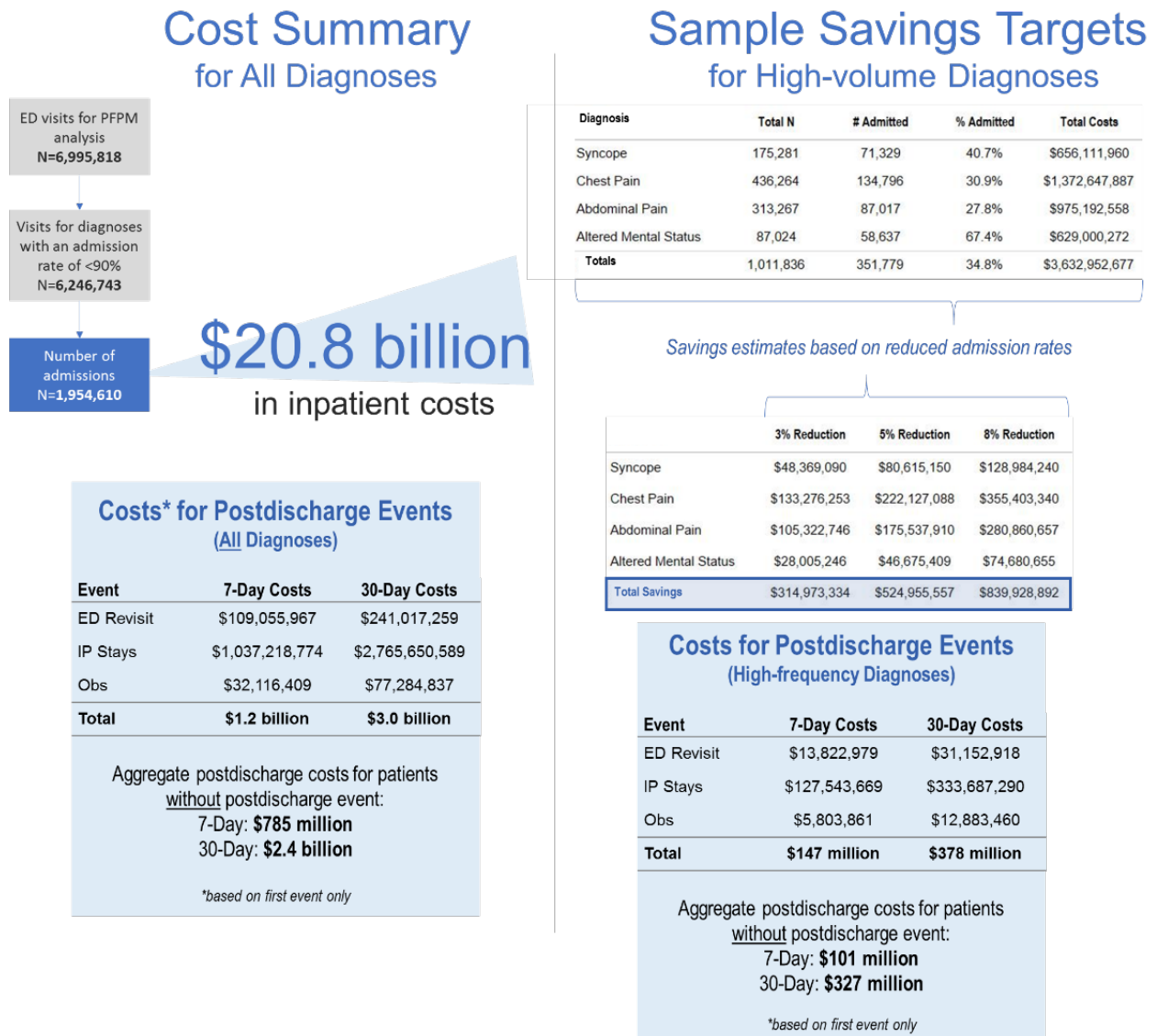
## Cost Savings Opportunity

The AUCM aims to reduce CMS expenditures through the following means:

- Driving postdischarge cost savings in low-risk populations compared to in-patient observation or admission;
- Avoiding costs associated with inappropriate ED discharge; and
- Leveraging known tools such as care coordination incentives, telehealth incentives and and patient visits by non-HHA providers to impact cost.

In our review of 6.9 million FFS Medicare visits in 2014, 35.8% resulted in admission, 7.3% in observation services, and 54.7% of Medicare beneficiaries were discharged to home. Based on the average allowed cost for MS-DRGs of inpatient stays in our analytic data set, admissions to the hospital represented an estimated \$20.8 billion dollars in facility costs. Within some clinical categories, as many as 45% of ED visits discharged home and without any evidence of postdischarge events (death, repeat ED visits, inpatient admission, observation stay) received no care within 7 days of discharge. At 30 days, this remained as high as 17% for some categories of discharge diagnoses. In aggregate, there was a postdischarge event rate of 8.8% at 7 days, and 19.9% of 30 days.

Figure 7. Cost savings opportunity for ED sample used in this analysis



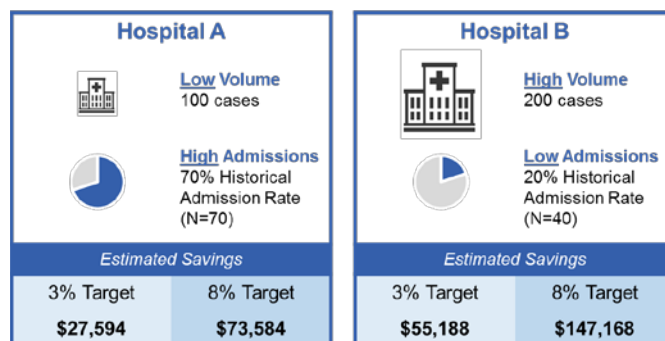
Cost savings are dependent on targets set for improvements. Estimates below provide a general assessment of opportunity, but are complicated by the lack of alignment between ED discharge diagnosis and inpatient MS-DRG.<sup>31</sup> In Figure 7 we have provided a summary of potential cost savings for reducing admissions for certain high-frequency diagnoses. Examples of savings at the hospital-level appear in Figure 8.

Both reduced admissions and quality improvements will generate savings. Across all diagnoses, 3% reduction in costs of postdischarge events (Figure 7) would equal \$35.4 million in savings in

<sup>31</sup> In this analysis, ED visits for syncope were admitted into 590 different MS-DRGs.

the 7-day postdischarge period and \$92.5 million in the 30-day period. Comparable savings for the high-frequency diagnoses would be \$4.4 million at 7 days and \$11.3 million at 30 days.

Figure 8. Hospital-level facility cost savings scenarios, based on savings from reduced admissions for syncope



Savings are based on a per case inpatient stay cost of \$9,198 (National average).

## IV. Payment Methodology (High Priority Criterion)

The AUCM payment methodology depends on a retrospective payment adjustment similar to those developed in the mandatory CMS EPMs. The model includes an incremental rollout that allows for emergency physicians to determine their baseline performance, to implement tools for managing the postdischarge transition, to move from a few conditions to encompass all visits where discharge is an option (i.e. less than 90% historical admission rate at the national level).

The core methodology that has been incorporated into the model (Tables 2 and 4) is currently being tested or has been implemented in AAPMs, CMS innovation projects, or elsewhere in Medicare payment policy. The reason that the model can not be tested under current payment methodologies is that none specifically target acute unscheduled care that does not result in admissions. The unique nature of emergency care and the fact that beneficiaries often reasonably receive care at multiple institutions (including out of state) means that only including emergency physicians in facility-based ACOs will limit their ability to successfully meet the thresholds for AAPM participation in the Quality Payment Program (QPP). In the 2018 QPP Rule, CMS acknowledged the special circumstances of ED physicians by introducing new reporting options for hospital-based physicians, using the Hospital Value Based Program quality scores for their primary hospital. This step was intended to reduce the burden of measure reporting (and penalties). However, it ED physicians still face limited opportunity to engage in AAPMs and be rewarded for their contributions to improved quality and efficiency within care episodes.

We have proposed payments for ED acute care transition services, telehealth services, and postdischarge home visits (waivers described in Table 5). These payments would be included in the ED costs for each episode and thus the program would remain cost-neutral. These proposed waivers are in alignment with those implemented by CMS in the mandatory EPMs. Service costs will be included in the overall spending calculation for determining cost of care savings.

*Table 5. Proposed Medicare program policy waivers for AUCM*

<b>Telehealth</b>	Emergency physicians will be allowed to provide telehealth services into the beneficiary’s home or residence and to bill one of the in-home visits under the same waiver that was put in place in the CJR and other APMs.
<b>Postdischarge Home Visit</b>	Licensed licensed clinical staff may provide home visits under the general supervision of an emergency physician to eligible Medicare beneficiaries. The providers may bill these services utilizing the same G-codes utilized in other APMs.
<b>Transitional Care Management</b>	Authorize emergency physicia to bill for a transitional care management code. The American College of Emergency Physicians. This could be done utilizing the current CPT codes (99494 and 99496) or the ED specific Acute Care Transition codes submitted to the CPT Editorial panel in 2016. (Appendix B)

## Financial Risk and Shared Savings Payments

An evaluation of the financial risk for a given provider participating in the AUCM program was conducted based on an analysis of ED visits by FFS Medicare beneficiaries. The average total annual physician allowed charges was \$12,902. The CMS Quality Program has set 8% of Part A and Part B revenues as the “nominal risk” threshold to quality as an Advanced APM.<sup>32</sup> For physicians whose case mix and volume is comparable to the national average, a maximum loss of \$1,032 per year ( $\$12,902 * .08$ ) would represent the financial risk to the provider who does not meet the target.

## V. Value over Volume

An analysis of ED visits by FFS Medicare beneficiaries, excluding those hospitalized within the prior 90 days), revealed that emergency medicine physicians provided care at 4,647 facilities for 6,995,818 million ED visits in 2014 that could be eligible in the AUCM PFPM<sup>33</sup>. During these visits, emergency physicians discharged 5,341,105 million Medicare beneficiaries, and made discretionary admission decisions for 1,954,610 visits representing \$20.8 billion in inpatient costs. In 2014, emergency physicians also made admitting decisions for another 3,245,625 visits by Medicare and Medicaid dual-eligible beneficiaries.

Financial incentives and ability to improve the transition to home after an acute unscheduled care visit will enable ED providers to impact postdischarge events (death, inpatient admissions, observation stays and return ED visits). We anticipate decreased patient safety events, along with

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<sup>32</sup> Merit-Based Incentive Payment System (MIPS) and Alternative Payment Model (APM) Incentive Under the Physician Fee Schedule, and Criteria for Physician-Focused Payment Models. 81 FR 77008. This threshold has also been proposed by CMS to continue for the 2018 performance year (82 FR 30010).

<sup>33</sup> This estimate includes beneficiaries covered in programs such as Next Gen ACO, MSSP, Oncology Care Model, comprehensive Primary Care Plus and ESRD AAPMs. Adhering to CMS EPM methods, these beneficiaries could be removed from AUCM.

support for more standardized postdischarge care. Potential cost savings from reduced are tightly tied with incentives to avoid adverse outcomes resulting from inappropriate care.

## VI. Flexibility

This proposed model addresses operational feasibility, accommodation of patient subgroups and general program flexibility in the following ways:

- Variation in the admission vs. discharge practice can be measured and risk-adjusted at the hospital level thus allowing the targets to be set that reflects local community or population factors that impact the admission decision;
- As performance will be benchmarked at the facility level, efforts to impact socioeconomic disparities, institutional culture, and to strengthen outpatient follow up will be measurable and actionable;
- More than 48,000 providers (physicians, physician assistants and advanced practice nurses) specializing in emergency medicine<sup>34</sup> will be able to participate regardless of employment model (independent group, regional group, national group, employed);
- The model can be harmonized with conditions and procedures included in proposed MIPS Cost Metrics;
- Various populations can be excluded (e.g., ESRD, hospice, EPM participants);
- Determination of target rates can be varied to address socioeconomic status (SES) and other local hospital and community determinants of ED utilization.
- The model can be incorporated into other AAPM models.

## VII. Ability to be Evaluated

The proposed PFPM aligns with current CMS program evaluation approaches, including:

- Claims-based postdischarge event and cost assessments;
- Episodes based on MDCs ICD-CM classifications; and
- CMS criteria used for differentiating hospitals; and
- Easy adaption to include CMS final methodology for socioeconomic adjustments.

ACEP's CEDR registry can support improvement and evaluation with clinical metrics.

## VIII. Integration and Care Coordination

CMS has recognized that “[a]lthough an estimated 80% of overall health care costs are attributable to the decisions made by clinicians, these same clinicians are often not aware of how

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<sup>34</sup> There may be even larger numbers of clinicians who do not self-identify as emergency physicians but provide related care, as in our preliminary analysis we identified over 100,000 unique NPIs associated with claims for ED and ED-based observation care.

their care decisions influence the cost of care.”<sup>35</sup> For emergency medicine providers, this also extends to the quality of care associated with those decisions. There is a critical need to develop models that enable safe, cost-effective outpatient post-ED care that supports care transitions. The AUCM aims to achieve this goal by:

- Using care coordinators to facilitate appropriate discharge have proven effective in the inpatient to outpatient arena;
- Enabling ED physicians to partner with primary care and to manage unscheduled care episodes by protocol;
- Enabling ED physicians to arrange for a post-discharge home visit when appropriate;
- Enabling use of telehealth to follow up with discharged beneficiaries; and
- Incorporating payment for one postdischarge follow up visit at home or an ED visit for selected conditions when postdischarge follow up is not available within 48 hours.

## **IX. Patient Choice**

The Institute of Medicine defines patient-centered care as “respectful of and responsive to individual patient preferences, needs, and values, and ensuring that patient values guide all clinical decisions.” The AUCM meets these criteria by:

- Enabling ED physicians to coordinate care with family members, supporting continuity through postdischarge planning with providers, recognizing and managing the barriers to postdischarge follow-up in the local community (including those linked to disparities);
- Enabling Medicare beneficiaries to be treated at home, thus avoiding co-payments for observation stays or other Part B costs;
- Providing follow-up care for one visit, for those Medicare beneficiaries who are seeking services in another area of the country; and
- Supporting the use of decision tools that enable Medicare beneficiaries and families to be comfortable with discharge to home.

## **X. Patient Safety**

In our preliminary analysis, we found that in aggregate, there is a postdischarge event rate (death, repeat ED visits, admission to the hospital) of 8.8% at 7 days, and 19.9% of 30 days. Inclusion of these metrics aligns the AUCM with other CMS metrics and will provide ACEP members and hospitals an opportunity to improve postdischarge care in a way that is meaningful to patients.

Additional quality and patient safety goals can be captured by the ACEP Clinical Emergency Data Registry (CEDR) such as repeat ED visit, inpatient or observation stay within 30 days for: injuries, adverse drug reaction, or post-ED procedural complications. In our preliminary analysis

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<sup>35</sup> CMS. Evidence-Based Cost Measure Development for the Quality Payment Program. December 23, 2016.

of Medicare FFS beneficiaries in 2014, of 554,112 return visits to the ED within 7 days of a discharge home from an ED, 8.6% of revisits (n=47,842) were for a patient safety event.<sup>36</sup> The inclusion of discreet patient safety events will provide the hospital and the physician with an opportunity to undertake MIPS-qualified practice improvement initiatives. A break-out by category is provided in Table 6.

Table 6. Patient safety-related ED revisits in a Medicare FFS population

Category of ED diagnosis	% of ED revisits
<b>Injury</b>	7.2%
<i>Fracture</i>	2.5%
<i>Sprain and strain</i>	0.8%
<i>Head trauma</i>	0.7%
<i>Laceration</i>	3.2%
<b>Adverse drug reaction</b>	1.1%
<b>Post-procedure complication</b>	0.4%
<b>Vists for other diagnoses</b>	91.4%

## XI. Health Information Technology

We propose to use the CEDR clinical registry to provide benchmarks and enable ED group participation in the AUCM. This ACEP-sponsored registry has to date connected with over 15,000 providers in over 800 emergency departments who are utilizing 14 different EMR/EDIS systems. It currently captures 44 performance measures that are reportable to CMS under the Quality Payment Program. As of early 2017, it contains records for 20 million patient visits.

CEDR can be utilized to capture data on patient safety events. Importantly, it can also be used study the population that does *not* receive follow-up care in the 7- and the 30-day postdischarge period. This patient-focused effort should seek to determine reasons for the absence of follow-up care and differentiate between instances where the ED may have resolved the condition for which the ED service was rendered, the patient may have opted not to seek follow up care, or barriers may exist and persist in preventing timely care follow-up within the community.

## XII. Supplemental Information

To support improvement efforts, we request that CMS provide claims data to participants, following the pattern of data sharing in other CMS AAPMs. CMS would need to adopt registry-based reporting for new post-discharge patient safety metrics such as post-ED injuries, adverse drug reactions, or ED procedural complications. Additional information regarding the opportunity analysis to support this proposal appears in the attached appendices.

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<sup>36</sup> This analysis counts only the first postdischarge event and not all return visits.

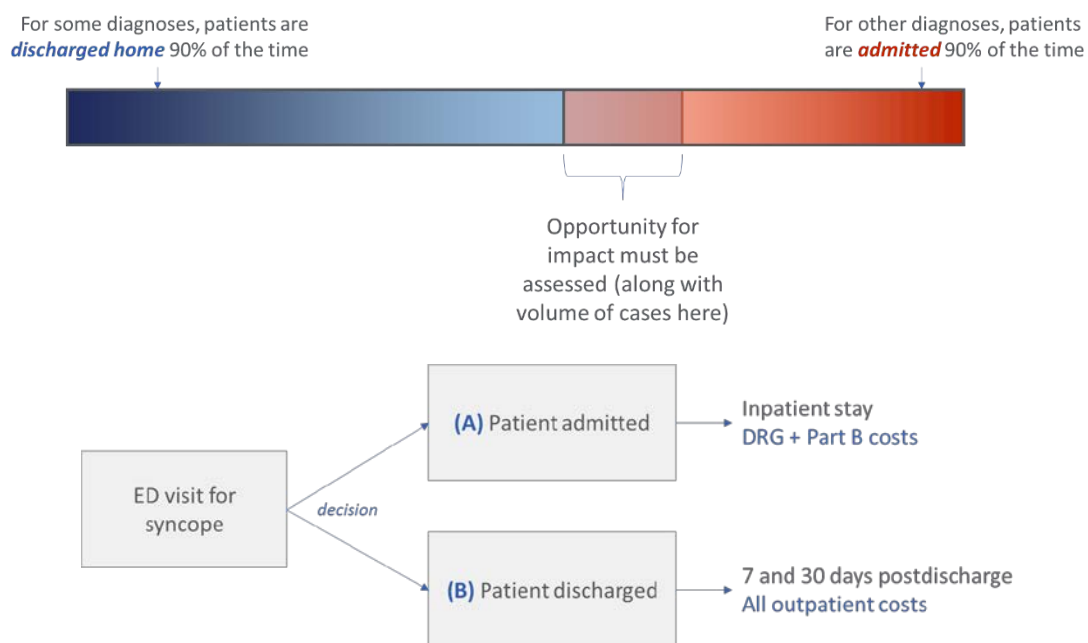
# Appendix A. AUCM Opportunity Analysis

## I. Background

The American College of Emergency Physicians (ACEP) proposed Physician-Focused Payment Model (PFPM), Acute Unscheduled Care Model: Enhancing Appropriate Admissions (AUCM), will enable emergency physicians to participate in Advanced Alternative Payment Models (AAPMs) by accepting financial risk that is directly attributable to their discharge disposition decision for Medicare beneficiaries not otherwise attributed to other AAPMs. The model represents the next step beyond the Hospital Readmission Reduction program as it seeks to reward appropriate admission to the hospital for Medicare beneficiaries who present to the emergency department for acute unscheduled care, and provides incentives to discharge patients when appropriate by facilitating and rewarding post-discharge care coordination. AUCM moves the “value” target upstream to ensure that emergency physicians who make the initial decision regarding hospital or outpatient care have the necessary tools to support the decision and are rewarded for their decision making.

In order to support development of the AUCM, it is necessary not only to evaluate potential savings that can be attributed to avoiding an inpatient admission, but also to analyze the cost of outpatient services that are being substituted for inpatient services, reflect a change in condition or that may be the results of complications of ED care in order to determine the opportunity for cost savings across these diagnoses. This report presents methods used in completing this opportunity analysis, and an overview of findings.

*Figure 1. Conceptual grounding of opportunity analysis*





## II. Data Sources

To evaluate the opportunity for improvement in outcomes and reductions in costs for ED visits, a one-year (2014) sample of the Medicare experience of all ED visits was used. The data set includes final action, fee-for-service Medicare claims for Medicare beneficiaries that had an inpatient or ambulatory procedure<sup>1</sup>, or a medical hospital admission, during the years 2009-2014. The below research identifiable files were used to identify utilization and costs.

*Table 1. CMS claims data files used in analyses*

<b>File</b>	<b>Years</b>	<b>Contents</b>
Master Beneficiary Summary File, Base (A/B/D) Segment	2014	Enrollment and demographic information
MEDPAR RIF	2014	Short-stay acute care hospitals, long term care hospitals, inpatient rehabilitation facilities and skilled nursing facility (SNF) claims
Outpatient RIF	2014	Hospital outpatient departments, emergency departments, outpatient rehabilitation and other institutional outpatient providers
Carrier RIF	2014	Non-institutional providers (physicians, physician assistants, nurse practitioners, etc.) and free-standing facilities (clinical labs, ambulatory surgical centers, ambulance providers).
Home Health Agency (HHA) RIF	2014	HHA claims
Hospice RIF	2014	Hospice claims

## III. Study Population and Case Selection

The analysis included 6,995,818 ED visits by FFS Medicare beneficiaries for our study population, and an additional 3,245,623 visits by dual-eligible beneficiaries. Criteria used to identify these populations are described below.

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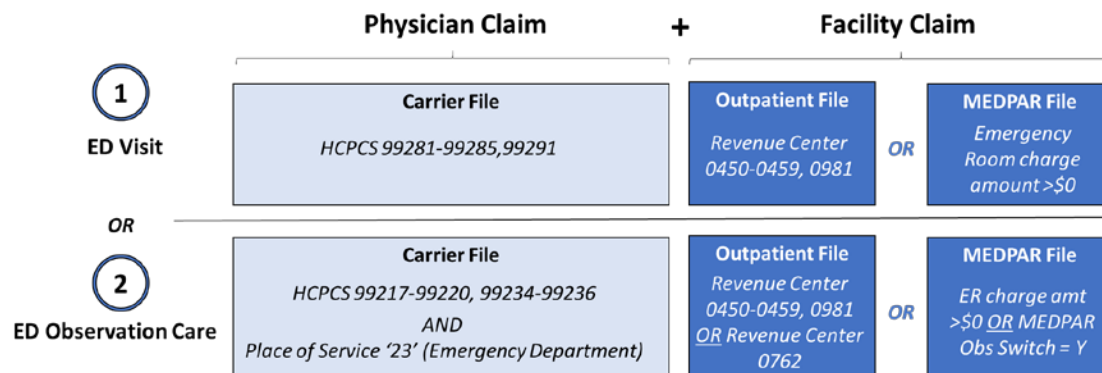
<sup>1</sup> This cohort includes a range of high- and low-risk patient encounters.

## Identification of ED Visits Cohort

ED visits are identified by the physician Carrier/Part B claim for evaluation and management or observation care in the ED. Since the study evaluates patient encounters 30 days after the ED visit, only Medicare beneficiaries with a full episode window are included in the ED cohort dataset; therefore, ED visits after November 30, 2014 were dropped.

Identification begins with the physician claim, as this is used as for attribution purposes and to support identification of discharge diagnoses for case risk adjustment. An overview of the ED claims identification process is illustrated in Figure 2. Visits were identified by selecting line level Carrier Files (Physician/Supplier Part B claims) with a HCPCS code in (99281-99285, 99291). We performed an additional search targeted ED visits with same-day observation discharge. Emergency department observation visits were identified by selecting line level Carrier claims with a HCPCS code in 99217-99220, 99234-99236 and site of service 23.

**Figure 2.** Identification of preliminary population



Each physician claim was then linked with the facility claim, in order to identify discharge disposition and ensure completeness of visit costs and services in the episode record. Facility claims are matched based on encrypted beneficiary identifier (BeneID) and date of service (+/- 1 day). The facility/institution claim was identified by using the MEDPAR file (to capture Medicare beneficiaries admitted from the ED) or the outpatient file (to capture Medicare beneficiaries discharged home and to settings other than the acute care hospital). This search of the MEDPAR file was limited to short stay claims only with an ED charge amount of greater than \$0. Outpatient files were limited to claims with revenue center records with codes 0450-0459, 0981, 0762).

Facility claims in the MEDPAR file were considered a match if the short stay inpatient admission occurred within +/- one day of the Carrier claim through date. Facility claims in the Outpatient file were considered a match if the Outpatient claim from and through dates occurred from one day before the Carrier claim from date to one day after the Carrier claim through date. If multiple facility claims matched the Carrier claim, the claim with the exact date match was

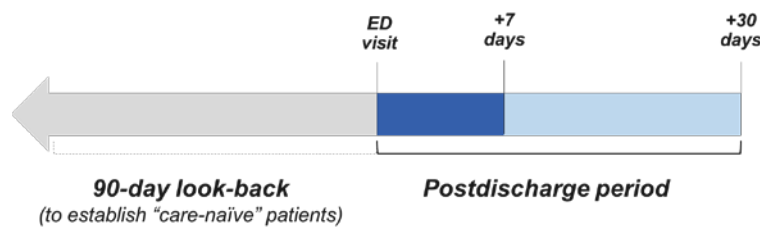
used<sup>2</sup> ED visits with no matching facility claims were dropped from the study population, as a comprehensive evaluation of outcomes and costs was not possible with missing information.

To determine the patient's Medicare eligibility, each ED visit was linked to the Master Beneficiary Summary (MBSF) file. ED visit records from beneficiaries with no matching MBSF records for the claim year were dropped. The Medicare Entitlement/Buy-in Indicator for the claim month was used to identify the main study population, the Medicare population, as well as the Dual Eligible population. The HMO Indicator for the claim month was used to include only Fee-For-Service or non-HMO beneficiaries.

After dropping claims based on eligibility, the Carrier/Part B claims are further examined to determine if Medicare is the primary payer of the claim. If the Medicare claim payment amount is \$0 or the primary (non-Medicare) payer payment amount is >\$0, then the claim is dropped from the study population.

This analysis excluded Medicare beneficiaries that were within 90-days of inpatient care because these cases will currently or likely be within inpatient advanced alternative payment models (AAPMs). Also excluded were Medicare beneficiaries with a 30-day prior ED visit, since selected Medicare beneficiaries with multiple visits could be represented as multiple episodes in our study population. Figure 3 illustrates the ED visit episode and look-back period.

**Figure 3.** Episode of acute unscheduled care



If there was a short stay inpatient claim for the beneficiary in the MEDPAR file 1 to 90 days prior to the anchor ED visit, then that ED visit was dropped from the analysis. If there was a Carrier claim for ED services 1 to 30 days prior to the anchor ED visit, then the anchor ED claim was dropped from the analysis, to avoid overlapping episodes. For ED visits occurring in the first three months of 2014, additional claims were brought in from 2013 data files in order to verify prior visits.

Dual eligible Medicare beneficiaries for Medicare and Medicaid were separately analyzed because they are an intrinsically different patient population than traditional fee-for-service population. Additionally, Medicaid costs cannot be captured from the Medicare dataset. Dual-

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<sup>2</sup> Venkatesh AK, Mei H, Kocher KE, et al. Identification of Emergency Department Visits in Medicare Administrative Claims: Approaches and Implications. *Acad Emerg Med.* 2017 Apr;24(4):422-31.

eligibility was determined using the state buy-in indicator in the Master Beneficiary Summary Base File (A/B/D). For the purpose of this preliminary analysis, both full and partial dual-benefits were included (identified by code A, B or C). Future analyses may further explore the full benefit population in particular, as CMS has proposed to adjust Hospital Readmissions Reduction Program (HRRP) penalties based on the percentage of full-benefit duals, based on the patient's status as of the month of hospital discharge.<sup>3</sup>

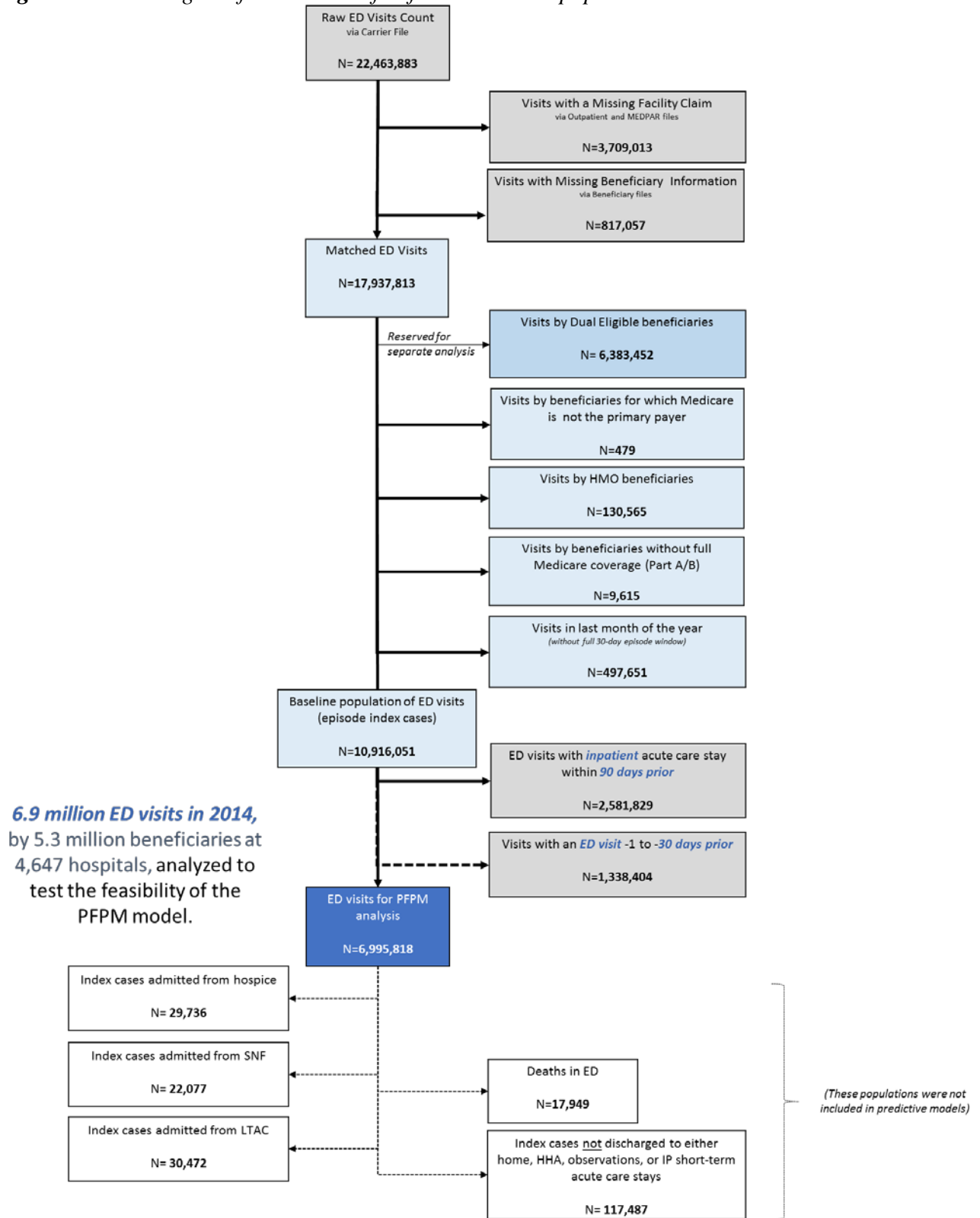
### *Final Populations Selected*

A flow diagram illustrating the ED visit selection and exclusion process based on these criteria appears in Figure 4 (fee-for-service [FFS]) and Figure 5 (dual-eligible).

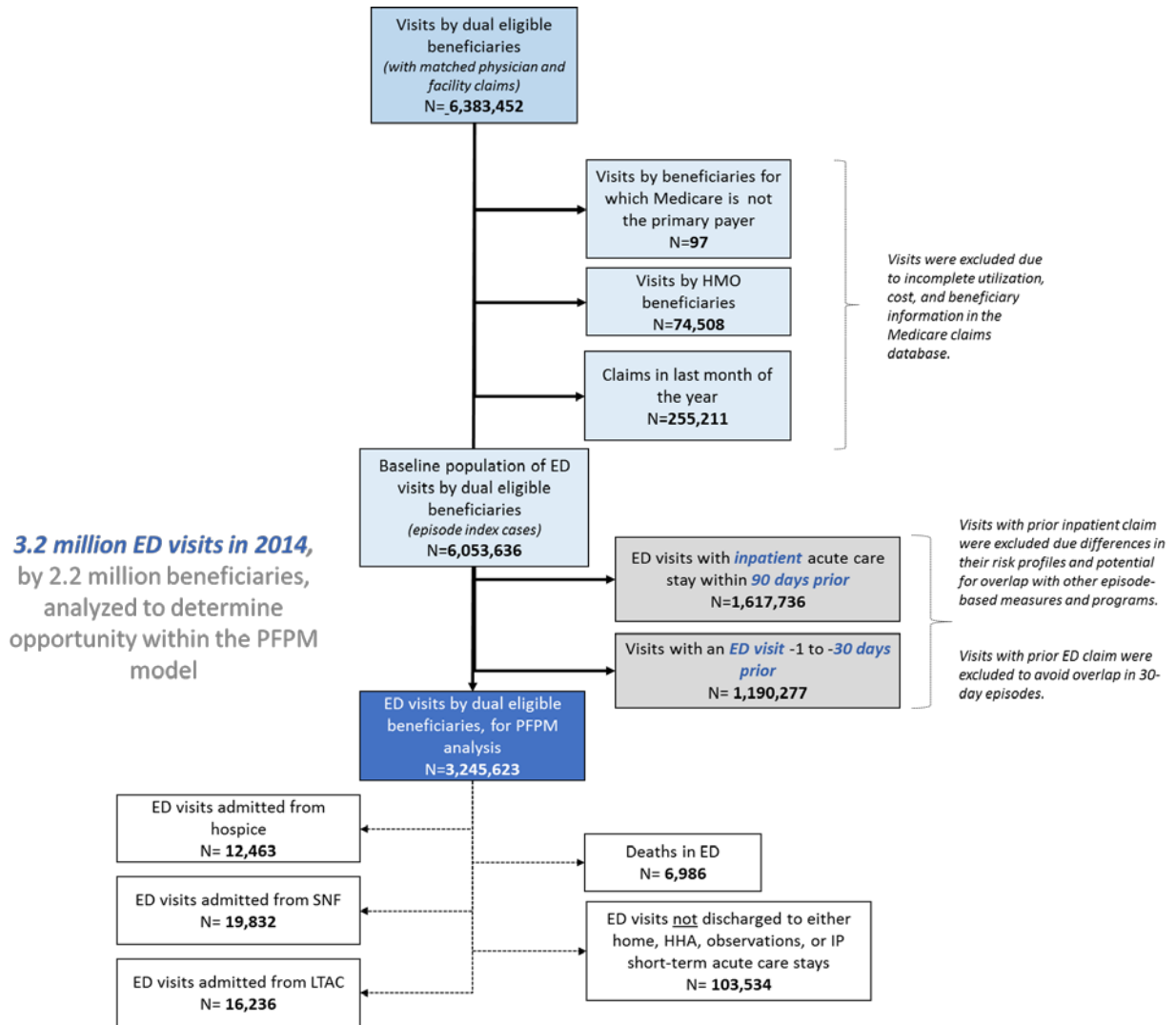
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<sup>3</sup> CMS. IPPS FY2018 Proposed Rule. 82 FR 19960.

**Figure 4. Flow diagram for Medicare fee-for-service ED population**



**Figure 5. Flow diagram for Medicare-Medicaid dual eligible ED population selection**



Demographics for the populations studied appear in Table 2. Beneficiaries with visits eligible for the AUCM PFPM analysis exclude those beneficiaries with an ED visit within prior 30 days or inpatient admission within prior 90 days.

*Table 2. Demographics of population subsets*

Population		Gender		Age (%)									
		% Female	≤ 19	20-29	30-39	40-49	50-59	60-64	65-69	70-74	75-79	80-84	≥ 85
<b>Raw ED visits count</b>		57.3	0.02	1.4	3.7	6.1	10.6	5.8	12.9	14.1	13.5	12.7	19.2
<b>Medicare FFS</b>	Baseline Population ED visits	56.0	0.00	0.3	1.1	2.4	5.4	4.0	13.3	16.1	16.1	16.0	25.2
	ED visits for AUCM PFPM analysis	57.2	0.00	0.2	0.9	2.0	4.8	3.7	13.7	16.9	16.5	16.1	25.3
<b>Dual-eligible</b>	Baseline Population of ED visits	62.9	0.03	3.5	8.9	13.4	19.8	8.5	11.1	9.6	8.3	7.0	9.9
	ED visits for AUCM PFPM analysis	64.7	0.03	2.8	7.6	12.4	19.4	8.5	11.3	10.1	8.9	7.7	11.4

## IV. Classification of Diagnoses

For each visit, the ED discharge diagnosis was identified on the physician claim. Cases were then segregated into Major Diagnostic Categories (MDCs) to provide comparability with the MS-DRG methods used by Medicare in other AAPMs.

*Table 3. Major Diagnostic Categories identified with greatest opportunity<sup>4</sup>*

No.	Description
	MDCs with greatest opportunity
01	Diseases and Disorders of the Nervous System
04	Diseases and Disorders of the Respiratory System
05	Diseases and Disorders of the Circulatory System
06	Diseases and Disorders of the Digestive System
07	Diseases and Disorders of the Hepatobiliary System and Pancreas
08	Diseases and Disorders of the Musculoskeletal System and Connective Tissue
09	Diseases and Disorders of the Skin, Subcutaneous Tissue and Breast
10	Endocrine, Nutritional and Metabolic Diseases and Disorders
11	Diseases and Disorders of the Kidney and Urinary Tract
18	Infectious and Parasitic Diseases (Systemic or Unspecified Sites)
21	Injuries, Poisonings and Toxic Effects of Drugs
23	Factors Influencing Health Status and Other Contacts with Health Services

Patient associations within specific MDCs resulted in the recognition of specific ICD-9 codes that were very high frequency events. . Drill-down into these high-frequency diagnoses is provided (in parallel with analysis of the parent MDC): syncope, abdominal pain, chest pain, and altered mental status. These conditions were identified using the Agency for Healthcare Research and Quality (AHRQ) Clinical Classifications Software (CCS) categories, which provide greater specificity than MDCs. Corresponding ICD-9 codes appear in Table 4 below.

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<sup>4</sup> MDC's were selected for analysis based on overall case volume. MDC 18, Infectious and Parasitic Diseases, has a very high admission rate (>80% in aggregate), and therefore a more refined selection of individual diagnoses within this category may be required.



**Table 4. ICD-9 codes used to identify diagnostic groups used in analysis**

<b>Category</b>	<b>CCS</b>	<b>Icd-9</b>	<b>ICD-9 Description</b>
Altered Mental Status	259 <sup>5</sup>	78097	ALTERED MENTAL STATUS (Begin 2006)
Abdominal pain	251	7890	ABDOMINAL PAIN (End 1994)
		78900	ABDOM PAIN NOS (Begin 1994)
		78901	ABDOM PAIN RUQ (Begin 1994)
		78902	ABDOM PAIN LUQ (Begin 1994)
		78903	ABDOM PAIN RLQ (Begin 1994)
		78904	ABDOM PAIN LLQ (Begin 1994)
		78905	ABDOM PAIN PERIUBILICAL (Begin 1994)
		78906	ABDOM PAIN EPIGASTRIC (Begin 1994)
		78907	ABDOM PAIN GENERALIZED (Begin 1994)
		78909	ABDOM PAIN NEC (Begin 1994)
		78960	ABDOM TENDER NOS (Begin 1994)
		78961	ABDOM TENDER RUQ (Begin 1994)
		78962	ABDOM TENDER LUQ (Begin 1994)
		78963	ABDOM TENDER RLQ (Begin 1994)
		78964	ABDOM TENDER LLQ (Begin 1994)
		78965	ABDOM TENDER PERIUBILICAL (Begin 1994)
78966	ABDOM TENDER EPIGASTRIC (Begin 1994)		
78967	ABDOM TENDER GENERALIZED (Begin 1994)		
78969	ABDOM TENDER NEC (Begin 1994)		
Chest pain	102	8650	CHEST PAIN NOS
		78651	PRECORDIAL PAIN
		8659	CHEST PAIN NEC
Syncope	245	7802	SYNCOPE AND COLLAPSE

<sup>5</sup> \*”Altered Mental Status” is situated within the CCS category “Unclassified”. This analysis only uses the specific ICD-9 and not the full CCS category.

## V. Identifying Outcomes of ED Visits

### *Discharge Dispositions*

The ED cohort dataset discharge disposition is based on the matching institution claim. If the institution claim is a short stay (Medpar) claim then the ED discharge disposition is set to IP to indicate the patient was admitted. If the short stay claim indicated treatment in an observation room, the ED discharge disposition is set to OB. If the institution claim is an outpatient claim, then the ED discharge disposition is set to the outpatient claim discharge disposition. If an ED carrier claim had both an outpatient claim and an short stay (inpatient) claim within 1 day of the ED visit, then the ED discharge disposition is set to IP. Thus a carrier claim matching only to an outpatient claim will have an ED discharge disposition to Home, HHA or Dead if the corresponding outpatient discharge disposition is '01', '06' or '20' respectively. Furthermore, a carrier claim matching only an outpatient claim will have an ED discharge disposition of discharged/transferred to inpatient admission if the outpatient discharge disposition is '02', '05' or '09'.

### *Postdischarge Events*

Medicare beneficiaries discharge following the index ED visit were then tracked initially for 7 days, and the follow up period was then extended for 30 days. A postdischarge event among the discharged Medicare beneficiaries within each MDC and each specific diagnostic group was defined as a return to the ED for additional evaluation and management, a return to the ED which resulted in observation status, or a return with admission to the hospital. Hospital comparisons could then be made based upon the overall percentage of Medicare beneficiaries that were within any postdischarge event for the 7- and 30- day follow up intervals as a measure of quality performance. Only the first postdischarge event is reported.

Postdischarge death is identified by a death date from the CMS Master Beneficiary Summary File of 1 to 30 days after the ED visit. An inpatient admission is identified by a short stay claim from the Medpar file with an admission date of 1 to 30 days after the anchor ED visit or observation. The inpatient admission that an ED visit may have been discharged to is excluded from the postdischarge inpatient admission group. An observation is defined as a carrier claim indicating an observation HCPCS code that occurred 1 to 30 days after the anchor ED visit. The observation tied to the anchor ED visit is excluded from this group. An ED revisit is identified by the physician claim in the carrier file, and must have occurred between 1 and 30 days after the anchor ED visit.

### *First Postdischarge Event*

Out of the set of postdischarge events a patient may have in the 1 to 30 days after the anchor ED visit, the first postdischarge event is identified based on the starting date of the event. If an observation occurred within 2 days of an inpatient admission, the observation is rolled into the inpatient admission and the first postdischarge event is set to a short stay inpatient admission. If

an ED revisit occurs within 1 day of an inpatient admission or observation, then the ED revisit is rolled into the inpatient admission or observation, and the first postdischarge event is either an inpatient admission or observation.

## *Costs*

Total payments were computed for each visit using the Medicare allowable billing. Patient obligations for Part B services were included in the total.<sup>6</sup> The total payment for inpatient hospital and professional (ED physician) costs of inpatient care was calculated for those beneficiaries that were admitted. For beneficiaries discharged from the index ED visit, costs were tracked for the 7- and 30-day postdischarge intervals. Among beneficiaries with no postdischarge event after discharge from the ED, total outpatient payments were identified. Payments for return ED visits, observation, observation with admission, and direct admissions were also computed. Excess payments for postdischarge events were calculated as those that exceeded payments for cases where no postdischarge events were observed.

Specific data fields utilized are listed here:

- **Part B physician and supplier costs.** Allowed charges were obtained from the Carrier/Part B claims using the variable `NCH_CARR_CLM_ALLOWED_AMT`.
- **Outpatient facility costs.** Costs for ED visits, hospital outpatient department and other outpatient services were obtained using the following formula: *(Medicare) `clm_pmt_amt` + (beneficiary) [ `nch_bene_ptb_ddctbl_amt` + `nch_bne_ptb_coinsrnc_amt` + `nch_bene_blood_ddctbl_lblty_amt` ]*
- **Inpatient facility costs.** Costs from inpatient admissions were computed from the MEDPAR file using the following formula: *`mocr_pmt_amt` + `bene_ip_ddctbl_amt` + `bene_pta_coinsrnc_amt` + `bene_prmry_pyr_amt` - `ip_dsprprtnt_shr_amt` - `ime_amt`*

## **VI. Risk-adjusted Disposition and Postdischarge Events**

Cases were excluded from risk-adjustment models if any of the following criteria were met:

- Inpatient admission within 90 days prior to index ED visit;
- ED visit within 30 days prior to index ED visit;
- Patient died in ED during index visit;
- Patient was admitted to ED from hospice, skilled nursing facility, or long term acute care facility (verified with a claim from the provider);
- Patient was discharged to somewhere other than inpatient setting, observation, home, or home health agency (HHA) based on discharge disposition on index ED visit; or

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<sup>6</sup> Although these costs are not paid by Medicare, their inclusion in this analysis gives a more accurate picture of the total cost of care for ED care and follow-up.

- Patient was discharged in the last 7 days of the study data (lacking complete information on their pos-discharge events).

Within each MDC and within each of the specific diagnosis groups, total cases were identified and the total percentage of Medicare beneficiaries discharged home, placed into observation status, or admitted were computed. Hospital-level admission rates within each clinical category were adjusted for the clinical risk of beneficiaries at the time of admission, using the CMS Hierarchical Condition Categories (HCC) risk score. Scores were created at the level of the individual beneficiary, using diagnosis codes and demographic factors. Use of HCCs has been validated in prior ED research examining trends in Medicare utilization and costs.<sup>38,39</sup>

An example (for the diagnosis of syncope) is presented below.

**Table 5.** *Overview of syncope admissions model*

N =	143,249
N admitted =	88,341
% admitted =	61.7%
c-statistic =	0.59985

Comparison of risk-adjusted rates by hospital permitted the identification of high and low performing hospitals. This comparison permits the identification of those admissions that were potentially avoidable; i.e., the differences of the 25<sup>th</sup> percentile to the 75<sup>th</sup> percentile as a reflection of realistically preventable admissions.

## VII. Results

### *Admissions and Observations Stays*

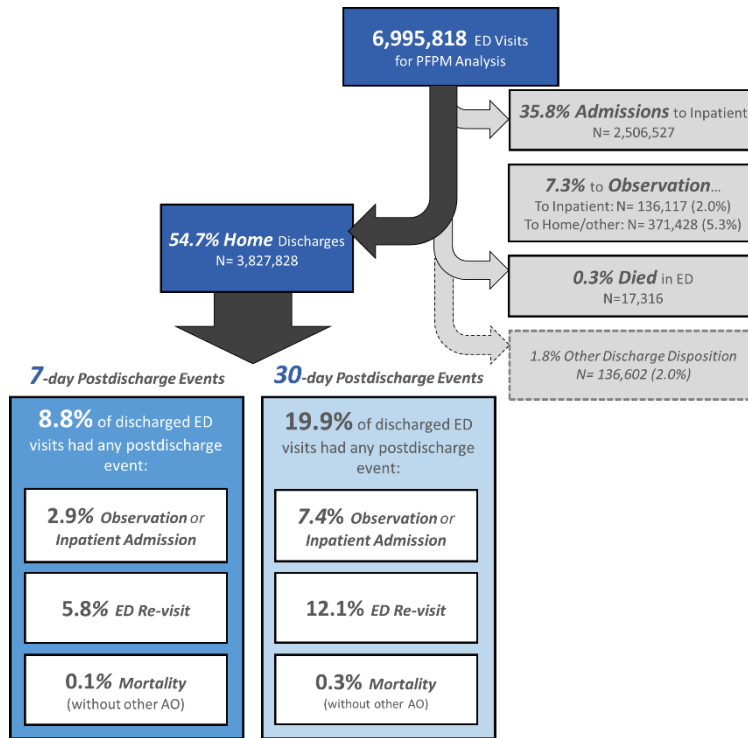
Syncope will be used as the detailed example in this report to illustrate the results of the analysis (Figure 6). Nationally, there were 175,281 total ED visits with syncope in our study population. A total of 36.3% of these syncope Medicare beneficiaries were admitted to the hospital, 4.4% were treated in observation but were then admitted to the hospital, 18.1% were treated in observation and then discharged home. A total of 38.6% was discharge home, and 2.6% had other dispositions (deaths, transfers, long-term care). The results of outcomes for the whole study population are illustrated in Figure 7.

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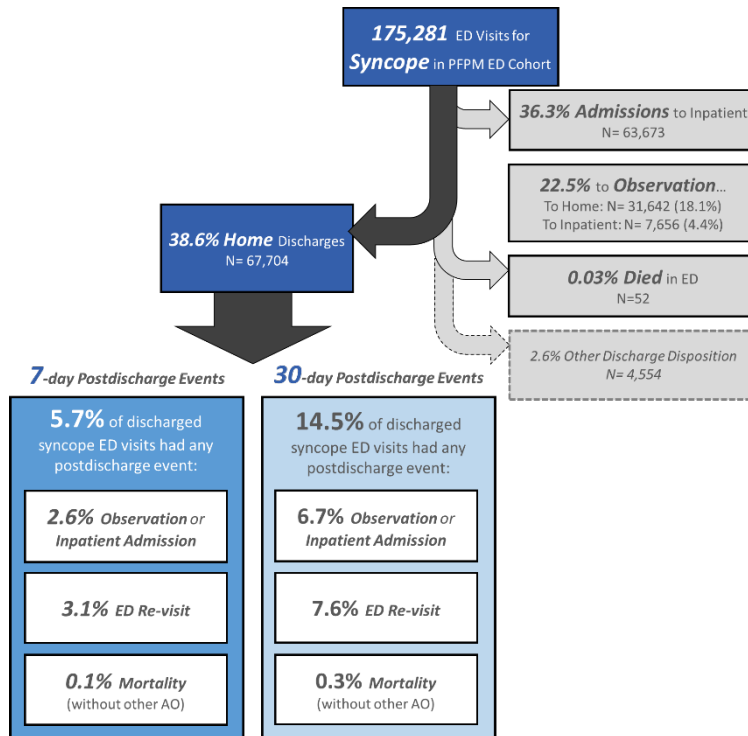
<sup>38</sup> Caines K, Shoff C, Bott DM, Pines JM. County-level variation in emergency department admission rates among US Medicare beneficiaries. *Ann Emerg Med.* 2016;68:456-60.

<sup>39</sup> Pines JM, Mutter RL, Zocchi MS. Variation in emergency department admission rates across the United States. *Med Care Res Rev.* 2013;70:218-31.

**Figure 6. Outcomes for ED visits in the study population**



**Figure 7. Outcomes for ED visits for syncope**



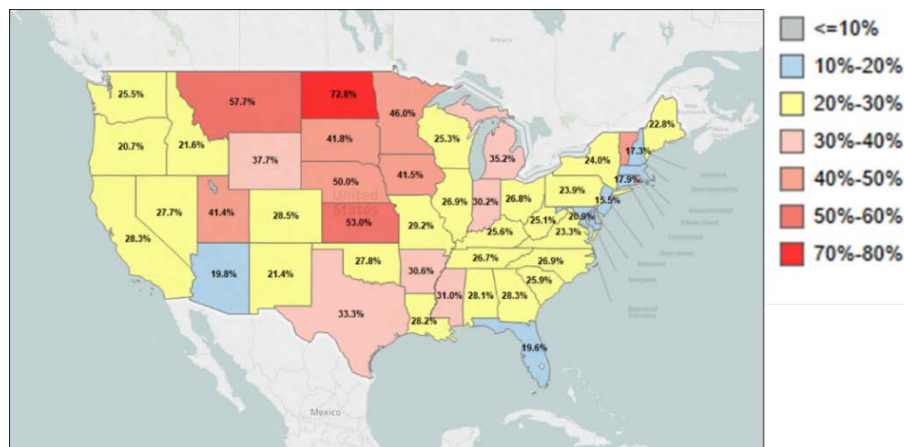
A hospital-level analysis of the interquartile range for admission and observation rates is presented for syncope by a national map in Figure 8.

Admission/observation rates are combined in this analysis in order to ensure significant volume to evaluate hospitals. Additionally, availability and structure of observation units varies; some hospitals have advanced observation service capabilities, while others lacking these capabilities may routinely admit Medicare beneficiaries when higher acuity care is required.

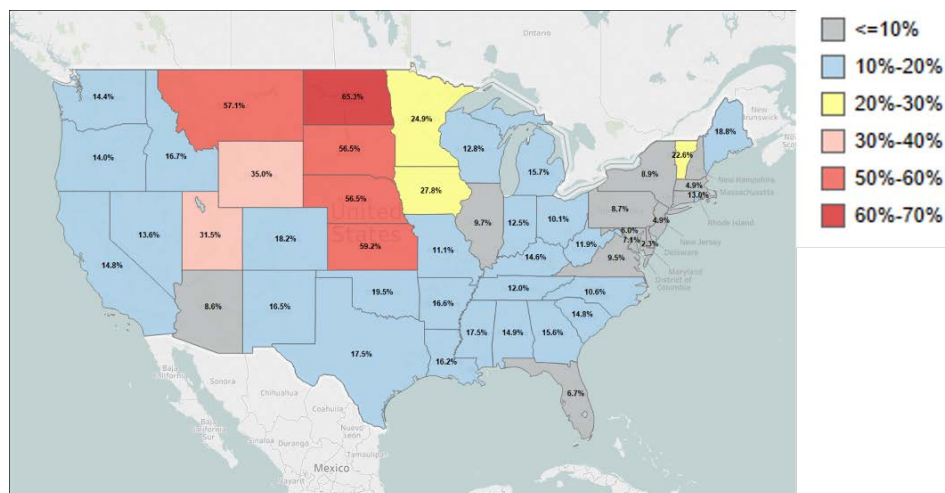
Admission/observation rates for syncope were 16.7% for hospitals at the 10<sup>th</sup> percentile, 36.4% in the 25<sup>th</sup> percentile, 53.6% in the 50<sup>th</sup> percentile, 68.1 % in the 75<sup>th</sup> percentile, and were 80 % in the 90<sup>th</sup> percentile. By application of the risk adjustment model for syncope (Appendix D), the risk-adjusted differences were less dramatic but still demonstrated an absolute 15 % difference in admission/observation rates between the 25<sup>th</sup> (49% ) and 75<sup>th</sup> percentile (64.2%) of hospitals.

Risk-adjusted admission/observation rates are presented in Figure 8. Similar differences between the 25<sup>th</sup>-75<sup>th</sup> percentiles were identified in each of the MDC and specific diagnoses groups (Figure 9).

**Figure 8.** *Interquartile range of ED to inpatient/observation admission rates for syncope across hospitals, by state*



**Figure 9.** *Risk-adjusted interquartile range for ED to inpatient/observation admission rates for syncope across hospitals, by state*



**Figure 10.** Hospital-level variation in observed and risk-adjusted rates of admission to inpatient or observation stay

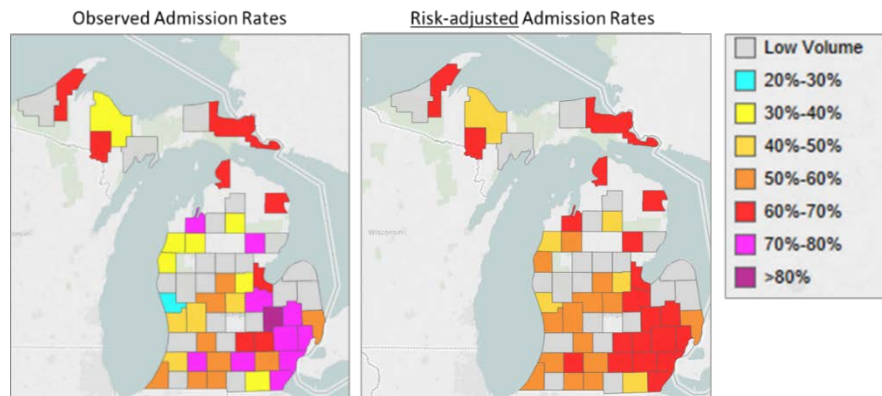
Hospital Variation in % ED Index Cases Admitted to IP or Observation Stays								
Group Name	Total # ED Cases	Total % Admitted to IP or Obs	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	Interquartile Range
Syncopal	175,281	58.8%	16.7%	36.4%	53.6%	68.1%	80.0%	31.7%
Chest Pain	436,264	58.4%	20.4%	37.9%	54.7%	69.1%	80.7%	31.1%
Abdominal Pain	313,267	31.2%	0.0%	14.3%	25.4%	35.7%	47.0%	21.4%
Altered Mental Status	87,024	73.8%	25.0%	53.1%	72.7%	85.1%	100.0%	32.0%

Variations in Risk Adjusted ED-IP/Obs Admission Rates across Hospitals						
Group	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	Interquartile Range
Syncopal	30.1%	49.0%	58.7%	64.2%	67.8%	15.2%
Chest Pain	35.3%	50.0%	59.3%	64.7%	68.0%	14.7%
Abdominal Pain	0.0%	17.6%	28.4%	35.6%	42.0%	18.0%
Altered Mental Status	52.6%	71.6%	77.1%	79.6%	81.3%	8.0%

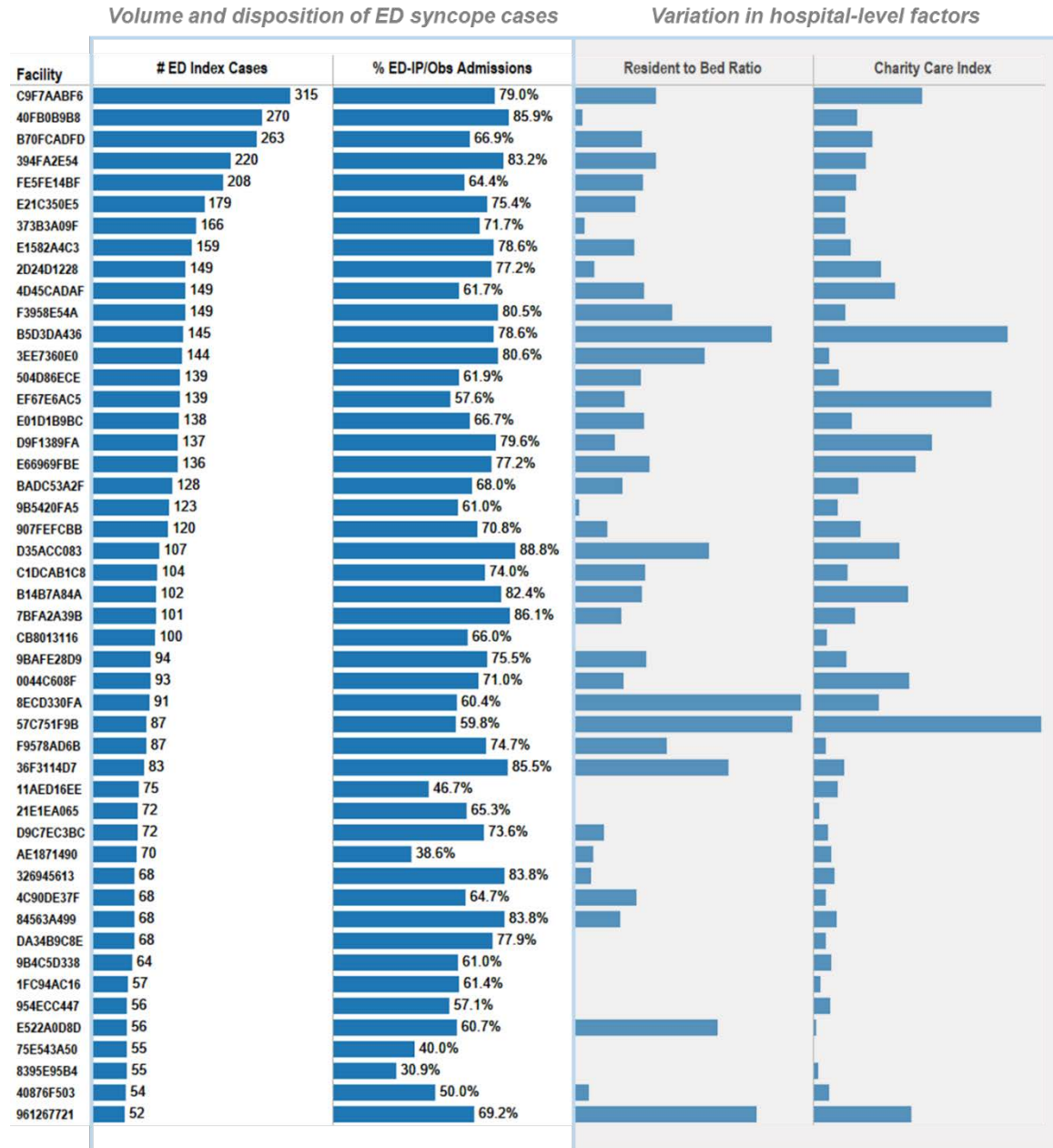
To further illustrate the heterogeneity in admission rates for syncope among hospitals, an illustration with hospitals from the State of Michigan is presented below. In Figure 11, a map of the State of Michigan illustrates admission/observation rates by the hospitals within the respective counties. Admission/observation rates are dramatically different among hospitals. In Figure 12, admission/observation rates for specific hospitals (identities are encrypted) are illustrated based upon the number of syncope cases seen, the resident-to-bed ratio reflecting teaching status, and the charity care index (Hospital charity care \$/National charity care \$) derived from the Medicare cost report for each hospital in 2014. As can be seen, no relationship of admission rates is identified with bed capacity, teaching status, or charity care index.

**Figure 11.** County-level average observed and risk-adjusted rate for ED syncope visit admission to inpatient or observation stays, in Michigan<sup>7</sup>



<sup>7</sup> Counties with volume <11 are shown in gray, in accordance with the CMS cell suppression policy. Rates were computed for each hospital and then averaged across all hospitals in the county.

**Figure 12.** Hospital-level variation in volume of ED syncope cases, admission/observation rates, and hospital system factors (Michigan hospitals with at least 50 ED syncope cases in 2014)



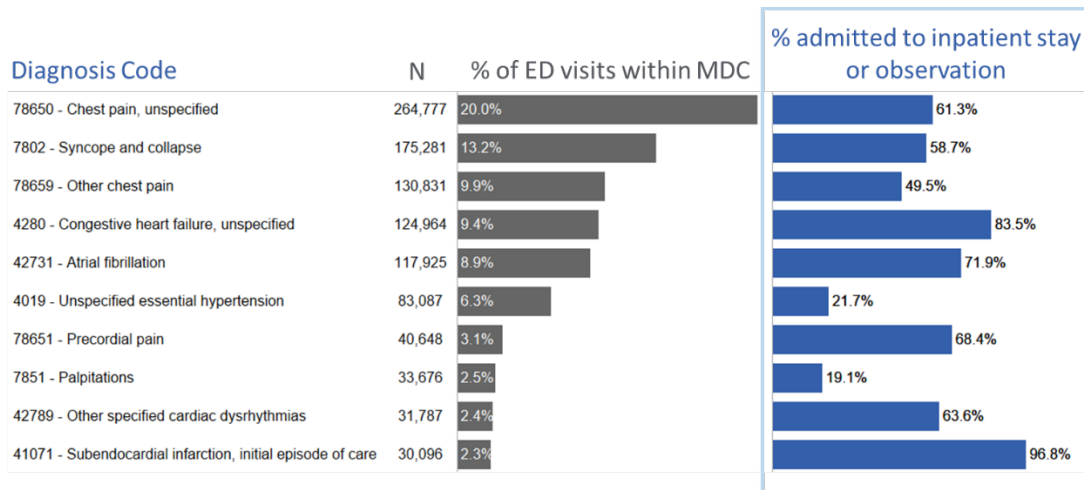


Discharge dispositions and variation in admission rates across MDC groupings follow.

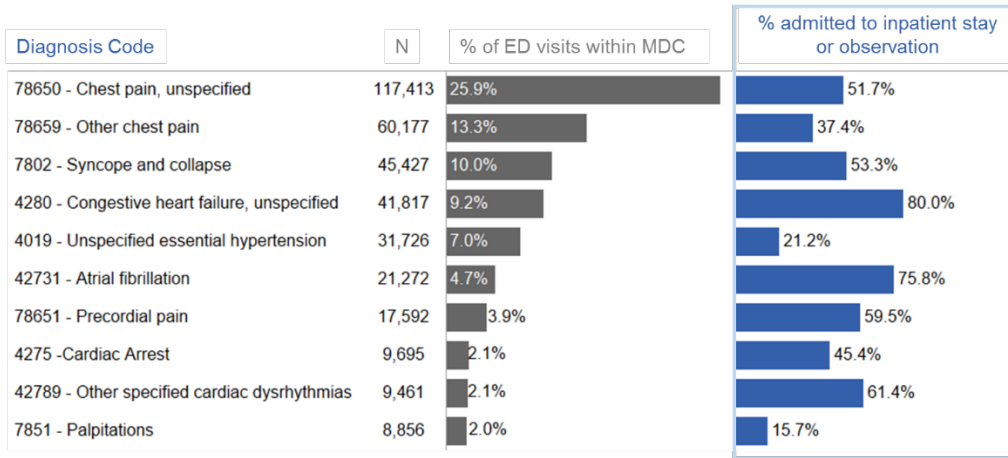
**Figure 13.** Discharge disposition distribution for Medicare FFS patients, by MDC groupings of ED discharge diagnoses

Group Description	Total # of Cases	ED-Home Direct	ED-IP Direct	ED-Obs-IP	ED-Obs-Non IP	ED-Dead Direct	ED-Other Direct
Nervous System	477,616	38.99%	49.78%	2.82%	6.30%	0.17%	1.93%
Respiratory System	787,997	38.67%	54.74%	1.81%	3.15%	0.14%	1.49%
Circulatory System	1,326,099	35.08%	43.71%	3.68%	14.58%	1.05%	1.90%
Digestive System	807,511	56.73%	36.49%	1.80%	3.56%	0.03%	1.39%
Hepatobiliary System and Pancreas	59,649	24.28%	68.99%	2.70%	2.91%	0.03%	1.09%
Musculoskeletal System and Connective Tissue	989,446	73.39%	22.63%	0.88%	1.60%	0.01%	1.49%
Skin, Subcutaneous Tissue and Breast	657,132	83.26%	12.51%	0.59%	1.20%	0.02%	2.42%
Endocrine, Nutritional and Metabolic	206,145	43.97%	46.38%	2.42%	5.30%	0.04%	1.89%
Kidney and Urinary Tract	395,064	60.63%	33.50%	1.61%	2.51%	0.02%	1.72%
Infectious and Parasitic Diseases	149,208	18.67%	77.35%	1.54%	1.14%	0.23%	1.07%
Injuries, Poisonings and Toxic Effects of Drugs	265,128	79.47%	13.20%	0.93%	3.09%	0.06%	3.25%
Factors Influencing Health Status and Other Contacts with Health Services	284,309	46.77%	42.61%	2.58%	5.33%	0.08%	2.63%

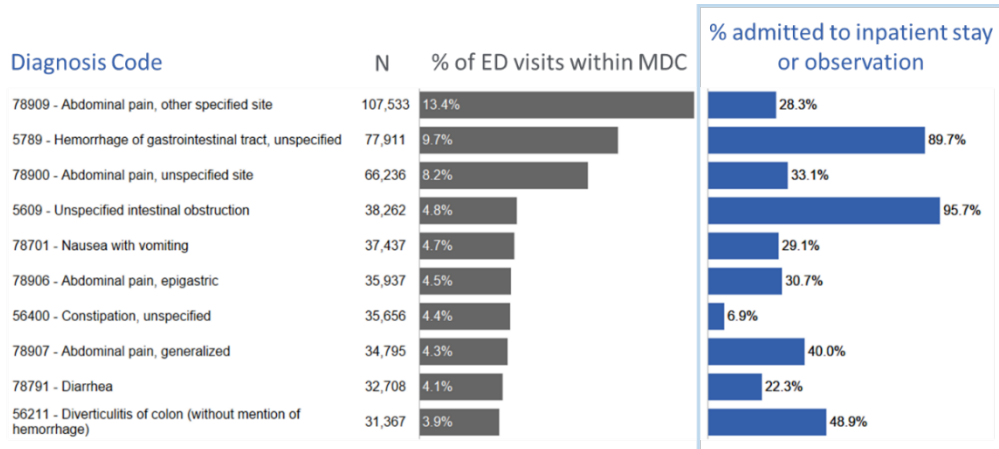
**Figure 14.** Admission rates for top diagnoses within “Circulatory System” (Medicare FFS)



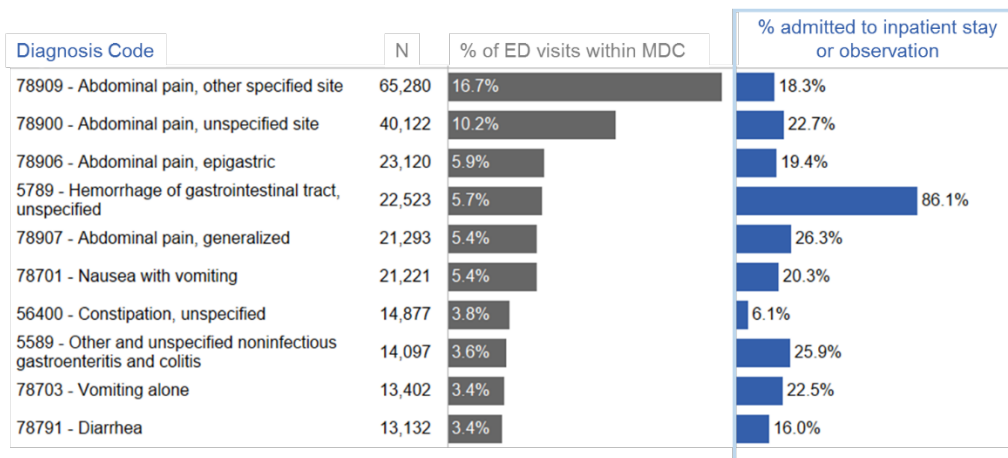
**Figure 15. Admission rates for top diagnoses within “Circulatory System” (Medicare-Medicaid dual eligible)**



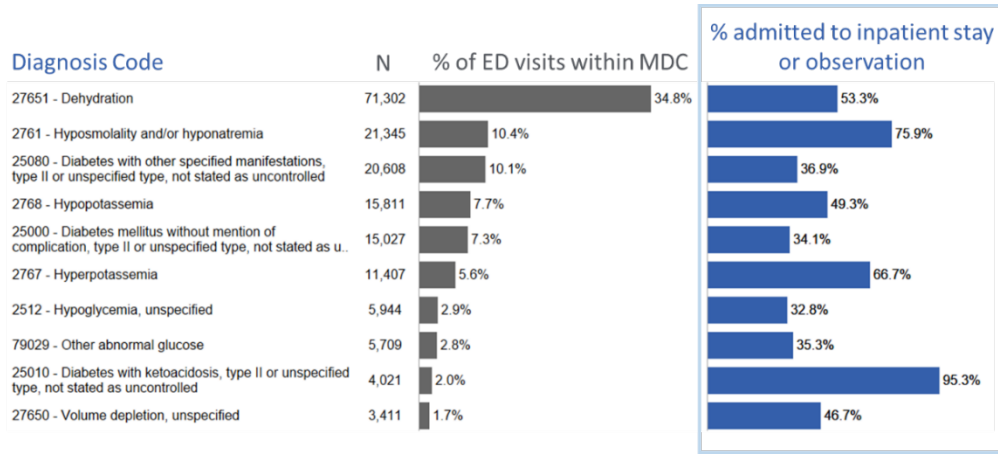
**Figure 16. Admission rates for top diagnoses within “Digestive System” (Medicare FFS)**



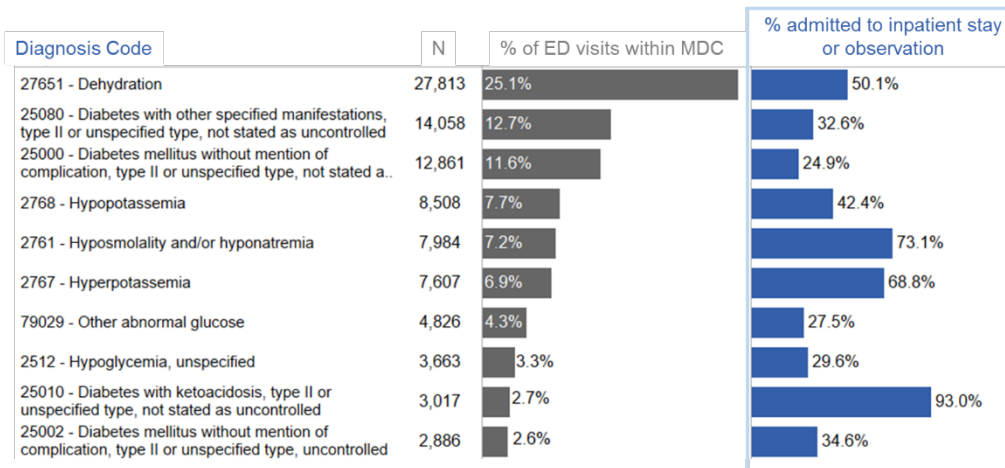
**Figure 17. Admission rates for top diagnoses within “Digestive System” (Medicare-Medicaid dual eligible)**



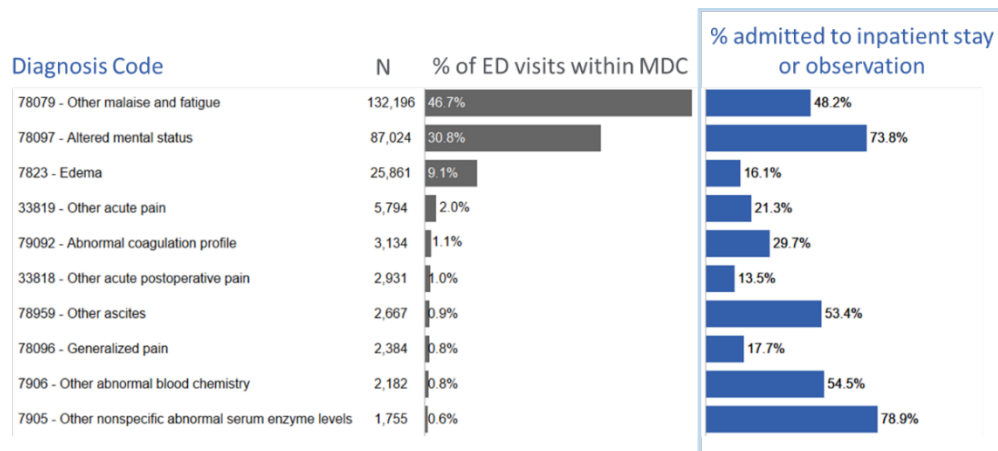
**Figure 18.** Admission rates for top diagnoses within “Endocrine, nutritional, metabolic disorders” (Medicare FFS)



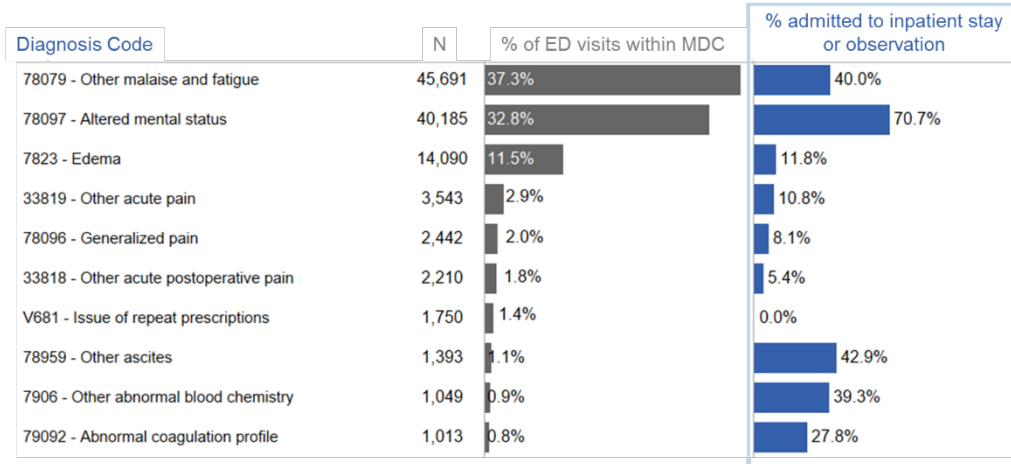
**Figure 19.** Admission rates for top diagnoses within “Endocrine, nutritional, metabolic disorders” (Medicare-Medicaid dual eligible)



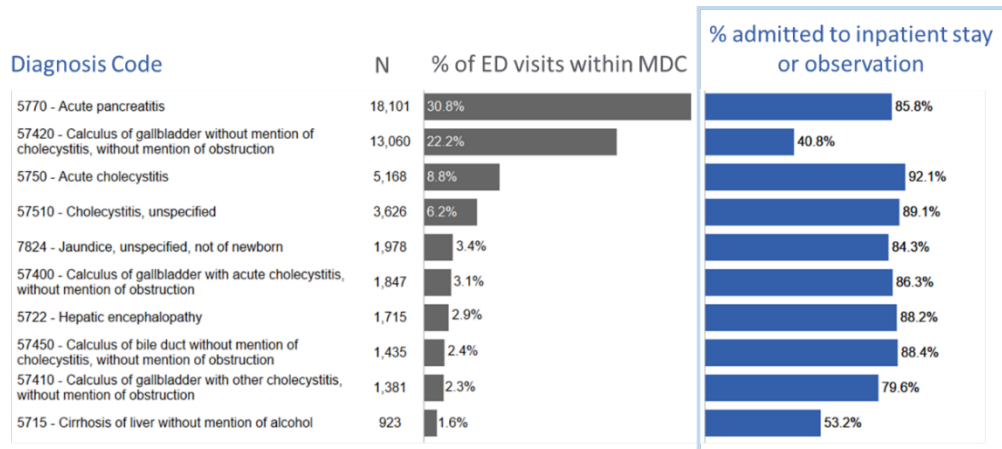
**Figure 20.** Admission rates for top diagnoses within “Factors influencing health status and other contacts with health services” (Medicare FFS)



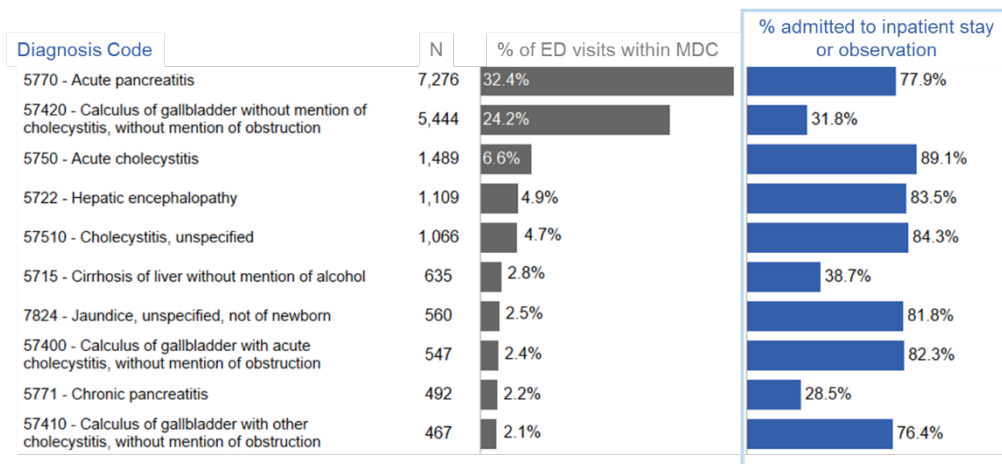
**Figure 21.** Admission rates for top diagnoses within “Factors influencing health status and other contacts with health services” (Medicare-Medicaid dual eligible)



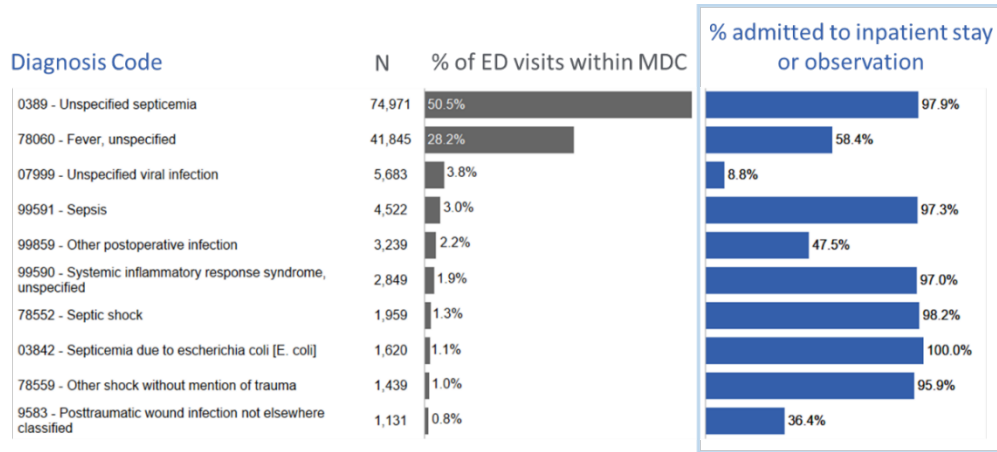
**Figure 22.** Admission rates for top diagnoses within “Hepatobiliary system and pancreas” (Medicare FFS)



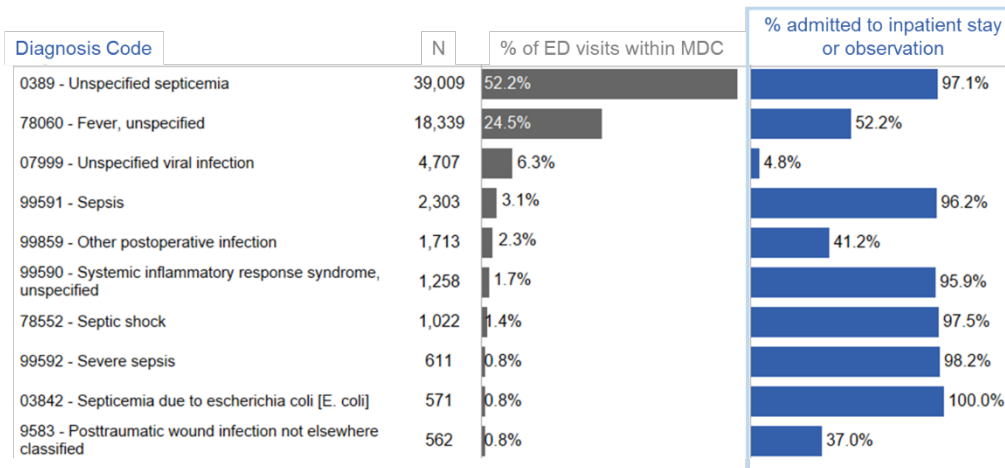
**Figure 23.** Admission rates for top diagnoses within “Hepatobiliary system and pancreas” (Medicare-Medicaid dual eligible)



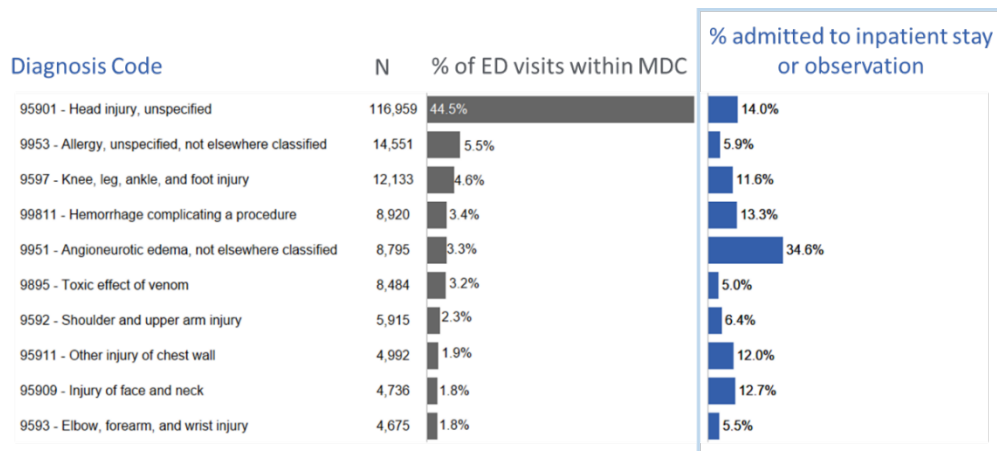
**Figure 24.** Admission rates for top diagnoses within “Infectious and parasitic disease” (Medicare FFS)



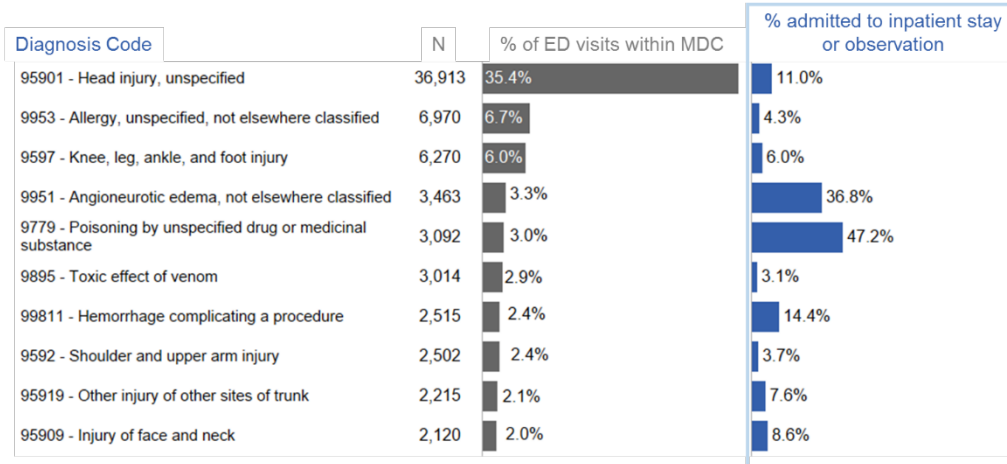
**Figure 25.** Admission rates for top diagnoses within “Infectious and parasitic disease” (Medicare-Medicaid dual eligible)



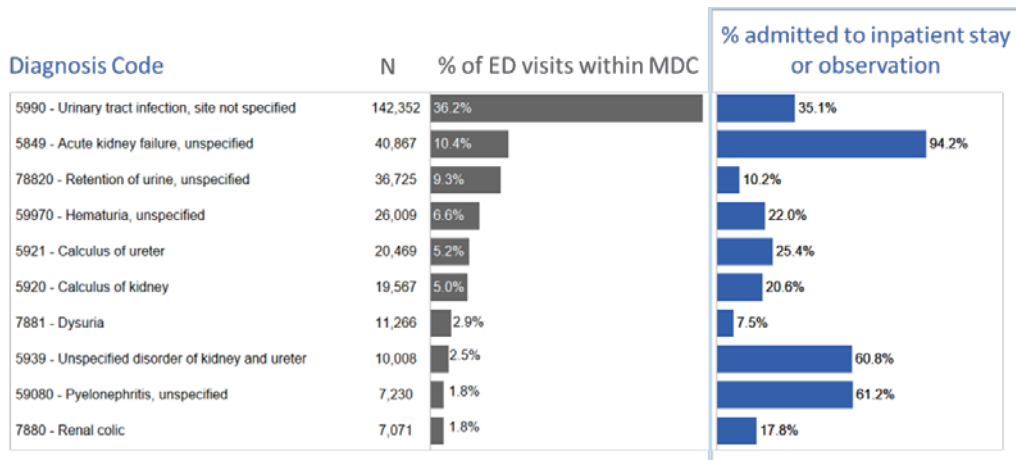
**Figure 26.** Admission rates for top diagnoses within “Injuries, poisonings and toxic effects of drugs” (Medicare FFS)



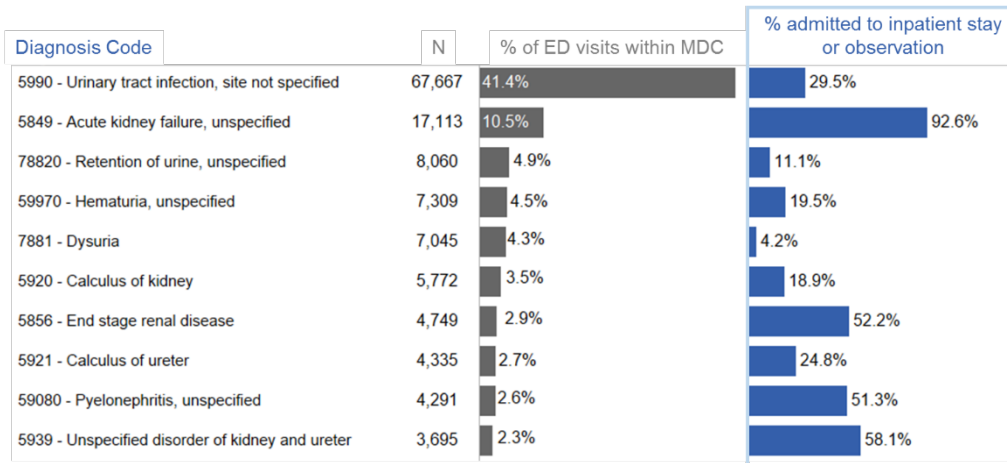
**Figure 27.** Admission rates for top diagnoses within “Injuries, poisonings and toxic effects of drugs” (Medicare-Medicaid dual eligible)



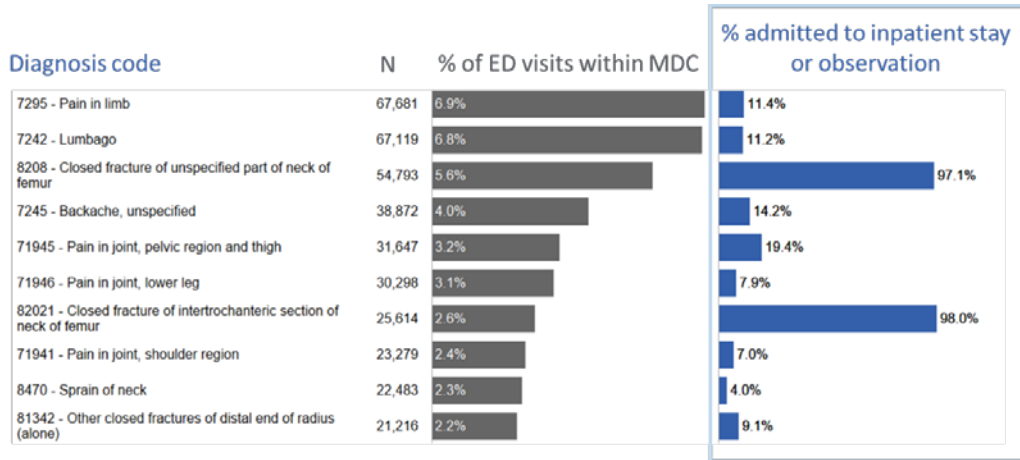
**Figure 28.** Admission rates for top diagnoses within “Kidney and urinary tract” (Medicare FFS)



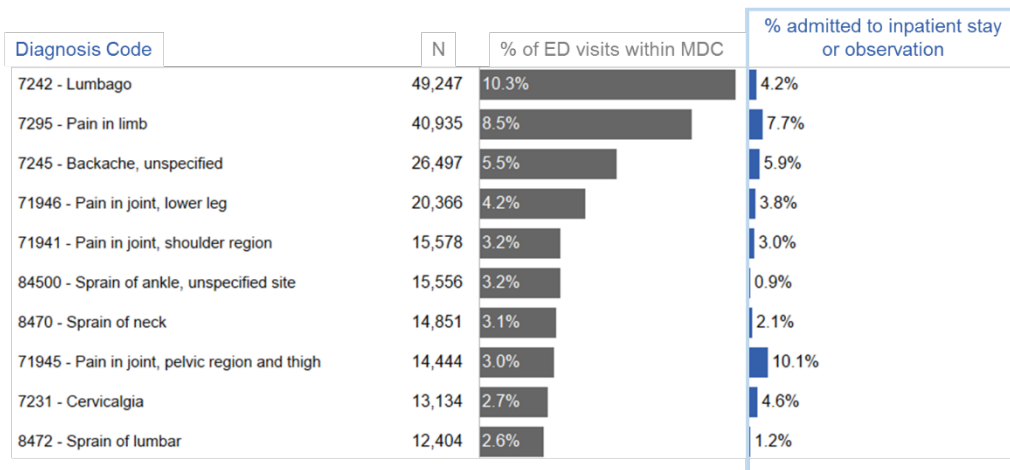
**Figure 29.** Admission rates for top diagnoses within “Kidney and urinary tract” (Medicare-Medicaid dual eligible)



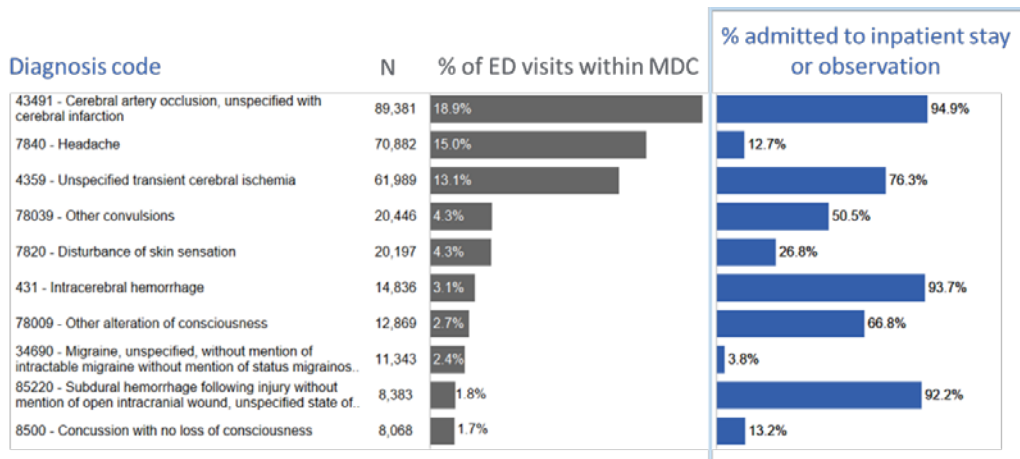
**Figure 30.** Admission rates for top diagnoses within “Musculoskeletal system and connective tissue” (Medicare FFS)



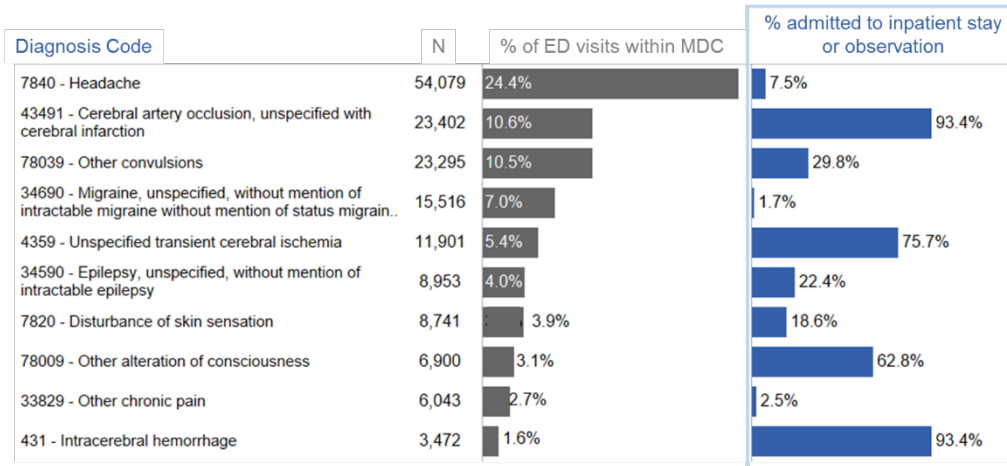
**Figure 31.** Admission rates for top diagnoses within “Musculoskeletal system and connective tissue” (Medicare-Medicaid dual eligible)



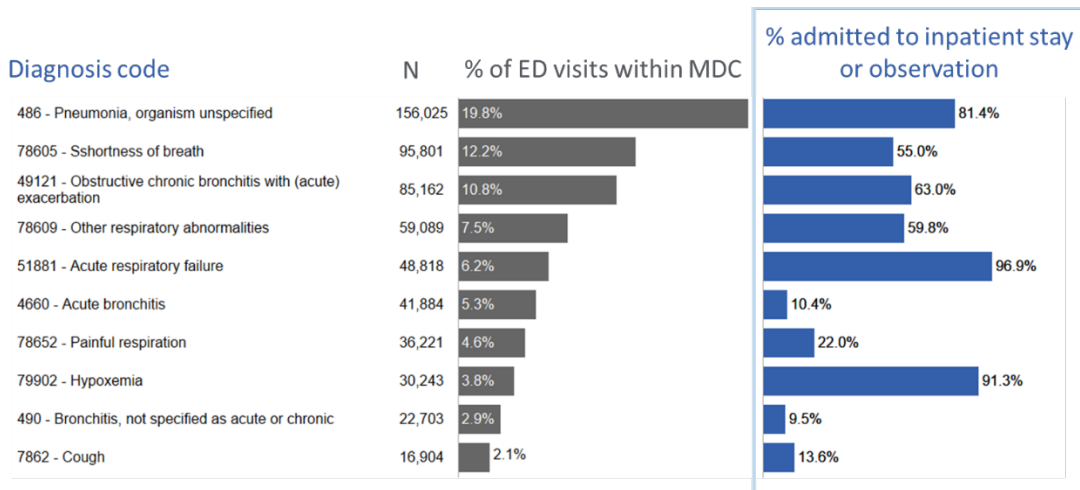
**Figure 32.** Admission rates for top diagnoses within “Nervous system” (Medicare FFS)



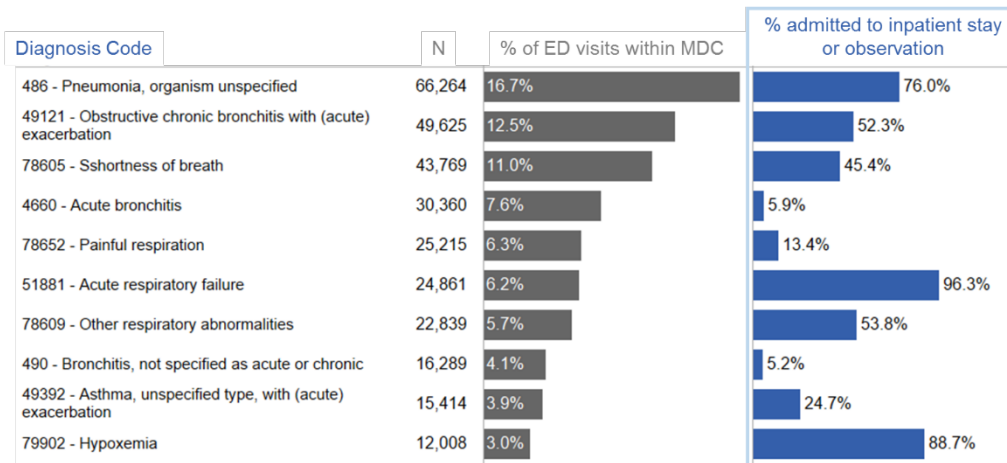
**Figure 33. Admission rates for top diagnoses within “Nervous system” (Medicare-Medicaid dual eligible)**



**Figure 34. Admission rates for top diagnoses within “Respiratory system” (Medicare FFS)**

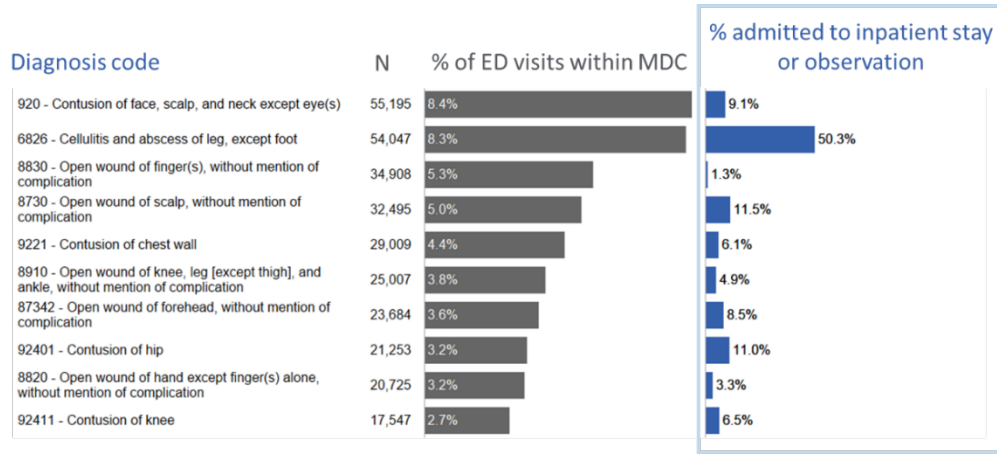


**Figure 35. Admission rates for top diagnoses within “Respiratory system” (Medicare-Medicaid dual eligible)**

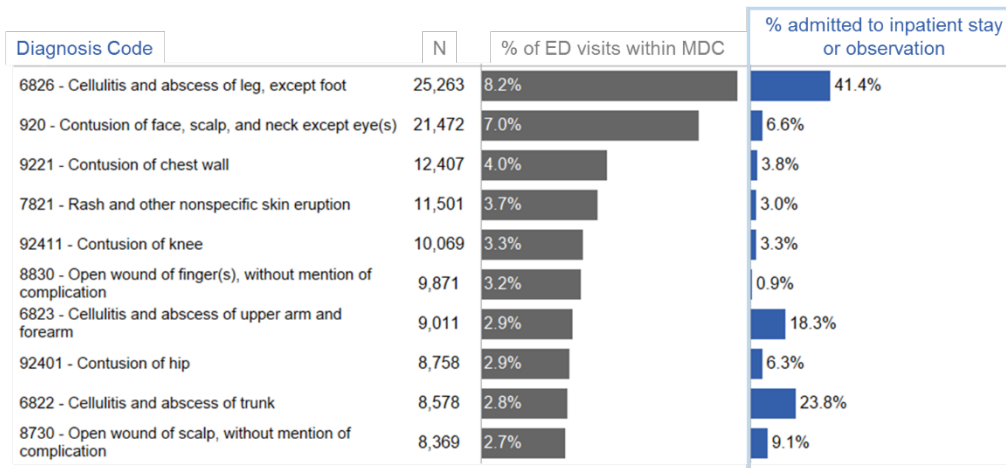




**Figure 36.** Admission rates for top diagnoses within “Skin, subcutaneous tissue and breast” (Medicare FFS)



**Figure 37.** Admission rates for top diagnoses within “Skin, subcutaneous tissue and breast” (Medicare-Medicaid dual eligible)



**Figure 38.** Discharge disposition distribution for Medicare-Medicaid dual eligible patients, by MDC groupings of ED discharge diagnoses or high-volume diagnosis categories

Group Name	Total N	ED-Home Direct	ED-IP Direct	ED-Obs-IP	ED-Obs-Non IP	ED-Dead Direct	ED-Other Direct
Nervous System	225,084	60.9%	31.0%	1.5%	3.3%	0.1%	3.2%
Respiratory System	399,276	49.3%	44.3%	1.4%	2.5%	0.1%	2.4%
Circulatory System	456,767	40.7%	38.9%	3.0%	12.7%	1.2%	3.5%
Digestive System	394,441	68.9%	24.3%	1.2%	2.5%	0.0%	3.1%
Hepatobiliary System and Pancreas	23,126	33.3%	60.2%	2.0%	2.6%		1.9%
Musculoskeletal System and Connective Tissue	485,387	85.1%	11.4%	0.4%	0.9%	0.0%	2.2%
Skin, Subcutaneous Tissue and Breast	309,074	84.4%	10.5%	0.4%	0.8%	0.0%	3.9%
Endocrine, Nutritional and Metabolic	112,070	48.5%	42.0%	1.8%	4.2%	0.1%	3.5%
Kidney and Urinary Tract	164,652	60.4%	32.7%	1.3%	2.0%	0.0%	3.6%
Infectious and Parasitic Diseases	75,385	22.0%	73.9%	1.2%	0.8%	0.4%	1.7%
Injuries, Poisonings and Toxic Effects of Drugs	106,576	77.4%	13.2%	0.8%	2.4%	0.0%	6.1%
Factors Influencing Health Status and Other Contacts with Health Services	123,748	52.8%	36.6%	1.8%	3.9%	0.1%	4.8%
Syncope	45,427	42.2%	36.3%	3.6%	13.4%	0.0%	4.5%
Chest Pain	195,192	47.7%	23.2%	3.6%	21.2%	0.0%	4.3%
Abdominal Pain	188,475	77.2%	17.1%	0.9%	2.3%	0.0%	2.4%
Altered Mental Status	40,185	22.9%	62.6%	2.8%	5.3%	0.2%	6.3%

**Figure 39.** ED discharge disposition distribution by MDC groupings and high-volume diagnosis categories—comparison of Medicare FFS and Medicare-Medicaid dual eligible populations

Group Name	ED-Home Direct		ED-Obs or IP	
	Dual Eligible	Medicare FFS	Dual Eligible	Medicare FFS
Nervous System	60.9%	39.0%	35.9%	58.9%
Respiratory System	49.3%	38.7%	48.1%	59.7%
Circulatory System	40.7%	35.1%	54.6%	62.0%
Digestive System	68.9%	56.7%	27.9%	41.8%
Hepatobiliary System and Pancreas	33.3%	24.3%	64.8%	74.6%
Musculoskeletal System and Connective Tissue	85.1%	73.4%	12.7%	25.1%
Skin, Subcutaneous Tissue and Breast	84.4%	83.3%	11.7%	14.3%
Endocrine, Nutritional and Metabolic	48.5%	44.0%	48.0%	54.1%
Kidney and Urinary Tract	60.4%	60.6%	36.0%	37.6%
Infectious and Parasitic Diseases	22.0%	18.7%	75.9%	80.0%
Injuries, Poisonings and Toxic Effects of Drugs	77.4%	79.5%	16.4%	17.2%
Factors Influencing Health Status and Other Contacts with Health Services	52.8%	46.8%	42.3%	50.5%
Syncope	42.2%	38.6%	53.3%	58.7%
Chest Pain	47.7%	39.1%	48.0%	58.4%
Abdominal Pain	77.2%	67.5%	20.3%	31.2%
Altered Mental Status	22.9%	22.5%	70.7%	73.8%

**Figure 40.** Hospital-level variation in rates of cases admitted to inpatient or observation stays from the ED, for Medicare-Medicaid dual eligible populations

Group Name	Total # ED Cases	Total % Admitted to IP or Obs	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile	Interquartile Range
Syncope	45,427	53.3%	0.0%	26.7%	50.0%	66.7%	81.3%	40.0%
Chest Pain	195,192	48.0%	13.5%	28.6%	43.8%	59.0%	72.4%	30.4%
Abdominal Pain	188,475	20.3%	0.0%	7.1%	15.5%	24.6%	35.8%	17.4%
Altered Mental Status	40,185	70.7%	16.7%	50.0%	69.6%	85.7%	100.0%	35.7%

### *Postdischarge Events*

In this national sample, a total of 38.6% of Medicare beneficiaries with syncope ED visits were discharged home. Figure 41 illustrates that among discharged syncope Medicare beneficiaries, 94.3 % had no postdischarge event at 7 days and 85.5 % had no postdischarge event at 30 days. Postdischarge event rates for 7 days following discharge for syncope varied from 0 % in the 10<sup>th</sup> percentile, 0 % in the 25<sup>th</sup> percentile, 2.9% in the 50<sup>th</sup> percentile, 8.9% % in the 75<sup>th</sup> percentile, and 16.7 % in the 90<sup>th</sup> percentile. Postdischarge event rates at 30 days were 0 % in the 10<sup>th</sup> percentile, 5.1 % in the 25<sup>th</sup> percentile, 13.3% at the 50<sup>th</sup> percentile, 21.5% at the 75<sup>th</sup> percentile, and 33.3 % in the 90<sup>th</sup> percentile. The opportunity for improvement is 8.9% at 7 days and 15.4% at 30 days when differences between the 25<sup>th</sup>-75<sup>th</sup> percentiles are compared.

**Figure 41.** Summary of first postdischarge event following ED discharge to home, by MDC group, for Medicare FFS patients

Group Description	7-Day PD Event Summary					30-Day PD Event Summary			
	# Discharged to Home	% Any AO	% ED Revisits	% IP/Obs Stays	% Dead	% Any AO	% ED Revisits	% IP/Obs Stays	% Dead
Nervous System	186,240	9.1%	6.1%	2.8%	0.2%	20.9%	13.4%	7.1%	0.4%
Respiratory System	304,733	8.8%	5.1%	3.4%	0.2%	21.3%	12.0%	8.9%	0.5%
Circulatory System	465,151	7.5%	4.3%	3.1%	0.1%	18.0%	9.9%	7.8%	0.3%
Digestive System	458,137	9.7%	6.3%	3.4%	0.1%	21.1%	12.7%	8.1%	0.3%
Hepatobiliary System and Pancreas	14,483	12.2%	6.1%	5.9%	0.3%	26.2%	12.3%	13.0%	0.8%
Musculoskeletal System and Connective Tissue	726,136	8.3%	5.5%	2.7%	0.1%	18.8%	11.6%	7.0%	0.2%
Skin, Subcutaneous Tissue and Breast	547,147	8.3%	6.2%	2.1%	0.1%	18.6%	12.4%	5.9%	0.3%
Endocrine, Nutritional and Metabolic Diseases	90,651	10.0%	5.6%	4.1%	0.3%	23.3%	12.2%	10.2%	0.9%
Kidney and Urinary Tract	239,528	12.5%	8.9%	3.4%	0.1%	25.3%	16.4%	8.5%	0.4%
Infectious and Parasitic Diseases	27,851	11.2%	6.4%	4.5%	0.3%	21.4%	11.6%	9.3%	0.5%
Injuries, Poisonings and Toxic Effects of Drugs	210,695	7.3%	5.2%	2.0%	0.1%	17.3%	11.0%	5.9%	0.3%
Factors Influencing Health Status and Other Contacts with Health Services	132,982	9.6%	5.4%	3.9%	0.3%	23.2%	12.2%	10.2%	0.8%
Syncope	67,704	5.7%	3.1%	2.6%	0.1%	14.5%	7.6%	6.7%	0.3%
Chest Pain	170,431	6.9%	3.8%	3.1%	0.1%	16.7%	9.4%	7.2%	0.2%
Abdominal Pain	211,393	10.3%	6.8%	3.4%	0.1%	22.1%	13.7%	8.2%	0.2%
Altered Mental Status	19,537	11.0%	5.3%	5.0%	0.7%	25.4%	11.9%	11.7%	1.8%

**Figure 42.** Summary of first postdischarge event following ED discharge to home, by MDC group and high-volume diagnosis group, for Medicare-Medicaid dual eligible patients

Group Description	7-Day PD AO Summary					30-Day PD AO Summary			
	# Discharged to Home	% Any AO	% ED Revisits	% IP/Obs Stays	% Dead	% Any AO	% ED Revisits	% IP/Obs Stays	% Dead
Nervous System	136,990	11.3%	9.2%	2.1%	0.1%	28.8%	23.1%	5.6%	0.1%
Respiratory System	196,764	10.3%	7.4%	2.8%	0.1%	27.3%	19.4%	7.7%	0.2%
Circulatory System	186,083	9.8%	6.8%	3.0%	0.1%	25.2%	17.2%	7.8%	0.2%
Digestive System	271,947	12.0%	9.3%	2.7%	0.1%	28.4%	21.4%	6.9%	0.1%
Hepatobiliary System and Pancreas	7,694	15.7%	10.7%	4.9%	0.1%	33.5%	22.7%	10.5%	0.3%
Musculoskeletal System and Connective Tissue	413,143	9.7%	7.9%	1.8%	0.0%	25.3%	20.1%	5.2%	0.1%
Skin, Subcutaneous Tissue and Breast	261,001	10.5%	8.6%	1.9%	0.0%	25.1%	19.7%	5.3%	0.1%
Endocrine, Nutritional and Metabolic Diseases	54,358	11.4%	7.8%	3.4%	0.2%	28.3%	18.6%	9.3%	0.4%
Kidney and Urinary Tract	99,422	12.7%	9.6%	3.0%	0.1%	30.0%	21.8%	8.0%	0.2%
Infectious and Parasitic Diseases	16,601	12.3%	8.7%	3.4%	0.2%	26.2%	18.8%	7.1%	0.3%
Injuries, Poisonings and Toxic Effects of Drugs	82,530	9.1%	7.2%	1.9%	0.1%	23.1%	17.3%	5.7%	0.2%
Factors Influencing Health Status and Other Contacts with Health Services	65,389	11.1%	7.7%	3.3%	0.1%	27.9%	18.9%	8.6%	0.4%
Syncope	19,168	8.1%	5.4%	2.7%	0.0%	20.6%	13.6%	6.9%	0.1%
Chest Pain	93,038	9.5%	6.8%	2.7%	0.0%	25.2%	18.3%	6.9%	0.1%
Abdominal Pain	145,575	12.4%	9.8%	2.6%	0.0%	29.5%	22.8%	6.7%	0.1%
Altered Mental Status	9,191	12.2%	7.3%	4.5%	0.5%	27.7%	15.9%	10.7%	1.1%

**Figure 43.** Summary of first postdischarge event following ED discharge to home, for high-frequency ED discharge diagnoses, in Medicare FFS patients

Group Name	7-Day PD Event Summary					30-Day PD Event Summary			
	# Discharged to Home	% Any AO	% ED Visits	% IP/Obs	% Dead	% Any AO	% ED Visits	% IP/Obs	% Dead
Syncope	67,704	5.7%	3.1%	2.6%	0.1%	14.5%	7.6%	6.7%	0.3%
Chest Pain	170,431	6.9%	3.8%	3.1%	0.1%	16.7%	9.4%	7.2%	0.2%
Abdominal Pain	211,393	10.3%	6.8%	3.4%	0.1%	22.2%	13.8%	8.2%	0.2%
Altered Mental Status	19,537	11.0%	5.3%	5.0%	0.7%	25.4%	11.9%	11.7%	1.8%

**Figure 44.** Summary of first postdischarge event following ED discharge to home, for high-frequency ED discharge diagnoses, in Medicare-Medicaid dual eligible patients

7-Day PD AO Summary						30-Day PD AO Summary			
Group Name	# Discharged to Home	% Any AO	% ED Visits	% IP/Obs	% Dead	% Any AO	% ED Visits	% IP/Obs	% Dead
Syncope	19,168	8.1%	5.4%	2.7%	0.0%	20.6%	13.6%	6.9%	0.1%
Chest Pain	93,038	9.5%	6.8%	2.7%	0.0%	25.2%	18.3%	6.9%	0.1%
Abdominal Pain	145,575	12.4%	9.8%	2.6%	0.0%	29.5%	22.8%	6.7%	0.1%
Altered Mental Status	9,191	12.2%	7.3%	4.5%	0.5%	27.7%	15.9%	10.7%	1.1%

**Figure 45.** Hospital-level variations in first postdischarge event following ED discharge to home, for high-frequency ED discharge diagnoses in Medicare FFS patients

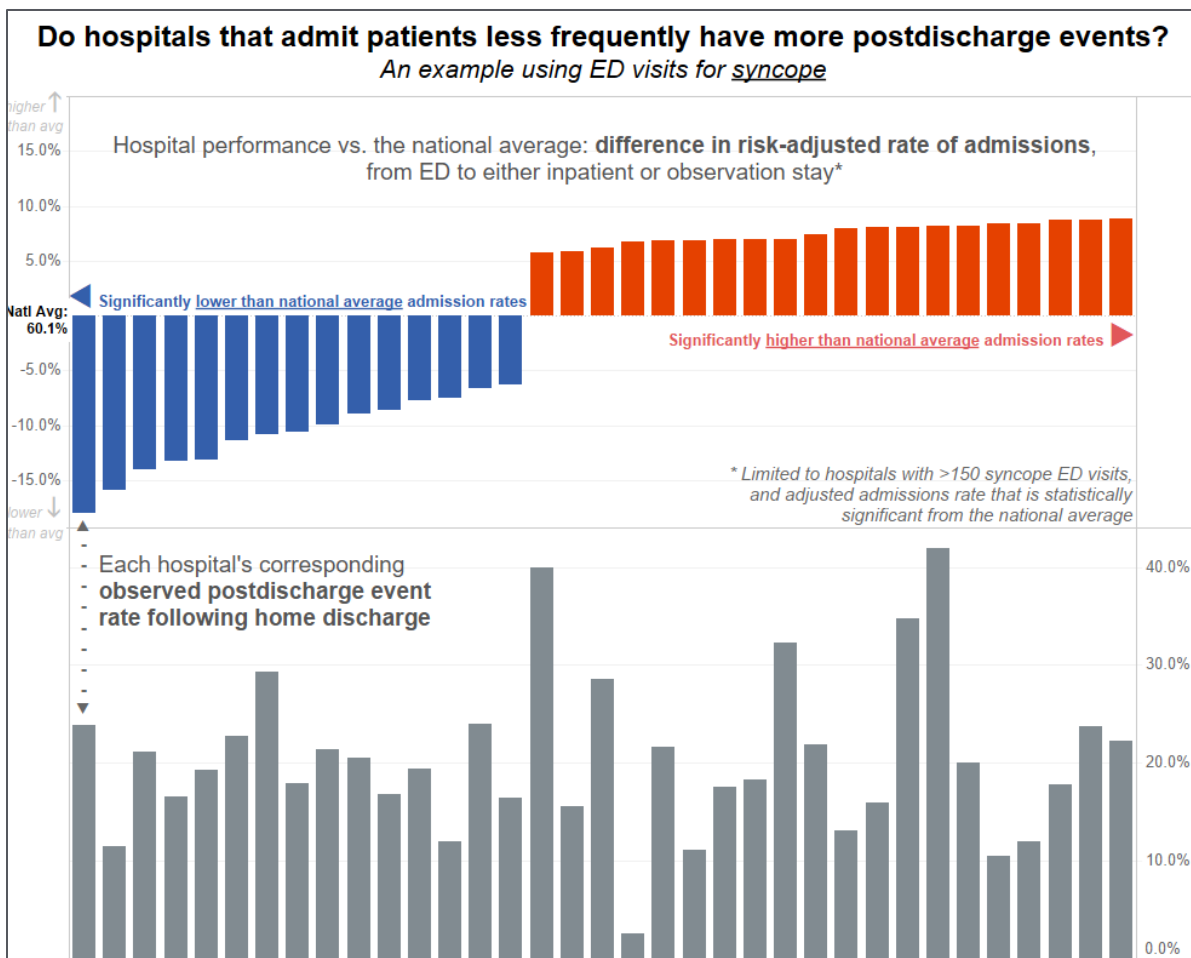
Variations in 7-Day Total PD Events Across Hospitals Percentile Statistics							Variations in 30-Day Total PD Events Across Hospitals Percentile Statistics						
Group Name	10th	25th	50th	75th	90th	Inter quartile	10th	25th	50th	75th	90th	Inter quartile	
Syncope	0.0%	0.0%	2.9%	8.9%	16.7%	8.9%	0.0%	5.1%	13.3%	20.5%	33.3%	15.4%	
Chest Pain	0.0%	2.0%	5.9%	10.0%	15.6%	8.0%	0.0%	11.2%	16.2%	21.7%	30.0%	10.5%	
Abdominal Pain	0.0%	6.3%	9.9%	13.6%	19.6%	7.3%	10.0%	17.1%	21.9%	27.4%	34.9%	10.3%	
Altered Mental Status	0.0%	0.0%	0.0%	16.7%	33.3%	16.7%	0.0%	0.0%	22.2%	37.5%	50.0%	37.5%	

**Figure 46.** Hospital-level variations in first postdischarge event following ED discharge to home, for high-frequency ED discharge diagnoses in Medicare-Medicaid dual eligible patients

Variations in 7-Day Total PD AO Across Hospitals Percentile Statistics							Variations in 30-Day Total PD AO Across Hospitals Percentile Statistics						
Group Name	10th	25th	50th	75th	90th	Inter quartile	10th	25th	50th	75th	90th	Inter quartile	
Syncope	0.0%	0.0%	0.0%	11.1%	25.0%	11.1%	0.0%	0.0%	15.4%	33.3%	50.0%	33.3%	
Chest Pain	0.0%	0.0%	7.7%	13.3%	20.0%	13.3%	0.0%	16.7%	24.4%	33.3%	42.9%	16.7%	
Abdominal Pain	0.0%	7.1%	11.7%	16.7%	22.7%	9.5%	14.3%	23.1%	29.4%	35.9%	43.8%	12.8%	
Altered Mental Status	0.0%	0.0%	0.0%	16.7%	40.0%	16.7%	0.0%	0.0%	20.0%	50.0%	100.0%	50.0%	

An important consideration is the relationship between the admission rate of the index ED visit and the subsequent postdischarge event rates of beneficiaries that were discharged home. An argument can be made that hospitals with low-admission rates should have admitted more beneficiaries and that they will have higher postdischarge event rates. Similarly, high admission-rate hospitals may well make the case that they will have lower postdischarge event rates as justification for more frequent admissions. Linear regression was used to examine the relationship of admission rates to subsequent postdischarge event rates at 30 days in syncope beneficiaries, and found no relationship ( $p = 0.68$ ,  $R^2=0.00005$ ).<sup>8</sup> Figure 47 illustrates this lack of relationships between the initial ED admission rate and the 30-day postdischarge event rate.

**Figure 47.** *There is no relationship between rate of ED admissions (to inpatient or observation) and 30-day postdischarge event rates for ED visits discharged home*



<sup>8</sup> Supporting scatterplot is not shown, in order to adhere to CMS data privacy requirements that require suppression of cells with an N of < 11.

## Costs

From the national Medicare dataset, index ED visit payments for Medicare beneficiaries diagnosed with syncope in the ED are illustrated in Figure 48. The mean facility and professional payments for those Medicare beneficiaries discharged home was \$862, and the median payment was \$713. Because payments are made by MS-DRGs, variations for hospitalized Medicare beneficiaries are also largely functions of differences in Part B payments. The mean hospital and professional payments for a syncope patient are \$9,198 with or without an associated observation stay, and the median payments were \$6,893. Reductions in unnecessary hospitalizations can be estimated to reduce Medicare expenditures on a per-case basis in the range between the mean and the median values. However, postdischarge follow-up costs that are discussed below will need to be considered in the computation of potential total savings.

**Figure 48.** Index ED visit cost summary (facility and professional fees), for syncope visits discharged home

Mean	25th Percentile	50th Percentile	75th Percentile
\$862	\$566	\$713	\$917

**Figure 49.** Inpatient stay cost summary (MS-DRG and Part B), for syncope Medicare beneficiaries admitted from the ED

Mean	25th Percentile	50th Percentile	75th Percentile
\$9,198	\$5,590	\$6,893	\$9,722

Of the 67,704 syncope Medicare beneficiaries that were discharged home, 63,830 (94.3%) had no postdischarge events at 7 days, and 57,863 (85.5%) had no postdischarge events at 30 days. At 7 days following discharge, 24,656 (38.6%) Medicare beneficiaries with no postdischarge events had no payments made for any postdischarge services, and at 30 days 7,813 (13.5%) had no payments made. Of the remaining syncope Medicare beneficiaries without postdischarge events, the 7-day mean cost was \$350 and the median cost was \$152. At 30-days, the mean cost was \$939 and the median payment was \$379. The mean and median payments for all MDC and specifically coded groups were quite similar at 7- and 30-days.

For syncope Medicare beneficiaries who returned to the ED at 7-days following discharge without observation or admission, the mean and median payments were \$673 and \$599. At 30-days, payments for a return ED visit without an observation stay or admission were a mean of \$660 and a median of \$606. Observation stays without admission had a mean payment of \$2,512 at 7 days, and a median payment of \$2,166. Observation stays without admission at 30-days had mean and median payments of \$2,465 and \$2,071.

A return to the ED with admission to the hospital but without an observation stay was seen in 1,052 Medicare beneficiaries at 7 days and was seen in 3,053 Medicare beneficiaries by 30-days. The mean and median payments were \$12,458 and \$8,801 for 7-day admissions without an observation stay, and were \$12,598 and \$9,148 for the 30-day Medicare beneficiaries. The total



7-day mean and median payment for syncope admissions with an antecedent observation stay were \$8,857 and \$7,378. For 30 day syncope admissions with an preceding observation stay the mean and median payments were \$9,434 and \$7,378.

**Figure 50. ED visits without outpatient follow-up or postdischarge events following discharge home**

Group Name	# Discharged to Home	# Cases with No 7-Day AO	# Cases with No 30-Day AO	% with No OP Claims Within 7-Day Post-Discharge	% with No OP Claims Within 30-Day Post-Discharge
Nervous System	186,240	169,268	147,339	41.8%	14.6%
Respiratory System	304,733	278,067	239,674	45.8%	16.8%
Circulatory System	465,151	430,391	381,568	35.7%	11.5%
Digestive System	458,137	413,687	361,603	43.8%	15.3%
Hepatobiliary System and Pancreas	14,483	12,713	10,694	30.7%	9.9%
Musculoskeletal System and Connective Tissue	726,136	666,055	589,494	38.8%	13.0%
Skin, Subcutaneous Tissue and Breast	547,147	501,626	445,209	47.6%	17.1%
Endocrine, Nutritional and Metabolic Diseases and Disorders	90,651	81,545	69,526	41.6%	14.4%
Kidney and Urinary Tract	239,528	209,705	178,992	40.4%	12.6%
Infectious and Parasitic Diseases (Systemic or Unspecified Sites)	27,851	24,718	21,879	43.6%	16.1%
Injuries, Poisonings and Toxic Effects of Drugs	210,695	195,278	174,239	45.2%	15.6%
Factors Influencing Health Status and Other Contacts with Health Services	132,982	120,220	102,068	41.1%	13.8%
Syncope	67,704	63,830	57,862	38.6%	13.5%
Chest Pain	170,431	158,635	141,912	37.9%	12.7%
Abdominal Pain	211,393	189,609	164,574	41.9%	14.7%
Altered Mental Status	19,537	17,379	14,575	42.3%	15.6%
				Denominator: # of Home Cases with No 7-Day AO	Denominator: # of Home Cases with No 30-Day AO

**Figure 51.** Outpatient cost summary<sup>9</sup> for ED visits discharged to home, without any 7-day postdischarge event

Group	# Clean Trip Cases	% with 7-Day PD Costs	Mean	25%	50%	75%
Nervous System	169,268	58.2%	\$343	\$97	\$158	\$319
Respiratory System	278,067	54.2%	\$308	\$81	\$133	\$254
Circulatory System	430,391	64.3%	\$404	\$98	\$159	\$324
Digestive System	413,687	56.2%	\$379	\$90	\$150	\$302
Hepatobiliary System and Pancreas	12,713	69.3%	\$773	\$107	\$193	\$503
Musculoskeletal System and Connective Tissue	666,055	61.2%	\$508	\$103	\$181	\$390
Skin, Subcutaneous Tissue and Breast	501,626	52.4%	\$293	\$78	\$135	\$257
Endocrine, Nutritional and Metabolic	81,545	58.4%	\$349	\$91	\$148	\$287
Kidney and Urinary Tract	209,705	59.6%	\$460	\$96	\$165	\$337
Infectious and Parasitic Diseases (Systemic or Uns..	24,718	56.4%	\$383	\$83	\$144	\$300
Injuries, Poisonings and Toxic Effects of Drugs	195,278	54.8%	\$340	\$83	\$142	\$283
Factors Influencing Health Status and Other Contac..	120,220	58.9%	\$346	\$89	\$150	\$304
Syncope	63,830	61.4%	\$350	\$95	\$152	\$302
Chest Pain	158,635	62.1%	\$410	\$98	\$163	\$348
Abdominal Pain	189,609	58.1%	\$396	\$93	\$154	\$308
Altered Mental Status	17,379	57.7%	\$318	\$89	\$150	\$311

**Figure 52.** Outpatient cost summary<sup>30</sup> for ED visits discharged to home, without any 30 day postdischarge event

Group	# Clean Trip Cases	% with 30-Day PD Costs	Mean	25%	50%	75%
Nervous System	147,339	85.4%	\$835	\$173	\$386	\$880
Respiratory System	239,674	83.2%	\$824	\$150	\$318	\$745
Circulatory System	381,568	88.5%	\$1,038	\$186	\$418	\$1,030
Digestive System	361,603	84.7%	\$985	\$166	\$376	\$1,005
Hepatobiliary System and Pancreas	10,694	90.1%	\$2,046	\$257	\$741	\$4,050
Musculoskeletal System and Connective Tissue	589,494	87.0%	\$1,067	\$202	\$448	\$943
Skin, Subcutaneous Tissue and Breast	445,209	82.9%	\$729	\$145	\$308	\$690
Endocrine, Nutritional and Metabolic	69,526	85.6%	\$942	\$166	\$356	\$850
Kidney and Urinary Tract	178,992	87.4%	\$1,115	\$182	\$410	\$1,047
Infectious and Parasitic Diseases (Systemic or Uns..	21,879	83.9%	\$1,138	\$157	\$351	\$913
Injuries, Poisonings and Toxic Effects of Drugs	174,239	84.4%	\$803	\$154	\$336	\$754
Factors Influencing Health Status and Other Contac..	102,068	86.2%	\$922	\$167	\$371	\$884
Syncope	57,862	86.5%	\$939	\$169	\$379	\$903
Chest Pain	141,912	87.3%	\$1,011	\$182	\$429	\$1,128
Abdominal Pain	164,574	85.3%	\$1,036	\$172	\$395	\$1,044
Altered Mental Status	14,575	84.4%	\$780	\$151	\$328	\$779

Only matched claims from the ED study cohort were used in the estimation of total costs across postdischarge events. This analysis matched physician Part B claims with a related Facility claim for 87% of the 7-day events and 89% of the 30-day events.

<sup>9</sup> Costs for those visits that had postdischarge costs >\$0.

An estimate of overall costs for postdischarge events in this FFS Medicare cohort is presented in Table 7. It should be noted that this is an underestimate of total costs. In this analysis, when multiple postdischarge events were found, only the first postdischarge event was included.

**Table 6.** *Costs for postdischarge events for all FFS Medicare ED visits in cohort*

<b>Event</b>	<b>7-Day Costs</b>	<b>30-Day Costs</b>
ED Revisit	\$109,055,967	\$241,017,259
IP Stays	\$1,037,218,774	\$2,765,650,589
Observation	\$32,116,409	\$77,284,837
<b>Total</b>	<b>\$1.2 Billion</b>	<b>\$3.0 Billion</b>

**VIII. Conclusions**

From this analysis, the evidence indicates that there is an opportunity to reduce admissions of ED visits for syncope by 15% based on risk-adjusted interquartile ranges. Low admission rate hospitals do not have increased rates of postdischarge events, which provides further evidence that more syncope FFS Medicare beneficiaries can be safely discharged without adverse outcomes. Based upon the broader analysis, this opportunity may be expanded to other common ED discharge diagnoses.

In addition, the 30-day follow up of discharged syncope FFS Medicare beneficiaries that were not admissions/observation stays indicates a 15% difference between the 25<sup>th</sup>-75<sup>th</sup> percentiles in overall postdischarge event rates. The interquartile difference for dual-eligible beneficiaries is even larger (33.3%). It is reasonable to conclude that care redesign methods for syncope Medicare beneficiaries, and in all likelihood the other conditions studied, can lead to better outcomes, fewer acute admissions, and overall cost reductions for many conditions presenting to the ED.

## **Appendix B. Proposed CPT Codes: ED Acute Care Transition for Predominantly Medical Complaints and Conditions Service<sup>1</sup>**

**Axx1** – Medical decision making and/or care management plan of low to moderate complexity, services may typically include establishing new, time certain primary care within a short time frame in a patient previously unattached to any routine care, establishing time certain follow up for Medicare beneficiaries with medical problems requiring procedural action or reassessment (such as wound care), or reviewing and substantially revising an existing care plan. The plan of care, including such items as medication management, equipment/supply availability, treatment adherence and completion of scheduled appointments, will be monitored by follow up communication with either patient or follow-up provider to determine that the patient was able to execute the plan of care and/or received the services as scheduled.

**Axx2** – Medical decision making and/or care management plan of moderate to high complexity, services may typically include establishing new, time certain specialist care for a problem identified in the emergency department visit and requiring specific, timely evaluation or action, coordinating the care of other professionals and agencies, addressing significant barriers to ongoing outpatient care such as mobility, transportation, or home safety, for example. The plan of care, including such items as medication management, equipment/supply availability, treatment adherence and completion of scheduled appointments, will be monitored by follow up communication with either patient or follow-up provider to determine that the patient was able to execute the plan of care and/or received the services as scheduled.

**Axx3** – Medical decision making and or care management of high complexity such as that complicated by multiple or serious medical or psychiatric comorbidities, services may include establishing admission, arranging transport, and communicating the plan of acute care to inpatient sub-acute rehab, skilled nursing facility, inpatient psychiatric facility, inpatient substance abuse treatment facility, or establishing home health services including home hospice or similar alternative to acute hospital admission. The plan of care will be monitored for completion, by follow up communication with either patient or intended provider to determine that the patient received the services as scheduled. The site of service for the arranged admission must be distinct from the routine process of admission by being geographically and/or operationally distinct and must represent a more effective or appropriate site of service than acute hospitalization. (That is admission to a physically contiguous or otherwise closely associated facility, or transfer to another acute care hospital such that it would be part of standard admission or transfer work flow, would be part of the ED E&M service and not eligible for this service).

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<sup>1</sup> CPT codes were submitted to the AMA CPT Editorial Panel in June of 2016.