BerryDunn

New Hampshire Insurance Department

A Study of Ground Ambulance Transport Commercial Claims

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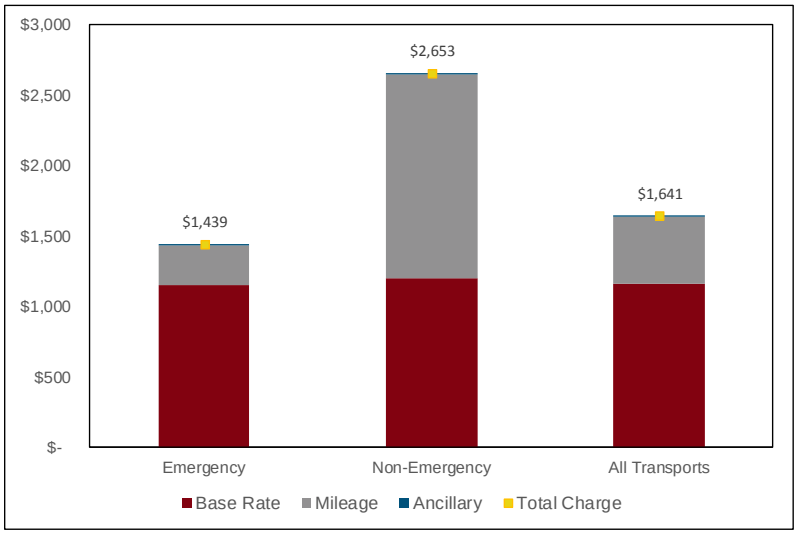
1.0 Executive Summary

The New Hampshire Insurance Department (NHID) contracted with the BerryDunn Health Analytics Practice Area (BerryDunn) to analyze ambulance transport utilization by commercially insured New Hampshire residents, using claim data from the New Hampshire Comprehensive Health Care Information System (NHCHIS), New Hampshire's all payer claims database.[1] There were 11,455 such ground ambulance transports of 8,400 unique individuals associated with $18.9 million in total provider charges reported in the NHCHIS for calendar year 2017. The NHCHIS claim data also included 155 air ambulance transports of commercially insured New Hampshire residents, associated with $3.4 million in provider charges, in 2017.

Emergency transports accounted for 83% of the ground transport events and 73% of total charges. Figure E-1 shows the average provider charges per ground transport, by transport cost component, for emergency transports, non-emergency transports, and all transports.

Figure E-1
Average Charges by Service Component and Emergency Status



While base rate charges are similar for emergency and non-emergency transports, the total charge per transport is higher on average for non-emergency transports, and the total proportion of ground transport charges comprised by non-emergency transports (27%) is disproportionate to the percent of transports that are non-emergency (17%).

Figure E-1 shows that a large differential between average mileage costs for non-emergency and emergency transports drives this result. Table E-1, below, displaying the average mileage rate charged per mile by type of transport, and the average miles per transport by type of transport, shows that this result is driven by large differentials between the transport types in both distance traveled per transport and mileage rate charged per mile.

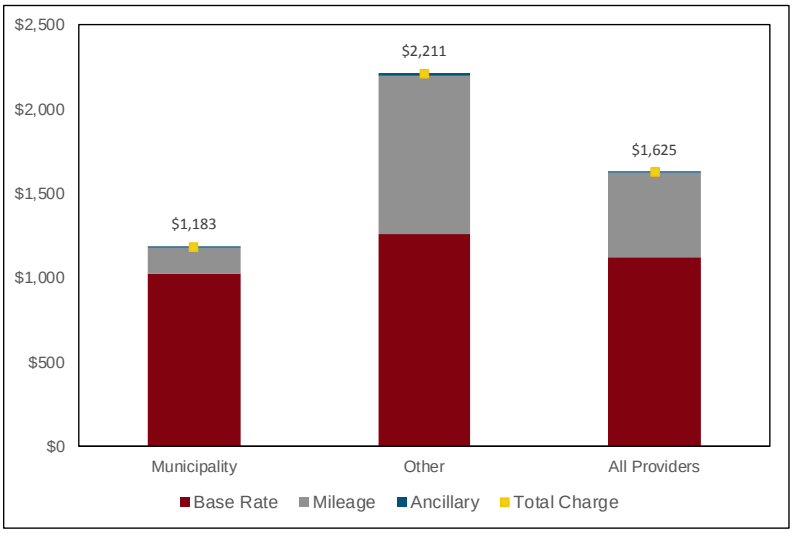
[1] New Hampshire Comprehensive Health Care Information System. Accessed 29 January 2019: https://nhchis.com/.

Table E-1
Average Miles Traveled per Ground Transport and Average Mileage Charge per Mile

Transport Type	Average Miles per Transport	Average Charge per Mile
Emergency	11.5	$ 24.51
Non-Emergency	36.1	$ 40.21
All Transports	**15.6**	**$ 30.57**

This study also finds that municipal transport companies (such as town fire and rescue squads) provide almost exclusively emergency transports and have much lower charges per transport on average than other providers, as summarized in Figure E-2.

Figure E-2
Average Ground Transport Charges by Service Component and Provider Type



Note: Results include only those transports where provider charges equal allowed amount.

The analysis does not control for differences in health status and care needs of different provider patient populations.

2.0 Ambulance Transports of Commercially Insured New Hampshire Residents

2.1 Introduction

The NHID contracted with BerryDunn to analyze ambulance transport utilization by commercially insured New Hampshire residents. The following report provides a descriptive overview of calendar year 2017 ambulance transports overall and by transport type (emergency vs. non-emergency), provider type (municipality vs. other providers), and county, as reported by commercial carriers in the NHCHIS, New Hampshire's all payer claims database.[2] The Technical Appendix provides additional discussion of data sources and methods.

The calendar year 2017 NHCHIS reports 155 air transports of commercially insured New Hampshire residents associated with $3.4 million in provider charges, and 11,455 ground transports of 8,400 unique individuals associated with $18.9 million in total provider charges. Most of the results below focus on the 39% of ground transports and associated charges reported in the NHCHIS with allowed amounts (insurer paid amounts plus member out-of-pocket amounts) equal to the provider charges.

Much of the analysis focuses on this subset of transports because, under current New Hampshire law, health insurers may make checks for a reduced payment of transport services to out-of-network providers payable to the ambulance provider *and* the insured member, and send the checks to the insured member. In these cases, ambulance providers may negotiate directly with the insured individual for payment, including "balance billing" the member directly for amounts in excess of the insurer paid amount. Therefore, the allowed amounts calculated from the NHCHIS would most likely be less than charges if the ambulance provider is in-network, but may not accurately reflect the reimbursement received for transports by out-of-network providers. The analysis below discusses the subset of transports where the billed amount equals the allowed amount, as the subset of events least likely to be affected by this balance billing issue.

2.2 Market Overview: Air and Ground Ambulance Services

2.2.1 A Brief Summary of Air Ambulance Services

As summarized in Table 1, below, the NHCHIS reports 155 air transports of commercially insured New Hampshire residents during the 2017 calendar year associated with $3.4 million in provider charges. Dartmouth-Hitchcock Medical Center accounted for 74% of the transports and 63% of total provider billed amounts. Two other nonprofit New England air ambulance providers accounted for an additional 21% of transports and 15% of provider billed amounts. The three nonprofit New England providers, Dartmouth-Hitchcock, New England Life Flight, and Lifeflight of Maine, together accounted for 91% of the insurer paid amounts for air transports.

[2] New Hampshire Comprehensive Health Care Information System. Accessed 29 January 2019: https://nhchis.com/.

Table 1
2017 Air Ambulance Transports by Provider

Provider	Transports	Charge	% of Transports	Average Charge	Average Miles
DARTMOUTH - HITCHCOCK MEDICAL CENTER	115	$ 2,146,560	74%	$ 18,666	64.7
NEW ENGLAND LIFE FLIGHT INC	19	$ 327,606	12%	$ 17,242	35.8
LIFEFLIGHT OF MAINE LLC	14	$ 186,545	9%	$ 13,325	58.3
ROCKY MOUNTAIN HOLDINGS LLC	3	$ 148,381	2%	$ 49,460	43.0
AVIATION WEST CHARTERS LLC	1	$ 493,725	1%	$ 493,725	1.0
EUROP ASSISTANCE USA	1	$ 11,950	1%	$ 11,950	600.0
FLORIDA HEALTH SCIENCES CENTER INC	1	$ 23,949	1%	$ 23,949	24.0
HEALTH CARE DISTRICT OF PALM BEACH COUNTY	1	$ 18,806	1%	$ 18,806	16.0

The remainder of this report focuses exclusively on ground ambulance transports.

2.2.2 Ground Ambulance Services

As noted above, the NHCHIS reported 11,455 ground transports of 8,400 unique commercially insured New Hampshire residents, associated with $18.9 million in total provider charges, in calendar year 2017. Emergency transports accounted for 9,548, or 83% of the transports, and $13.7 million in provider charges, or 73% of total provider charges.

Total charges for a transport event generally include a flat transportation base rate determined by the emergency or non-emergency status of the transport and the intensity of life support services required, and a per-mile charge. In aggregate, these two cost components comprise over 99% of ground transport costs. Additional charges, referred to below as ancillary charges, for disposable supplies, additional services, or ambulance waiting time, may also be included. Figure 1, on the following page, provides a percentage breakdown of these costs for emergency transports, non-emergency transports, and all transports.

Figure 1
Percent of Charges by Service Component, by Emergency Status and Overall

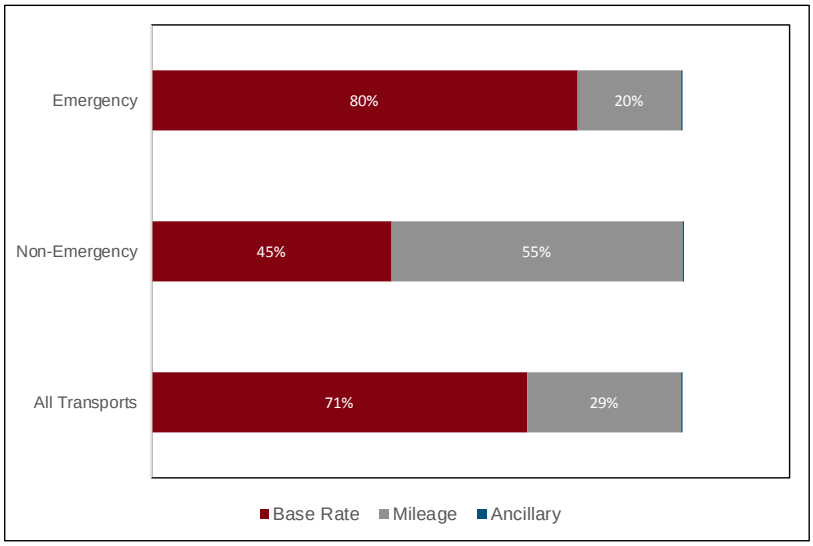
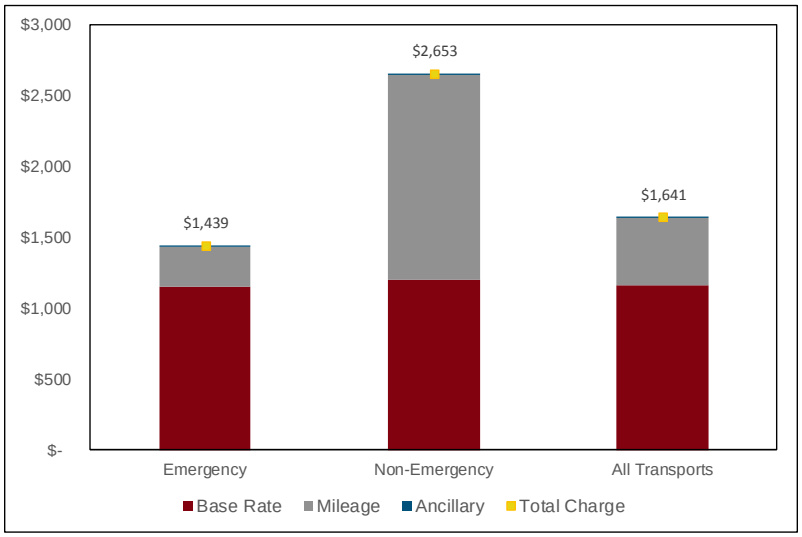


Figure 2 shows the service categories as components of average charge per transport for emergency transports, non-emergency transports, and all transports.

Figure 2
Average Charges by Service Component, by Emergency Status and Overall



Base transport charges are similar for emergency and non-emergency transports, but the total charge per transport is higher on average for non-emergency transports, owing to much greater mileage charges. Table 2, below, shows that this result is driven by large differentials between the transport types in both distance traveled per transport and the mileage rate charged per mile.

Table 2
Average Miles Traveled per Ground Transport and Average Mileage Rate Charged per Mile

Transport Type	Average Miles per Transport	Average Charge per Mile
Emergency	11.5	$ 24.51
Non-Emergency	36.1	$ 40.21
All Transports	**15.6**	**$ 30.57**

2.3 Ground Transport Providers: Municipal Services vs. Other Providers

The total number of ambulance companies providing ground transport services to commercially insured New Hampshire residents in 2017 was approximately 602, of which 143 are reported in the NHCHIS as being located in New Hampshire. Only 136 of the 602 providers had 10 or more transports in calendar year 2017. All results in this report include transports provided to commercially insured New Hampshire residents by both in- and out-of-state providers.

Table 3, below, presents summary statistics by provider for the 31% (3,527 transports) of ground transports provided by the top 10 ground transport providers.

Table 3
Top 10 Providers of Ground Ambulance Transports (by Transport Count)

Provider	Municipal Provider Indicator	Transports	Charge	% of Transports	Average Charge	Average Miles
AMERICAN MEDICAL RESPONSE OF MA	Other	992	$ 2,267,935	10%	$ 2,286	10.7
LIFELINE AMBULANCE SERVICE	Other	452	$ 1,950,932	4%	$ 4,316	35.1
CITY OF CONCORD EMS	Municipality	446	$ 394,526	4%	$ 885	3.9
TOWN OF DERRY	Municipality	288	$ 312,242	3%	$ 1,084	6.1
TRINITY EMS INC	Other	280	$ 666,067	2%	$ 2,379	10.6
STEWART'S AMBULANCE SERVICE, LLC	Other	275	$ 721,529	2%	$ 2,624	30.6
AMERICAN AMBULANCE INC	Other	231	$ 516,867	2%	$ 2,238	27.1
MCGREGOR MEMORIAL AMBULANCE	Other	206	$ 219,844	2%	$ 1,067	10.5
TOWN OF MILFORD	Municipality	179	$ 167,279	1%	$ 935	14.6
CITY OF KEENE NH	Municipality	178	$ 289,540	1%	$ 1,627	4.0

Note: Non-municipal providers may be nonprofit or for-profit.

Table 4, below, shows the distribution of ground transports by transport type for municipal ambulance companies (publicly funded providers, such as town fire and rescue squads) and all other providers (private nonprofit and for-profit companies).[3] Nearly all transports (99%) by municipal ambulance companies are emergency transports, which is disproportionate relative to the percentage of emergency transports overall (83%).

[3] "Other" providers also include a small number of ground transports where the provider type could not be categorized as municipal or private. The Technical Appendix includes further description of the provider categorization.

Table 4
Ground Transports by Provider Type and Emergency Status

Municipal Provider Indicator	Type of Transport: Non-Emergency	Emergency	Total	Percent Emergency
Municipality	66	5598	5664	99%
Other	1841	3950	5791	68%
All Providers	**1907**	**9548**	**11455**	**83%**

Similarly, Table 5 shows that 99% of charges by municipal ambulance companies are for emergency transports, while emergency transports account for only 59% of charges by other providers.

Table 5
Total Billed Charges by Provider Type and Emergency Status

Municipal Provider Indicator	Type of Transport: Non-Emergency	Emergency	Total	Percent Emergency
Municipality	$ 96,258	$ 6,579,359	$ 6,675,617	99%
Other	$ 4,962,840	$ 7,155,495	$ 12,118,335	59%
All Providers	**$ 5,059,099**	**$ 13,734,854**	**$ 18,793,952**	**73%**

The detailed results below compare municipal ambulance providers to other ambulance providers for the 39% (4,465) of transports that were reported in the NHCHIS with a calculated allowed amount (insurer paid amounts plus member out-of-pocket amounts) equal to provider charges, as the subset of events least likely to be affected by the balance billing issue described above in section 2.1.

Ground transports by municipality providers are more likely than transports by other providers to be reported in NHCHIS with provider charges equal to the allowed amount—nearly half (45%) of municipal ambulance company transports are included in the subset, compared to only one third (33%) of transports by other providers.

Table 6, on the following page, shows the amount and distribution of charges by provider type and emergency status for transports in the subset. The distribution of charges by emergency status for each provider type is nearly identical to the distribution for all transports (shown above in Table 5).

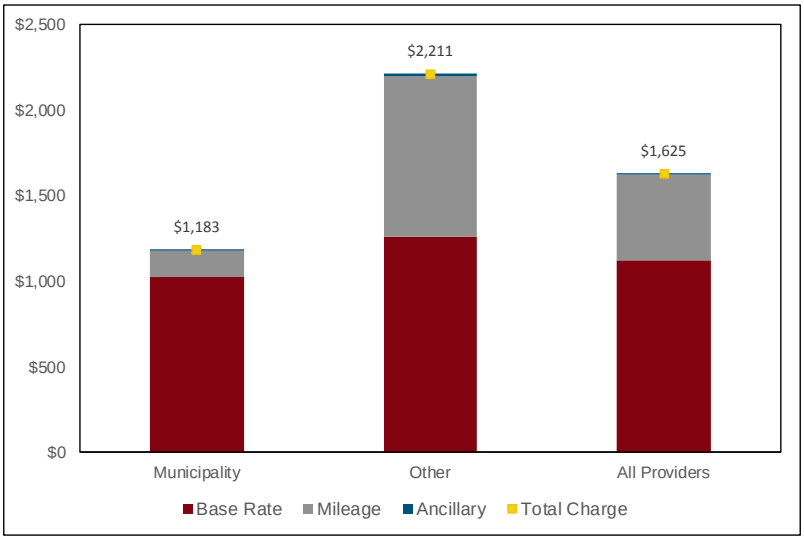
Table 6
Provider Charges for Transports with Provider Charges Equal to Insurer Allowed Amount by Provider Type and Emergency Status

Municipal Provider Indicator	Type of Transport: Non-Emergency	Emergency	Total	Percent Emergency
Municipality	$ 25,440	$ 2,984,955	$ 3,010,394	99%
Other	$ 1,689,573	$ 2,557,000	$ 4,246,574	60%
All Providers	**$ 1,715,013**	**$ 5,541,955**	**$ 7,256,968**	**76%**

Note: Results include only those transports where provider charges equal allowed amount.

Figure 3, below, shows the service categories as components of average charge per transport by provider type for all transports in the subset. Figures 4 and 5 show the service categories as components of average charge by provider type for emergency transports and non-emergency transports, respectively.

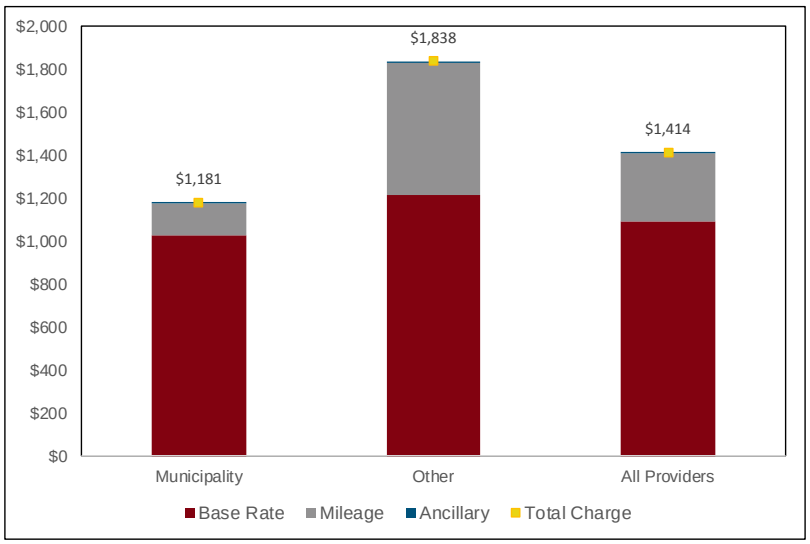
Figure 3
Average Charges by Service Component and Provider Type
All Transports



Note: Results include only those transports where provider charges equal allowed amount.

As discussed above in section 2.2.2, charges for non-emergency transports are on average much greater than emergency transport charges, and the breakdown of charges differs substantially for the two types of transport. The provider type results reflect the differing proportions of emergency status transports between the two provider types, but also show significantly higher charges for non-municipal providers.

Figure 4
Average Charges by Service Component and Provider Type
Emergency Transports

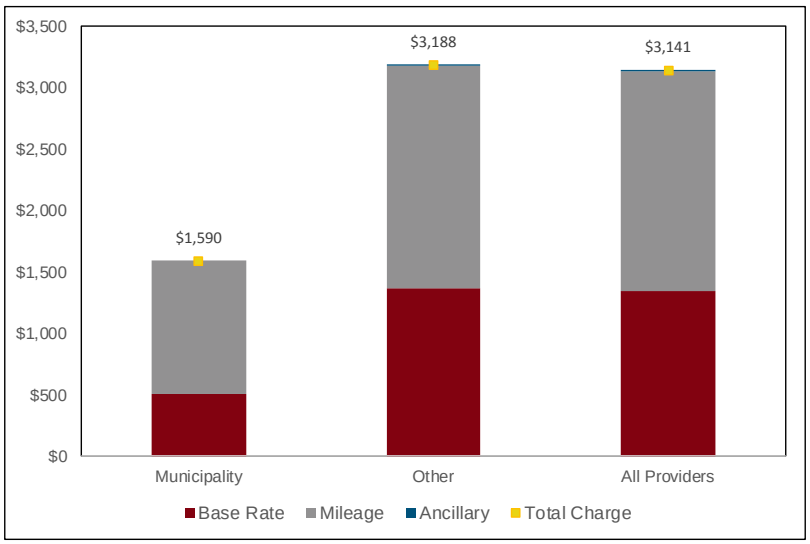


Note: Results include only those transports where provider charges equal allowed amount.

Total charges for transports provided by municipal ambulance providers average slightly less than $1,200 per transport, with base charges averaging approximately $1,000. The similarity of the municipal provider results in Figures 3 and 4 reflects the overwhelming preponderance of emergency transports for these providers.

Non-municipal providers charge more, with base rates averaging approximately $1,200 for emergency transports and nearly $1,400 for non-emergency transports. Figures 4 and 5 show that average mileage charges for non-municipal providers vary dramatically between emergency and non-emergency transports.

Figure 5
Average Charges by Service Component and Provider Type
Non-Emergency Transports



Note: Results include only those transports where provider charges equal allowed amount.

The higher costs for non-emergency transports reflect both greater distances traveled per transport and higher mileage rates charged by non-municipal providers. Table 7, below, displays the average miles per transport and the average charge per mile by emergency status and type of provider for the transports in the subset.

Table 7
Average Miles per Ground Transport and Average Mileage Charge per Mile
by Emergency Status and Provider Type

	Municipality		Other Providers		All Providers	
Transport Type	Average Miles	Avg Charge/Mile	Average Miles	Avg Charge/Mile	Average Miles	Avg Charge/Mile
Emergency	8.9	$ 17.26	17.6	$ 42.77	11.4	$ 28.70
Non-Emergency	67.3	$ 16.09	38.6	$ 48.91	39.6	$ 47.08
Grand Total	9.3	$ 17.20	24.2	$ 45.84	14.8	$ 34.61

Note: Results include only those transports where provider charges equal allowed amount.

2.4 Geographic Overview: Ground Transports by County of Patient Residence

The particular geography of New Hampshire's 10 counties creates different market conditions for healthcare services, including ground ambulance transports, in different areas of the state. The following results provide a brief overview of ground ambulance utilization for New Hampshire residents by county of residence.

Table 8 shows transport counts by county and emergency status. The percent of emergency transports ranges from a low of 77% for Sullivan County to a high of 86% for Hillsborough County, a fairly tight range around the statewide 83% emergency transport rate. The statewide figure is closer to the high end of the range, reflecting that the state's three most populous counties, Hillsborough, Rockingham, and Merrimack, which also have the three highest transport counts, have three of the four highest emergency transport percentages.

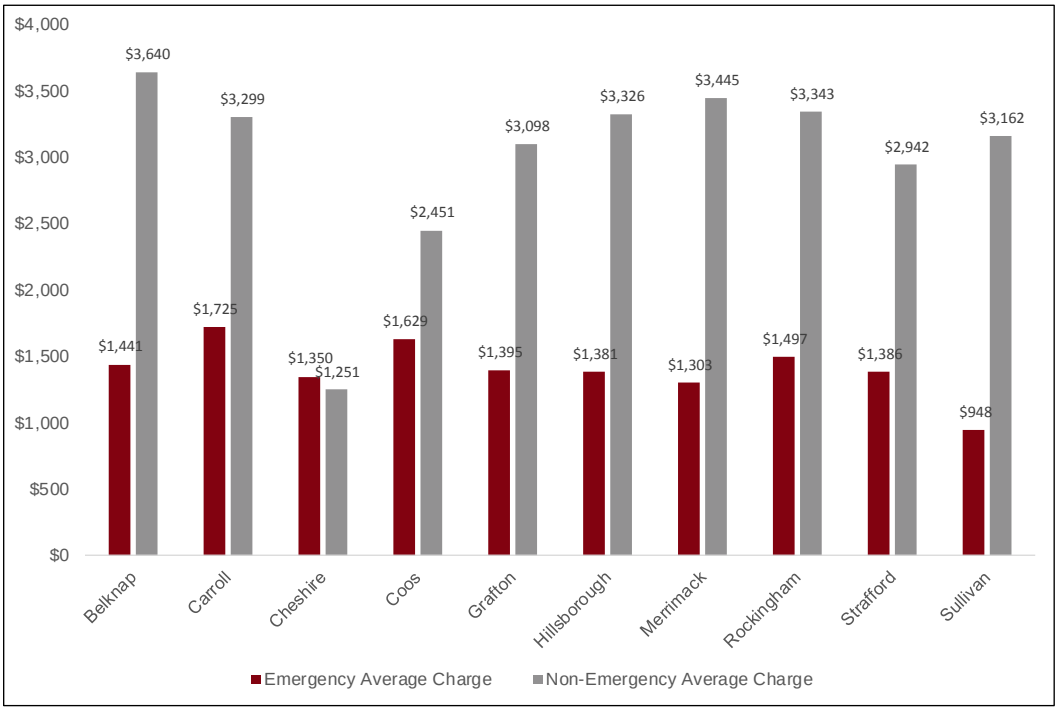
Table 8
2017 Ground New Hampshire Transports by County of Residence and Emergency Status

County	Emergency	Non-Emergency	Total	Percent Emergency
Belknap	662	152	814	81%
Carroll	395	102	497	79%
Cheshire	529	94	623	85%
Coos	222	53	275	81%
Grafton	387	103	490	79%
Hillsborough	2689	447	3136	86%
Merrimack	1318	241	1559	85%
Rockingham	2286	426	2712	84%
Strafford	844	223	1067	79%
Sullivan	216	66	282	77%
Total	**9548**	**1907**	**11455**	**83%**

Figures 6 through 8, on the following pages, compare provider charges and distance covered per transport by county and transport type. These results include only the 4,465 transports with provider charges equal to allowed amount.

Figure 6 compares average total (base rate, mileage, and ancillary) emergency and non-emergency charges per transport across counties. Most counties show average emergency charges in the $1,300 to $1,400 range. Most counties' non-emergency average charges are in the $3,000 to $3,600, range. It is important to note that outlier results may simply reflect small sample sizes. Coös County, for example, had only 18 non-emergency transports in the subset.

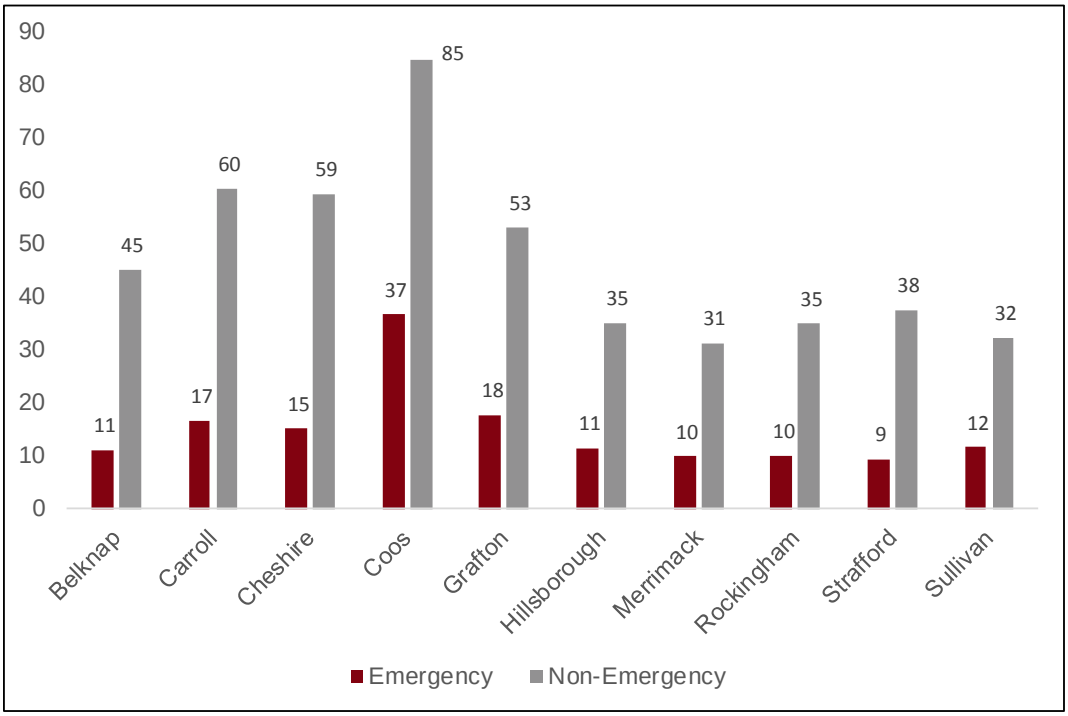
Figure 6
Average Charges by County and Emergency Status



Note: Results include only those transports where provider charges equal allowed amount.

Figure 7 displays average miles per transport by county and emergency status. Emergency transport distances lie within a tight range, with the exception of rural, low-population density Coös County. Non-emergency transport distances show more variation, with higher population density counties generally associated with shorter transport distances, and Coös County again showing the longest average distance by a large margin.

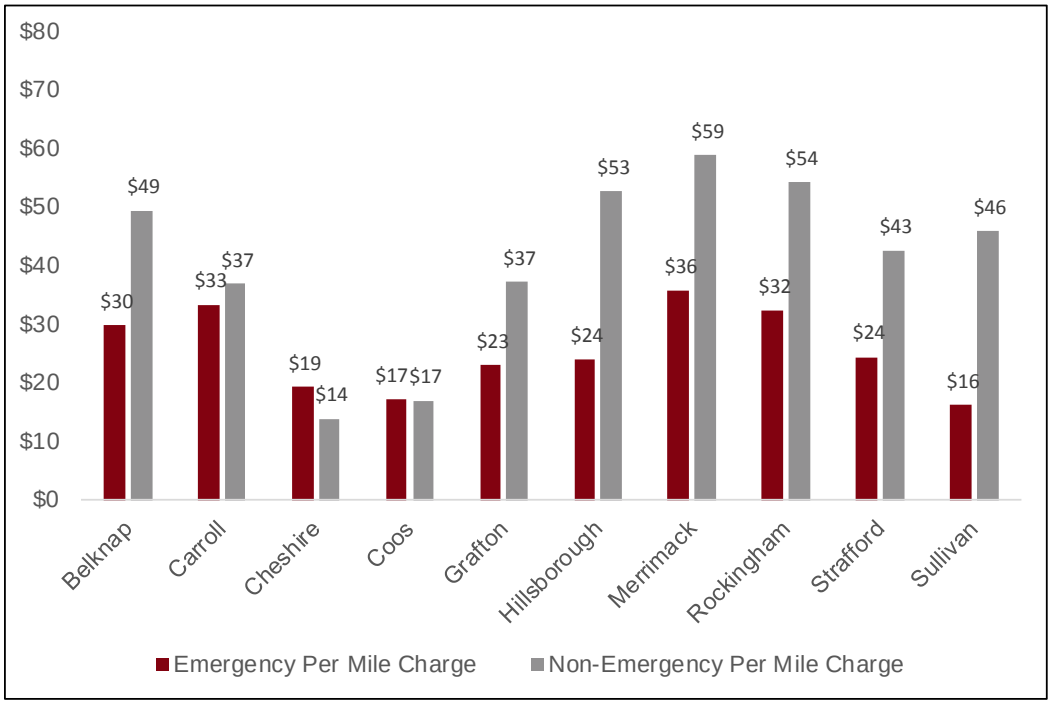
Figure 7
Average Miles per Transport by County and Emergency Status



Note: Results include only those transports where provider charges equal allowed amount.

Finally, Figure 8 displays the average mileage rate charged by county and emergency status. Three small sample size counties, Carroll, Cheshire, and Coös, show little difference in average mileage rates between emergency and non-emergency transports. The seven other counties reflect the statewide result of higher mileage rates for non-emergency transports, with significant variation by county in the size of the differential.

Figure 8
Average Mileage Rate Charged per Mile by County and Emergency Status



Note: Results include only those transports where provider charges equal allowed amount.

3.0 Conclusion

BerryDunn studied calendar year 2017 ambulance transport data as reported in NHCHIS for commercially insured New Hampshire residents. The study identified 11,455 ground ambulance transports associated with $18.7 million in total provider charges, and 155 air ambulance transports associated with $3.4 million in provider charges.

The study found significant variation in utilization and provider charges for ground ambulance transports by emergency status, provider type, and county of residence. Non-emergency transports were much more expensive on average than emergency transports. This result was driven by much longer distances traveled, charged at a higher per-mile mileage rate. Municipal ambulance service providers were found to make almost exclusively emergency transports and to charge substantially lower rates than other providers.

Technical Appendix

Data Sources

BerryDunn conducted the analysis using the NHCHIS data for commercial[4] medical claims incurred in calendar year 2017 and paid through March 2018, and commercial eligibility for calendar year 2017. Only commercial claims for primary insurance policies for members less than 65 years of age at the time of service were included. All New Hampshire health insurers are required to submit claims and eligibility data to the NHCHIS for their fully insured business.[5] Following the 2016 U.S. Supreme Court decision in *Gobeille v. Liberty Mutual,* carriers are no longer required to submit data to the NHCHIS for many self-insured policies (i.e., large employer group policies in which the employer is liable for medical expenses, with the health insurance carrier providing administrative services, such as claims adjudication only).[6,7]

BerryDunn matched the commercial medical claims to the commercial medical membership files to identify group and individual policies. Claims not matching by person, carrier, and month to the membership files were excluded from the analysis.

All data presented below are for New Hampshire policyholders who are also New Hampshire residents, as determined by the member county and state of residence reported in the NHCHIS. Both in- and out-of-state ambulance companies are included.

Methods

Claims for ambulance transport services were identified by the specific Healthcare Common Procedure Coding System Level II (HCPCS) codes submitted to carriers by ambulance providers.

The study included the HCPCS codes summarized in Table A-1, on the following page. Table A-1 includes both the air and ground transport codes analyzed.

[4] Including Premium Assistance Program (PAP) products.
[5] New Hampshire Comprehensive Health Care Information System. Accessed 29 January 2019: https://nhchis.com/.
[6] Supreme Court of the United States. *Gobeille, Chair of the Vermont Green Mountain Care Board v. Liberty Mutual Insurance Co.* Decided March 1, 2016. Accessed 29 January 2019: https://www.supremecourt.gov/opinions/15pdf/14-181_5426.pdf.
[7] New Hampshire Comprehensive Health Care Information System. Accessed 29 January 2019: https://nhchis.com/.

Table A-1
Ambulance Transport HCPCS Codes
Included in the Study

Cost Component	Procedure Code	Description	Total Billed	Units	Avg. Billed per Unit	Avg. Billed per Claim Line
Emergency, ALS Base	A0427	Emergency, ALS base rate	$ 7,629,205	6,232	$ 1,224	$ 1,231
Emergency, ALS Base	A0433	Emergency, ALS level 2	$ 332,931	216	$ 1,541	$ 1,534
Emergency, BLS Base	A0429	Emergency, BLS base rate	$ 2,949,530	3,255	$ 906	$ 921
Non-Emergency, ALS Base	A0426	Non-emergency, ALS base rate	$ 682,555	618	$ 1,104	$ 1,281
Non-Emergency, BLS Base	A0428	Non-emergency, BLS base rate	$ 1,659,601	1,618	$ 1,026	$ 1,068
Non-Emergency, Other Base	A0434	Specialty care transport	$ 32,349	13	$ 2,488	$ 2,488
Mileage	A0425	Ambulance per mile charge/allowed rate	$ 5,454,475	178,419	$ 31	$ 471
Mileage	A0390	Advanced life support mileage	$ 392	27	$ 15	$ 131
Mileage	A0380	Basic life support mileage	$ 377	26	$ 15	$ 126
Ancillary	A0394	ALS specialized disposable supplies: IV therapy	$ 23,759	120	$ 198	$ 205
Ancillary	A0392	ALS specialized disposable supplies	$ 8,308	28	$ 297	$ 297
Ancillary	A0422	ALS or BLS oxygen and oxygen supplies (life sustaining)	$ 8,251	54	$ 153	$ 153
Ancillary	A0999	Unlisted Ambulance Service	$ 5,619	19	$ 296	$ 296
Ancillary	A0384	BLS specialized disposable supplies	$ 3,557	12	$ 296	$ 296
Ancillary	A0398	ALS routine disposable supplies	$ 1,669	24	$ 70	$ 83
Ancillary	A0382	BLS routine disposable supplies	$ 1,375	77	$ 18	$ 125
Air Transport Base	A0431	Ambulance service, conventional air services, transport, one way (rotary wing)	$ 1,884,609	153	$ 12,318	$ 12,159
Air Transport Base	A0430	Ambulance service, conventional air services, transport, one way (fixed wing)	$ 24,160	30	$ 805	$ 8,053
Air Mileage	A0436	Rotary wing air mileage, per statute mile	$ 963,877	9,108	$ 106	$ 6,341
Air Mileage	A0435	Fixed wing air mileage, per statute mile	$ 484,875	601	$ 807	$ 242,438

This study's primary unit of analysis was a single ambulance transport event, defined as a unique combination of carrier, patient, ambulance provider, and date of service. All claims for transportation HCPCS codes with a unique combination of these four characteristics were treated as a single event. The total cost of a transport event generally included a flat transportation base rate determined by the emergency or non-emergency status of the transport and the intensity of life support services required, and a per-mile charge. Additional charges, referred to below as ancillary charges, for disposable supplies, additional services, or ambulance waiting time, may also be included.

This study excluded claims for approximately 28 transport events that had no associated base rate code.[8] For the approximately 1% of events reporting multiple base rate codes, BerryDunn made the following assignments:

- The 83 events reporting both an emergency and a non-emergency base rate code were classified as emergency transports.
- The 71 events with multiple base rates reporting different life support intensities were assigned to the highest-intensity category present. That is, if an advanced life support (ALS) base rate was present, the transport was categorized as an ALS transport. If no ALS base rate was present, but a basic life support (BLS) base rate and a specialty care

[8] That is, there were transport, mileage, and ancillary data observations for some claims in the NHCHIS, but no transport base rate found for 28 carrier, patient, provider, and date combinations.

transport (SCT) or wheelchair van base rate was also present, the transport was categorized as a BLS transport.

SCTs and wheelchair van transports are excluded throughout. A small volume of units and charges appear in Table A-1 for the SCT base code (SCT, HCPCS code A0434) where paid claim lines for this code matched to an ambulance event (carrier, patient, provider, and date combination) reporting one of the included base rate codes.

To identify municipal ground ambulance providers, such as local fire and rescue squads, BerryDunn assigned provider types based on the provider name reported in the NHCHIS provider detail reference table for the provider identification numbers reported on the ambulance claims. BerryDunn categorized provider names including any of the following words as municipality providers: “City,” “Town,” “County,” “Fire,” “Government,” “Department,” “Village,” “Public,” or “Commissioners.” However, provider names that *also* contained any of the following text strings were categorized as private companies: “Inc,” “LLC,” “Corp” or “Hospital.” Claims for approximately 2% of transports could not be matched to any provider name, resulting in an unknown provider type. In the results, transports and dollars associated with private companies and unknown providers are combined and reported as “Other” providers in transport frequency, cost, and utilization results, but unknown providers are excluded from provider counts.

The analysis does not control for differences in health status and care needs of different provider patient populations. The accuracy of results presented throughout the report is dependent on the accuracy of carriers’ NHCHIS submissions.