



2022 High-Performance EMS Benchmarking Study

Part 3: Medical Direction, HR, Patient Experience & Fleet Metrics

The AIMHI benchmarking studies perform a fundamental service to EMS by providing tools through which we can continue to learn about the successes and opportunities of today's emergency care system, ensure its progress and growth, and work to expand the reputation and efficiency of EMS nationally and internationally. The 2022 study is the latest addition to the body of knowledge required for effective service delivery and improvement.

Since the first study in 1998, AIMHI has developed valuable **evidenced-based** studies to share **clinical, operational, and economic** data across EMS systems serving diverse geographic and demographic communities. Our goal is to provide the EMS community, elected and appointed officials, and regulators with tools, data, and outcomes that demonstrate the value of high-performance, high-value mobile healthcare as the initial point of entry to, and the safety net of, the healthcare continuum.

Agency Name	Organizational Structure
Emergency Medical Services Authority (Oklahoma City, OK)	Public Utility Model: Self-Operated
Emergency Medical Services Authority (Tulsa, OK)	Public Utility Model: Self-Operated
Mecklenburg EMS Agency (Charlotte, NC)	Public Utility Model: Self-Operated
Medic Ambulance (Solano, CA)	Private
MEDIC EMS (Davenport, IA)	501c3
MedStar Mobile Healthcare (Fort Worth, TX)	Public Utility Model: Self-Operated
Metropolitan EMS (Little Rock, AR)	Public Utility Model: Self-Operated
Niagara Emergency Medical Services (Region of Niagara, CA)	Third Service Model
Northwell Health Center for EMS (Syosset, NY)	Health System Based EMS Agency
Novant Health New Hanover EMS (New Hanover County, NC)	Hospital-Based
Pinellas County EMS - Sunstar (Pinellas County, FL)	Public Utility Model: Contracted
Pro EMS (Cambridge, MA)	Private
Regional Emergency Medical Services (Reno, NV)	Public Utility Model: Self-Operated
Richmond Ambulance Authority (Richmond, VA)	Public Utility Model: Self-Operated

What Is High Performance/High Value EMS (HP/HVEMS)?

HP/HVEMS systems share key features of system design rarely associated with less cost-effective systems. Characteristics typically include:

- **Sole provider:** All emergency and non-emergency ambulance services are granted to a sole and often competitively selected provider for a specific population or service area.
- **Control center operations:** The ambulance provider has control of the dispatch center.
- **Accountability:** HP/HVEMS systems have performance requirements that can result in financial penalties or replacement of the provider when the requirements are not met. HP/HVEMS systems use and collect data regularly to meet these performance requirements, which has allowed for the ability to collect data for the HP/HVEMS Market Study.
- **Revenue maximization:** HP/HVEMS systems incorporate the business function into their operations, resulting in an understanding of the billing requirements, thus collecting all appropriate revenues from Medicare, Medicaid, self-pay and other third-party payors.
- **Flexible production strategy:** HP/HVEMS match scheduled resources with predicted changes in response demand based on time of day, day of week and time of year.
- **System Status Management (SSM):** HP/HVEMS systems use the dynamic deployment techniques to position resources in anticipation of when and where ambulances will be needed.

Medical Direction, Human Resources and Fleet Metrics & Takeaways

Eleven AIMHI member agencies provided data for this quarterly report. Of those:

- **100%** of AIMHI respondents conduct patient experience surveys.
 - **91%** use an external agency for the surveys.
 - **82%** track survey results on by individual field clinician.
- **63.6%** of AIMHI member agencies responding report a **decrease in field clinician applications between 2019 and 2022.**
 - Between 2019 and 2022, **the average field clinician vacancy** rate for AIMHI member respondents was **12.9%**, ranging from 5% - 40%
- Between 2019 and 2022, AIMHI agencies **increased field clinician wages an average of 24.3%**, with a range of 3.0% to 32.0%
 - In 2022, **average employee turnover among AIMHI member agencies was 22.7%**, up from 20.2% in 2019.
- **91% of AIMHI members responding participate in Institutional Review Board (IRB) approved clinical research.**
 - Participating in 41 IRB approved studied between 2019 and 2022.
- The **average cost of Medical Direction and Training/QA for AIMHI member agencies is \$1,145** per credentialed field clinician, with a range of \$295 to \$2,721 per clinician.
- **100% of responding AIMHI member agencies have changed fleet practices due to supply chain issues.**
 - Most common change has been to extend the life of ambulances, resulting in increased maintenance costs and mission failures.
- Between compared to 2019, the **average ambulance acquisition costs for AIMHI member agencies have increased 19.5%**, with a range of 12% - 61% increase.



Table 1: Medical Direction Cost per Credentialed Field Clinician

Agency Name	Credentialed Field Clinicians	Medical Direction & Training/QA Costs	Medical Direction & Training/QA Costs Per Clinician	Participation in IRB Approved Research	2019-2022 Research Projects
Mecklenburg EMS Agency (Charlotte, NC)	405	\$1,101,946	\$2,721	Yes	9
MEDIC EMS (Davenport, IA)	160	\$47,246	\$295	Yes	1
Medic Ambulance (Solano, CA)	305	\$780,000	\$2,557	Yes	1
MedStar Mobile Healthcare (Fort Worth, TX)	2,150	\$1,480,000	\$688	Yes	20
Northwell Health Center for EMS (Syosset, NY)	900	\$850,000	\$944	Yes	10
Novant Health New Hanover EMS (New Hanover, NC)	560	\$444,000	\$793	Yes	2
Nova Scotia EHS (Nova Scotia, CA)	3,802	\$3,981,992	\$1,047	Yes	30
Pro EMS (Cambridge, MA)	657	\$410,000	\$624	Yes	0
REMSA (Reno, NV)	350	\$715,343	\$2,044	No	0
Richmond Ambulance Authority (Richmond, VA)	195	\$470,326	\$2,412	Yes	3
Three Rivers Ambulance Authority (Ft. Wayne, IN)	184	\$325,000	\$1,766	Yes	0



Table 3: Human Resources

Agency Name	Field Clinician Vacancy Rate	Applicant Inc/Dec 2019-22	Wage Increases 2019-22	2019 Turnover	2020 Turnover	2021 Turnover	2022 Turnover
Mecklenburg EMS Agency (Charlotte, NC)	17.0%	Decreased	24.3%	19.0%	23.0%	34.0%	20.0%
MEDIC EMS (Davenport, IA)	18.4%	Decreased	27.5%	23.0%	15.3%	18.7%	21.0%
Medic Ambulance (Solano, CA)	15.0%	Decreased	32.0%	N/A	N/A	N/A	N/A
MedStar Mobile Healthcare (Fort Worth, TX)	8.1%	Decreased	25.0%	24.8%	19.9%	19.4%	24.6%
Northwell Health Center for EMS (Syosset, NY)	10.0%	Increased	3.5%	4.2%	4.8%	5.4%	7.3%
Novant Health New Hanover EMS (New Hanover, NC)	8.6%	Decreased	25.0%	7.3%	12.6%	13.3%	16.0%
Nova Scotia EHS (Nova Scotia, CA)	21.0%	Decreased	7.5%	4.5%	6.3%	9.3%	11.3%
Pro EMS (Cambridge, MA)	5.0%	Increased	30.0%	35.0%	35.0%	35.0%	35.0%
REMSA (Reno, NV)	36.0%	Decreased	31.0%	26.5%	35.1%	35.9%	36.0%
Richmond Ambulance Authority (Richmond, VA)	27.0%	Increased	31.0%	37.1%	38.6%	54.3%	33.3%
Three Rivers Ambulance Authority (Ft. Wayne, IN)	40.0%	Increased	30.0%	N/A	N/A	N/A	N/A

Table 4: Transformative Changes to Human Resource Practices

Agency Name	Transformative Changes to Human Resource Practices
Mecklenburg EMS Agency (Charlotte, NC)	2021- Applied salary increases to relieve wage compression. 2022 - Implemented \$6k sign on bonus for field positions, set minimum salary range across the board to \$20/hour.
MEDIC EMS (Davenport, IA)	Market approach to wage increases; for the first time in years, we have had a significant shortage of EMTs. Since 7/1/19 through 10/01/22, we increased our EMT wage scale 37.5% and our Paramedic wage scale 30.5%.
Medic Ambulance (Solano, CA)	New labor agreements in both our major areas with significant upfront raises. Step Pay, up to 13 steps. Split our annual COLA in increases into 2 semi-annual increases. In Sept 2022, began quarterly retention bonuses instead of sign on bonuses of 5% of gross earnings for quarter to Paramedics, 2.5% for EMTs and Paramedics. Incentive for longevity and hours worked. Awarded over 15 Paramedics School scholarships, and started a post-graduation scholarship that essentially reimburses cost of school at 6 month increments, in lieu of commitment that scholarship requires.
MedStar Mobile Healthcare (Fort Worth, TX)	Started an employee engagement workgroup. Shifted to tiered deployment and hiring mostly EMTs.
Northwell Health Center for EMS (Syosset, NY)	Focus on employee engagement, work-life balance, culture, wages, hiring fairs.
Pro EMS (Cambridge, MA)	Implemented a significant pay raise coupled with a late-out pay rate (2.5x base rate).
REMSA (Reno, NV)	Recruitment and retention: We have infused on our talent acquisition incentives for newly hired clinical practitioners, and our overall total rewards package for all full-time employees.
Richmond Ambulance Authority (Richmond, VA)	RAA moved from a 48 to a 42-hour field provider workweek, increased hourly full-time provider wages, streamlined our application process, and implemented new screening processes for new hires.

Table 5: Fleet Management

Agency Name	Fleet Size	Remount Cost Increase 2019-22	Ambulance Cost Increase 2019-22	Mission Failure Rate per 100,000 Miles	Crash Rate per 100,000 Miles	Maintenance Expense/Mile	Fuel Expense/Mile
Mecklenburg EMS Agency (Charlotte, NC)	74	15%	15%	1.8	4.5	\$0.34	\$0.48
MEDIC EMS (Davenport, IA)	19	53%	31%	0.2	1.7	\$0.24	\$0.37
Medic Ambulance (Solano, CA)	85	35%	33%	0.33	1.1	\$0.35	\$0.46
MedStar Mobile Healthcare (Fort Worth, TX)	69	18%	18%	N/A	1.8	\$0.47	\$0.35
Northwell Health Center for EMS (Syosset, NY)	140	10%	15%	N/A	N/A	\$1.39	\$0.83
Novant Health New Hanover EMS (New Hanover, NC)	23	N/A	17%	5.0	N/A	\$0.57	\$0.43
Nova Scotia EHS (Nova Scotia, CA)	195	10%	11%	2.1	1.1	\$0.10	\$0.42
Pro EMS (Cambridge, MA)	23	N/A	25%	N/A	N/A	\$1.19	\$0.76
REMSA (Reno, NV)	51	35%	12%	3.4	0.9	\$0.31	\$0.72
Richmond Ambulance Authority (Richmond, VA)	37	N/A	18%	1.5	2.2	\$0.43	\$0.62
Three Rivers Ambulance Authority (Ft. Wayne, IN)	18	61%	61%	N/A	1.0	\$0.13	\$0.71

Table 6: Fleet Management Changes Due to Supply Chain Challenges

Agency Name	Changes in Fleet Management Due to Supply Chain Challenges
Mecklenburg EMS Agency (Charlotte, NC)	Increased parts inventory and ordered hard to find parts more frequently.
MEDIC EMS (Davenport, IA)	Ambulances have been in service longer than usual because of supply chain delays.
Medic Ambulance (Solano, CA)	Placing Chassis orders much sooner; mileage extended to 300,000, added more GMC and Dodge Chassis.
MedStar Mobile Healthcare (Fort Worth, TX)	Shifted from Dodge to available chassis (Ford currently), also trialing gas chassis vs diesel, extending life of decommissioned units (over 250k) for use as backup/stand by trucks.
Northwell Health Center for EMS (Syosset, NY)	Keeping vehicle with higher mileage and higher age. Forced to repair more vehicles that would normally be decommissioned which has increased repair costs.
Novant Health New Hanover EMS (New Hanover, NC)	Expanded vender selection for ambulance vendors.
Nova Scotia EHS (Nova Scotia, CA)	Delay in supply of Ford E350 Cutaway chassis has impacted deliveries of new ambulances.
Pro EMS (Cambridge, MA)	Shifted from 5 years (120k miles) shifted to 7 years (150k miles).
REMSA (Reno, NV)	Increased supplier base (sourced other companies). Improved relationships with existing vendors/suppliers Closely monitor changes in CPI/PPI index (to predict changes/disruptions in supply chain). Adjusted current stock levels.
Richmond Ambulance Authority (Richmond, VA)	Increased the number of vendors and inventory.
Three Rivers Ambulance Authority (Ft. Wayne, IN)	Increased supply on hand of certain items.

Table 7: Patient Experience Tracking & Reporting

Agency Name	Patient Experience Surveys Conducted?	Internal or External Surveyor?	Results Tracked by Clinician?	Reported To:
Mecklenburg EMS Agency (Charlotte, NC)	Yes	Outside Entity	No	N/A
MEDIC EMS (Davenport, IA)	Yes	Outside Entity	Yes	Website, agency dashboard, individual employee feedback
Medic Ambulance (Solano, CA)	Yes	Outside Entity	Yes	Quarterly and annually.
MedStar Mobile Healthcare (Fort Worth, TX)	Yes	Outside Entity	Yes	Website.
Northwell Health Center for EMS (Syosset, NY)	Yes	Outside Entity	Yes	Health System Quality Oversight Committee.
Novant Health New Hanover EMS (New Hanover, NC)	Yes	Outside Entity	No	N/A
Nova Scotia EHS (Nova Scotia, CA)	Yes	In-House	No	N/A
Pro EMS (Cambridge, MA)	Yes	Outside Entity	Yes	Reports sent to field providers with score and comments
REMSA (Reno, NV)	Yes	Outside Entity	Yes	Monthly report to the Washoe County District Board of Health with included follow up information.
Richmond Ambulance Authority (Richmond, VA)	Yes	Outside Entity	Yes	Annual Report (specifically, overall satisfaction and engagement results, by month). Results are displayed in RAA's computer room, located in our operations building where providers clock in/out and complete paperwork.
Three Rivers Ambulance Authority (Ft. Wayne, IN)	Yes	Outside Entity	Yes	Monthly board meeting records/annual reports

CURRENT AIMHI MEMBERS

Emergency Health Service
Halifax, NS

Emergency Medical Services Authority
Tulsa & Oklahoma City, OK

Mecklenburg EMS Agency
Charlotte, NC

Medic Ambulance
Vallejo, CA

MEDIC Emergency Medical Services
Davenport, IA

MedStar Mobile Healthcare
Fort Worth, TX

Metropolitan Emergency Medical Services
Little Rock, AR

New Hanover EMS
Wilmington, NC

Niagara Emergency Medical Services
Niagara-On-The-Lake, ON

Northwell Health Center for EMS
Syosset, NY

Pinellas County EMS Authority/Sunstar Paramedics
Largo, FL

Pro EMS
Cambridge, MA

Regional EMS Authority
Reno, NV

Richmond Ambulance Authority
Richmond, VA

Three Rivers Ambulance Authority
Fort Wayne, IN

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