



# Analysis and Trends of the Minnesota EMS Workforce

April 2022

---

Minnesota EMS Regulatory Board

335 Randolph Ave, Suite 220

St. Paul, MN 55102

(Phone) 651-201-2800

[Dylan.Ferguson@state.mn.us](mailto:Dylan.Ferguson@state.mn.us)

[mn.gov/emsrb](http://mn.gov/emsrb)

As requested by Minnesota Statute 3.197: This report cost approximately \$900 to prepare, including staff time, printing and mailing expenses.

*Upon request, this material will be made available in an alternative format such as large print, Braille or audio recording. Printed on recycled paper.*

## Contents

Contents .....	3
Executive Summary/Key Findings .....	4
Lack of Retention of Emergency Medical Services Personnel .....	5
Figure 1: Minnesota EMS Provider Certification Expirations by Level 2018-2021 .....	5
Figure 2: Emergency Medical Technician Expirations by Age Range 2018-2021 .....	6
Figure 3: Paramedic Expirations by Age Range 2018-2021 .....	7
Workforce Attrition Gap .....	8
Figure 4: Initial Certifications Issued vs Expiring Certifications 2018-2021 .....	8
Table 1: Educational Pipeline .....	9
Credentialed Workforce .....	10
Table 2: Certified Providers by Level as of 04/14/2022 .....	10
Figure 5: EMS providers in an Active Status by Sex/Gender as of 04/14/2022 .....	11
Table 3: EMS providers in an Active Status by Race/Ethnicity as of 04/14/2022 .....	12
Figure 6: Emergency Medical Technicians in Active Status by Age Range as of 04/14/2022 .....	13
Figure 7: Paramedics in Active Status by Age Range as of 04/13/2022 .....	14
Workforce Engagement .....	14
Table 4: Workforce Engagement of Certified EMTs and Paramedics by County as of 04/14/2022 .....	16
Table 5: Workforce Engagement & Salary Analysis by MNDEED Area as of 04/14/2022 .....	23
Agency Organization Type .....	23
Figure 8: Percent of EMS Dispatches by EMS Organization Type by Year (Statewide) 2019-2021 .....	24
Figure 9: Percent of EMS Dispatches by EMS Organization Type by Year (Metro EMS Region Excluded) 2019-2021 .....	25
Figure 10: Number of Distinct Crew Members Appearing on a PCR by Year (All Volunteer Agencies Only) .....	26
Conclusion: Multi-faceted actions are needed .....	27

## Executive Summary/Key Findings

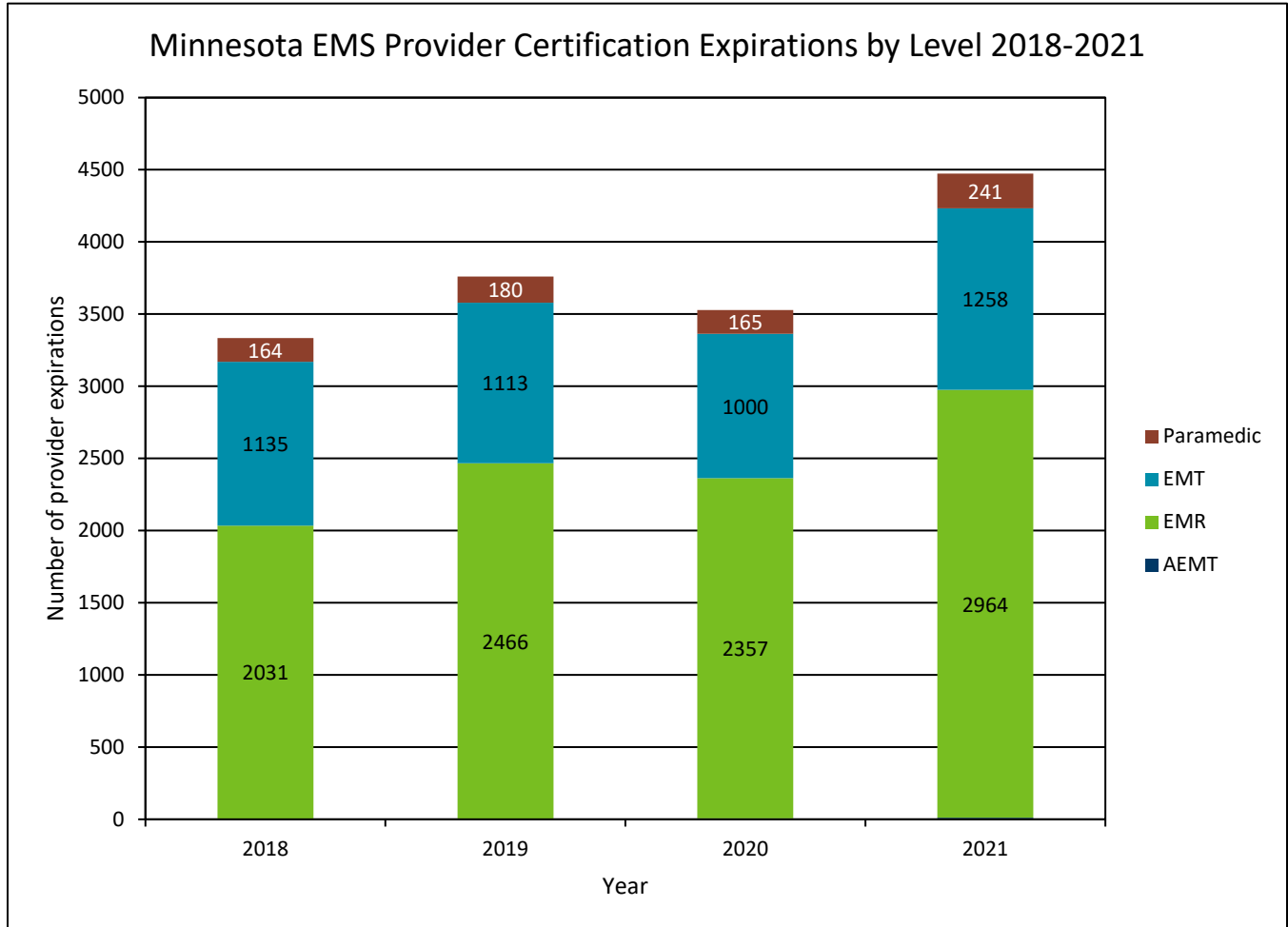
The state of the EMS workforce has been a significant point of discussion across Minnesota for the past several years. Changing societal and demographic trends coupled with the significant challenges posed by COVID-19 have placed an ever-increasing burden on both the EMS system and workforce. The EMSRB remains committed to working to address this issue with the authorities and resources we possess and continue to inform other policy makers within government to draw attention to this critical issue.

As part of that commitment the EMSRB has established a recruitment and retention workgroup and will continue to engage in identifying resources and best practices to help move towards an empowered and sustainable EMS workforce for years to come. Overall, the data presented in this report is alarming, and is consistent with trends that are being seen not only within EMS but across healthcare. Below is a summary of the report's key findings.

- According to EMS patient care report data, 20% of EMS licenses in the State of Minnesota reported less certified staff responding to EMS calls for service in 2021 when compared to 2020, and 6% reported having less than 10 individuals who responded to calls in 2021.
- Statewide 5% of all EMS responses statewide are handled by all volunteer organizations. When excluding the metro EMS region, it increases to 10%.
- The number of individuals who have let their EMS certification expire has increased 34% from 2018 to 2021.
- Nearly 45% of individuals whose EMT certification expires are less than 30 years old. There is a marked inability for the EMS industry to engage or retain the youngest individuals in our profession.
- Due to the impact of COVID-19 on educational programs, there were 2,916 more EMS providers whose certification expired versus new providers who entered the EMS system for the first time.
- Minnesota EMS education program graduates regularly perform better than the national average in successful completion of examination requirements.
- There exists significant opportunity to increase the diversity of the EMS workforce, nearly 70% of Minnesota EMS certification holders are male.
- Less than half of the state's 9,057 certified EMT's appeared on an EMS patient care report between 01/01/2019 and 03/31/2022. That signifies challenges in engaging and retaining existing EMS providers.
- There must be a greater focus on retention of existing EMS personnel. If the leaks of the EMS workforce cannot be stopped, it is highly improbable that recruitment efforts alone will be able to correct the staff shortages seen across the state.

## Lack of Retention of Emergency Medical Services Personnel

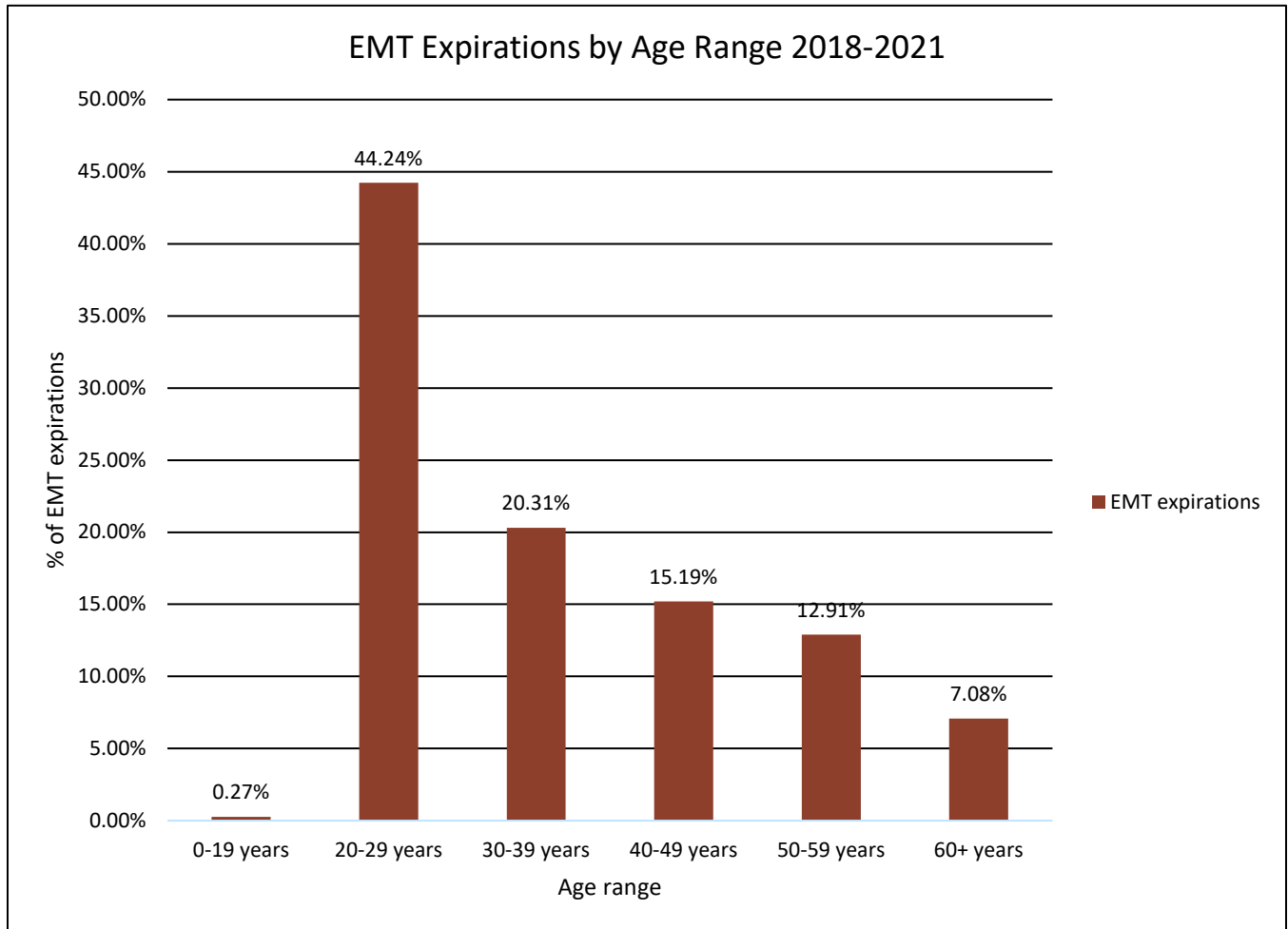
Figure 1: Minnesota EMS Provider Certification Expirations by Level 2018-2021



Source: Minnesota EMS Certification/Licensure System

Figure 1 displays the total number of individual EMS provider certifications that have expired in each calendar year from 2018-2021. From 2018 to 2021 the number of EMS certifications that expired increased from 3,334 to 4,474, a 34.19% increase. Of the four certification levels tracked by the EMSRB Emergency Medical Responders (EMR) made up the highest proportion of certification expirations. This is likely in part due to various requirements of other professions that require an initial EMR certification, but do not require it to be maintained.

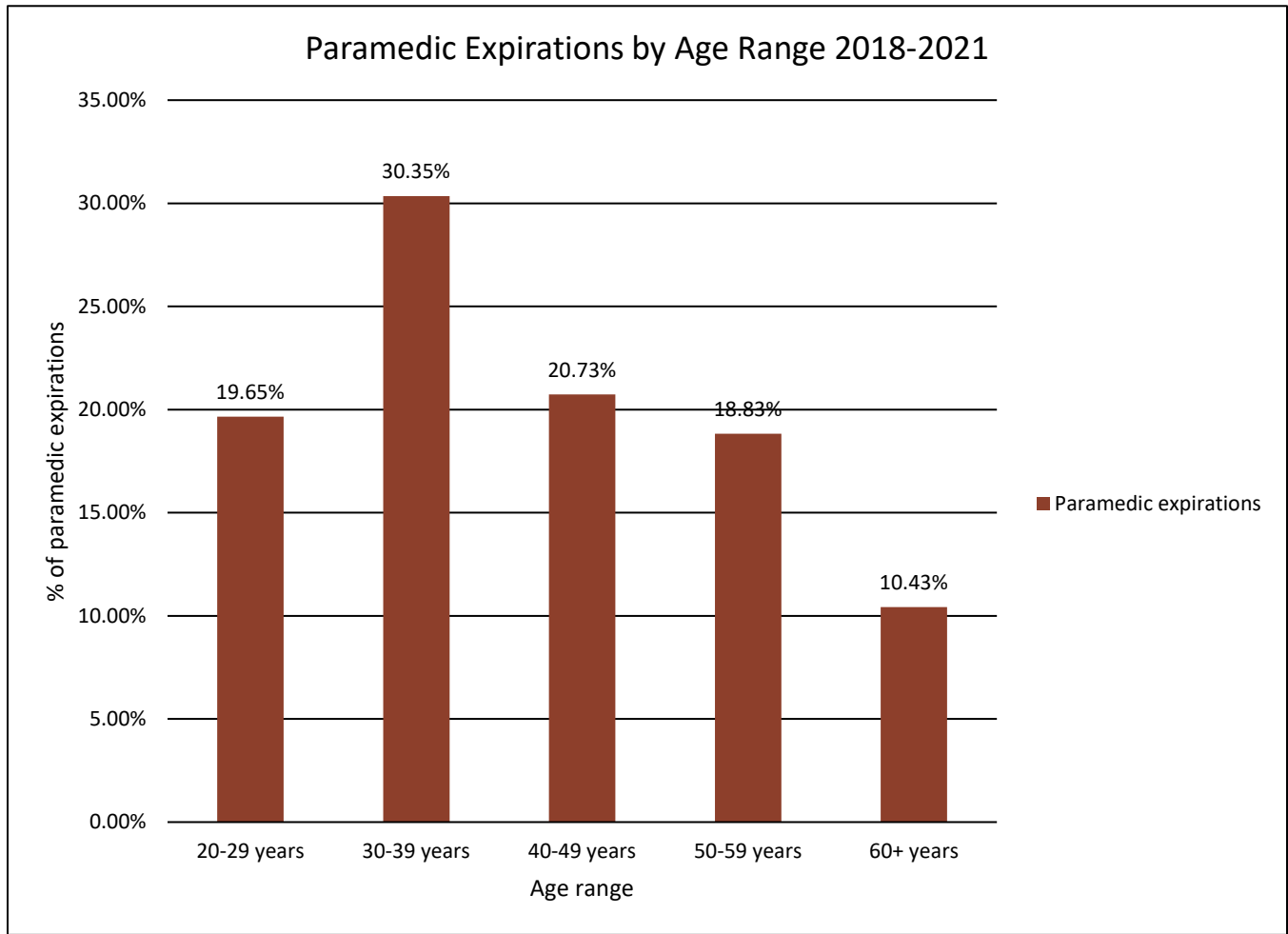
**Figure 2: Emergency Medical Technician Expirations by Age Range 2018-2021**



Source: Minnesota EMS Certification/Licensure System

Figure 2 displays for calendar years 2018-2021 the percentage of EMT certification expirations by age range. The age was assigned based on how old a provider was on the day that their EMT certification expired. Alarming, it is the 20–29-year-old age range that makes up the highest proportion of EMT certification expirations at 44.24%. This means that of the 4,506 EMT certifications that expired between 2018 and 2021, 1,993 were between the ages of 20 and 29. There is a marked inability for the EMS industry to engage or retain the youngest individuals in our profession. EMS leaders of all levels must assess for strategies to retain this portion of our workforce.

**Figure 3: Paramedic Expirations by Age Range 2018-2021**

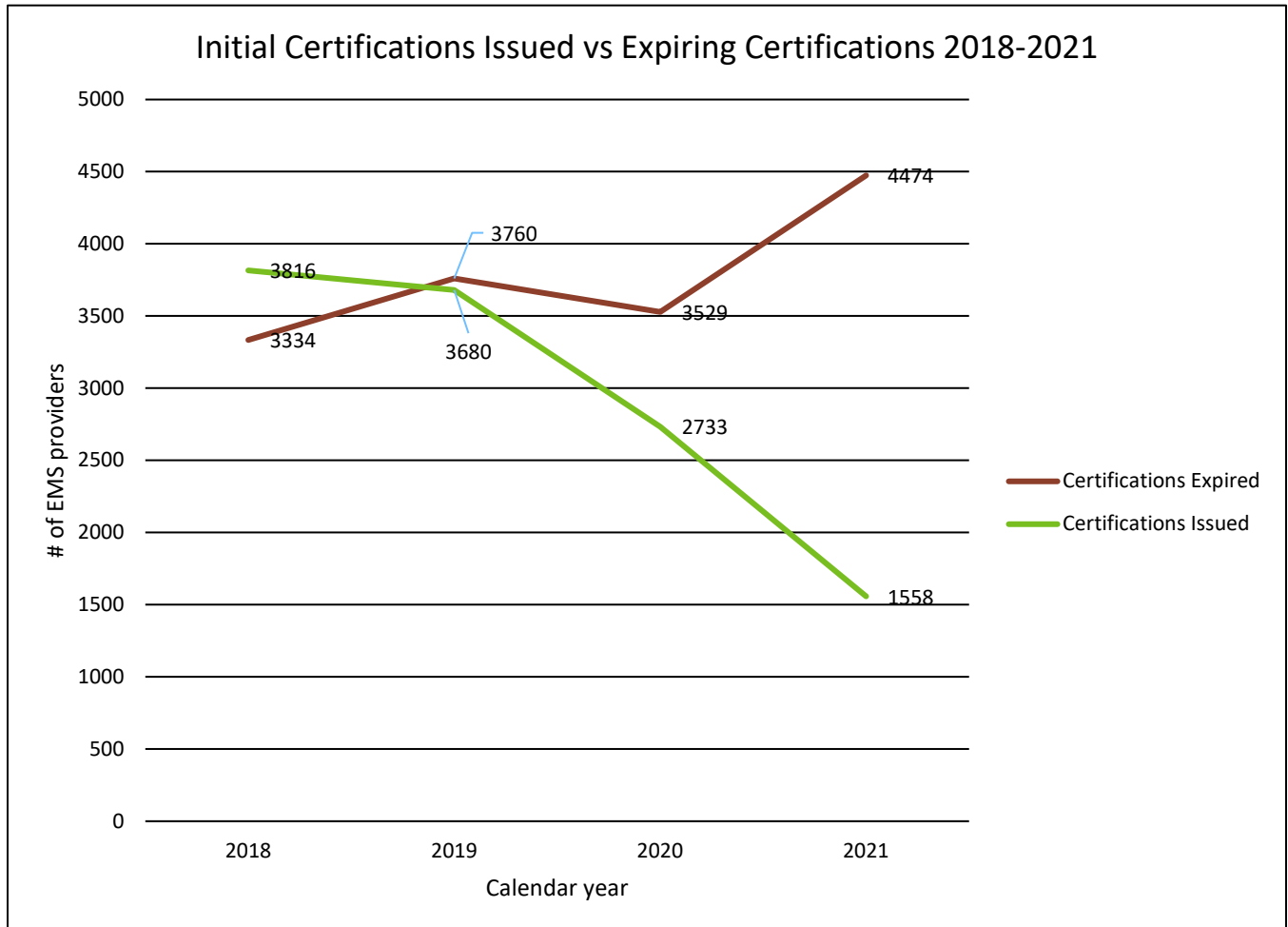


Source: Minnesota EMS Certification/Licensure System

Figure 3 displays for calendar years 2018-2021 the percentage of paramedic certification expirations by age range. The age was assigned based on how old a provider was on the day that their paramedic certification expired. It is the 30–39-year-old age range that makes up the highest proportion of paramedic certification expirations at 30.35%. This means that of the 750 paramedic certifications that expired between 2018 and 2021, 228 were between the ages of 30 and 39. Overall, half of paramedics who allow their certification to expire are between the ages of 20 and 39. This once again indicated an inability for the EMS industry to engage or retain younger paramedics, although not to the same extent as seen with emergency medical technicians.

## Workforce Attrition Gap

Figure 4: Initial Certifications Issued vs Expiring Certifications 2018-2021



Source: Minnesota EMS Certification/Licensure System

Figure 4 displays by calendar year for 2018 through 2021 the total number of initial certifications issued by the EMSRB and the total number of certifications that expired. The total number of initial certifications only considers individuals who entered the EMS system in Minnesota for the first time. It does not count individuals who upgraded their certification. The expiration figure includes all individuals whose certifications expired. In 2018 there was a technical surplus of EMS providers with the EMS system bringing on 482 more EMS providers than were lost due to attrition. In 2021 there was a gap of (-2,916). This gap has accelerated each year since 2018, and the negative increases in 2020 and 2021 are likely due to effects of COVID-19.



Without slowing the rate of attrition through increased retention, the EMS system would need to recruit nearly 3 times as many providers from what was seen in 2021 to break even and would require even more to begin reversing the consequences of these trends.

**Table 1: Educational Pipeline**

Testing Metric	2018	2019	2020	2021
MN EMT overall pass rate	83%	83%	86%	81%
National EMT overall pass rate	82%	81%	80%	79%
MN EMT successful completions	1,208	1,308	1,084	1,189
MN Paramedic overall pass rate	92%	90%	88%	89%
National Paramedic overall pass rate	91%	90%	89%	85%
MN Paramedic successful completions	107	137	103	121

Source: National Registry of Emergency Medical Technicians Pass/Fail Report

Table 1 displays the total number of individuals at the EMT and Paramedic levels that successfully completed both a Minnesota EMS educational program and passed the cognitive (written) certification examination. The year is based on when a student graduated the program and does not reflect when the student became certified. The year 2020 saw a 17% reduction in the number of graduates that graduated and attempted the certification examination. 2021 saw a partial recovery, but still has not recovered to pre-pandemic levels.

Minnesota EMS education program graduates regularly perform better than the national average in successful completion of examination requirements.

## Credentialed Workforce

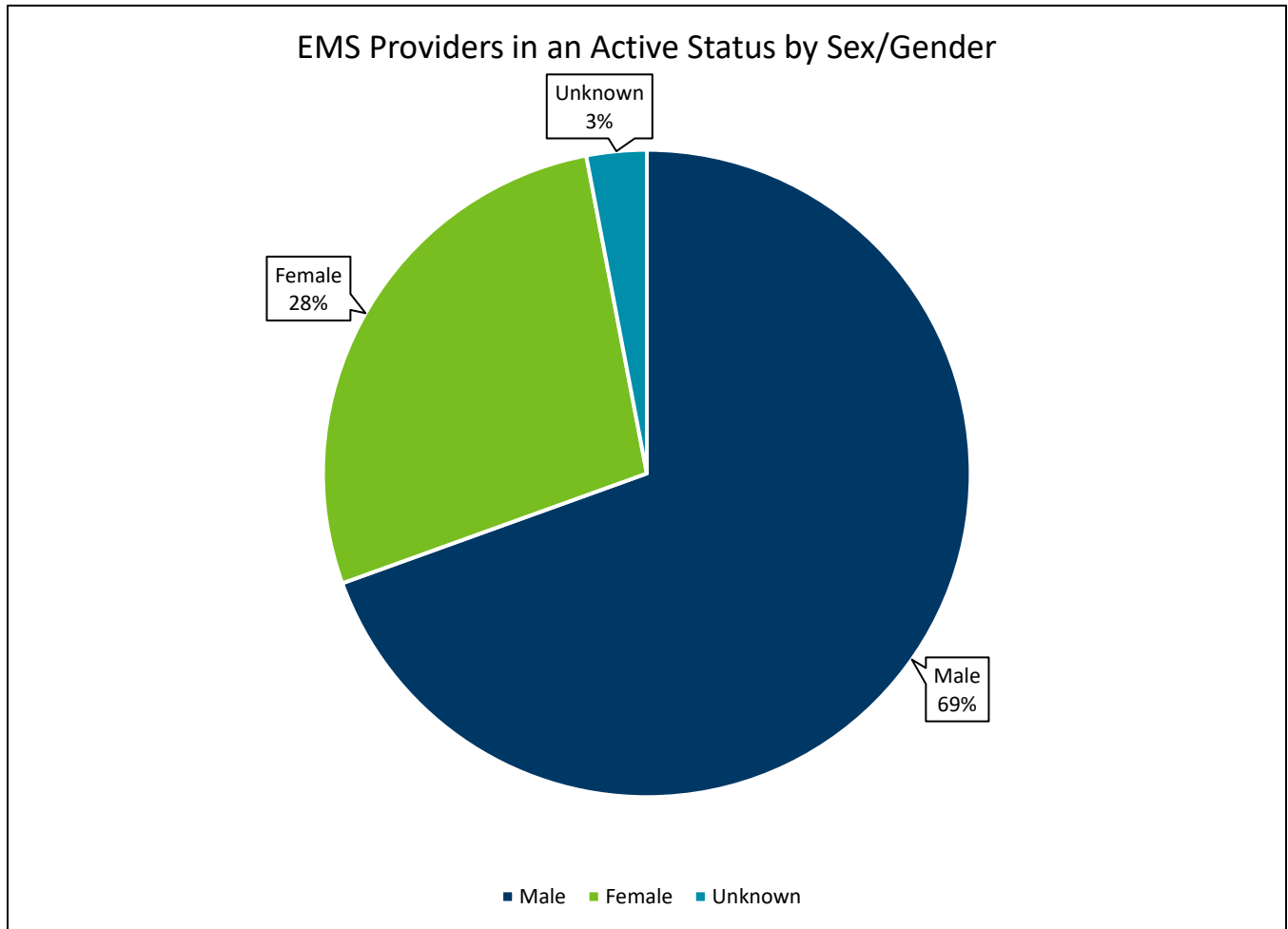
**Table 2: Certified Providers by Level as of 04/14/2022**

Certification Level	Number of Certified Providers
Advanced Emergency Medical Technician	63
Emergency Medical Responder	15,206
Emergency Medical Technician	9,507
Paramedic	3,495

Source: Minnesota EMS Certification/Licensure System

Table 2 displays by certification level the total number of distinct individuals who hold a certification at that level and that certification is in an active status. This active status does not necessarily indicate that a person is actively providing service as an EMS provider only that they are part of the eligible workforce.

**Figure 5: EMS providers in an Active Status by Sex/Gender as of 04/14/2022**



Source: Minnesota EMS Certification/Licensure System

Figure 5 displays that 69% of the individual EMS certification holders are male, while only 28% are female, and the EMSRB did not have available data for the remaining 3%. There exists significant opportunity to engage a more diverse group of individuals to grow the EMS workforce in Minnesota.

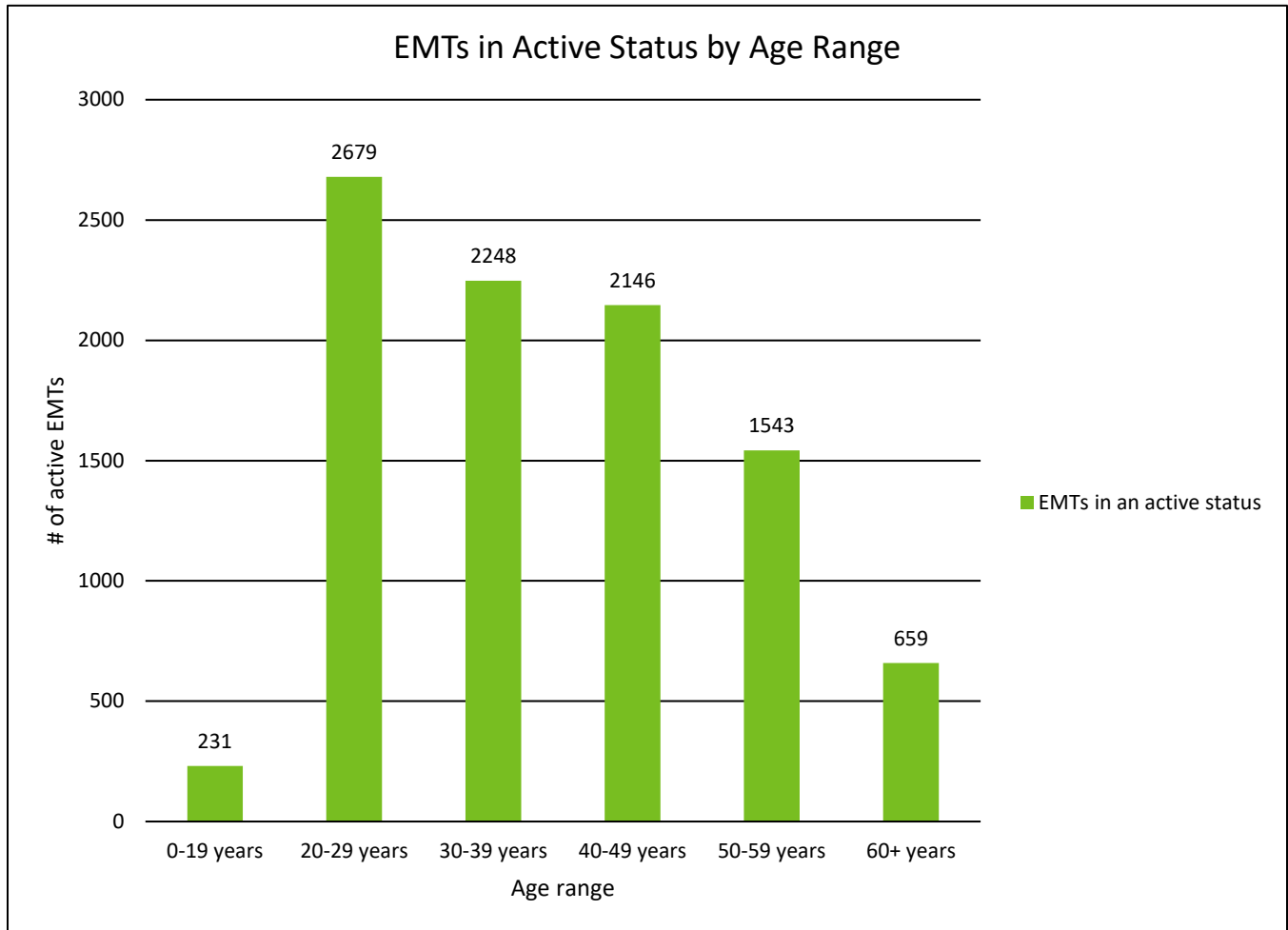
**Table 3: EMS providers in an Active Status by Race/Ethnicity as of 04/14/2022**

<b>Race/Ethnicity</b>	<b>% of Certified EMS Providers</b>	<b>% of State Population (2021 Population Estimates)</b>
White	70.55%	84%
Unknown	20.64%	N/A
Asian	2.80%	5%
Hispanic or Latino	2.03%	6%
Black or African American	1.94%	7%
American Indian or Alaska Native	1.96%	1.4%
Native Hawaiian or Other Pacific Islander	<1%	<1%

Source: Minnesota EMS Certification/Licensure System

Table 3 displays that 70% of the individual EMS certification holders are white. The EMSRB did not have available data for the remaining 21% of the target population. Based on 2021 U.S. Census population estimates, which are included for benchmarking in the % of state population columns there exists opportunity to engage a more diverse group of individuals to grow the EMS workforce in Minnesota and for the workforce to be more reflective of the communities EMS serves.

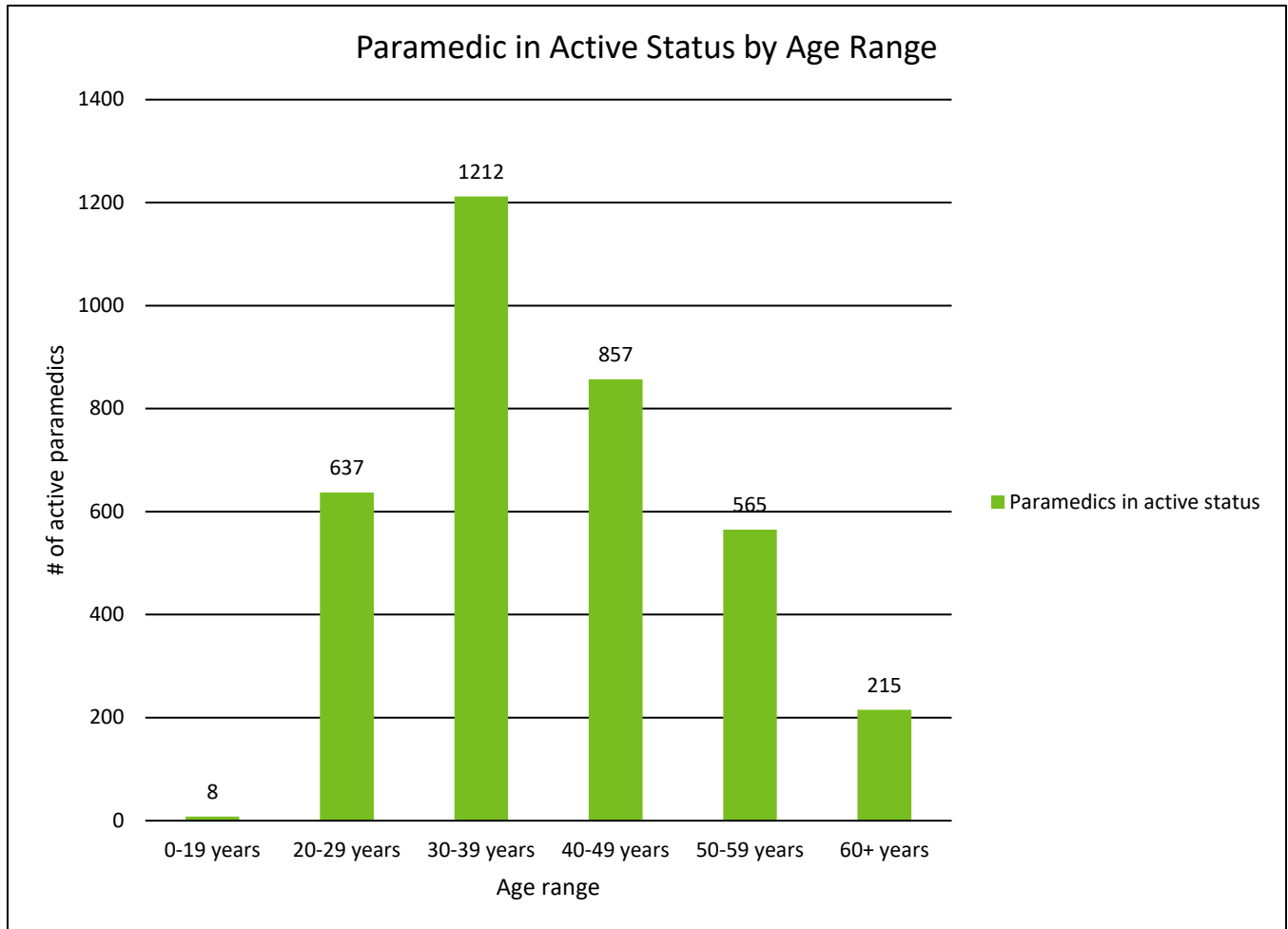
**Figure 6: Emergency Medical Technicians in Active Status by Age Range as of 04/14/2022**



Source: Minnesota EMS Certification/Licensure System

Figure 6 displays by age range the number of individuals holding an EMT certification in an active status. 20–29-year-olds make up the greatest proportion of the EMT population. The older age ranges drop off at least in part to the high rate of certification expirations of the 20–29-year-old age range as discussed in Figure 2 of this report. The high rate of expirations of younger providers places a significant burden on older providers. 7% of the states certified EMTs are 60 years of age or greater.

**Figure 7: Paramedics in Active Status by Age Range as of 04/13/2022**



Source: Minnesota EMS Certification/Licensure System

Figure 7 displays by age range the number of individuals holding a paramedic certification in an active status. 30–39-year-olds make up the greatest proportion of the paramedic population. The age distribution of paramedics is much more balanced than that of EMTs and is reflective of the more balanced expiration rate. This may be at least in part to the greater time and investment in becoming a paramedic. Additionally, paramedics are typically working in higher paid and benefited positions.

## Workforce Engagement

Up to this point this report has focused on statistics related to individuals who obtained, held, or allowed a certification to expire. None of these factors indicate actual participation in providing pre-hospital care. There are many individuals who for one reason or another obtain an EMS certification and never subsequently provide EMS patient care as a member of an ambulance crew.

The EMSRB was able to utilize reported crew data from the ImageTrend Elite reporting system to identify the number of credentialed providers who appeared on an EMS patient care report with an incident date between 01/01/2019 and 03/31/2022. For the purposes of this section, if a certification holder appeared on at least one PCR during this time they are considered to be part of the engaged workforce.

What follows is a county level analysis of workforce engagement. An EMS provider is assigned to a county based on their primary reported county within the state's electronic license system. In many instances this is their county of residence. However, in other instances individuals may report the county of an employer as people do not always work in the same county in which they live. Table 4 contains the total number of EMTs and paramedics who hold an active credential from the EMSRB, the total number of those that appear on an EMS PCR, and an engagement rate that is calculated for each level by dividing the number on a PCR by the certified total to arrive at a percentage. For privacy reasons, counties that had a count of between 1 and 5 were suppressed and are displayed as <5.

If a county has an engagement rate of greater than 100%, it simply means that there are individuals practicing under the provisions of provisional certification.

During data analysis it was noted that there were a significant number (10%) of patient care records that were submitted with either no crew data, or invalid crew data. Crew data was considered invalid if it did not match a Minnesota EMS certification number. EMS agencies are asked to review their PCR software to ensure that they are exporting Minnesota certification numbers for all their certified providers. As a result of this data quality, the EMSRB believes that the engagement rates may be artificially low. Despite the dataset not being perfect, the EMSRB feels that it demonstrates a reasonable account of the state's EMS workforce.

**Table 4: Workforce Engagement of Certified EMTs and Paramedics by County as of 04/14/2022**

County	EMTs in an Active Status	EMT Engagement Rate	Paramedics in an Active Status	Paramedic Engagement Rate
Out of State/No County	585	27.01%	624	43.43%
Aitkin	65	33.85%	8	87.50%
Anoka	732	15.30%	146	85.62%
Becker	29	62.07%	13	76.92%
Beltrami	101	63.37%	21	90.48%
Benton	39	25.64%	22	90.91%
Big Stone	16	81.25%	<5	100.00%
Blue Earth	75	49.33%	36	86.11%
Brown	53	58.49%	11	72.73%
Carlton	91	65.93%	31	90.32%
Carver	156	15.38%	45	86.67%
Cass	115	35.65%	99	62.63%



County	EMTs in an Active Status	EMT Engagement Rate	Paramedics in an Active Status	Paramedic Engagement Rate
Chippewa	35	68.57%	15	53.33%
Chisago	75	37.33%	41	82.93%
Clay	65	21.54%	42	69.05%
Clearwater	12	83.33%	<5	100.00%
Cook	52	50.00%	<5	100.00%
Cottonwood	49	91.84%	<5	100.00%
Crow Wing	91	49.45%	54	83.33%
Dakota	450	30.22%	203	79.31%
Dodge	52	63.46%	15	93.33%
Douglas	83	27.71%	37	70.27%
Faribault	88	95.45%	5	80.00%
Fillmore	98	85.71%	5	100.00%
Freeborn	42	40.48%	17	82.35%

County	EMTs in an Active Status	EMT Engagement Rate	Paramedics in an Active Status	Paramedic Engagement Rate
Goodhue	67	53.73%	51	88.24%
Grant	56	73.21%	14	78.57%
Hennepin	1520	12.43%	374	83.16%
Houston	54	77.78%	11	72.73%
Hubbard	29	58.62%	8	100.00%
Isanti	49	36.73%	18	72.22%
Itasca	70	67.14%	27	96.30%
Jackson	34	91.18%	<5	50.00%
Kanabec	13	53.85%	5	100.00%
Kandiyohi	93	74.19%	19	100.00%
Kittson	29	89.66%	0	N/A
Koochiching	34	91.18%	7	114.29%
Lac qui Parle	35	80.00%	<5	100.00%

County	EMTs in an Active Status	EMT Engagement Rate	Paramedics in an Active Status	Paramedic Engagement Rate
Lake	34	35.29%	6	66.67%
Lake of the Woods	23	95.65%	<5	100.00%
Le Sueur	65	80.00%	15	93.33%
Lincoln	23	65.22%	9	33.33%
Lyon	54	72.22%	9	111.11%
Mahnomen	6	66.67%	5	80.00%
Marshall	40	82.50%	<5	33.33%
Martin	63	68.25%	6	100.00%
McLeod	24	70.83%	9	100.00%
Meeker	40	67.50%	9	77.78%
Mille Lacs	28	57.14%	17	94.12%
Morrison	47	46.81%	<5	75.00%
Mower	73	54.79%	16	87.50%

County	EMTs in an Active Status	EMT Engagement Rate	Paramedics in an Active Status	Paramedic Engagement Rate
Murray	32	75.00%	<5	100.00%
Nicollet	26	65.38%	14	100.00%
Nobles	31	70.97%	5	60.00%
Norman	10	60.00%	5	100.00%
Olmsted	206	36.89%	77	77.92%
Otter Tail	93	59.14%	33	96.97%
Pennington	11	63.64%	7	85.71%
Pine	44	52.27%	14	85.71%
Pipestone	42	71.43%	8	100.00%
Polk	87	42.53%	51	64.71%
Pope	27	85.19%	<5	100.00%
Ramsey	704	39.20%	317	88.64%
Red Lake	15	93.33%	<5	100.00%

County	EMTs in an Active Status	EMT Engagement Rate	Paramedics in an Active Status	Paramedic Engagement Rate
Redwood	68	70.59%	7	100.00%
Renville	72	90.28%	6	100.00%
Rice	84	38.10%	29	93.10%
Rock	22	81.82%	6	33.33%
Roseau	32	75.00%	8	100.00%
Scott	176	21.59%	71	84.51%
Sherburne	127	37.80%	66	77.27%
Sibley	57	71.93%	<5	100.00%
St. Louis	464	44.83%	138	89.86%
Stearns	177	44.07%	79	97.47%
Steele	42	66.67%	19	89.47%
Stevens	17	52.94%	8	100.00%
Swift	33	90.91%	5	100.00%

County	EMTs in an Active Status	EMT Engagement Rate	Paramedics in an Active Status	Paramedic Engagement Rate
Todd	63	82.54%	10	100.00%
Traverse	15	86.67%	0	N/A
Wabasha	43	69.77%	16	100.00%
Wadena	30	46.67%	16	87.50%
Waseca	29	51.72%	11	90.91%
Washington	416	41.83%	199	85.43%
Watonwan	33	75.76%	<5	100.00%
Wilkin	7	57.14%	<5	66.67%
Winona	84	58.33%	30	50.00%
Wright	199	48.24%	65	89.23%
Yellow Medicine	37	81.08%	11	90.91%

**Table 5: Workforce Engagement & Salary Analysis by MNDEED Area as of 04/14/2022**

MNDEED Planning Area	EMT Engagement Rate	Paramedic Engagement Rate	EMT/Paramedic Wage	Construction Laborer Wage	Patrol Officer Wage	RN Wage
Central	57.76%	94.59%	\$19.28	\$21.42	\$32.28	\$40.54
Northeast	59.51%	100%	\$16.6	\$19.74	\$33.1	\$34.38
Northwest	67.26%	85.52%	\$17.83	\$17.46	\$30.05	\$34.77
Seven County Metro	27.01%	91.66%	\$23.84	\$29.19	\$42.82	\$42.44
Southeast	66.04%	91.26%	\$19.58	\$23.54	\$33.25	\$35.31
Southwest	89.50%	93.72%	\$17.60	\$18.20	\$28.83	\$36.89

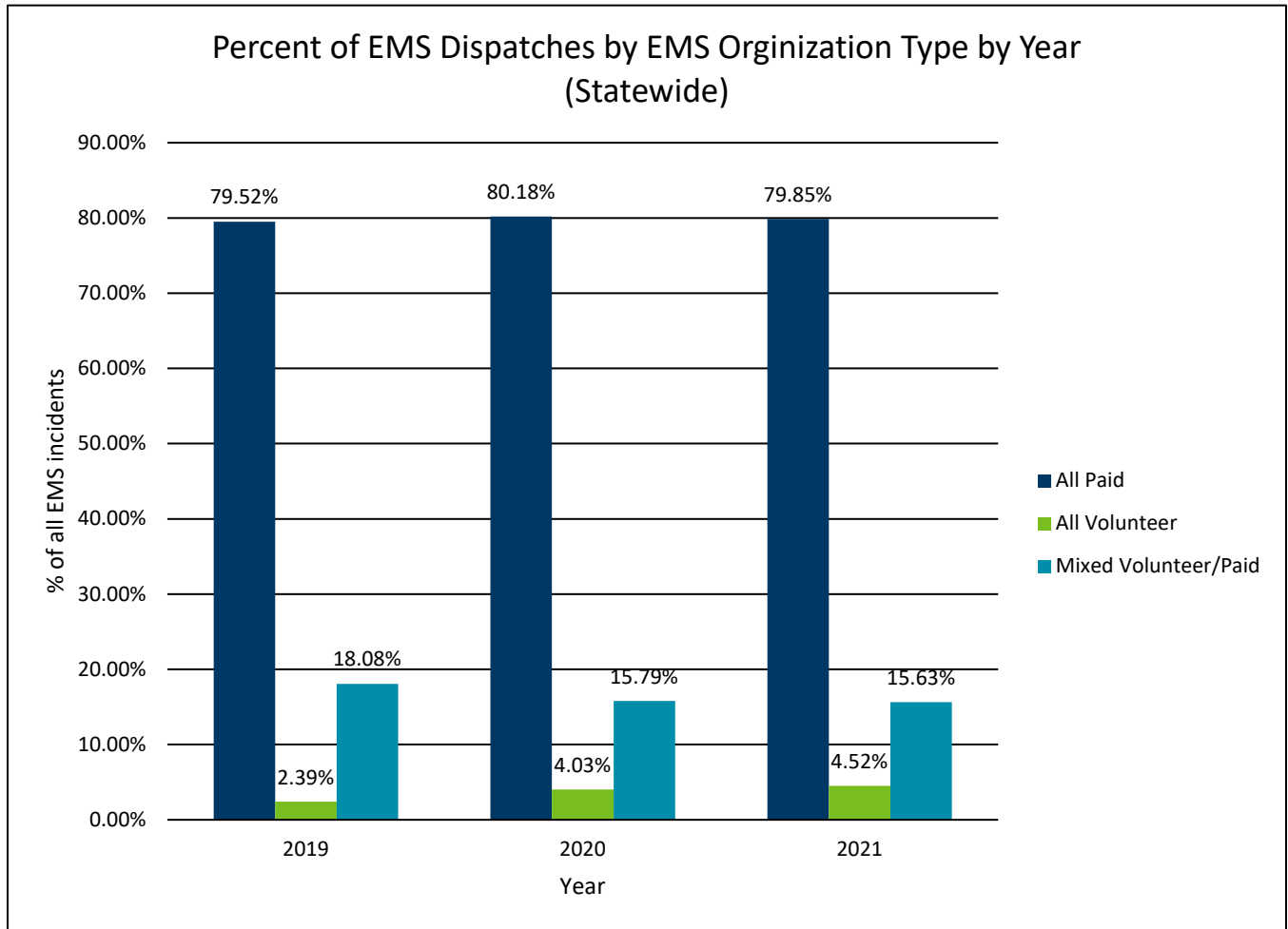
Source: Minnesota EMS Certification/Licensure System/PCR System/Minnesota Department of Employment and Economic Development

Table 5 examines workforce engagement by the six designated planning areas utilized by the Minnesota Department of Employment and Economic Development. Also displayed are the hourly median wages for EMT/Paramedics, construction laborers, patrol officers, and registered nurses for the planning area. Salary data is reflective as of quarter 1 of 2021 and can be sourced from DEED by using [this tool](#). These professions were chosen for salary comparison based on anecdotal reports, that these were professions that EMS professionals gravitated towards when deciding to leave EMS. Due to determinations by the U.S. Bureau of Labor Statistics EMT and Paramedic wages are not broken out and are counted together.

## Agency Organization Type

From a workforce perspective, EMS agencies in Minnesota are classified in one of three different ways all volunteer, all paid, or mixed volunteer/paid. There currently are no standardized definitions for what constitutes an all-volunteer organization. The agency composition data that is utilized for this analysis is self-reported by EMS agencies, and there is no further validation performed by the EMSRB. Because only licensed ground and air ambulances are required to submit electronic patient care reporting data, non-transport first response data is not reflected in this analysis.

**Figure 8: Percent of EMS Dispatches by EMS Organization Type by Year (Statewide) 2019-2021**

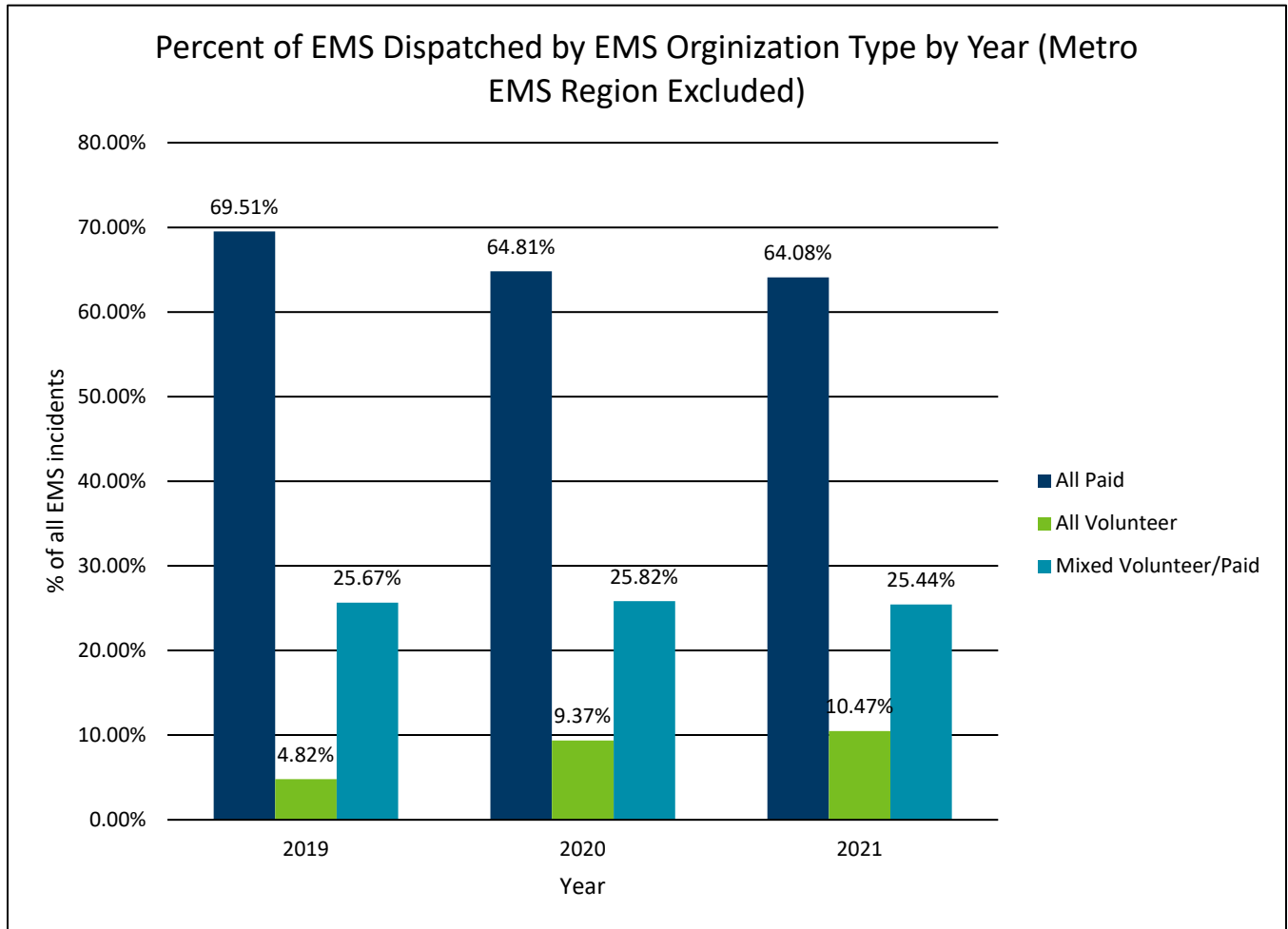


Source: Minnesota EMS Certification/Licensure System/PCR System

Figure 8 displays what percentage of EMS responses were reported to the EMSRB sorted by the reported organization type of the EMS agency. On average 80% of the reported EMS responses were handled by an agency that self-identified as all paid. Just over 15% of EMS volume was handled by agencies that self-reported as a mix of volunteer and paid, and just under 5% of overall EMS volume in the state was handled by all volunteer organizations.



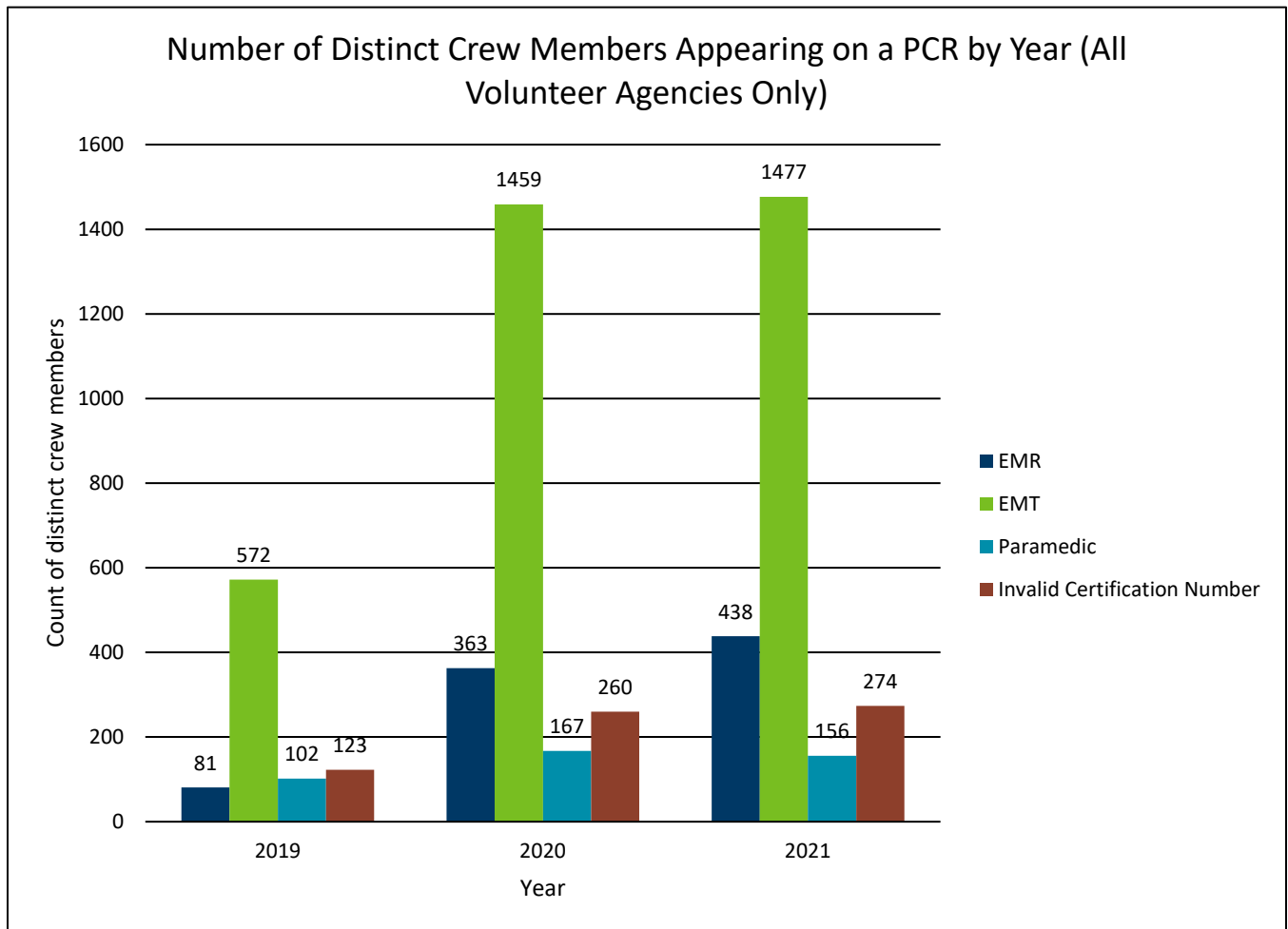
**Figure 9: Percent of EMS Dispatches by EMS Organization Type by Year (Metro EMS Region Excluded) 2019-2021**



Source: Minnesota EMS Certification/Licensure System/PCR System

Figure 9 conducts the same analysis as figure 8 but excludes the Metro EMS Region. When limiting the examination to outstate EMS agencies the percentage of EMS dispatches handled by all paid EMS agencies drops to 64%. Additionally, there was a higher proportion of dispatches handled by mixed volunteer/paid agencies at 25% and approximately 10% of EMS responses in the outstate were handled by all volunteer organizations.

**Figure 10: Number of Distinct Crew Members Appearing on a PCR by Year (All Volunteer Agencies Only)**



Source: Minnesota EMS Certification/Licensure System/PCR System

One question that the EMSRB frequently receives is how many EMS volunteers there are in the State of Minnesota. Figure 10 provides a limited assessment into this question. For this analysis individual crew member ID's that were transmitted with patient care reports were counted, each identifier was counted only once per year. There is a portion of crew identifiers that were either non-numeric or did not properly map to a valid certification number.

The analysis was restricted to include only all-volunteer organizations and does not consider agencies that self-identified as mixed paid/volunteer. This was necessary because the EMSRB has no way to differentiate between how many staff are paid and how many are volunteer in that type of organization. Furthermore, as with previous analysis in this report it is only reflective of ground and air ambulance agencies. As a result, this analysis results in a known undercount.

Finally, the jump that is seen from 2019 to 2020 is unfortunately not reflective of a jump in volunteerism, but rather is a result of an increase in data reporting and higher data quality.

## **Conclusion: Multi-faceted actions are needed**

The data presented here, lays out what EMS leaders have been highlighting in recent years. To maintain a sustainable statewide EMS system there must be a strong focus on the trends of the EMS workforce. Retention actions must be given a higher priority and the leaks of younger EMS professionals must be plugged. This will require evaluation and action at an EMS agency level and to be supported by financial resources from the varying levels of government.

Additionally, continued development and support of educational institutions that offer EMS programs across the state is paramount. The EMSRB continues to advertise and process applications from individuals applying for tuition reimbursement for the completion of EMT initial education programs.

In conclusion, the availability and size of the EMS workforce has not been able to keep pace with the growing demands on the overall EMS system. Swift and decisive action from policy makers will be crucial in ensuring a sustainable EMS delivery model for the years to come.