U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Report to Congress
Evaluations of Hospitals' Ambulance Data on Medicare Cost Reports and Feasibility of Obtaining Cost Data from All Ambulance Providers and Suppliers

As Required by the American Taxpayer Relief Act of 2012

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1 EXECUTIVE SUMMARY

The Centers for Medicare & Medicaid Services (CMS) pays for ambulance services furnished to Medicare beneficiaries only when any other form of transportation would be contraindicated by the beneficiary's medical condition.[1] Most ambulance services are paid according to the Ambulance Fee Schedule (AFS) [2], which specifies a set of allowable ground and air ambulance transport service levels as well as base payment rates for each service level. Under the AFS, payment for ambulance transports includes two components: the base payment plus a separate payment for mileage to the nearest appropriate facility. The base payment for a ground ambulance transport depends on: (i) its assigned relative value unit (RVU) that represents the level of service intensity provided, and (ii) a geographic adjustment factor (GAF) that is used to address regional differences in the cost of furnishing ambulance services. Air ambulance services have no RVUs. The payment for an air ambulance transport depends on: (i) a nationally uniform base rate for each type of air ambulance service (fixed or rotary wing aircraft) that accounts for the costs and service intensity of each particular type of air transport, and (ii) a GAF. The AFS payment covers both the medically necessary transport of a beneficiary and all other items and services associated with the transport.

The AFS uses the non-facility practice expense (PE) component of the Geographic Practice Cost Index (GPCI) as the GAF. The PE component of the GPCI (PE GPCI) is designed to account for geographic variation in the price of physician services for the Medicare Physician Fee Schedule (PFS). Specifically, in the PFS, the PE GPCI measures regional variation in physicians' practice expenses. The Negotiated Rulemaking Committee that established the parameters of the AFS (as required by the Balanced Budget Act of 1997) believed that using the PE GPCI was the most appropriate means available to measure the geographic differences in the costs of providing ambulance services. The Committee believed that the components of the PE portion of the GPCI (e.g., personnel and supplies) are similar to the components of ambulance services, and the geographic variations in these costs for ambulances would therefore be similar to the cost variations for physician practices. The AFS also incorporates two permanent add-on payments and three temporary add-on payments to the base rate and/or mileage rate (as further discussed in Section 2.2.2). The two permanent add-ons include: a 50 percent increase in the standard mileage rate for the first 17 miles for ground ambulance transports that originate in rural areas, and a 50 percent increase to both the base and mileage rate for rural air ambulance transports.[3] The three temporary policies include (1) a 3 percent increase to the base and mileage

[1] See section 1861(s)(7) of the Social Security Act (the Act), 42 C.F.R. § 410.40(d).
[2] For information regarding the AFS, see section 1834(l) of the Act; 42 C.F.R. Part 414, Subpart H (Fee Schedule for Ambulance Services) and Part 410 Subpart B (Medical and Other Health Services); Medicare Claims Processing Manual (Pub. 100-04), Chapter 15; Medicare Benefit Policy Manual (Pub. 100-02), Chapter 10.
[3] See 42 C.F.R. § 414.610(c)(5)(i).

rate for ground ambulance transports that originate in rural areas; (2) a 2 percent increase to the base and mileage rate for ground ambulance transports that originate in urban areas; and (3) a 22.6 percent increase in the base rate for ground ambulance transports that originate in "super rural" areas.[4] For services furnished on or after October 1, 2013, the AFS also includes a 10 percent reduction in payments for certain non-emergency basic life support transports of beneficiaries with end-stage renal disease (ESRD) for renal dialysis services as required by section 1834(l)(15) of the Social Security Act (as added by section 637 of the American Taxpayer Relief Act of 2012 (ATRA), Pub. L. 112-240).[5]

In section 604(d) of the ATRA, the Congress directed the Secretary of Health and Human Services to conduct two studies and to submit a report to Congress on each study. First, section 604(d)(1)(A) of the ATRA required the Secretary to conduct a study that analyzes data on existing Medicare cost reports for ambulance services furnished by hospitals and critical access hospitals (CAHs), including assessing variation by characteristics of such service providers. Section 604(d)(3)(A) of the ATRA required the Secretary to submit a report to Congress on this study, together with recommendations for such legislation and administrative action as the Secretary determines appropriate. Second, section 604(d)(1)(B) of the ATRA required the Secretary to study the feasibility of obtaining cost data on a periodic basis from all ambulance service providers and suppliers for potential use in examining the appropriateness of the Medicare add-on payments for ground ambulance services and in preparing for future reform of the AFS. Section 604(d)(3)(B) of the ATRA required the Secretary to submit a report to Congress on this study as well. CMS contracted with Acumen, LLC to complete both studies.

This combined report covers both studies specified by the Congressional directive. To satisfy the requirements of sections 604(d)(1)(A) and (d)(3)(A) of the ATRA, Acumen conducted a study that analyzed cost report data on CMS's existing Healthcare Cost Report Information System (HCRIS) for ambulance services furnished by hospitals and CAHs, including variation in utilization and costs by key provider characteristics. This report presents the analysis of these data and concludes that HCRIS annual cost report data are insufficient to inform ambulance payment policy due to numerous data limitations. First, Medicare cost reports provide insight into a small and non-representative sample of all ambulance services. Over 90 percent of the entities that bill Medicare for ambulance services are not represented in the cost reports, because they are not owned and operated by an institution, such as a hospital, that is required to submit the annual reports.

[4] See section 1834(l)(12) and (l)(13) of the Act, 42 C.F.R. § 414.610(c)(1)(ii) and (c)(5)(ii). For the most recent extension of these temporary policies, see Section 203 of the Medicare Access and CHIP Reauthorization Act of 2015, extending the add-on payments through December 31, 2017.
[5] See section 1834(l)(15) of the Act, 42 C.F.R. § 414.610(c)(8).

Another limiting factor is that cost reports are subject to significant reporting lags, which makes it difficult to capture timely information. As an example, less than one percent of 2012 hospital cost reports were designated as final by April 2013. Finally, cost reports lack information on the types, levels, and travel distances for ambulance services, which is critical to evaluating ambulance payment policy as current payments are based on these distinctions.

In response to the requirements of sections 604(d)(1)(B) and (d)(3)(B) of the ATRA, this report also presents an analysis of the feasibility of obtaining more complete and detailed cost data on a periodic basis from all ambulance providers and suppliers for potential use in evaluating the appropriateness of Medicare add-on payments for ground ambulance services, and in preparing for future reform of the AFS. To this end, Acumen reviewed a recent study by the American Ambulance Association (AAA), conducted interviews with ambulance entities selected through analysis of claims data, and reviewed existing sources of information on ambulance industry costs.

AAA conducted a feasibility study exploring ways to collect accurate cost data on ground ambulance entities. AAA recommended a national data collection methodology referred to as the "hybrid data collection method." The first component of this method involved an initial mandatory short survey, completed by all ambulance providers and suppliers billing Medicare, identifying key characteristics relevant to collecting cost data. Based on the results of the short survey, categories for sampling ambulance entities were defined for the second survey. This second in-depth survey collected financial information similar to that now gathered by CMS's cost reports. This second survey would be the basis of the periodic collection of statistical and cost data from this sample of ambulance providers and suppliers. While beta testing of the hybrid method did not yield sufficient representative data to assess its validity, AAA found it demonstrated the method's acceptability to the industry.

To complement AAA's beta test of its hybrid method, Acumen conducted interviews with entities in the ambulance industry to assess the feasibility of obtaining cost information from all ambulance providers and suppliers. Although Acumen attempted to interview nine entities, Acumen was successful in obtaining interviews with only three entities. Information on ambulance industry costs are also available from several sources, such as a 2012 Government Accountability Office study[6], a 2012 Census Bureau Economic Survey[7], a consulting report from

[6] GAO Report to Congressional Committees. Ambulance Providers: Costs and Margins Varied Widely; Transports of Beneficiaries Have Increased. Government Accountability Office. Washington, DC. GAO-13-6

[7] U.S. Census Bureau. Economic Census: Industry Snapshots, Ambulance Services (NAICS 62191). Downloaded from http://thedataweb.rm.census.gov/TheDataWeb_HotReport2/econsnapshot/2012/snapshot.hrml?NAICS=62191.

the company IBISWorld[8], and a Bureau of Labor Statistics (BLS) Occupational Employment Survey[9] However, none of these sources provide a national comprehensive database of ambulance service costs. We believe it will be challenging to obtain detailed cost data on a periodic basis from all ambulance providers and suppliers.

[8] Turk, Sarah. IBISWorld Industry Report 62191: Ambulance Services in the US. May 2014. Downloaded from http://clients1.ibisworld.com/reports/us/industry/default.aspx?entid=1581 on July 31, 2014.

[9] http://www.bls.gov/oes/

2 BRIEF OVERVIEW OF THE AFS

Medicare paid approximately $5.3 billion to over 11,000 entities for ambulance services in 2011. According to the Medicare Payment Advisory Commission (MedPAC), ambulance service use per beneficiary, Medicare spending on ambulance services, and the volume of Medicare-participating ambulance entities all increased between 2007 and 2011.[10] Medicare covers most ambulance services as Part B benefits. Some ambulance services provided to a patient during a Part A covered stay in a hospital or skilled nursing facility are rolled into the payment for that stay. Medicare covers both air and ground ambulance services with air services representing less than one percent of claims but 8 percent of payments in 2011.[11, 12]

The remainder of this section provides background information on the AFS. Section 2.1 describes the difference between ambulance providers and suppliers. Section 2.2 explains how Medicare sets payments for ambulance services to both providers and suppliers. Finally, Section 2.3 describes the Medicare cost reports that ambulance providers are required to complete.

2.1 Ambulance Providers vs. Ambulance Suppliers

Medicare pays two types of entities under Part B to provide ambulance services. Suppliers are non-institutionally based entities such as local fire departments or private companies. Providers, on the other hand, are ambulance entities owned and operated by hospitals or other health care institutions. Both ambulance suppliers and providers submit claims for payment and are paid based on the AFS. In 2011, suppliers and providers represented 94 percent and 6 percent, respectively, of the ambulance entities billing Medicare. Between 2008 and 2011, the number of ambulance suppliers billing the program grew by 4 percent, and the number of ambulance providers billing the program fell by 14 percent, indicating a shift toward non-hospital-owned ambulance companies.[13]

Although Medicare does not collect cost data for the purpose of setting ambulance payment rates, providers are required to report cost data for the ambulance services they provide. Providers report the data on the annual cost reports discussed in Section 2.3. Ambulance suppliers are not required to report these data or submit cost reports. Thus, more than 90 percent of the ambulance entities that bill Medicare are not subject to cost reporting requirements. For the providers that are required to submit cost reports, both MedPAC and the U.S. Government

[10] MedPAC (Medicare Payment Advisory Commission). "Report to the Congress: Medicare and the Health Care Delivery System." June 2013. http://www.medpac.gov/documents/Jun13_EntireReport.pdf..
[11] *Ibid.*
[12] MedPAC (Medicare Payment Advisory Commission). "MedPAC Payment Basics: Ambulance Services Payment System." October 2012. http://www.medpac.gov/documents/MedPAC_Payment_Basics_12_ambulance.pdf.
[13] *Ibid* 10.

Accountability Office (GAO) have found that it is difficult to separate ambulance from non-ambulance costs because certain costs are shared across divisions of the hospital. MedPAC also found that cost report data for individual hospitals varied from year to year.[14,15]

2.2 Medicare Payment for Ambulance Services

Medicare payments for ambulance services consist of the AFS payment, which may include certain rural adjustment factors (RAFs) and/or any other add-on payment or adjustment as applicable under the AFS. Section 2.2.1 describes how payments are calculated under the AFS prior to application of any RAFs or any other add-on or adjustment. Section 2.2.2 presents AFS RAFs, and other add-on payments and adjustments to the AFS.

2.2.1 How the AFS Sets Payments Prior to Application of Add-Ons and Other Adjustments

Under Medicare's AFS, payment for an ambulance transport, prior to the application of any RAFs or any other add-on payment or adjustment, is calculated as the sum of two components: a base payment and a mileage payment. Equation 2.1 below demonstrates how the AFS establishes a Medicare payment for any ambulance service, *K*, in locality, *L*:

$$Payment_{K,L} = Base\ Payment_{K,L} + Mileage\ Payment \tag{2.1}$$

For ground ambulance services, the base payment component under the AFS consists of the product of an RVU, a conversion factor (CF), and a locality-based GAF. Each level of ground ambulance transport is assigned an RVU that represents the level of service intensity provided. The AFS contains seven distinct levels of ground ambulance service, and each level is assigned a different RVU. Higher RVU levels generally indicate that the service requires more inputs or service intensity.

The CF is a dollar amount used to convert the RVU for each ground ambulance service level into a payment expressed in monetary terms. Table 2.1 below presents the seven ambulance service levels and their associated RVUs and CFs for Calendar Year (CY) 2015.

Air ambulance services have no CF or RVUs. The payment for each type of air ambulance service (fixed or rotary wing aircraft) depends on a nationally uniform base rate that accounts for the costs and service intensity of each particular type of air transport and a locality-based GAF. Table 2.2 below presents the base rates for the two air ambulance service levels. For air ambulance services, the base payment component (prior to any add-ons) consists of the product of the base payment rate and a locality-based GAF.

[14] *Ibid* 10.
[15] U.S. GAO (Government Accountability Office). "Ambulance Providers: Costs and Medicare Margins Varied Widely; Transports of Beneficiaries Have Increased." GAO-13-6. October 2012. http://www.gao.gov/assets/650/649018.pdf.

Table 2.1: Medicare Ground Ambulance Transport Service Levels, RVUs, and CFs

Ambulance Service Level	RVU	CF
Basic Life Support Nonemergency	1.00	$221.63
Basic Life Support Emergency	1.60	$221.63
Advanced Life Support Nonemergency	1.20	$221.63
Advanced Life Support Emergency (Level 1)	1.90	$221.63
Advanced Life Support (Level 2)	2.75	$221.63
Specialty Care Transport	3.25	$221.63
Paramedic Advanced Life Support Intercept	1.75	$221.63

Table 2.2: Medicare Air Ambulance Transport Service Levels and Base Rates

Ambulance Service Level	Air Base Rate
Fixed Wing	$3,007.57
Rotary Wing	$3,496.75

The locality-based GAF accounts for geographic differences in the cost of providing ambulance services. Specifically, the AFS uses the non-facility PE component of the GPCI as the GAF used to address regional differences in cost.[16, 17] In the PFS, the PE GPCI measures regional variation in physicians' practice expenses (e.g., employee wages, contracted services, office rent, and equipment/supplies). In essence, the PE GPCI is used in the PFS to increase the price associated with a PE RVU in high-cost regions and decrease the price associated with a PE RVU in low-cost regions. For instance, a PE GPCI of 1.2 indicates that physicians' practice expenses in that locality are 20 percent above the national average, whereas a PE GPCI of 0.8 indicates that physicians' practice expenses in that locality are 20 percent below the national average.

[16] For additional information on the construction of the PE GPCI, please refer to O'Brien-Strain, et al. November 2010 and MaCurdy, et al. October 2011.

[17] GPCI localities are defined alternatively by state boundaries (e.g., Wisconsin), Metropolitan Statistical Areas (MSAs) (e.g., Metropolitan St. Louis, MO), portions of an MSA (e.g., Manhattan), or rest-of-state areas that exclude metropolitan areas (e.g., Rest of Missouri). There are currently 89 different localities defined by CMS. For a brief history of the changes to locality payment areas from their inception in 1966 to the current regulation, see: U.S. GAO (Government Accountability Office). "Medicare Physician Fees: Geographic Adjustment Indices are Valid in Design, but Data and Methods Need Refinement." GAO-05-119. March 2005. http://www.gao.gov/assets/250/245567.pdf. The ZIP code where the beneficiary was put into the ambulance for the ambulance trip determines which GPCI locality applies.

Equation 2.2 below summarizes how the AFS calculates a base payment for any ground ambulance service, *K*, in locality, *L*, using Table 2.1. Equation 2.3 similarly summarizes how the AFS calculates a base payment for any air ambulance service, *K*, in locality, *L*, using Table 2.2:

$$(2.2)\quad Base\ Payment_{K,L}^{Ground\ Transport} = RVU_K \times CF_K \times \left(0.7 \times PE\ GPCI_L\right) + RVU_K \times CF_K \times \left(0.3\right)$$

$$(2.3)\quad Base\ Payment_{K,L}^{Air\ Transport} = Air\ Base\ Rate_K \times \left(0.5 \times PE\ GPCI_L\right) + Air\ Base\ Rate_K \times \left(0.5\right)$$

The PE GPCI is only applied to the labor-related portion of the ambulance service. As reflected in Equation 2.2 above, for ground transports, this portion is 70 percent of the base payment; the remaining 30 percent of the base payment is unmodified by the PE GPCI. For air transports, however, the labor-related portion of the ambulance service is 50 percent of the base payment as shown in Equation 2.3; the remaining 50 percent of the base payment is unmodified. The ZIP code in which the Medicare beneficiary was picked up by the ambulance, referred to as the point-of-pickup ZIP code, establishes which locality's PE GPCI is applied to generate the base payment. In the AFS, the PE GPCI adjusts payment rates to account for regional variation in relative ambulance service prices.

The mileage payment component of the AFS reflects the cost attributable to the use of the ambulance vehicle (e.g., maintenance, fuel, depreciation) in transporting a beneficiary to the nearest appropriate facility. Equation 2.4 shows that the mileage payment is calculated as the product of loaded miles traveled and a mileage rate determined by CMS:

$$(2.4)\quad Mileage\ Payment = Loaded\ Miles \times Mileage\ Rate$$

Loaded Miles refers to the miles an ambulance travels with the beneficiary on board from the point-of-pickup to the location of the nearest appropriate facility.

2.2.2 Add-On Payments and Other Adjustments to the AFS

The AFS incorporates certain add-on payments on top of the standard fee schedule formula presented in Equations 2.1 through 2.4. The AFS currently contains two permanent add-on payment policies[18], and three temporary add-on payment policies[19] as further explained below. Table 2.3 summarizes these policies.

[18] See 42 C.F.R. § 414.610(c)(5)(i).

[19] See section 1834(l)(12) and (13) of the Act. See also 42 C.F.R. § 414.610(c)(1)(ii), (c)(5)(ii). A third temporary add-on payment policy recently expired (see section 146(b)(1) of the Medicare Improvements for Patients and Providers Act of 2008 (Pub. L. 110-275), as amended by section 604(b) of the ATRA, and 42 C.F.R. § 414.610(h)).

Table 2.3: Add-On Payments to the AFS

Add-On Payment Policy	Description
Permanent Policies	
Rural Short-Mileage Ground Ambulance	Increases the standard mileage rate by 50 percent for the first 17 miles for ground ambulance transports if the point-of-pickup ZIP code is rural.
Rural Air Transport	Increases the total payment for air ambulance transports by 50 percent if the point-of-pickup ZIP code is rural; that is, the 50 percent increase applies to both the base rate and the mileage rate.
Temporary Policies	
Ground Ambulance Rural	Increases the base payment and mileage rate for ground transports by 3 percent if the point-of-pickup ZIP code is rural.
Ground Ambulance Urban	Increases the base payment and mileage rate for ground transports by 2 percent if the point-of-pickup ZIP code is urban.
Super-Rural	Increases the base payment for ground ambulance transports by 22.6 percent where the point-of-pickup ZIP code is designated as super-rural.

Both the permanent and temporary add-ons are determined using an urban, rural, or super-rural geographic classification derived from the ambulance point-of-pickup ZIP code. Urban ZIP codes are generally ZIP codes in a Metropolitan Statistical Area (MSA). Rural ZIP codes are those that are outside of an MSA (or in a rural census tract of an MSA) but do not meet the definition of a super-rural area, which is a rural area that is determined to be in the lowest 25th percentile of all rural populations arrayed by population density.[20, 21]

In a 2013 report on Medicare payment for ambulance services, MedPAC noted that add-on payments accounted for approximately $412 million or about 8 percent of total Medicare payments for ambulance services in 2011.[22] The three temporary policies listed above are in effect through December 31, 2017. MedPAC had also included in its analysis a fourth temporary provision regarding air transport rural grandfathering that was in effect at the time of its study but has since expired (on June 30, 2013). In its 2013 report, MedPAC recommended that all temporary policies be allowed to expire and that CMS replace the permanent rural short-mileage ground ambulance add-on with a budget-neutral adjustment aimed at increasing payments in low volume, geographically isolated areas. MedPAC also recommended a budget-

[20] *Ibid 10*.
[21] For additional details on how CMS recognizes geographic areas for the purposes of the AFS, please refer to 71 FR 69713 – 69716 (December 1, 2006) and 79 FR 67743-67750 (November 13, 2014).
[22] *Ibid* 10.

neutral adjustment to ambulance RVUs to reduce the relative value of non-emergency basic life support (BLS) services.[23]

In addition to the ambulance studies and reports required under section 604 of the ATRA, section 637 of the ATRA added section 1834(l)(15) to the Social Security Act (the Act), which states that the fee schedule amount otherwise applicable under the preceding provisions of section 1834(l) of the Act shall be reduced by 10 percent for ambulance services furnished on or after October 1, 2013, consisting of non-emergency BLS services involving transport of an individual with ESRD for renal dialysis services (as described in section 1881(b)(14)(B) of the Act) furnished other than on an emergency basis by a provider of services or a renal dialysis facility.

2.3 Medicare Cost Reports

As previously noted, Medicare requires institutional providers that own and operate ambulance services (i.e., ambulance providers) to report ambulance data on annual cost reports. The primary purpose of cost reports is to provide information for the annual settlement summary between CMS and the institutional provider. Cost reports include data on provider characteristics, utilization, costs, charges, revenue, and other factors.

Providers submit annual cost reports to their Medicare Administrative Contractor (MAC). MACs review the cost reports and submit approved reports to CMS's Healthcare Cost Report Information System (HCRIS). HCRIS conducts additional edits prior to accepting a cost report into its database files. Because providers define their own reporting year based on their accounting procedures, CMS receives cost reports on a rolling basis.[24] HCRIS files are updated on a quarterly basis. At the time this analysis was conducted, the most recent updates available were those that occurred at the end of April 2013.

[23] *Ibid* 10.

[24] "CMS assigns the cost report to a fiscal year based on the provider defined cost report fiscal year begin date. For example, if a provider's cost report fiscal year begin date is 7/1/02, then CMS will assign this to the fiscal year (FY) 2002 file because the provider's fiscal year begin date is between 10/1/2001 and 9/30/2002, which is considered FY 2002." ResDAC (Research Data Assistance Center). "Creation of the Fiscal Year Cost Report Files." June 2012. Accessed September 29, 2013. http://www.resdac.org/resconnect/articles/128.

3 EVALUATION OF AMBULANCE DATA ON COST REPORTS

As discussed above, section 604(d)(1)(A) of the ATRA required the Secretary to conduct a study that analyzes data on existing Medicare cost reports for ambulance services furnished by hospitals and critical access hospitals (CAHs), including assessing variation by characteristics of such service providers. Section 604(d)(3)(A) of the ATRA required the Secretary to submit a report to Congress on this study, together with recommendations for such legislation and administrative action as the Secretary determines appropriate. Acumen evaluated the Medicare cost reports as a potential source of data to inform the AFS. Section 3.1 presents the methodology Acumen used to summarize hospitals' and CAHs' ambulance service costs and utilization using the HCRIS annual cost report data. Section 3.2 describes the ambulance service data available on the cost reports and evaluates the representativeness of the data sample. Section 3.3 presents an analysis of ambulance utilization and costs, including a look at how utilization and costs vary for hospitals and CAHs with different characteristics (e.g., type of ownership, rural vs. urban). Finally, Section 3.4 concludes with an evaluation of the limitations of the ambulance data available on hospital and CAH cost reports.

3.1 Methodology

HCRIS contains cost report data for different types of providers including hospitals, CAHs, skilled nursing facilities (SNFs), home health agencies, renal dialysis facilities, health clinics, and hospices. Acumen reviewed cost report data and determined that only the hospital and CAH cost reports contained sufficient data on ambulance providers. Acumen analyzed cost report data from Fiscal Years (FYs) 2007-2011 using the most recent report for each hospital and CAH (hereafter referred to collectively in this report as "hospitals").[25] Though 2012 cost report data were available at the time Acumen conducted its analysis, they were incomplete. Less than one percent of 2012 reports were noted as "final" in HCRIS. This was likely due to lags in reporting and/or uploading of files to HCRIS. For example, it may take several months for a hospital to complete edits required by a MAC and submit a corrected report.

HCRIS contains hospital cost report data submitted on two different forms, depending on the submission timeframe:

- CMS-2552-96 – Used 1996-2011, and
- CMS-2552-10 – Used 2010-Present.

To allow for comparisons over time, Acumen used CMS's crosswalk to map fields on the 2010 form to the 1996 version.

[25] Pursuant to section 1861(e) of the Act, CAHs are expressly excluded from the definition of hospital unless the context otherwise requires. However, for ease of reference throughout this report, we will refer to them collectively as "hospitals").

Acumen identified the hospital cost report fields related specifically to ambulance services. Ambulance fields include:

- A utilization variable capturing the number of ambulance trips;
- Numerous operating and capital cost fields including total expenses and cost allocations by category (e.g., equipment, maintenance and repair);
- Information on charges including total charges, charges for services subject to coinsurance and deductibles, and cost-to-charge ratios; and
- Revenue fields (inpatient, outpatient, and total[26]).

Appendix A contains a list and descriptions of the individual variables.

To determine the sample for analysis, Acumen identified, separately for each year, the subset of hospitals reporting data in all of the fields of interest. These hospitals constituted the analysis sample. As described below in Section 3.2.1, the analysis sample represented less than 10 percent of hospitals in a given fiscal year. To determine the characteristics of the sample hospitals and how well they represent the larger hospital population, Acumen examined self-reported provider characteristics. These included type of ownership (i.e., non-profit, proprietary, government), disproportionate share hospital (DSH) status[27], CAH status[28], and location (rural or urban).

Acumen calculated descriptive statistics on utilization and cost for the sample hospitals. Acumen also calculated mean and median cost per ambulance trip by hospital ownership type, DSH status, CAH status, and urban/rural status. The remainder of Section 3 describes Acumen's findings.

3.2 Description of the Data on Existing Cost Reports

To examine whether existing cost report data can be used to accurately measure variation in the cost of furnishing ambulance services, Acumen first evaluated the extent to which hospitals reporting ambulance service data on their cost reports are representative of the overall

[26] Inpatient Revenue likely includes revenue related to ambulance services provided as part of a Part A stay. Outpatient Revenue likely includes Part B revenue but it is not possible to definitively determine this from the cost reports.

[27] "DSH status" means that a hospital is eligible for a DSH payment. The Medicare DSH patient percentage is equal to the sum of the percentage of Medicare inpatient days (including Medicare Advantage inpatient days) attributable to patients entitled to both Medicare Part A and Supplemental Security Income and the percentage of total inpatient days attributable to patients eligible for Medicaid but not eligible for Medicare Part A. Hospitals whose DSH patient percentage exceeds 15 percent are eligible for a DSH payment. For additional information on DSH, please see the following webpage: http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/dsh.html.

[28] CAHs are rural providers that receive cost-based reimbursement. To be designated a CAH, a rural facility must meet defined criteria designated by CMS. For additional information on CAHs and the criteria for designation, please see the following webpage: http://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/CertificationandComplianc/CAHs.html.

hospital population. This evaluation is divided into two subsections. Subsection 3.2.1 summarizes the size of the hospital analysis sample and the factors determining this size. Subsection 3.2.2 then discusses the representativeness of this sample.

3.2.1 Hospital Sample

Although approximately 6,000 hospitals submit cost reports to CMS every year, only reports from hospitals that provide ambulance services are useful in analyzing variation in the cost of furnishing ambulance services. For this report, the analysis sample was formed from the entire population of hospital cost reports for FY 2007 through FY 2011. In order to be included in the analysis sample, a cost report was required to:

(1) Cover a full year,

(2) Contain a non-zero and non-missing value for the number of ambulance trips,

(3) Contain a non-zero and non-missing value for the hospital cost attributed to the ambulance service, and

(4) Be above the 5th percentile for cost per trip and below the 95th percentile for cost per trip.[29]

Table 3.1 below explains the derivation of the analysis sample from the entire population of cost reports for each FY. Row 1 presents the number of cost reports in the cost report dataset for each FY, and Row 2 presents the number of unique hospitals represented by these cost reports (note that a small number of hospitals submit more than one cost report per year). Row 3 applies requirement (1) listed above to the universe of cost reports to show the number of hospitals with cost reports that cover a full year. Because a hospital can have more than one cost report, Row 4 presents the number of unique hospitals with full-year cost reports. Row 5 applies requirement (2) above and presents the number of unique hospitals with full-year cost reports and ambulance trips. In a similar fashion, Row 6 applies requirement (3) above and presents the number of unique hospitals with full-year cost reports, ambulance trips, and ambulance costs. Row 7 applies requirement (4) and displays the number of hospitals represented in the final sample. Row 8 shows the final number of sample hospitals as a percentage of the population of unique hospitals.

Table 3.1: Determination of Hospital Analysis Sample from Cost Report Universe

HCRIS Statistics		Number of Cost Reports				
		FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
1	Hospital Cost Reports	6,180	6,201	6,196	6,134	5,986
2	Unique Hospitals	6,086	6,093	6,100	6,053	5,922
3	Hospitals with Full-Year Cost Reports	5,907	5,868	5,931	5,890	5,781
4	Unique Hospitals with Full-Year Cost Reports	5,902	5,867	5,931	5,888	5,781
5	with Ambulance Trips	694	598	568	504	461

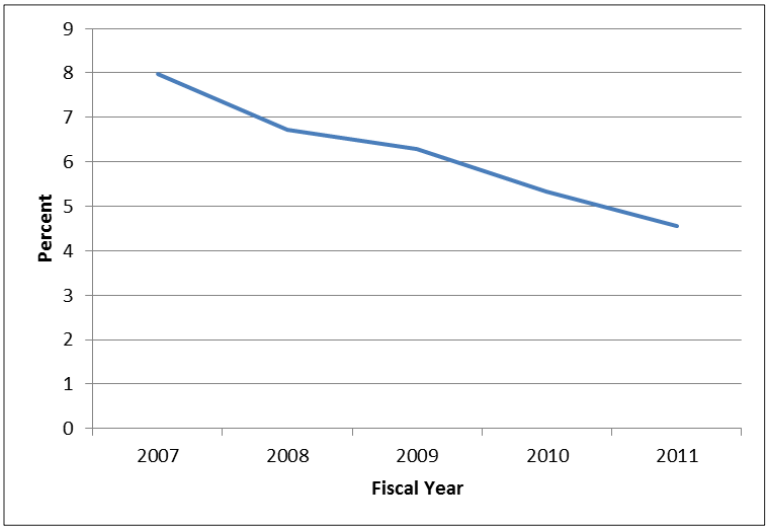
[29] This requirement mitigates the effect of high-cost and low-cost outliers.

6	with Ambulance Trips and Costs	541	455	428	357	299
7	Final Sample of Hospitals	485	410	384	322	270
8	Sample Hospitals as % of Unique Hospitals	8.0%	6.7%	6.3%	5.3%	4.6%

Row 8 of Table 3.1 reveals that, for each FY examined, the number of hospitals in the sample represented less than 10 percent of hospitals overall. This low level of representation is due primarily to the low number of hospitals reporting ambulance trips. In addition, around 25 to 30 percent of the hospitals that did report ambulance trips did not report costs for their ambulance service. Row 8 also shows that the proportion of hospitals represented in the sample declined over the analysis period. Figure 3.1 illustrates this decline, plotting the final sample of hospitals (Row 7 of Table 3.1) as a percentage of unique hospitals represented by the population of cost reports (Row 2 of Table 3.1).

The difference in size between the overall population of hospitals in the cost reports and the analysis sample could arise from a number of causes. Some of the hospitals reporting no ambulance trips or no ambulance costs may, in fact, not offer an ambulance service. Some of them may offer an ambulance service but contract it out to another firm. Some may offer an ambulance service but not report the data for it. Acumen was not able to distinguish among these explanations using the information present in the cost reports.

Figure 3.1: Percent of Unique Hospitals in Cost Report Universe Represented by the Analysis Sample

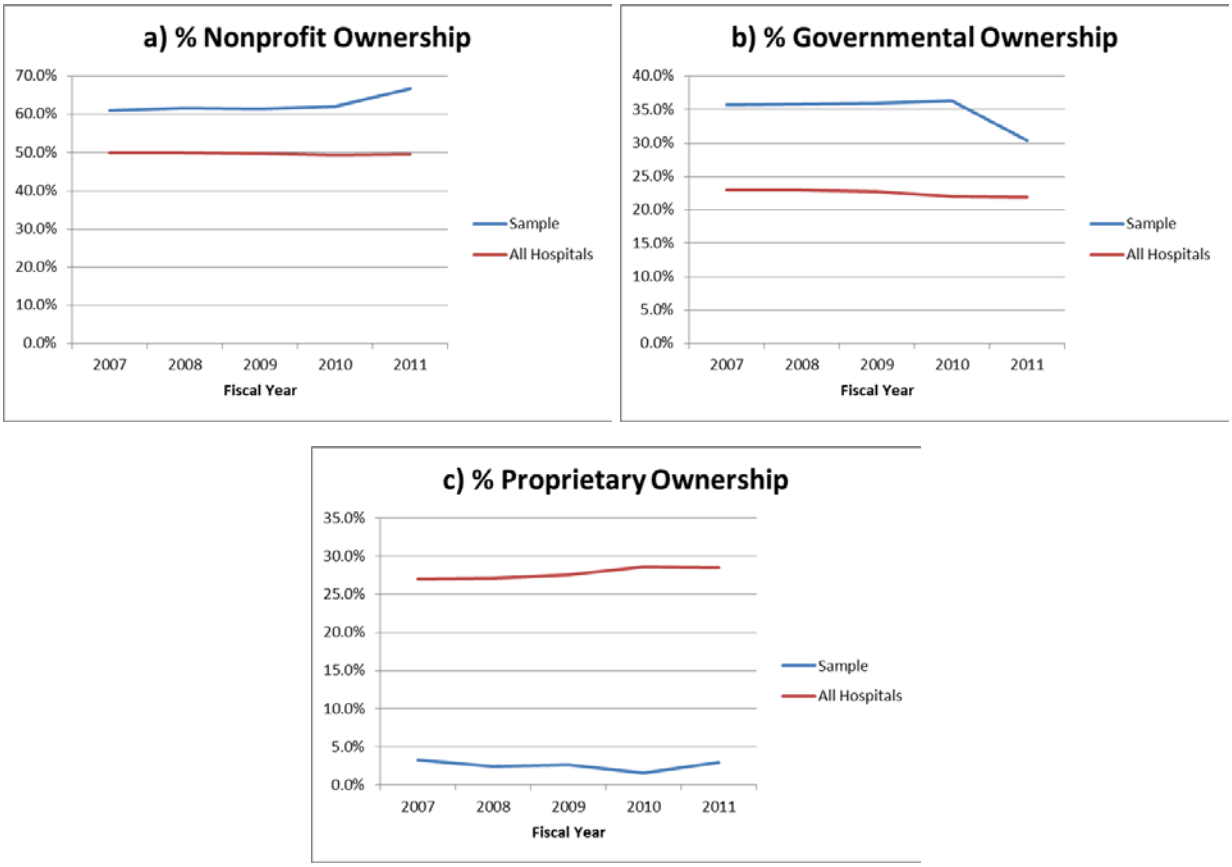


3.2.2 Representativeness of the Hospital Sample

Given that less than 10 percent of hospitals are included in the analysis sample in any given fiscal year, it is important to examine how well the sample represents the overall hospital

population. This subsection looks at several measures of representativeness: hospital ownership type, DSH status, CAH status, and urban/rural status. To examine the representativeness of the analysis sample, Acumen first considered hospital ownership (i.e., nonprofit, proprietary, or government[30]) as a metric. Specifically, Acumen examined the percent of nonprofit, proprietary, and government-owned hospitals in the analysis sample against the percent of nonprofit, proprietary, and government-owned hospitals in the population of hospitals submitting cost reports. Panel a) and panel b) of Figure 3.2 illustrate that nonprofit and government-owned hospitals, respectively, are over-represented in the hospital sample, while panel c) of Figure 3.2 indicates that proprietary hospitals are under-represented. Figure 3.2 also shows that, save for FY 2011, these findings are relatively stable across time. Note that the 2011 values may be anomalous due to the particularly low number of hospitals in the analysis sample for that year, as revealed in Figure 3.1.

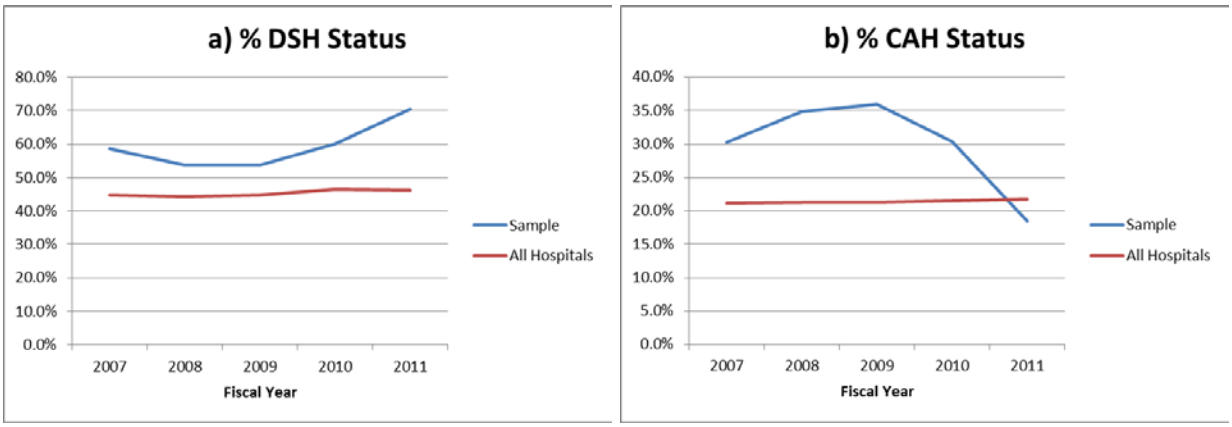
Figure 3.2: Analysis Sample Breakdown by Percent Ownership



[30] A government hospital or public hospital is a hospital that is owned by a governmental entity and receives government funding.

Next, Acumen considered hospital DSH status and CAH status as metrics to examine the representativeness of the analysis sample. Acumen examined the percent of DSH and CAH status hospitals in the sample against the percent of DSH and CAH status hospitals in the population. Figure 3.3 reveals that hospitals with DSH status and CAH status are over-represented in the sample. During the timeframe of the data included in this report, there was a payment incentive for a CAH to own an ambulance company, which could explain some of this over-representation (see 42 CFR 413.70(b)(5)).[31] Figure 3.3 also shows that, save for FY 2011, these findings are relatively stable across time. Again, the 2011 figures may be anomalous due to the particularly low number of hospitals in the sample that year.

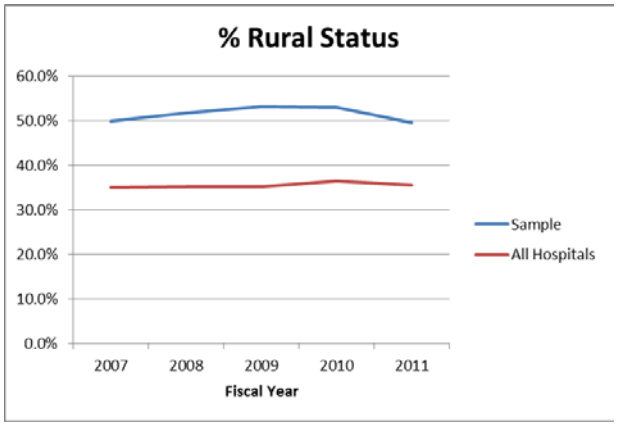
Figure 3.3: Analysis Sample Breakdown by Percent DSH and CAH Status



Finally, Acumen considered hospital location (urban vs. rural status) as a metric to examine the representativeness of the analysis sample. Specifically, Acumen examined the percent of rural hospitals in the sample against the percent of rural hospitals in the population. Figure 3.4 indicates that rural hospitals are over-represented in the analysis sample. The figure also shows that this finding is relatively stable across time.

[31] 42 C.F.R. § 413.70(b)(5) denotes special payment rules for ambulance services furnished by a CAH or by an entity owned and operated by a CAH, under which payment for such ambulance services is made on a basis relating to reasonable cost if certain criteria are met.

Figure 3.4: Analysis Sample Breakdown by Percent Rural Status



These results raise a number of concerns regarding the usefulness of the analysis sample in describing the population of hospitals offering ambulance services. First, less than 10 percent of hospitals are represented in the analysis sample, so that there is a high potential for the analysis sample to differ from the overall population of hospitals. Second, the analysis sample does not appear to represent the overall population of hospitals well for any of the measures considered. Third, the information present in the cost reports only allows comparison of the analysis sample to the overall population of hospitals. A better comparison would be between the analysis sample and the overall population of hospitals that offer ambulance services. This latter comparison cannot be made since we are not able to identify from the cost reports precisely which hospitals offer ambulance services. Hospitals that appear in the cost reports to not offer ambulance services may contract out these services or may not report accurately. Overall, given these problems as well as the data quality and consistency issues identified by MedPAC and GAO described in Section 2.1 above, we do not believe cost reports offer sufficiently usable data to measure variation in the cost of furnishing ambulance services.

3.3 Findings

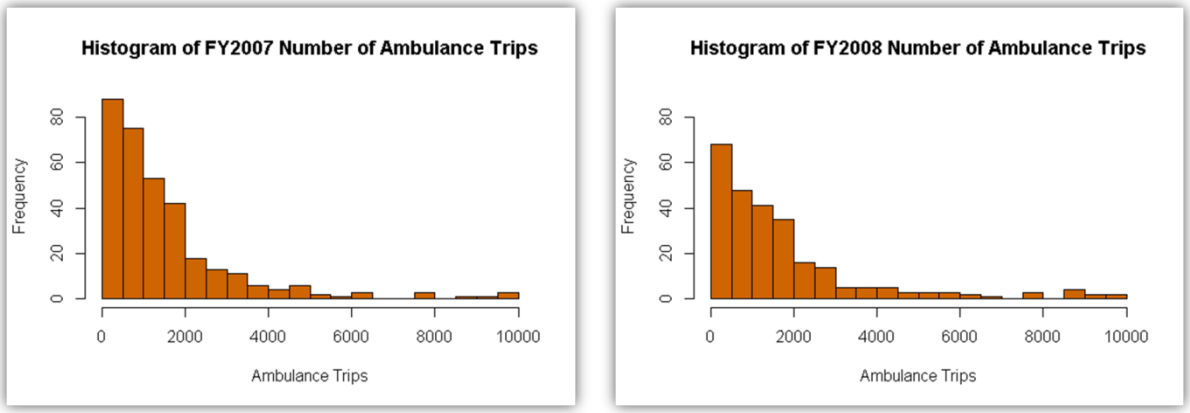
Although the sample of hospitals that reported provision of ambulance trips and associated costs during each FY of study was small and not representative of the overall hospital population, Acumen analyzed the sample to look for interesting patterns in the data. This section presents findings from an analysis of ambulance utilization and costs, including a look at how utilization and costs vary for hospitals with different characteristics (e.g., type of ownership, rural vs. urban, etc.). Specifically, Section 3.3.1 examines the number of ambulance trips, while Section 3.3.2 examines the cost per ambulance trip. Because of the non-representativeness of the hospital sample, the analyses presented below should be thought of as exploratory in nature rather than as definitive.

3.3.1 Ambulance Trips

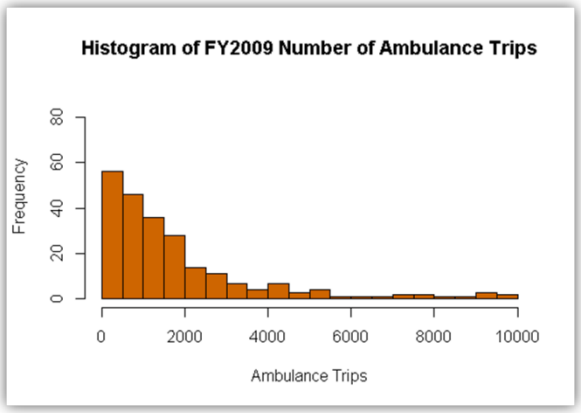
Within the sample of hospitals discussed in Section 3.2, the number of ambulance trips per hospital varied greatly. Figure 3.5 displays five panels, with each panel presenting a histogram of the number of ambulance trips per hospital for one of the five years analyzed (FY 2007 through FY 2011). Figure 3.5 reveals that the number of ambulance trips per hospital ranged from one to approximately ten thousand each year. The wide dispersion was significantly right-skewed for each FY, indicating that most hospitals had relatively lower numbers of ambulance trips. As Section 3.3.2 will show, hospitals with larger numbers of ambulance trips seem to benefit from economies of scale. In other words, these hospitals may have cost advantages obtained due to a higher number of ambulance trips, with cost per ambulance trip decreasing with increasing scale as fixed costs are spread out over more ambulance trips.

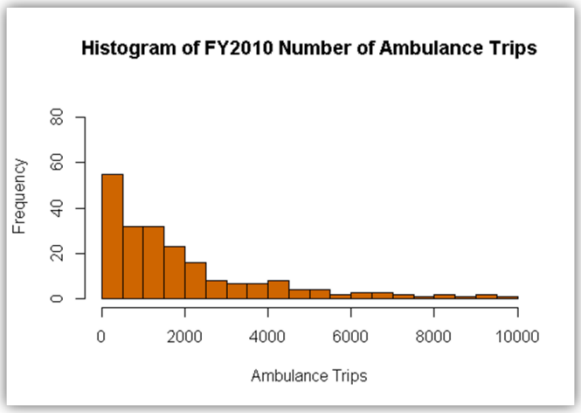
It is also worthy of note that many hospitals reported fewer than 500 trips per year. The first box in each histogram runs from zero to 500 trips. Around 15 percent of hospitals reported a trip total this small. GAO, in 2012, found that providers with fewer than 600 trips had unexploited economies of scale; that is, that they could substantially reduce their average costs by increasing the number of ambulance trips they provide.[32] Thus, many hospitals in the analysis sample appear to be operating at volumes insufficient to take full advantage of economies of scale.

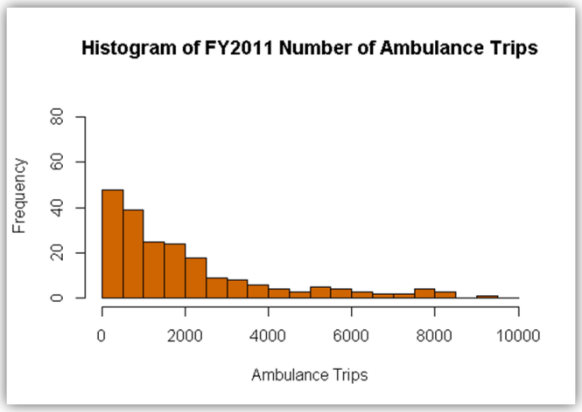
Figure 3.5: Number of Ambulance Trips per Hospital, FY 2007 – FY 2011



[32] *Ibid 6.*







Within the sample of hospitals, there was also an upward trend in the mean and median number of ambulance trips per hospital from FY 2007 through FY 2011. Panel a) of Figure 3.6 presents this trend. This upward trend should be compared with the downward trend in the percent of unique hospitals represented by the analysis sample during the same time period (Figure 3.1). These opposing trends indicate that the overall number of hospitals represented by the analysis sample decreased, yet individual hospitals experienced more trips per hospital.

The remaining four panels in Figure 3.6 break down the median number of ambulance trips per hospital by type of ownership (i.e., non-profit vs. governmental vs. proprietary), DSH status, CAH status, and urban/rural status.

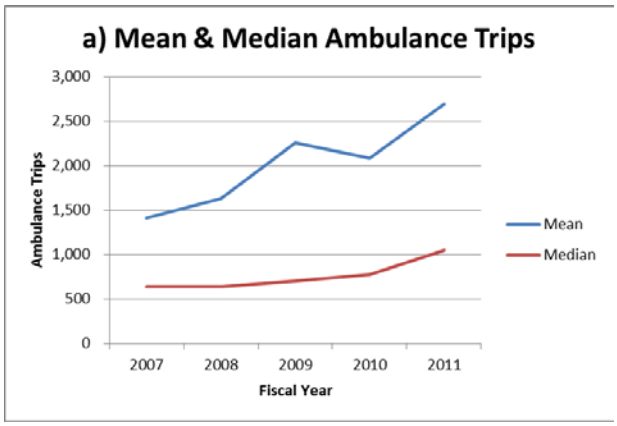
Panel b) shows that non-profit and government-owned hospitals had similar median numbers of ambulance trips in 2007 and then began to diverge with government-owned hospitals logging fewer trips from 2008-2011. Until 2011, the median number of trips was more stable for government-owned institutions than for non-profits. For all FYs investigated, the proprietary hospitals had a higher median number of ambulance trips than both non-profit and government-owned hospitals. In addition, proprietary hospitals' median number of ambulance trips increased

significantly between FY 2008 and FY 2011.[33] Panel c) reveals that the median number of ambulance trips was higher for DSH than non-DSH hospitals. Additionally, the median number of ambulance trips for DSH hospitals increased from FY 2007 to FY 2011, while the median number of trips for non-DSH hospitals remained relatively constant.

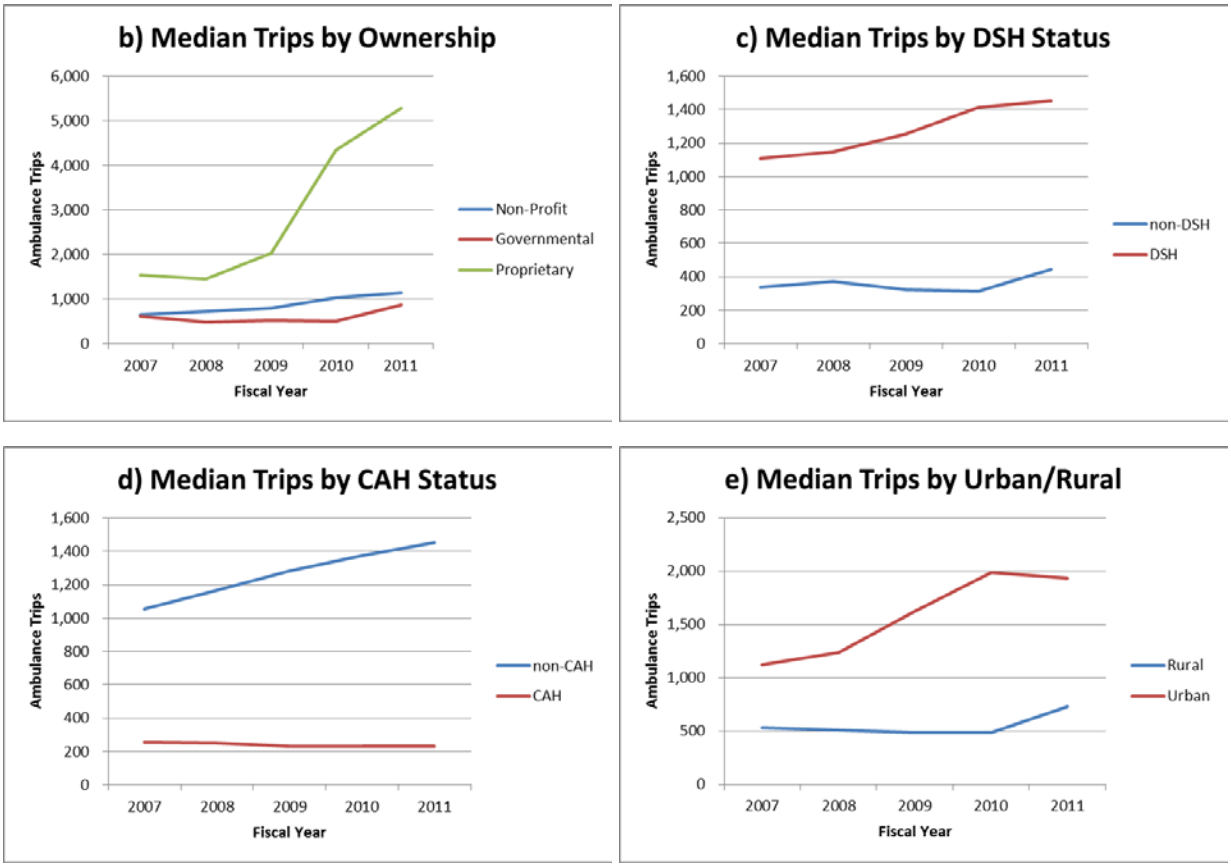
Panel d) indicates that the median number of ambulance trips for CAHs was lower than that for non-CAH status hospitals over time. This is consistent with the findings shown in Panel e), where urban hospitals had a higher median number of trips than rural hospitals, as CAHs are either located in rural areas or treated as being located in rural areas. Panel d) also shows that the median number of ambulance trips for CAHs remained relatively constant over the analysis period, while the median number of ambulance trips for non-CAH-status hospitals increased.

Panel e) shows that urban hospitals followed an upward trend in the median number of ambulance trips from FY 2007 to FY 2010, with the median stabilizing somewhat in 2011. The median number of ambulance trips for rural hospitals remained relatively constant over time, showing a slight upward trend in 2011. The gap between median number of trips for urban and rural hospitals widened over time until 2011, when it narrowed slightly.

Figure 3.6: Mean and Median Number of Ambulance Trips per Hospital, FY 2007 – FY 2011



[33] The sample of proprietary hospitals was very small in all years evaluated (less than 20 in FY 2007 and 10 or fewer in FYs 2008 through 2011).

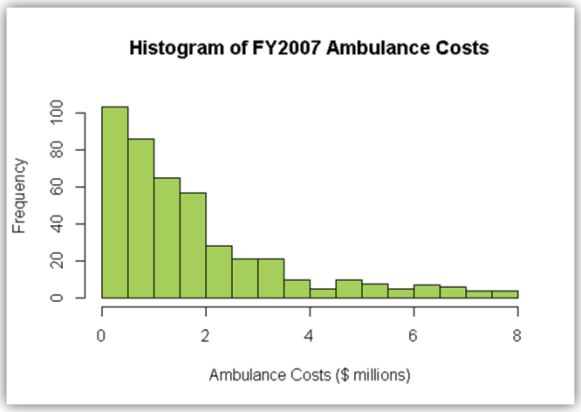


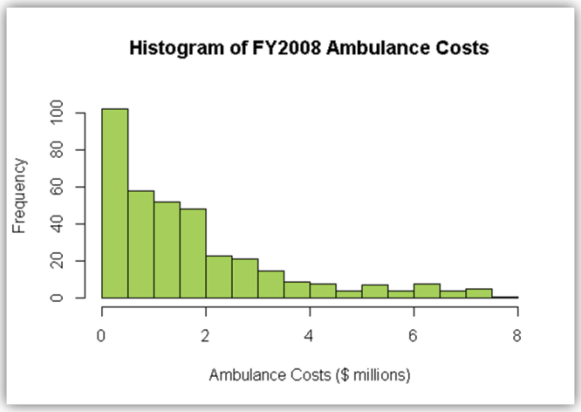
3.3.2 Ambulance Cost per Trip

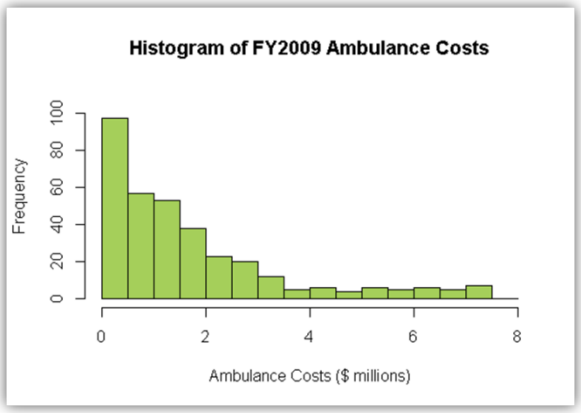
Similar to the wide dispersion in the number of ambulance trips per sample hospital, there is notable variation in the sample hospitals' total ambulance costs and cost per ambulance trip. Figure 3.7 displays five panels, with each panel presenting a histogram of hospitals' total ambulance costs for FY 2007 through FY 2011. Figure 3.8 displays histograms of hospitals' mean cost per ambulance trip for the same time period. Figure 3.7 reveals that, during the analysis timeframe, hospitals' total reported ambulance costs ranged from a few hundred dollars to over eight million dollars. Figure 3.8 shows that, during the same time period, hospitals' cost per ambulance trip ranged from a few hundred dollars to thousands of dollars. Both total costs and cost per trip are right-skewed for each FY. The majority of hospitals have total costs of four million dollars per year or less and cost per trip of four thousand dollars per year or less.

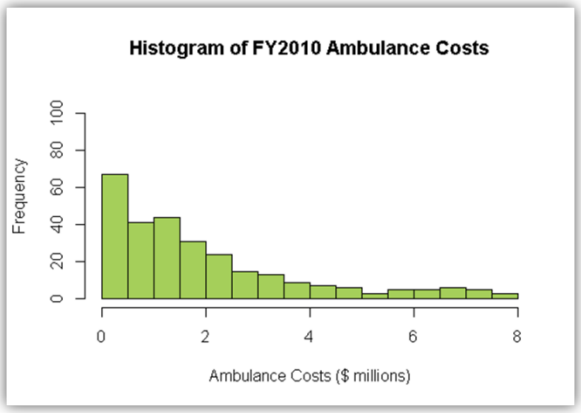
The extremely broad range of hospitals' reported costs per trip suggest data quality issues and/or important differences among providers and services that drive payment but cannot be identified due to limitations in the cost report data. These limitations are discussed in detail in Section 3.4.

Figure 3.7: Total Ambulance Costs, FY 2007 – FY 2011









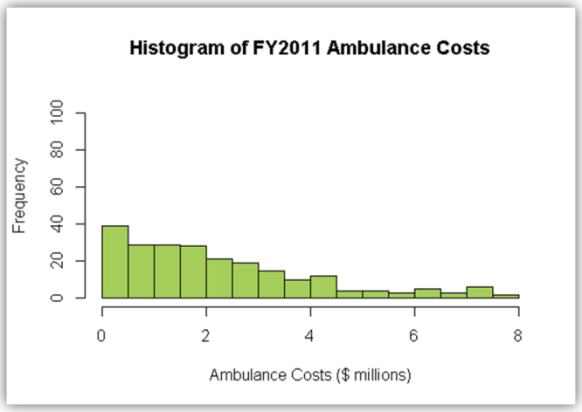
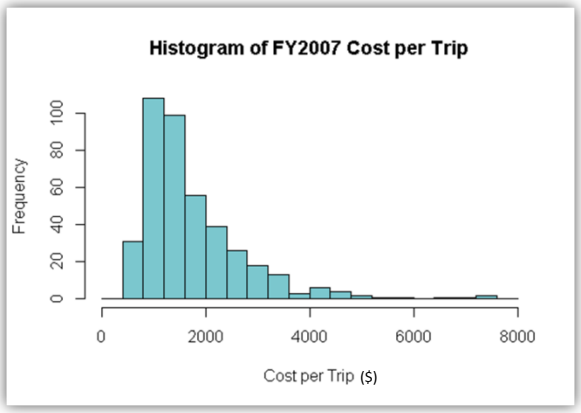
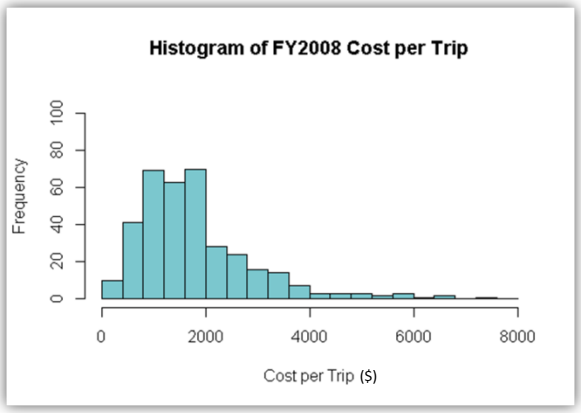
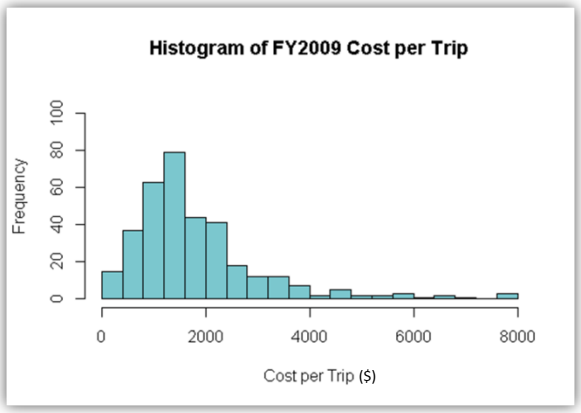
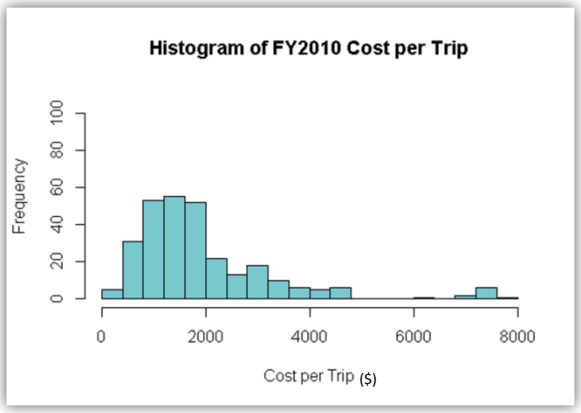


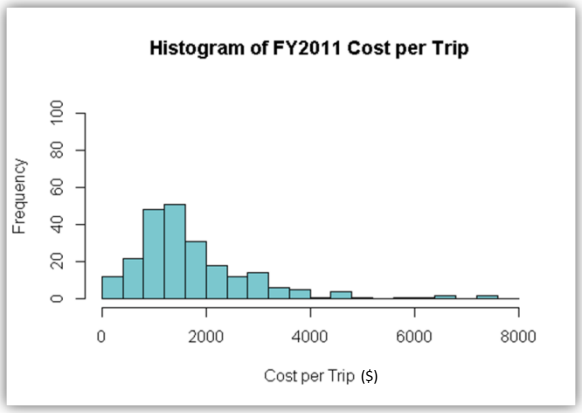
Figure 3.8: Ambulance Mean Costs per Trip, FY 2007 – FY 2011









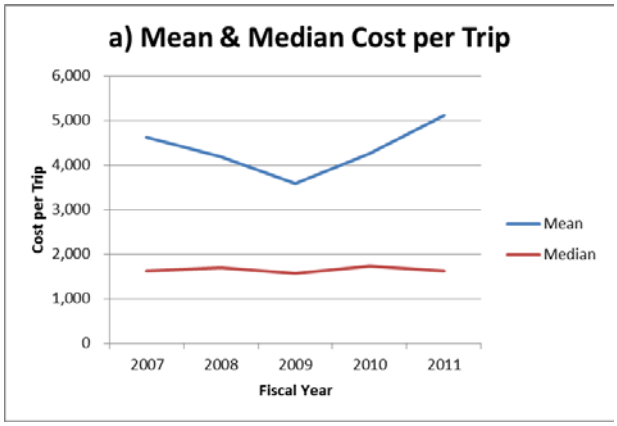


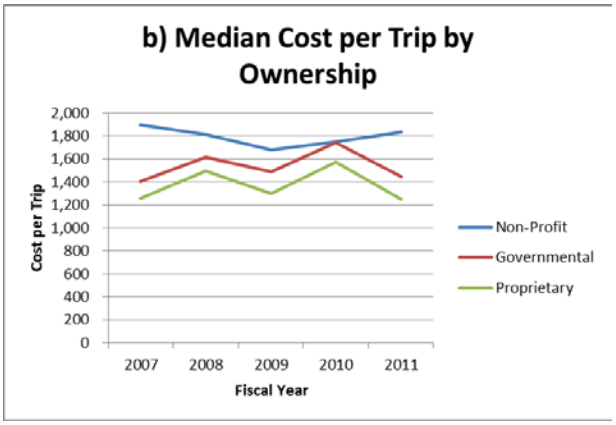
Within the sample of hospitals, there was a slight overall increase in the mean cost per ambulance trip from FY 2007 to FY 2011 despite a dip in 2009; the median cost per ambulance trip during the same time period was relatively stable. Panel a) of Figure 3.9 presents this trend. Note that the mean hospital cost per ambulance trip from FY 2007 to FY 2011 was much higher than the median hospital cost per ambulance trip during the same period. Even after excluding the tails of the cost per trip distribution (below the 5th percentile or above the 95th percentile), there were a number of high cost per trip values that skewed the mean upward. These values may reflect higher cost services (e.g., air transport, high intensity ground transport) or data quality issues, but there is no way to definitely determine the reason from the data. Panel a) of Figure 3.9 presents these trends, which accompany the downward trend in the percentage of unique hospitals represented by the analysis sample discussed in Figure 3.1 and the upward trend in the mean and median number of ambulance trips per hospital discussed in Figure 3.6.

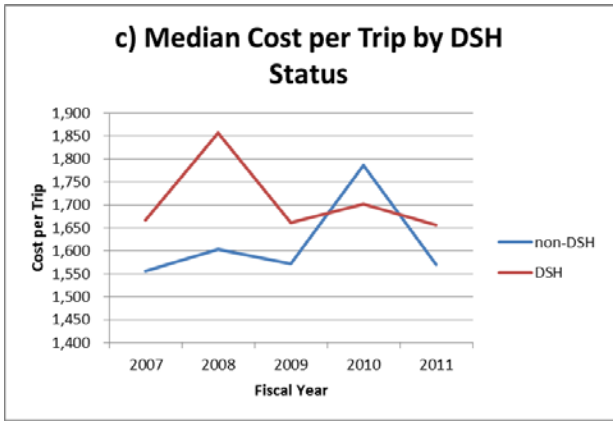
Panels b) through e) of Figure 3.9 break down the median cost per ambulance trip by year and type of ownership (i.e., non-profit vs. governmental vs. proprietary), DSH status, CAH status, and urban/rural status. The figures reveal that the median cost per ambulance trip was generally higher for non-profit hospitals than both governmental and proprietary hospitals during the 2007-2011 time period;[34] similarly, the median cost per ambulance trip was higher for urban than rural hospitals during the same time period. The median hospital cost per ambulance trip was higher for DSH hospitals than non-DSH hospitals except in FY 2010. Finally, the median cost per trip was lower for CAHs than non-CAHstatus hospitals the first two years and then higher in 2009-2011. One might have expected to see higher costs for CAHs in all years because CAHs receive cost-based reimbursement for ambulance services under certain circumstances[35], which provides little incentive to keep costs down.

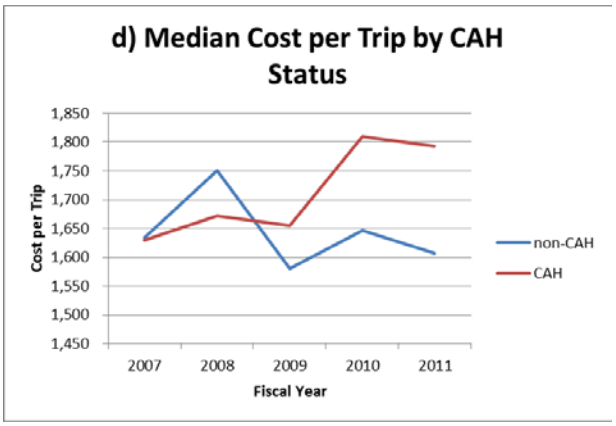
[34]The sample of proprietary hospitals was very small in all years evaluated (less than 20 in FY 2007 and 10 or fewer in FYs 2008 through 2011).
[35] See section 1834(l)(8) of the Act; 42 C.F.R. § 413.70(b)(5).

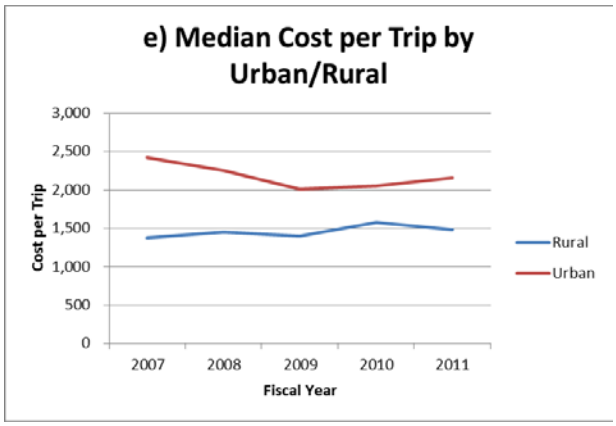
Figure 3.9: Mean and Median Ambulance Cost per Trip, FY 2007 – FY 2011





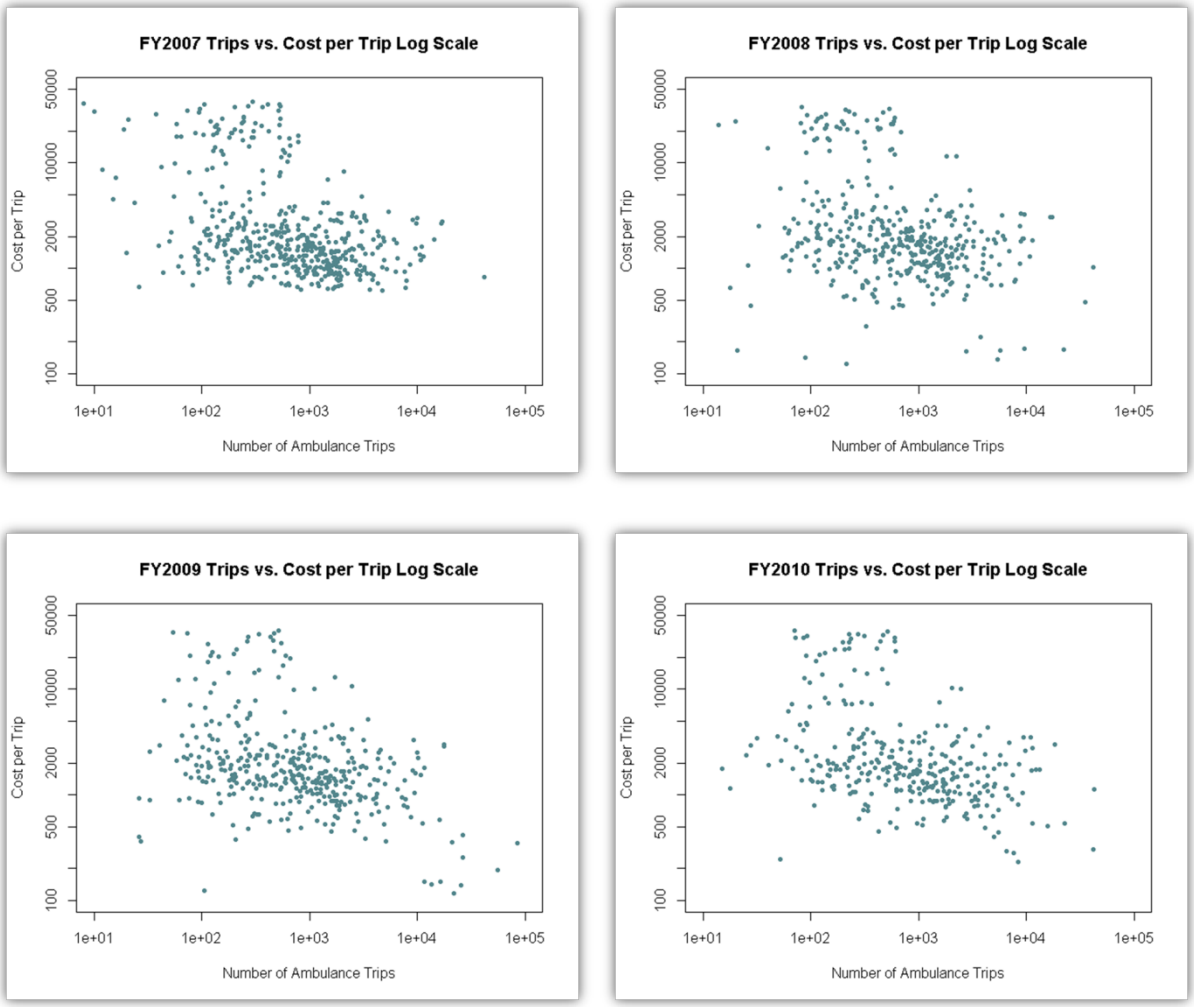


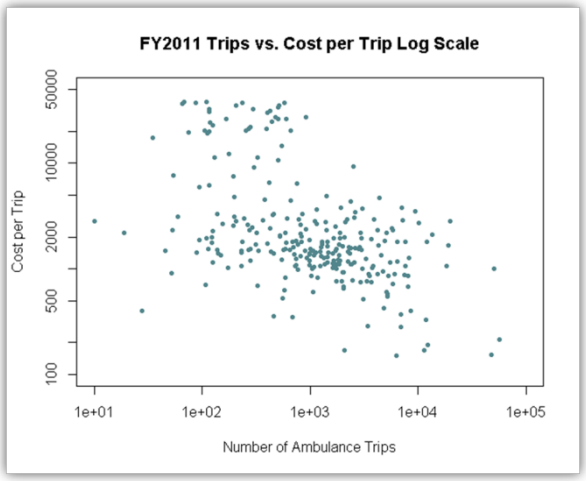




To explore whether hospitals with larger numbers of ambulance trips may benefit from economies of scale, Acumen also produced log-scale scatterplots of hospitals' cost per ambulance trip against hospitals' number of ambulance trips. Figure 3.10 presents these scatterplots for FY 2007 through FY 2011. The scatterplots depict a negative relationship between cost per trip and number of trips. The (Pearson) correlation between these variables varies over the years between -0.25 and -0.39. One possible explanation for this relationship is economies of scale. A regression of logged cost per trip on logged number of trips reveals coefficients around -0.3, indicating that, in general, an increase of 10 percent in number of trips is associated with a decrease of 3 percent in cost per trip. However, these results are only suggestive as many other factors would need to be accounted for in order to make conclusions about the existence and magnitude of economies of scale. Furthermore, the representativeness of the sample would need to be addressed in order to make such conclusions.

Figure 3.10: Scatterplot of Ambulance Cost per Trip against Number of Ambulance Trips, FY 2007 – FY 2011



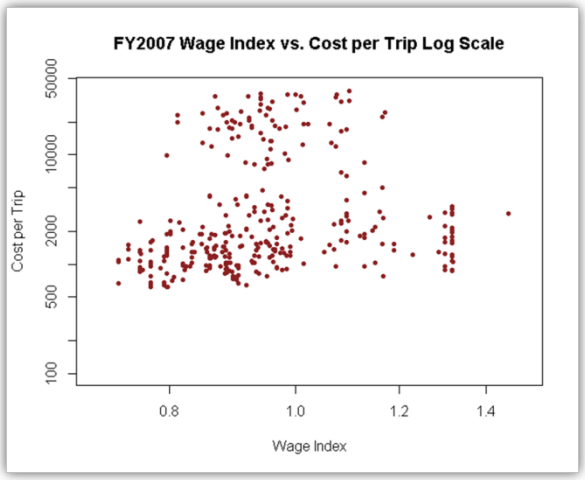


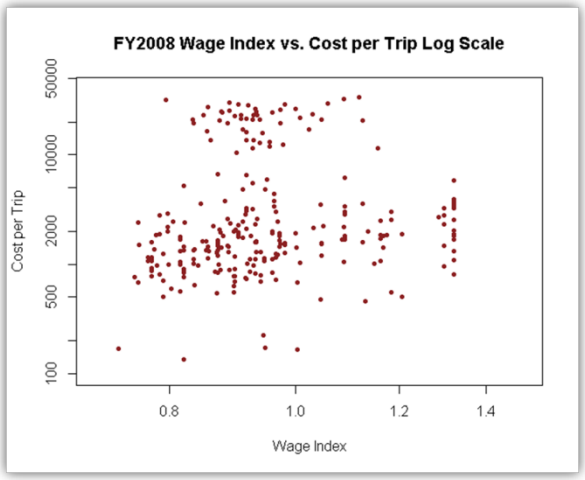
To explore whether hospitals with generally high hospital wage levels also have higher costs per ambulance trip, Acumen used hospitals' post-reclassification Hospital Wage Index (HWI) values for FY 2007 through FY 2011 as a proxy for hospital wage levels and compared these values to hospitals' cost per ambulance trip.[36] Medicare created the HWI to account for geographic differences in hospital wage levels. Specifically, CMS uses the HWI to adjust hospital inpatient prospective payment system (IPPS) payments "for area differences in hospital wage levels" across IPPS hospitals, while maintaining budget neutrality.[37] Higher HWI values for a hospital generally indicate higher hospital wage levels for the hospital. Figure 3.11 contains scatterplots of hospitals' cost per ambulance trip against hospitals' HWI values on a log scale for FY 2007 to FY 2011. These scatterplots reveal a positive association between hospital cost per trip and the hospital's post-reclassification wage index.

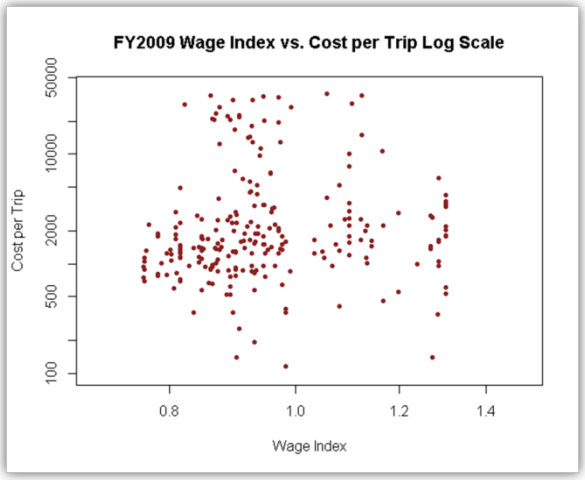
[36] HWI values were obtained from the CMS Wage Index Files webpage: http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Wage-Index-Files.html.

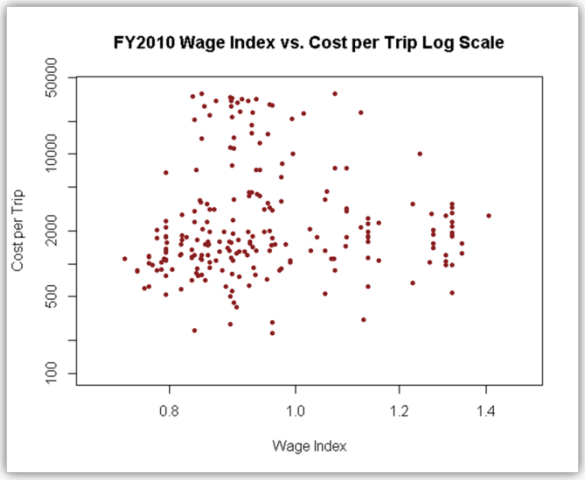
[37] Section 1886(d)(3)(E) of the Act. "Section 1886(d)(3)(E) of the Act requires that, as part of the methodology for determining prospective payments to hospitals, the Secretary must adjust the standardized amounts 'for area differences in hospital wage levels by a factor (established by the Secretary) reflecting the relative hospital wage level in the geographic area of the hospital compared to the national average hospital wage level.'" 76 FR 51581. For additional information on the HWI, please see the following webpage: http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/wageindex.html.

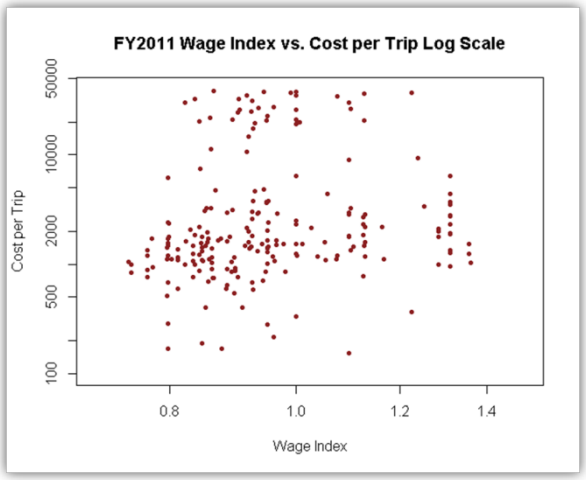
Figure 3.11: Scatterplot of Ambulance Cost per Trip against Hospital Wage Index, FY 2007 – FY 2011











3.4 Limitations of the Cost Report Data

Acumen's evaluation of ambulance data contained in Medicare cost reports reveals that the reports are significantly limited as a potential source to inform ambulance payment policy. First, as noted in Section 3.1, cost reports only include data for ambulance providers, which are those ambulance services owned and operated by hospitals or other health care institutions. The non-institutionally based ambulance suppliers are not represented in the cost reports, yet provide the vast majority of ambulance services and account for an increasing share of the ambulance market. In addition, there are long lags in the availability of complete cost reports.

Next, because less than 10 percent of hospitals report ambulance trips and costs in any given FY (see Table 3.1 and Figure 3.1), the analysis sample is not representative of the overall hospital population on key measures. Another limitation is that HCRIS cost report forms were revised in 2010 (2552-10 version). Acumen found that certain cost fields available on both the 2552-10 and previous 2552-96 forms were more populated after the 2552-10 version went into effect, complicating efforts to compare data over time.

Finally, the extremely broad range of hospitals' reported ambulance trip volume, total costs, and costs per trip suggest data quality issues and/or important differences among providers and services that drive payment but cannot be identified. Specifically, the cost report data:

(1) Do not distinguish between air and ground ambulance transports,

(1) Do not distinguish among types of ambulance trips (e.g., emergency/non-emergency, basic life support/advanced life support, etc.),

(2) Do not contain data on ambulance mileage,

(3) Do not distinguish ambulance services from other hospital services given shared resources,

(4) Do not break out ambulance-specific capital (e.g., the ambulance vehicles) from capital goods overall in cost reports,

(5) Do not contain data on the purchase and lease of ambulances and other related equipment, and

(6) Do not contain data on the wage rates of ambulance-service-specific employees.

Due to the limitations in the HCRIS annual cost report data regarding ambulance services, we do not believe cost reports offer sufficiently usable data to measure variation in the cost of furnishing ambulance services.

4 AMERICAN AMBULANCE ASSOCIATION FEASIBILITY STUDY

As discussed above, section 604(d)(1)(B) of the ATRA requires the Secretary to study the feasibility of obtaining cost data on a periodic basis from all ambulance providers and suppliers for potential use in examining the appropriateness of the Medicare add-on payments for ground ambulance services and in preparing for future reform of the AFS. Section 604(d)(3)(B) of the ATRA requires the Secretary to submit a report to Congress on this study, together with recommendations for such legislation and administrative action as the Secretary determines appropriate. The components of the study include: (a). consultation with industry on the design of the cost collection; (b). exploration of the use of cost surveys and cost reports to collect appropriate cost data and the periodicity of such cost data collection; (c). examination of the feasibility of development of a standard cost reporting tool for providers of services and suppliers of ground ambulance services; and (d). examination of the ability to furnish such cost data by various types of ambulance providers of services and suppliers, especially for rural and super-rural providers of services and suppliers. In conducting this study, Acumen reviewed a recent study of ambulance entities carried out by the American Ambulance Association (AAA), a trade group for ambulance entities. AAA worked with The Moran Company (TMC) under contract to conduct a feasibility study exploring ways to collect accurate cost data on ground ambulance entities.

4.1 Cost Reporting Feasibility

After interviewing and surveying the ambulance industry to assess whether using or expanding the Medicare cost reports to collect ambulance cost data would be feasible, TMC concluded that cost reporting as typically used in Medicare would not efficiently provide accurate cost data on ambulance services. Issues identified included:

(1) lack of standardization in terminology and data definitions describing ambulance services across the industry;

(2) limited administrative resources, making it difficult to produce detailed data, especially for an industry dominated by small operations at the National Provider Identifier (NPI) level;

(3) limited access to statistical and financial data for reporting due to the use of vendor software or accounting data maintained by other parts of the organization;

(4) difficulty of identifying ground ambulance as a cost center due to blending with other data, especially for fire department and hospital-based operations; and

(5) inability to cost out volunteer staff for comparisons with operations of all paid staff.

TMC determined that most ambulance operators would be unable to provide standard Medicare cost reporting and recommended a national data collection methodology, which TMC referred to as the "hybrid data collection method".

4.2 The Hybrid Method

TMC's recommended "hybrid method" uses two types of data collection:

- An initial mandatory short survey would be completed by all ambulance providers and suppliers billing Medicare. This survey would identify key characteristics relevant to collecting cost data, i.e., organizational type, service mix, service volume, and labor costs, and classify providers and suppliers based on these characteristics.
- A second in-depth survey of financial information, similar to that now collected on CMS's cost reports, would be collected from a sample of respondents to the first survey based on the classifications made. This second survey would be the basis of the periodic collection of statistical and cost data from this sample of ambulance providers and suppliers.

4.2.1 Initial Mandatory Survey

Using this method, TMC beta tested (the last stage of testing) the survey during its feasibility study. The initial survey was completed during the spring of 2013. The survey was conducted at the NPI level based on lists of ambulance providers and suppliers identified by AAA, with 9,821 surveys being administered. An NPI is a single 10-digit numerical identifier for providers and suppliers of health care services. It is national in scope and unique to the provider or supplier and used to identify ambulance providers and suppliers that submit claims to Medicare. These lists of ambulance providers and suppliers included AAA member companies as well as members of state associations.

TMC received completed surveys from over 200 ambulance providers and suppliers, comprising 385 valid NPIs, for a response rate of 2.9 percent. Although TMC acknowledges the low response rate, they determined that the survey was successful in providing a sufficient number of responses from various types of ground ambulance providers and suppliers to define a set of categories for sampling ambulance providers and suppliers for the second, more detailed survey of financial data.

The first question asked respondents to indicate whether they had access to NPI level data on service volume, revenues by payer, and cost data. This question filtered out respondents that did not have access to all three types of accounting data; such respondents' survey results were not included in the analysis. About 87 percent of those reporting indicated they could produce all three types of accounting data. TMC identified a number of characteristics that appeared to

influence "financial viability to deliver ambulance services": (i) organization type, (ii) use of volunteer emergency medical technician (EMT) labor, (iii) ambulance service volume, (iv) mix of Medicare emergency services, (v) proportion of non-emergency dialysis transports, (vii) average duration of transports, (viii) percentage covered by sole source contract, and (ix) local jurisdiction requirements.[38] Questions 2-9 are based on these characteristics. Based on the results of the short survey, TMC defined categories for sampling ambulance entities for the second survey. Table 4.1 presents the final categories as defined by TMC for the rest of the questions in the survey.

Table 4.1: Characteristics and Final Categories for Sampling Ambulance Entities

#	Characteristic	Final Categories
Q2	Organization Type	• Fire Department • Government • Hospital • Independent
Q3	Use of Volunteer EMT Labor	• Less than 20% • 20% or more
Q4	Ambulance Service Volume	• Low (<=2,500/year) • Medium (2,501-6,000/year) • High (>6,000/year)[39]
Q5	Mix of Medicare Emergency Services	• Mostly emergency • Mixed • Mostly non-emergency
Q6	Proportion of Non-emergency Dialysis Transports	• Less than 10% • 10% or more
Q7	Average Duration of Transports	• Low (<=60 min) • Medium (61-90 min) • High (> 90 min)
Q8	Percentage Covered by Sole Source Contract	• Less than 20% • 20% or more
Q9	Local Jurisdiction Requirements	• Yes • No

4.2.2 Second In-Depth Survey

TMC conducted a statistical and financial survey between the fall of 2013 and the spring of 2014. Forty-five entities accounting for 50 NPIs completed the survey. The response rate for this survey was too low, especially at the characteristic level, to yield representative data. Although most respondents were independent ambulance entities, the number of respondents was too small to yield quantitative results for analysis of financial data along the characteristics defined in the initial survey in Table 4.1.

[38] The Moran Company. "Beta Test Results for Survey of Ambulance NPIs for Key Characteristics: Update on Design for a 'Hybrid Data Collection Method' for the Ambulance Industry." September 2013.
[39] For this question, respondents were not limited to Medicare transports and included services that did not include a "transport" such as "treat and release".

While this beta testing of the "hybrid method" did not yield sufficient representative data to assess the validity of the two-survey data collection method, AAA found that it demonstrated the method's acceptability to the industry. AAA recommends an approach in which both surveys would be required and a penalty might be imposed for failure to respond to both surveys. AAA also recommends a five-year cycle for the initial characteristics survey, with a two-year cycle for collection of financial information.

5 EVALUATION OF AMBULANCE CLAIMS DATA

The next component of the second study required by the ATRA was to explore the use of cost surveys and cost reports to collect appropriate cost data and the periodicity of such cost data collection. In conducting this component of the study, Acumen interviewed entities in the ambulance industry. In preparation for identifying interview candidates, Acumen performed an analysis of Medicare claims records containing claims for ambulance trips in 2010 through 2012. For the analysis, Acumen used linked data from the Medicare Common Working File (CWF), the Provider Enrollment Chain and Ownership System (PECOS), and the National Plan & Provider Enumeration System (NPPES). All ambulance trip records from the CWF were extracted. Linking the CWF records to records from PECOS and NPPES yielded the identity (via the NPI) and various characteristics of each ambulance provider and supplier. These data were then used to describe the universe of ambulance claims and the characteristics of ambulance providers and suppliers.

5.1 Description of Ambulance Providers and Suppliers

As discussed in Section 3, among the limitations of cost report data are that they are not currently available for non-institutional ambulance suppliers and they do not distinguish among the various types of ambulance trips. They do not distinguish, for example, between air trips (in helicopters or fixed-wing aircraft) and ground trips, or between emergency and non-emergency trips.

Medicare claims data do not suffer from these limitations. Table 5.1 presents the number of ambulance entities that are institutional (i.e., providers such as hospitals and thus required to submit cost reports) and non-institutional (i.e., suppliers). These results confirm the first study's findings that institutional providers comprise a small percentage of the overall population of ambulance entities, as between 6 and 7 percent of ambulance entities in each year are institutional providers.

Table 5.1: Institutional and Non-Institutional Ambulance Counts

Category	2010		2011		2012	
	Count	Percent of Total (%)	Count	Percent of Total (%)	Count	Percent of Total (%)
All	10,945	100.0	10,980	100.0	10,991	100.0
Institutional	744	6.8	719	6.5	704	6.4
Non-institutional	10,201	93.2	10,261	93.5	10,287	93.6

Acumen also examined the percentage of trips accounted for by institutional providers and by non-institutional suppliers in 2012, and these results are reported in Table 5.2. These

results reflect a similar pattern, as institutional providers account for a little under 6 percent of ambulance trips.

Table 5.2: Trips by Institutional Status

Category	2012	
	Count	Percent of Total (%)
All	15,301,472	100
Institutional	866,076	5.7
Non-institutional	14,435,396	94.3

Another characteristic available in the claims data but not in the cost report data is mode of transport: air or ground. Acumen divided ambulance entities into three groups: those that bill Medicare only for ground transportation, those that bill Medicare only for air transportation, and those that bill Medicare for both types of transport. The distribution of these provider/supplier types is described in Table 5.3 below. Providers and suppliers billing exclusively for ground services make up almost 98 percent of ambulance entities. About one percent of ambulance entities bill for air services only, and another one percent bill for both air and ground services.

Table 5.3: Air and Ground Providers and Suppliers

Category	2010		2011		2012	
	Count	Percent of Total (%)	Count	Percent of Total (%)	Count	Percent of Total (%)
All	10,945	100.0	10,980	100.0	10,991	100.0
Ground Services	10,690	97.7	10,727	97.7	10,754	97.8
Air Services	118	1.1	111	1.0	98	0.9
Ground and Air Services	137	1.3	142	1.3	139	1.3

A key characteristic identified in both the first study and in previous work by GAO and MedPAC is the volume of services provided by an ambulance entity. Larger providers and suppliers by volume are able to take advantage of economies of scale that are not available to smaller providers and suppliers. Using claims data, ambulance entities can be categorized according to their Medicare volume, (generally only a portion of their overall volume). Table 5.4 shows the distribution of Medicare ambulance providers/suppliers by number of annual trips. This distribution is right-skewed, similar to the findings presented in Table 3.10 from the first study. Over 60 percent of ambulance entities make fewer than 600 Medicare trips annually. However, there are hundreds of ambulance entities who make more than 6,000 Medicare trips annually. This finding highlights the diversity in scale of operations among Medicare ambulance entities.

Table 5.4: Distribution of Provider/Supplier Trip Volume

Ambulance Trips per Year	2010		2011		2012	
	Count	Percent of Total (%)	Count	Percent of Total (%)	Count	Percent of Total (%)
All	10,945	100.0	10,980	100.0	10,991	100.0
1 to 500	6,876	62.8	6,843	62.3	6,875	62.6
501 to 2500	2,801	25.6	2,842	25.9	2,827	25.7
2501 to 4000	464	4.2	459	4.2	451	4.1
4001 to 6000	278	2.5	292	2.7	290	2.6
> 6000	526	4.8	544	5.0	548	5.0

Another way of illustrating this diversity in scale is provided in Table 5.5, which presents descriptive statistics for trips per provider/supplier. The number of Medicare ambulance trips made by a provider or supplier varies from a single trip to over 100,000 Medicare trips annually. The median number of trips is much lower than the mean number, again illustrating the skewed nature of trip volume. Twenty-five percent of providers/suppliers make fewer than 72 Medicare trips per year.

Table 5.5: Descriptive Statistics of Provider/Supplier Trip Volume

Parameter	Trips per Provider/Supplier		
	2010	2011	2012
Minimum	1	1	1
1st Quartile	72	74	73
Median	264	275	270
3rd Quartile	915	951	933
P95 -95th Percentile	5,797	5,902	5,971
Maximum	160,135	167,710	179,939
Mean	1,364	1,393	1,394
Standard Deviation	4,657	4,637	4,711

5.2 Description of Ambulance Trips

The claims data also contain information on the characteristics of the trips. Such information is absent from cost reports and, therefore, from the first study.

The rurality of the pick-up location (a characteristic significant for reimbursement as described in Section 2) is available in the claims data. The distribution of this characteristic is presented in Table 5.6. About 5 percent of ambulance trips originate in a super-rural ZIP code, about 20 percent in a rural ZIP code, and about 75 percent in an urban ZIP code.

Table 5.6: Distribution of Trip Rurality

Rurality	2010		2011		2012	
	Count	Percent of Total (%)	Count	Percent of Total (%)	Count	Percent of Total (%)
Super Rural	674,027	4.52	690,526	4.51	692,587	4.52
Rural	2,911,545	19.51	3,025,552	19.78	3,092,144	20.18
Urban	11,339,973	75.98	11,582,400	75.71	11,539,151	75.30

Another characteristic used in reimbursement and likely important for costs is the length of the ambulance trip (in miles). The distribution of this characteristic is summarized in Table 5.7. Since the data on miles travelled contained a small number of implausible and impossible values, Acumen elected to perform a one percent symmetric trim, removing the top one percent and bottom one percent of the trip distances before compiling Table 5.7. This table shows that the median trip length was about five miles and the mean trip length was significantly higher at about nine miles. Thus, the distribution of trip lengths appears to be skewed. Furthermore, trip lengths vary greatly, with 25 percent of trips traversing less than three miles and 5 percent of trips traversing more than 31 miles.

Table 5.7: Distribution of Trip Distance (1% trim)

Parameter	Ground Mileage per Trip (miles)		
	2010	2011	2012
Minimum	0.2	0.2	0.2
- 5th Percentile	1.0	0.8	0.8
– 1st Quartile	3.0	2.4	2.4
Median	5.0	5.0	5.1
– 3rd Quartile	11.0	11.0	11.0
– 95th Percentile	31.0	31.0	31.0
– 99th Percentile	57.0	56.2	56.4
Maximum	77	77	77
Mean	9.05	8.94	8.97
Standard Deviation	10.85	10.86	10.88

Another important characteristic for reimbursement is the level of service provided by the ambulance provider/supplier. There are a variety of service levels under the AFS as shown in Table 5.8 below. Both Basic Life Support (BLS) and Advanced Life Support (ALS) may be provided in either an emergency or a non-emergency transport. Table 5.8 presents the distribution of these characteristics among ambulance trips for the three years of Acumen's study. The BLS service levels are by far the most common ones, accounting for about 60 percent of trips. The ALS levels account for around another 38 percent of trips. The other levels of service account for very small proportions of the total trips.

Table 5.8: Distribution of Service Types

Service Type	2010		2011		2012	
	Count	Percent of Total (%)	Count	Percent of Total (%)	Count	Percent of Total (%)
BLS	6,259,797	41.92	6,382,498	41.73	6,357,097	41.49
BLS-Emergency	2,784,593	18.65	2,891,277	18.90	2,872,090	18.74
ALS 1	388,526	2.60	374,222	2.45	367,536	2.40
ALS 1-Emergency	5,179,748	34.69	5,312,351	34.73	5,388,341	35.17
ALS 2-Emergency	130,703	0.88	129,924	0.85	127,194	0.83
Specialty Care Transport	105,135	0.70	116,741	0.76	117,529	0.77
Paramedic ALS Intercept	3,172	0.02	3,133	0.02	3,161	0.02
Air Service Fix Wing	11,464	0.08	12,305	0.08	12,485	0.08
Air Service Rotary	70,434	0.47	73,544	0.48	76,891	0.50

The claims data also have information about the settings that characterize both the origin of the trip and its destination. Table 5.9 lists the eight most common origin-destination pairs in the data. The most common type of ambulance trip, accounting for about 29 percent of trips, starts at a residence and ends at a hospital. These trips are disproportionately emergency trips, although this information is not depicted in Table 5.9. Another common trip type, accounting for about 7 percent of trips, starts at the scene of an accident or other acute event and ends at a hospital. Again, these trips tend to be emergency trips. Another 22 percent of trips are accounted for by moving patients between hospitals and nursing homes. These trips are less likely to be emergency trips. Another 9 percent or so of trips carry patients back and forth between their residences and dialysis centers. Again, these trips tend not to be emergency trips.

Table 5.9: Top 8 Origin-Destination Pairs

Pick-up/Destination	2010		2011		2012	
	Count	Percent of Total (%)	Count	Percent of Total (%)	Count	Percent of Total (%)
Residence--Hospital	4,787,882	28.86	4,879,831	28.86	4,881,681	29.07
Hospital--Skilled nursing facility	1,982,364	11.95	2,000,741	11.83	1,890,278	11.26
Skilled nursing facility--Hospital	1,699,989	10.25	1,680,462	9.94	1,592,446	9.48
Scene of accident or acute event--Hospital	1,176,979	7.09	1,223,932	7.24	1,279,844	7.62
Hospital--Hospital	1,179,097	7.11	1,221,506	7.22	1,194,067	7.11
Residence--Non-hospital dialysis center	729,394	4.40	731,478	4.33	803,636	4.79
Non-hospital dialysis center--Residence	717,867	4.33	723,680	4.28	794,687	4.73
Hospital--Residence	604,422	3.64	602,977	3.57	585,221	3.48

Table 5.10 presents the geographic distribution of ambulance trips. This geographic distribution roughly mirrors the geographic distribution of Medicare enrollees generally.[40]

Table 5.10: Geographic Distribution of Trips

Census Division	2010		2011		2012	
	Count	Percent of Total (%)	Count	Percent of Total (%)	Count	Percent of Total (%)
East North Central	2,319,676	17.19	2,379,360	17.09	2,382,823	17.08
East South Central	1,121,211	8.31	1,167,187	8.39	1,160,350	8.32
Middle Atlantic	2,052,470	15.21	2,137,014	15.35	2,127,418	15.25
Mountain	382,583	2.84	390,349	2.80	394,478	2.83
New England	1,017,239	7.54	1,044,080	7.50	1,032,418	7.40
Pacific	1,510,565	11.20	1,590,992	11.43	1,649,245	11.82
South Atlantic	3,012,478	22.33	3,210,230	23.06	3,338,195	23.92
West North Central	503,806	3.73	518,953	3.73	531,664	3.81
West South Central	1,571,083	11.65	1,481,659	10.64	1,337,251	9.58

5.3 Summary of Claims Data Evaluation

Claims data provide significant advantages over cost report data for identifying and characterizing the population of ambulance providers and suppliers. Medicare cost report data capture only about 6 percent of ambulance entities since ambulance suppliers are not currently required to submit cost reports. Furthermore, cost report data do not distinguish between air and ground ambulance services, between different types of ground ambulance service, between emergency and non-emergency trips, between different lengths of trips, between different ruralities, and between different types of trip origin and destination. These disadvantages are particularly pertinent as many of these characteristics are likely related to costs and are also important for reimbursement. Thus, Acumen elected to use the claims data as the basis for selecting interview candidates in this study. Section 6 details Acumen's algorithm for selecting interview candidates.

[40] For the distribution of Medicare enrollees by Census Division, see Table 2.7 of the 2013 Edition of *Medicare & Medicaid Statistical Supplement.* Downloaded from http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/MedicareMedicaidStatSupp/Downloads/2013_Section2.pdf#Table2.7 on April 30, 2014.

6 AMBULANCE INDUSTRY INTERVIEWS

To complement TMC's beta test of its hybrid method, Acumen conducted interviews with entities in the ambulance industry to assess the feasibility of obtaining cost information from all ambulance providers and suppliers. Section 6.1 describes Acumen's methodology for selecting ambulance entities based on their NPIs to represent a broad range of the ambulance industry. Section 6.2 summarizes responses to Acumen's requests for interviews with the selected ambulance entities. Section 6.3 concludes with a discussion of the findings. Appendix B presents the interview protocol developed to facilitate the collection of consistent feedback from the ambulance entities selected for interview.

6.1 Selecting Interview Candidates Representative of the Industry

Acumen's study plan included interviewing nine ambulance entities. In survey research, the most common way of ensuring representativeness of a sample is to collect a fairly large random sample of the population of interest; however, this method was not feasible in this study.

Acumen chose to facilitate the selection of ambulance entity interview candidates that are representative of the ambulance industry using cluster analysis. Given a sample this small, random sampling would not ensure that the sample is representative of the overall population. There are over 10,000 ambulance providers and suppliers enrolled in Medicare. Thus, Acumen performed a cluster analysis to group ambulance NPIs into clusters based on the types of ambulance services they deliver. Then, the most representative entities in each cluster were selected as interview candidates. Section 6.1.1 explains the data and methodology used for the cluster analysis. Section 6.1.2 presents the results of the cluster analysis. Section 6.1.3 lists the interview candidates identified through the cluster analysis.

6.1.1 Cluster Analysis Methodology

Cluster analysis is a statistical procedure that divides a set of objects into a number of groups using measured characteristics of the objects. Any measurable characteristic, such as size, color, shape, and genotype, could be used. In dividing the objects into groups, cluster analysis seeks to make objects as similar as possible within groups and as different as possible between groups. Essentially, the procedure looks for natural clusters of the objects and then divides them accordingly. A cluster analysis requires a dataset with one observation per object and one or more measured characteristics for each object.

In this application, the objects to be divided up were ambulance entities. The characteristics chosen to describe these entities needed to be measured in the claims data and potentially relevant to the costs of providing the services, to reimbursement, or to both. The characteristics measured for each ambulance entity were: (i) rurality, (ii) service type, (iii)

mileage quartile, (iv) pick-up locations, and (v) destinations. Table 6.1 lists these five characteristics along with the variables with which these characteristics were measured.

Table 6.1: Cluster Analysis Measured Characteristics and Variables

Measured Characteristics	Variables
Rurality	Percentage of total trips originating in • urban locations • rural locations • super-rural locations
Service Type	Percentage of total trips providing • non-emergency BLS • non-emergency ALS • emergency BLS • emergency ALS
Mileage Quartile	Percentage of total trips with mileage in • the 1st quartile of trip length • the 2nd quartile of trip length • the 3rd quartile of trip length • the 4th quartile of trip length
Pick-up Locations	Percentage of total trips originating at • a hospital dialysis center • a non-hospital dialysis center • a hospital • a skilled nursing facility • a residential location • the scene of an event/accident
Destinations	Percentage of total trips ending at • a hospital dialysis center • a non-hospital dialysis center • a hospital • a skilled nursing facility • a residential location • the scene of an event/accident

These characteristics were used to divide the ambulance entities into 6 groups or clusters. Standard cluster analysis provides both a division of the objects into groups and also a measure of how close each object is to the center of its group, i.e., a measure of how representative each object is of its group. In addition to dividing ambulance entities into groups, Acumen also searched within each group for the entities that were closest to the centers of their respective groups. These most representative entities were then targeted for interviews.

6.1.2 Cluster Analysis Results

Tables 6.2 and 6.3 summarize the results of the cluster analysis described in Section 6.1.1. Table 6.2 presents the number of entities grouped into each of the 6 clusters, as well as the average annual number of trips for each of the six clusters.

Table 6.2: Summary of Clusters

Cluster	Number of Entities	Average Annual Number of Trips
1	890	1,539
2	1,219	5,182
3	482	775
4	2,550	2,188
5	678	668
6	314	2,619
Overall	6,133	2,432

Table 6.3 summarizes ambulance clusters' characteristics. Based on the characteristics that best describe the average ambulance NPI grouped to each cluster, the 6 clusters were assigned the following names, as listed in the second column: (i) Rural Emergency and Non-Emergency Transports, (ii) Urban Non-Emergency Transports, (iii) Rural Distant Emergency Transports, (iv) Urban Emergency Transports, (v) Super-Rural Emergency and Non-Emergency Transports , and (vi) Rural Non-Emergency Transports.

Table 6.3: Characteristics of Clusters

Cluster	Assigned Name	Cluster Characteristics				
		Rurality	Services	Mileage	Pick-Up	Destination
1	Rural Emergency and Non-Emergency Transports	Rural (89.3%)	Mix	Mix	Mix	Hospital (89.0%)
2	Urban Non-Emergency Transports	Urban (92.3%)	Non-Emergency (82.2%)	Mix	Institution (71.0%)	Institution, Residence (100.0%)
3	Rural Distant Emergency Transports	Rural (87.5%)	Emergency (84.3%)	Highest Quartile (83.0%)	Mix	Hospital (94.0%)
4	Urban Emergency Transports	Urban (96.1%)	Emergency (78.0%)	Mix	Mix	Hospital (97.0%)
5	Super-Rural Emergency and Non-Emergency Transports	Super-Rural (87.1%)	Mix	Highest Quartile (52.0%)	Mix	Hospital (89.0%)
6	Rural Non-Emergency Transports	Rural (83.0%)	Non-Emergency (76.2%)	Highest Quartile (47.0%)	Institution (73.0%)	Institution, Residence (100.0%)

Tables 6.4 through 6.8 present more detailed information on the average rurality, service type, mileage quartile, pick-up location, and destination proportions, respectively, of each cluster.

Table 6.4: Average Rurality Proportion by Cluster

Cluster	Average Rurality Proportion

	Super-Rural (%)	Rural (%)	Urban (%)
1	3.3	89.3	7.4
2	1.4	6.2	92.3
3	2.3	87.5	10.2
4	0.8	3.2	96.1
5	87.1	5.9	7.0
6	4.1	83.0	12.8
Overall	11.1%	27.3%	61.6%

Table 6.5: Average Service Type Proportion by Cluster

Cluster	Average Service Type Proportion			
	BLS (%)	BLS Emergency (%)	ALS (%)	ALS Emergency (%)
1	12.7	28.1	5.1	51.7
2	80.0	8.2	2.2	8.1
3	7.3	26.7	3.7	57.6
4	3.9	35.6	1.1	57.8
5	11.0	25.9	6.4	52.1
6	73.1	8.6	3.1	13.4
Overall	24.9	25.9	2.8	44.1

Table 6.6: Average Mileage Quartile Proportion by Cluster

Cluster	Average Mileage Quartile Proportion			
	1st Quartile (%)	2nd Quartile (%)	3rd Quartile (%)	4th Quartile (%)
1	36.0	20.0	18.0	26.0
2	21.0	23.0	26.0	30.0
3	5.0	3.0	9.0	83.0
4	20.0	25.0	32.0	23.0
5	29.0	10.0	9.0	52.0
6	23.0	14.0	16.0	47.0
Overall	23.0	20.0	24.0	34.0

Table 6.7: Average Pick-Up Location Proportion by Cluster

Cluster	Average Pick-Up Location Proportion					
	Hospital Dialysis (%)	Hospital (%)	Dialysis (%)	SNF (%)	Residence (%)	Scene (%)
1	0.0	20.0	1.0	12.0	50.0	10.0
2	2.0	34.0	19.0	16.0	22.0	1.0

Cluster	Average Pick-Up Location Proportion					
	Hospital Dialysis (%)	Hospital (%)	Dialysis (%)	SNF (%)	Residence (%)	Scene (%)
3	2.0	16.0	1.0	9.0	57.0	11.0
4	0.0	5.0	0.0	8.0	64.0	16.0
5	1.0	27.0	1.0	9.0	46.0	10.0
6	10.0	32.0	19.0	17.0	25.0	2.0
Overall	4.0	18.0	5.0	11.0	49.0	10.0

Table 6.8: Average Destination Proportion by Cluster

Cluster	Average Destination Proportion					
	Hospital Dialysis (%)	Hospital (%)	Dialysis (%)	SNF (%)	Residence (%)	Scene (%)
1	0.0	89.0	1.0	6.0	2.0	0.0
2	2.0	29.0	19.0	24.0	21.0	0.0
3	0.0	94.0	0.0	3.0	2.0	0.0
4	0.0	97.0	0.0	2.0	1.0	0.0
5	0.0	89.0	1.0	4.0	2.0	0.0
6	1.0	35.0	19.0	22.0	18.0	0.0
Overall	1.0	78.0	5.0	8.0	6.0	0.0

6.1.3 Interview Candidates

Utilizing the results of the cluster analysis, Acumen selected potential interview candidates by identifying 10 ambulance entities from each of the 6 clusters that best represented each cluster's characteristics. Additionally, Acumen identified the top 10 ambulance entities by service volume for a total of 70 potential interview candidates.

6.2 Responses to Interview Requests

Acumen aimed to conduct interviews with 9 ambulance organizations. Six of the 9 ambulance entities to be interviewed would represent each of the 6 ambulance clusters previously described. The seventh and eighth interviewees would represent an ambulance entity with a large regional service volume and an ambulance entity with a large national market share of the ambulance industry. The ninth interviewee would represent a large supplier of air medical emergency transport throughout the nation.

Beginning in March 2014, Acumen sent out interview requests to 9 representative organizations that Acumen considered ideal interview candidates. From this initial outreach, Acumen only received a response from one entity, a large ambulance service supplier with a presence throughout the nation.

Following the lack of response from this initial outreach, Acumen sent out interview requests in April 2014 to the remaining 61 ambulance entities identified. To increase response rates, Acumen also sent out the interview protocol along with the interview requests and encouraged ambulance companies to send back written responses to the interview protocol. From this second outreach, Acumen received two additional responses, from a large supplier of air medical emergency transport services and a large regional supplier. None of the interviewees represented the 6 clusters from Acumen's analysis.

In summary, out of the 70 interview requests sent to ambulance companies, Acumen received responses from only three companies. This 4.2 percent response rate is similar to TMC's 2.9 percent survey response rate as part of its beta test survey of ambulance entities.

6.3 Discussion of Interview Findings

As discussed in Section 6.2, three companies responded to Acumen's interview requests: a large ambulance service supplier with a presence throughout the nation, a large supplier of air medical emergency transport services, and a large regional ambulance supplier. The volume of transports provided by these companies ranged from around 53,000 to several million transports per year. Of these total transports, these companies provided a range of 17,000 to over a million Medicare transports annually. All three are independent ambulance suppliers and not associated with a hospital, fire department, or another government agency. The service area for the two ground ambulance entities for Medicare services is predominantly urban, while the air ambulance entity service area is largely rural. As a revenue source, Medicare reimbursements comprised between 17 and 52 percent of total revenue for these entities. However, none of the entities has submitted Medicare cost reports.

All three ambulance companies have direct access to their own cost data and could report statistical, revenue, and cost data at the NPI level. One entity pointed out that reporting cost data could be challenging as it can be difficult to separate costs into emergency and inter-facility (predominantly non-emergency), or into ALS and BLS transports. When ambulances are used to address emergencies, they can be leveraged for inter-facility transports to fill up dead time. Additionally, ambulances need to be able to support ALS emergency operations at all times, including staffing at the ALS level. However, for transports that will be billed using a BLS HCPCS code, it can be difficult to determine what component of the cost accounts for the entity being in an ALS state of readiness.

Additionally, one of the entities was especially concerned about the need to standardize cost data to ensure that comparisons can be made between different ambulance entities. To illustrate this point, the entity discussed the notion of a 'triangle', with those developing system specifications (e.g., fire chiefs, county board supervisors) at the top corner and with payers and

ambulance entities at the bottom corners. Those on the bottom of the triangle have no influence over the specifications and must pay and operate within that environment. These specifications need to be standardized within the industry. In fact, some ambulance entities have already collaborated to build consolidated report templates, and additional entities approve of this sort of collaboration.

While cost components account for different shares of total costs for the different companies, all of the companies interviewed track costs frequently and on a detailed level. One of the ambulance entities tracks costs on a quarterly basis, as the company is publicly traded, while the others track costs on a weekly, monthly, quarterly, and annual basis. All the companies interviewed track labor, capital, consumables, and fuel, with one entity tracking a few hundred categories. Among the largest cost components, personnel accounts for between 40 and 70 percent of total costs for the three companies interviewed. The lease and maintenance of vehicles account for between 6 and 23 percent of costs. Administrative costs account for between 3 and 16 percent of total costs. Medical supplies, equipment, and communication account for between 3 and 4 percent of total costs.

All the companies agreed that the current Medicare cost reports should not be used for data collection purposes, as they fail to take into account the uniqueness of their industry and important drivers of their costs. For example, the air ambulance supplier pointed out that most of its costs are fixed and are comprised mostly of capital and personnel costs. For the ambulance industry, utilization of services is a key driver of costs, as vehicles are less accessible the more they are utilized. Air ambulance entities in particular face complex logistics, as they need to devote considerable time to matching areas of demand for services with locations of their bases and resources, as well as perform small and heavy maintenance on a regular basis.

To address the inadequacy of using the current Medicare cost reports to collect data on ambulance entities' costs, all of the companies were willing to respond to surveys seeking cost data and information. Some of the information that would be provided in such surveys are already submitted elsewhere; e.g., to the U.S. Securities and Exchange Commission (SEC). For most cost components, for example, direct costs, reporting would be quite straightforward. However, cost reporting becomes more nuanced for overhead costs because there are different models that can be used to allocate overhead. Therefore, as previously discussed, standardization would be needed to enable comparisons between ambulance entities. Another possible issue might be the time involved for completing such surveys, depending on the level of detail required. Additionally, two companies noted that they do not support the idea of using a random sample to collect data on costs. Instead, to provide an accurate picture of costs in the industry, they believe that providing this information should be mandatory and add-on payments should be tied to the ability to provide cost data. One company suggested quarterly or annually

as the ideal frequency for collecting the data. Cost reports are currently submitted annually based on the provider's cost reporting period and annual reports provide a more consistent basis for comparison due to considerable seasonality related to weather. The other two companies suggested that while an annual system would be ideal, collecting the data every two or three years may be adequate.

6.4 Challenges to Development of a Standard Cost Reporting Tool and Ability to Furnish Cost Data

Under section 604(d)(2)(C) of the ATRA, the Secretary is required to examine the feasibility of developing a standard cost reporting tool for providers and suppliers of ground ambulance services. To be effective, such a tool must be able to take into account the special characteristics of the industry. Specifically, the tool must address the importance of readiness costs, frequency and levels of transports, volunteer labor, economies of scale, contractual requirements around response time, and the different models that can be used to calculate overhead.

In addition, the tool must account for likely cost differences among the different segments of the industry that the analysis of claims data and development of clusters revealed. Sections 5 and 6.1 depict the wide distribution of characteristics of ambulance providers and suppliers. Providers and suppliers can be institutional or non-institutional; provide air, ground, or both air and ground services; make less than 500 (62.6 percent of providers in 2012) or more than 6,000 (5 percent of providers in 2012) annual Medicare trips; pick up beneficiaries in urban, rural, or super-rural locations; traverse less than three miles per trip (25 percent of trips) or more than 31 miles per trip (5 percent of trips); and provide a variety of service levels, including BLS and ALS, either of which may be provided in an emergency or non-emergency setting. An ambulance provider or supplier specializing in scheduled, non-emergency transports, for instance, probably has different cost structures than does an ambulance provider or supplier specializing in responding to emergency calls or an ambulance provider or supplier that responds to all kinds of calls. Acumen aimed to conduct interviews with six entities that would represent each of the ambulance clusters, with three additional interviewees representing larger entities. The three responses Acumen received were from a large ambulance service supplier with a presence throughout the nation, a large supplier of air medical emergency transport services, and a large regional ambulance supplier. Unfortunately, none of the interviewees represented the six clusters from Acumen's analysis.

Additional challenges include level of detail, standardizing cost measures, and low response rates. The cost reporting tool must be comprehensive enough to capture the heterogeneity in the industry without being so burdensome that small providers and suppliers with limited resources are unable to complete it. In addition, significant effort must be devoted

to defining standardized cost measures for the industry and then effectively communicating these cost measures to the ambulance providers and suppliers. Moreover, the industry has a history of low response rates to surveys and interviews, especially among the smaller providers and suppliers. As described in Section 6.2, Acumen received a very limited number of responses to interview requests. Acumen's outreach yielded three responses out of 70 ambulance providers and suppliers, a response rate of 4.2 percent. This 4.2 percent response rate is similar to TMC's 2.9 percent survey response rate as part of its beta test survey of ambulance NPIs.

Under section 604(d)(2)(D) of the ATRA, the Secretary is required to examine the ability to furnish cost data by various types of providers and suppliers, especially by rural and super-rural providers/suppliers. Based on Acumen's interviews, larger suppliers are able to furnish cost data, as they have standardized computer databases, which are used to track their production of ambulance services and the costs associated with that production. There are likely differences in terminology and definitions across providers and suppliers, which would have to be addressed in any cost reporting methodology. With respect to the smaller, rural, and super-rural providers and suppliers, Acumen was unable to form conclusions about their ability to provide data since no smaller, rural, or super-rural providers responded to Acumen's interview requests.

Due to the challenges described in this report, while it may be technically feasible to develop a standard cost reporting tool or obtain cost data from all ambulance providers and suppliers, it would be difficult to do so in a cost-effective manner and would be unlikely to yield comprehensive data from across the industry.

7 EXISTING AMBULANCE INDUSTRY COST INFORMATION SOURCES

At present, there does not appear to be a consistent national database of ambulance service costs. CMS does not collect cost reports from ambulance suppliers (i.e., non-institutionally based entities). Various groups do conduct occasional surveys, and some states and other government entities collect cost data from ambulance companies. While the AAA is developing and fielding a national survey, there is currently no comprehensive national source of data on ambulance costs. This section discusses existing information on ambulance industry costs from several sources: a 2012 GAO report, a 2007 U.S. Census Bureau Economic Survey, a consulting report from the company IBISWorld, and a Bureau of Labor Statistics Occupational Employment Survey (OES).

The ambulance industry is labor-intensive. In the survey GAO conducted for its 2012 report,[41] it found that labor costs accounted for 61 percent of ambulance industry costs. In its 2014 report on the ambulance industry,[42] IBISWorld found that labor accounted for about 40 percent of industry costs. The U.S. Census Bureau, in its 2012 Economic Census[43]found that payroll for ambulance services accounted for 41 percent of total revenue. Assuming that IBISWorld's calculation of an average profit margin of 8.2 percent is correct for this industry, this would amount to 45 percent of costs.

Table 7.1 reports the percentage of total costs accounted for by various categories of inputs as reported in the GAO and IBISWorld reports. Though these reports do not have fully comparable categorizations of costs, they reveal that, in addition to labor, important cost categories include supplies, vehicles, fuel, and buildings.

Table 7.1 Percentage of Total Costs by Input Category

GAO Report		IBISWorld Report	
Category	**Percentage of Costs (%)**	**Category**	**Percentage of Costs (%)**
Labor	61	Labor	40
Supplies	7	Purchases	22
Vehicle excluding fuel	7	Depreciation	5
Fuel	4		
Building	5	Rent/Utilities	4
Overhead/Admin	11	Other	29
Other	5		

Some of these categories involve goods that are likely sold in a national market with fairly uniform prices (e.g., ambulance vehicles and medical supplies). By contrast, some of these categories involve goods whose prices vary from location to location (e.g., labor, fuel, and buildings).

7.1 Labor Costs

The Bureau of Labor Statistics OES database[44]contains information on employment and wages in many industries across occupations and geographical areas. The ambulance industry, corresponding to North American Industry Classification System (NAICS) code 621910, appears in this database. This database can be used to examine which occupations are common in the ambulance industry, what their wages are, and how these wages vary across the country.

Table 7.2 presents information from the OES database for the ambulance industry. The 2013 OES reports that the ambulance industry employs a total of 162,090 workers. These workers are divided into a number of occupations. All of the occupations with employment in

[41] *Ibid* 6.
[42] *Ibid* 8.

the ambulance industry of at least 1,000 workers are presented in Table 7.2. Together, these account for over 90 percent of employment in the industry. The table presents a shortened description of each occupation, the occupation's Standard Occupation Code (SOC), the number of workers from that occupation working in the ambulance industry in May 2013, the mean annual wage of that occupation in the ambulance industry, and the standard deviation of the average wage in that occupation across the various geographical areas tracked by the OES database.[45]

Table 7.2: Ambulance Industry Data from OES

Occupation	SOC Code	Employment	Mean Annual Wage ($)	Standard Deviation ($)
All Occupations		162,090		
EMT & Paramedic	29-2041	113,460	31,540	7,139
Ambulance Drivers	53-3011	11,060	24,010	4,897
Ambulance Dispatchers	43-5031	5,940	34,540	8,850
Registered Nurses	29-1141	3,450	67,090	12,168
Bill Clerk	43-3021	2,840	31,110	4,019
Pilots	53-2012	2,740	71,450	19,572
General & Operations Managers	11-1021	2,230	90,890	18,563
Office Clerk	43-9061	1,420	28,630	3,783
Office Manager	43-1011	1,400	51,980	5,983
Medical & Health Services Manager	11-9111	1,300	78,050	14,643
Bill Collector	43-3011	1,220	34,170	4,738

The most common occupation in the ambulance industry, accounting for 113,460 workers (70 percent of industry employment), is SOC 29-2041, Emergency Medical Technicians (EMTs) and Paramedics." EMTs and Paramedics made, on average, $31,540 per year in 2013. Other common occupations in this industry are SOC 53-3011, Ambulance Drivers and Attendants, Except Emergency Medical Technicians, and SOC 43-5031, Police, Fire, and Ambulance Dispatchers. Because both ground and air ambulance entities are included in this industry code set, there are a number of ambulance pilots included under SOC 53-2012, Commercial Pilots. Though there are not quite enough of them to make the cut-off for inclusion in the table, the ambulance industry also employs mechanics, both aircraft mechanics (SOC 49-3011) and several types of terrestrial vehicle mechanics (SOCs 49-3020, 49-3023, 49-3031, 49-9071).

Across occupations, workers earned different amounts in different parts of the U.S. in 2013. For example, nationally, the average wage for EMTs and paramedics had a standard deviation of $7,139 dollars. In 10 percent of locations, workers in this occupation earned less than $25,690 per year on average. In another 10 percent of locations, workers in this occupation earned more than $40,300 per year. Therefore, there was considerable variation in the amount EMTs and paramedics earned in different parts of the U.S. This pattern is repeated for the other

occupations in the table. In each case, there was significant variation in average wages from place to place in the U.S.

7.2 Economies of Scale and Cost of Readiness

Based on the nature of the industry, it seems likely that there are significant economies of scale challenges, at least at low volumes of service. For example, routine maintenance and repair of vehicles may be less expensive per vehicle if a mechanic's time can be spread over many vehicles. Management of inventory like medical supplies is generally less expensive per unit, the larger the inventory being managed. Similarly, human resources functions are a frequently mentioned source of economies of scale. Many of these considerations apply not only to the ambulance industry but to other industries as well.

In the case of the ambulance industry, the so-called cost of readiness provides a particularly strong reason to believe that there are substantial economies of scale challenges, especially for small operations having low volumes of service Cost of readiness is the cost incurred to ensure that there is an ambulance ready to respond to emergency calls at all times.

Ambulance companies that take emergency calls are typically contracted by local governments to provide this service. The local governments generally require that the ambulance company have ambulances available 24 hours a day, seven days a week, to respond to calls. Furthermore, local governments often set standards for response times for the ambulance companies. To ensure that an ambulance is available at all times with a reasonable response time, it is necessary for the ambulance company to have, locally, an ambulance with staff on hand at all times. Consider two locations, one that generates two calls a day and one that generates twenty calls a day. Suppose that each of the two locations is served by an identical ambulance with identical staffing. The cost of keeping an ambulance staffed and ready all day in the two-call location can only be spread over those two calls. The cost of staffing the ambulance all day in the twenty call location can be spread over those twenty calls. If there are no variable costs of responding to calls, the ambulance with twenty calls a day will have costs per call that are ten times lower than will the ambulance with two calls per day. With the exception of supplies and fuel, the costs in Table 7.1 do not appear to be variable in this example; labor is not variable in this example since the ambulance must be staffed whether it is used or not. So, at low call volumes at least, economies of scale challenges seem likely.

Because full utilization of ambulances is so important to controlling per-call costs, measures of capacity utilization are often calculated. For example, an ambulance company may keep track, over a period of a week or a month, of how many staffed hours of ambulance time it provides. In addition, over the same time period, it may keep track of how many calls the ambulance responded to. The quotient of these two data points, calls per staffed hour, is a

measure of how intensively the company's ambulances are being used. The higher this number, the lower the costs per call should be.

In the 2012 GAO report discussed above, these questions of economies of scale were considered. The GAO found very large variations between ambulance companies in costs per trip. Median costs per transport were found to be $429, but they ranged from a low of $224 to a high of $2,204 per trip. This finding echoed the finding of a previous GAO report on ambulance costs in 2007.[46] Furthermore, GAO found evidence of economies of scale challenges in the provision of ambulance services, particularly among ambulance entities with a low volume of service.

7.3 Recommendations Based on Existing Sources

Because ambulance services are labor intensive, any cost reporting mechanism should collect wage information on the key categories of labor in the industry. These data could be collected in a way that would enable CMS to assess geographic variations in wage costs. Alternatively, data for these wage measures are available from the Bureau of Labor Statistics; however, it should be noted that these data are based on the MSA and not the more granular ZIP code level on which Medicare payment for ambulance transports is currently based. Additionally, because of the importance of the costs of readiness in this industry and because call volumes differ from place to place, any cost reporting mechanism should collect information on calls per staffed hour (or a similar capacity-utilization measure). This measure could be collected in relation to a geographical area (for example urban versus rural ZIP codes), which may enable CMS to assess the need for adjusting payments for the higher costs of readiness in lower volume (presumably rural) locations.

8 SUMMARY OF FINDINGS AND CONCLUSION

To fulfill the requirements of section 604(d)(1)(A) of the ATRA, the Secretary contracted with Acumen to conduct a study that analyzed data on existing cost reports for ambulance services furnished by hospitals and CAHs, including variation in utilization and costs by key hospital characteristics. This report presents Acumen's analysis of these data and explains the limitations that make HCRIS annual cost report data insufficient to inform ambulance payment policy. Cost reports provide insight into a small and non-representative sample of all ambulance services. They are subject to significant reporting lags, which make it difficult to capture timely information. Cost reports also lack information on the types, levels, and travel distances for ambulance services, which is critical to evaluating ambulance payment policy as current payments are based on these distinctions. Thus, due to the numerous data limitations discussed

above, using existing HCRIS annual cost report data to inform ambulance payment policy does not appear to be an effective approach.

In response to the Congressional directive at section 604(d)(1)(B) of the ATRA, the Secretary contracted with Acumen to assess the feasibility of obtaining more complete and detailed cost data on a periodic basis from both ambulance providers and suppliers for potential use in evaluating the appropriateness of Medicare add-on payments for ground ambulance services, and in preparing for future reform of the AFS. As part of this study, Acumen reviewed a recent study of ambulance entities carried out by AAA, as discussed in section 4 of this report. AAA's analysis concluded that most ambulance entities would be unable to provide standard Medicare cost reporting, and recommended instead a "hybrid data collection method." In addition, Acumen conducted interviews with ambulance entities. Three companies responded to Acumen's interview requests, which were based, in part, on cluster analysis using claims data. All three companies (none of whom were identified through the cluster analysis) agreed that the current Medicare cost reports should not be used, as they fail to take into account the uniqueness of their industry and important drivers of their costs. Based on Acumen's interviews, larger suppliers are able to furnish cost data; however, there are likely differences in terminology and definitions across providers and suppliers, which would have to be addressed in any cost reporting methodology. Acumen was unable to form conclusions about the ability of smaller, rural and super-rural providers and suppliers to provide data since none of those providers or suppliers responded to Acumen's interview requests.

Due to the limitations of the current HCRIS annual cost report data, the limitations of existing data sources on ambulance industry costs, and the limited amount of information that Acumen was able to collect from the ambulance companies during its feasibility study, we are unable at this time to recommend legislation or administrative action based on the studies conducted. Although it may be technically feasible, we believe that it would be difficult to develop a standard cost reporting tool for all providers and suppliers of ambulance services, and for ambulance entities to furnish cost data. Any cost reporting tool must take into account the wide variety of characteristics of ambulance providers and suppliers that Acumen's analysis revealed. Efforts to obtain cost data from providers and suppliers must also standardize cost measures and ensure that smaller, rural, and super-rural providers and suppliers are represented.

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APPENDIX A – HOSPITAL COST REPORT FIELDS RELATED TO AMBULANCE SERVICES

Table A.1 below identifies the hospital cost report fields related to ambulance services. Specifically, the first column identifies the HCRIS variable related to ambulance services. The second through fourth columns present the worksheet, line, and column, respectively, for each HCRIS variable in the 2552-10 cost reports. Similarly, the fifth through seventh columns present the worksheet, line, and column, respectively, for each HCRIS variable in the 2552-96 cost reports.

Table A.1: Hospital Cost Report Fields Related to Ambulance Services

HCRIS Variable	2552-10			2552-96		
	Worksheet	Line	Columns	Worksheet	Line	Columns
Final Cost Report for Fiscal Year	S	9	2	n/a	n/a	n/a
Number of Ambulance Trips	S-3, Part 1	29	6	S-3, Part 1	65	4
Balance of Expenses for Ambulance Services	A	95	1-7	A	65	1-7
General Service Costs Allocation for Ambulance Services	B, Part 1	95	1-2, 4, 4A, 5-26	B, Part 1	65	3-5, 5A, 6-27
Allocation of Capital-Related Costs for Ambulance Services	B, Part 2	95	0-2, 2A, 4-18, 24-26	B, Part 3	65	0, 3-4, 4A, 5-19, 25-27
Statistical Basis for Cost Allocation for Ambulance Services	B-1	95	1-2, 4, 5A, 5-23	B-1	65	3-5, 6A, 6-24
Components of Costs to Charges Ratio for Ambulance Services	C, Part 1	95	1, 3-11	C, Part 1	65	1, 3-11
Apportionment of Costs for Ambulance Services	D, Part 5	95	1, 3-4, 6	D, Part 5	65	1.01, 5, 9
Patient Revenues for Ambulance Services	G-2, Parts 1/2	23	1-3	G-2, Parts 1/2	20	1-2
Hospital Address	S-2, Part 1	2	1-4	S-2	1.01	1-4
Hospital Identification - Disproportionate Share Hospital Adjustment Qualification	S-2, Part 1	22	1	S-2	21.01	1
Hospital Identification - Critical Access Hospital Qualification	S-2, Part 1	105	1	S-2	30	1
Hospital Identification - Geographic Classification (Urban/Rural)	S-2, Part 1	26	1	S-2	21.04	1

APPENDIX B – INTERVIEW PROTOCOL

This appendix presents Acumen's ambulance NPI interview protocol.

B.1 Introduction

(1) Discuss reason(s) for the interview as well as CMS and AAA roles

(2) Discuss familiarity with Medicare Fee System for Ambulances—how defined using service-level payment and mileage payment, use of GPCI, use of add-ons (i.e., GAF and RAF)

(3) Discuss impact of rule change being explored

(4) Confirm interviewees' roles in their organization and areas of content knowledge

B.2 Provider/Members of Association Characteristics

(5) Organizational structure

  (a) Organizational structure

  (b) If free-standing, are you for-profit or not-for-profit Provider?

(6) Volume of transports

  (a) Total number of transports?

  (b) Number of Medicare transports?

(7) Service area

  (a) Percentage of total transports that are super-rural? Rural? Urban?

  (b) Percentage of Medicare transports that is super-rural? Rural? Urban?

(8) Miles per trip

  (a) Average number of miles per transport for all transports?

  (b) Average number of miles per transport for Medicare transports?

(9) Mix-intensity of services offered

  (a) Percentage of 911 calls—Total? Medicare?

  (b) ALS vs. BLS transports—Total? Medicare?

  (c) Specialization—emergency only transports, nonemergency transports from one facility to another (possibly schedules in advanced)—Total? Medicare?

  (d) Familiar with Medicare's seven levels of transports for fee setting?

(10) Personnel

  (a) Use of volunteer staff? Percentage?

  (b) Use of paramedics—cross-trained staff?

(11) Revenue sources

(a) Reimbursements from Medicare – percentage?

(b) Other sources—government subsidies? Charitable donations? Other?

B.3 Cost Components

(12) Do you have access directly to your own cost data? Can you report statistical, revenue, and cost data at the NPI level? (e.g., in fire/hospital based services, the parent entity may control the data and/or it may not be separated from the parent data)

(13) Do you share costs with other institutions or services?

(14) If yes, are you able to determine and report ambulance costs separately?

(15) At what frequency (quarterly, annual, etc.) do you track costs?

(16) In what categories/components do you track costs (labor, capital, consumables, fuel, etc.)?

(17) In what categories/components do you track costs (labor, capital, consumables, fuel, etc.)?

(a) In what categories/components do you track costs (labor, capital, consumables, fuel, etc.)?

(b) If so, does your organization track the occupations of the volunteer laborers (EMT, clerical, etc.)?

(c) If so, does your organization track the skill level (certificates, licenses, degrees, etc.) of your volunteer labor?

(d) How does this compare to tracking similar aspects of your paid labor?

(18) How does this compare to tracking similar aspects of your paid labor?

(a) Personnel

(b) Overhead/administration

(c) Medical supplies/equipment/communications

(d) Vehicle (lease, maintenance)

(e) Building/facility

(f) Fuel

(g) Other

(h) Are there categories of costs we missed?

B.4 Stand-By Capacity, Mileage, and Time

(19) Do you maintain the capacity to respond to emergency calls 24/7/365?

(20) Do you track the amount/percentage of available time spent standing by?

(21) Do you track the costs of providing stand-by capacity relative to the costs of responding to calls?

(22) Do you track time spent by ambulance personnel separately by task? (e.g., responding to calls, transporting patients, standing-by, other tasks)

(23) Do you track mileage accumulated by ambulances? Do you track this separately by task/payer?

B.5 Costs Particular to the Ambulance Industry

(24) Are there important drivers of your costs we have not discussed?

(25) Are there important drivers of your costs which CMS currently does not include in its reimbursement formula?

(26) Are there unique aspects of the ambulance industry which make accounting properly for costs different there?

B.6 Submitting Cost Data to CMS

(27) Have you recently submitted Medicare Cost Reports to CMS?

(a) What difficulties did you find?

(b) Understanding what was requested

(c) Collecting the data

(d) Submitting the data using CMS systems

(e) Other

(28) Willingness to respond to survey(s) with cost data and information? What issues would answering survey(s) present? Time involved? Collecting information? Staff involved?

(29) If Medicare Cost Report were more accessible, willingness to use CMS cost report system if modified?

(30) Ideal frequency for collecting cost data?

B.7 Conclusion

(31) Do you feel your responses represent other providers of your size, location, organizational structure, etc.?

(32) Is there anyone else or any specific provider you suggest we speak with?

(33) Anything else you would like to add?