

The Training Pipeline for EMS Personnel in South Carolina



June, 2019

South Carolina EMS Association

South Carolina Office for Healthcare Workforce

Acknowledgements

This study of the educational pipeline for Emergency Medical Services (EMS) personnel in South Carolina was a joint effort between the South Carolina Office for Healthcare Workforce and the South Carolina EMS Association. Members of the SC EMS Association were instrumental in crafting the questionnaire that went out to each EMS entry-level education program in the state. Special thanks go to Henry Lewis, current President of the association, and the SC EMS Association Leadership.

This report was prepared by Linda M. Lacey in the South Carolina Office for Healthcare Workforce. Our office is dedicated to studying supply and demand issues affecting a wide variety of healthcare professions and occupations in the state. Our primary mission is the development and analysis of accurate, reliable data on the supply of healthcare professionals, the training system, and the demand for those professionals throughout the state in order to support effective workforce planning efforts.

For questions, more information or additional copies of this report, please contact Ms. Lacey at LaceyL@musc.edu. Or visit our website at: www.SCOHW.org where the report can be downloaded free of charge.



The South Carolina Office for Healthcare Workforce is a part of the South Carolina Area Health Education Consortium (AHEC) program office, located in Charleston, SC.

The Training Pipeline for EMS Personnel in South Carolina

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Table of Contents

	Page
Study Participants	1
Entry-Level Basic EMT Programs.....	2
Chart: Total New Students Enrolled in Entry-Level EMT Programs during the 2017-18 Academic Year	2
Map: EMT Graduates from Regional and Technical Educational Programs	3
Entry-Level Advanced EMT Programs	4
Chart: Total New Students Enrolled in Entry-Level Advanced EMT Programs during the 2017-18 Academic Year	4
Map: AEMT Graduates from Regional and Technical Educational Programs	5
Entry-Level Paramedic Programs	6
Chart: Total New Students Enrolled in Entry-Level Paramedic Programs during the 2017-18 Academic Year	6
Map: Paramedic Graduates from Regional and Technical Educational Programs.....	7
EMS Program Faculty	8
Table: Sufficiency of the Current Budget.....	8
Putting the Numbers in Context	9
Table: Entry-Level Totals: Student Admissions, Enrollments and Completions	9
Conclusions	10

The Training Pipeline for EMS Personnel in South Carolina

A recent study of agencies in South Carolina that provide emergency response services found that some agencies are experiencing difficulty in finding the EMS personnel they need.¹ The study presented in this report was conducted in order to better understand the educational pipeline that feeds the EMS workforce in South Carolina. This study was conducted by the South Carolina EMS Association with technical support from the South Carolina Office for Healthcare Workforce.

Study Participants

We surveyed all institutions and regional EMS training centers in the state that offer an entry-level training program that prepares students to take the national EMS certification exam at any of these levels: Emergency Medical Technician (often referred to as Basic EMT), Advanced Emergency Technician, and Paramedic. Every eligible program answered the survey resulting in a 100% response rate.

The survey asked EMS education programs to report on their student capacity (the number of new students they felt they could accept), the number of applications received, and the number of students accepted and actually enrolled, during the period from August 1, 2017 through July 31, 2018 which is referred to as the 2017-18 academic year in our summary. They also reported the total number of graduates from their respective programs during the 2017-18 year.

Nine technical colleges and six regional EMS training centers participated in the study for a total of 15 programs. Fourteen programs were accepting EMT, AEMT or Paramedic students into certificate or associate degree programs during the 2017-18 academic year. A new program just getting started at the time of the survey will be offering an Associate Degree for Basic EMT students during the 2019-2020 academic year.

South Carolina technical colleges offered a variety of certification and degree programs for EMS personnel during the 2017-18 academic year:

- Eight technical colleges in South Carolina offered a Basic EMT program in 2017-18.
- Two offered a certificate program for Advanced EMTs that year.
- One offered an Associate Degree for Advanced EMTs in 2017-18.
- Two offered a certificate program for Paramedics that year.
- Four offered an Associate Degree for Paramedics in 2017-18.

Regional training centers in the state also offered certificate programs for all EMS levels.

- Six regional centers offered Basic EMT programs in 2017-18.
- Two offered certificate programs for Advanced EMT during that time.
- Four offered a certificate program for Paramedics in 2017-18.

¹ South Carolina Office for Healthcare Workforce. (December 2018). The Demand for EMS Personnel in South Carolina. Charleston: South Carolina Area Health Education Consortium. Retrieved from <https://www.officeforhealthcareworkforce.org/reports/123>

The Training Pipeline for EMS Personnel in South Carolina

Entry-Level Basic EMT Programs

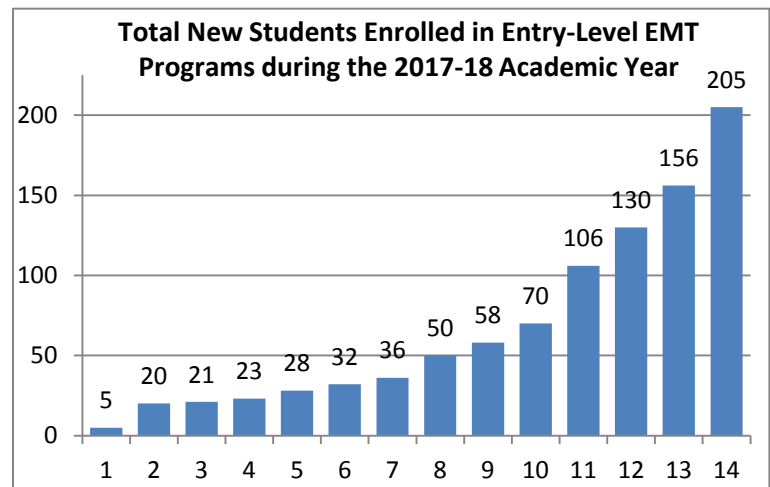
Certificate programs: A total of 14 technical colleges and regional EMT training centers were accepting basic EMT students in the 2017-18 academic year. Collectively, those programs:

- Received 1,010 applications from prospective students
- Of those applicants, only 964 met all of the program requirements
- Admitted all 964 qualified applicants into a program
- Saw a total of 940 students actually enrolled during the year

The total number of graduates during the 2017-18 academic year was 807.

Unfortunately, measuring capacity proved to be problematic for some programs and, as a result, it is not possible to provide an accurate estimate of the number of students that could have been admitted during the 2017-18 academic year. However, only one program had a small number of qualified applicants that they could not accept during the 2017-18 academic year - due primarily to an insufficient supply of lead instructors. All other programs accepted every applicant, suggesting that they were filling their programs at or below their capacity levels.

Not every student accepted into a program actually enrolled during that year, but 98% of them did. No Basic EMT program had to cancel classes during the year due to low enrollments. However, a few programs had a very small number of entry-level EMT students during the year. Across all 14 programs, the total number of students enrolled during the year ranged from a low of 5 in one program to a high of 205 in another. See the chart at the right for the full range.

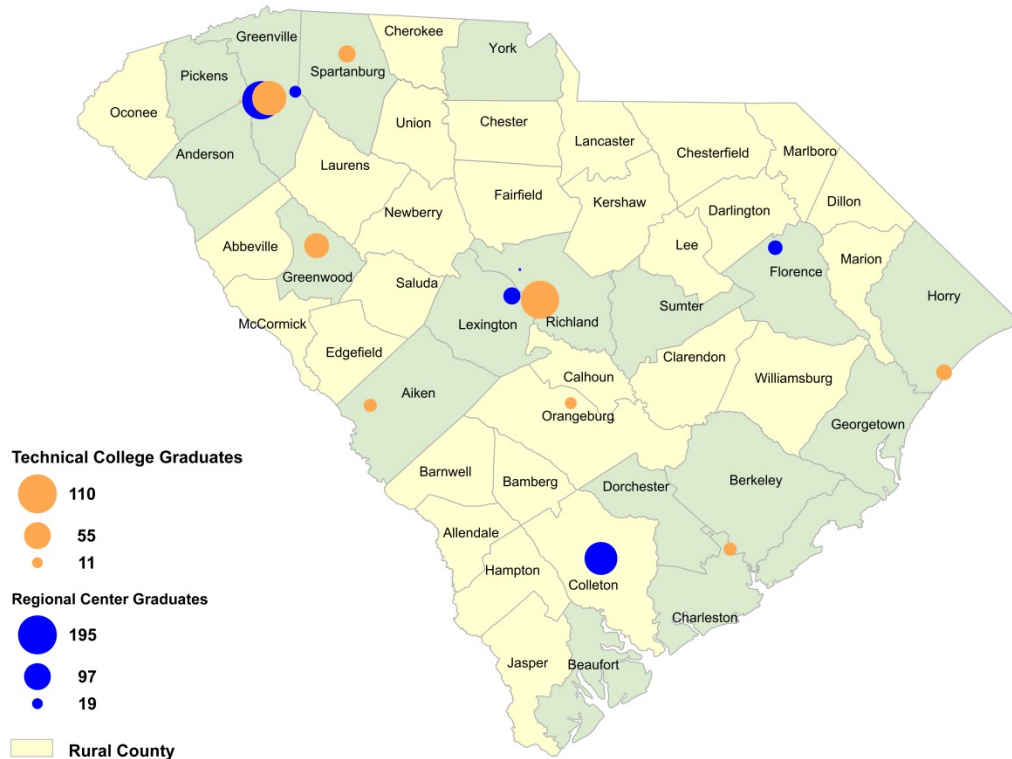


Eight of the 14 active programs (4 technical colleges and 4 regional EMS centers) plan to expand their Basic EMT program enrollment in the next two years. The others anticipated no changes.

Program Directors were asked to estimate what percentage of their graduating students plan to provide direct patient care in a first responder or patient transport role after graduation. Directors in technical colleges had an overall estimate of 85%, while Directors in regional training centers had an overall estimate of 81%. Across all program types, Directors estimated that about 83% of their graduates would go into direct patient care roles after graduation. That would equate to about 670 of their 807 graduates.

The Training Pipeline for EMS Personnel in South Carolina

EMT Graduates from Regional and Technical Educational Programs



This map shows the geographic location of the education programs for entry-level EMTs offering classes in the 2017-18 academic year. The circle colors indicate whether a program was located in a regional EMS education center or in a technical college. The size of the program circles is in relation to the total number of EMT graduates from that program during the 2017-18 academic year. Finally, the yellow areas in the background map indicate that the county is considered rural, based on the fact that 50% or more of the population in the county lived outside of an urban area at the time of the 2010 census.

Note that all but two of the EMT entry-level education programs are located in urban counties, and that two of the largest programs, in terms of 2017-18 graduates, are located in the Greenville area.

The Training Pipeline for EMS Personnel in South Carolina

Entry-Level Advanced EMT Programs

Certificate programs: 4 certificate programs were active in the 2017-18 academic year, 2 of them in technical colleges and 2 in regional training centers.

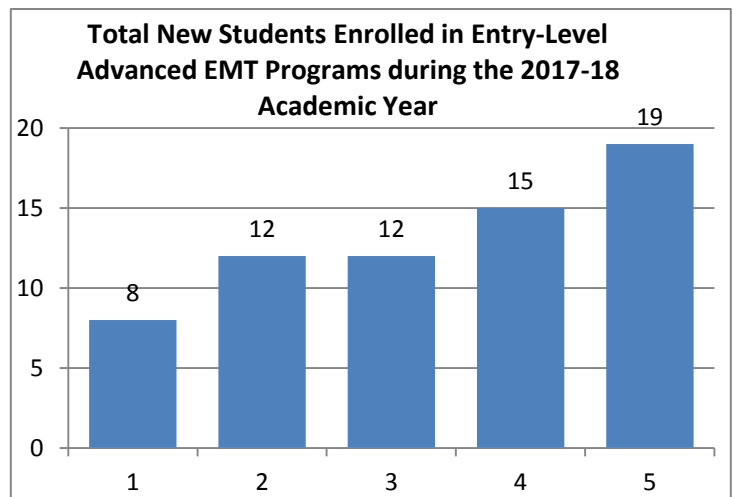
Associate Degree programs: 1 Associate Degree program was accepting students in the 2017-18 academic year.

Across the five programs accepting entry-level Advanced EMT students in the 2017-18 year the total capacity reported for the year totaled to 162 seats.

- Across all 5 programs, a total of 86 students applied during the 2017-18 year
- 72 of those applicants met all qualifications
- All 72 qualified applicants were admitted into a program
- 66 of them enrolled during the 2017-18 year

A total of 50 Advanced EMT students graduated during the 2017-18 year.

Across the state as a whole, 44% of the capacity for new Advanced EMT students was filled during the 2017-18 year ($72/162 = 44\%$). However, within each of the programs separately, the percentage of capacity filled ranged from a low of 25% to a high of 63%. All of the entry-level Advanced EMT programs available that year were small – fewer than 20 students total for the year. Ninety-two percent of those that were admitted actually enrolled during the year. See the chart at the right for the total number of students enrolled across the five programs

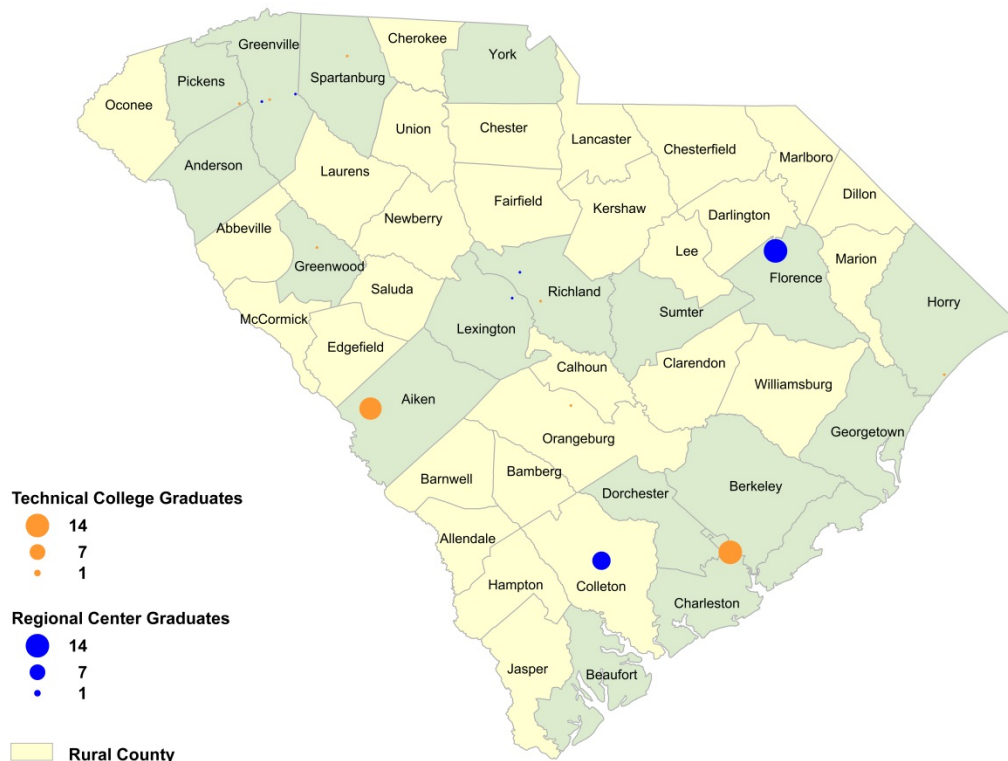


Two of the five programs reported that they intend to take fewer students in the future. The other three intend to expand their programs.

Program Directors were asked to estimate what percentage of their graduating Advanced EMT students who plan to provide direct patient care in a first responder or patient transport role after graduation. Across all program types, Directors estimated that about 72% of their graduates would go into direct patient care roles. That equates to approximately 40 of their 50 graduates.

The Training Pipeline for EMS Personnel in South Carolina

AEMT Graduates from Regional and Technical Educational Programs



This map shows the geographic location of the education programs offering classes for entry-level Advanced EMTs in the 2017-18 academic year. The circle colors indicate whether a program was located in a regional EMS education center or in a technical college. The size of the circles reflects the total number of Advanced EMT graduates from that program during the 2017-18 academic year. The yellow areas are the counties where 50% or more of the population lived outside of an urban area at the time of the 2010 census.

The majority of Advanced EMT graduates in 2017-18 came from programs in the coastal and central regions of the state and very few in the Upstate region. This pattern may reflect that fact that the available supply of Advanced EMTs is perceived as plentiful by the majority of employers in the state (in relation to the demand) with the exception of those in the Midlands area.²

² South Carolina Office for Healthcare Workforce. (December 2018). The Demand for EMS Personnel in South Carolina. Charleston: South Carolina Area Health Education Consortium. Retrieved from <https://www.officeforhealthcareworkforce.org/reports/123>

The Training Pipeline for EMS Personnel in South Carolina

Entry-Level Paramedic Programs

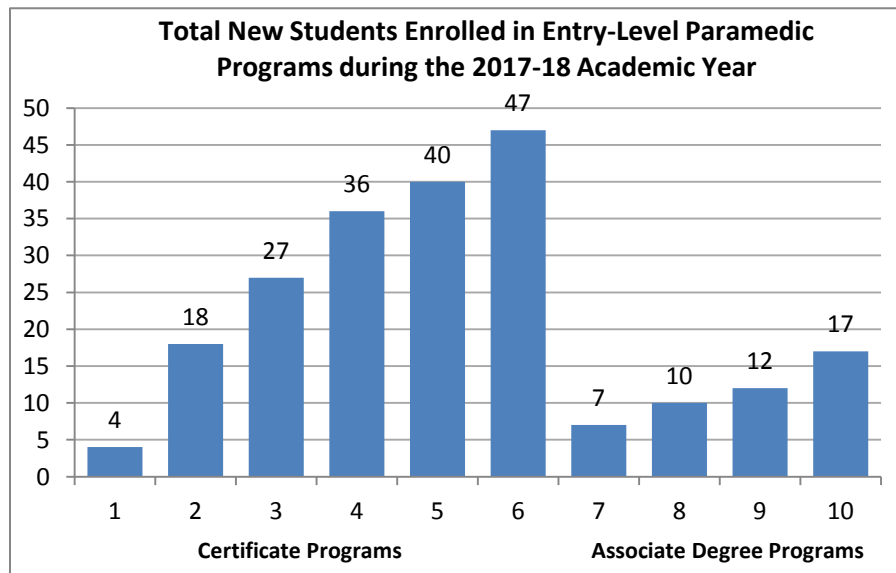
Certificate programs: Six certificate programs were active in the 2017-18 academic year, four of them in regional training centers and two in technical colleges.

Associate Degree programs: Four Associate Degree programs were accepting Paramedic students in the 2017-18 year.

Across all 10 programs accepting new Paramedic students in the 2017-18 academic year, the total reported capacity for new students that year was 393.

- A total of 244 students applied to these programs in the 2017-18 year.
- 236 of those applicants were fully qualified.
- All 236 qualified applicants were admitted into a program.
- Of those admitted, 218 of them enrolled during the 2017-18 year.

A total of 162 students graduated from a Paramedic program in South Carolina during the 2017-18 academic year.



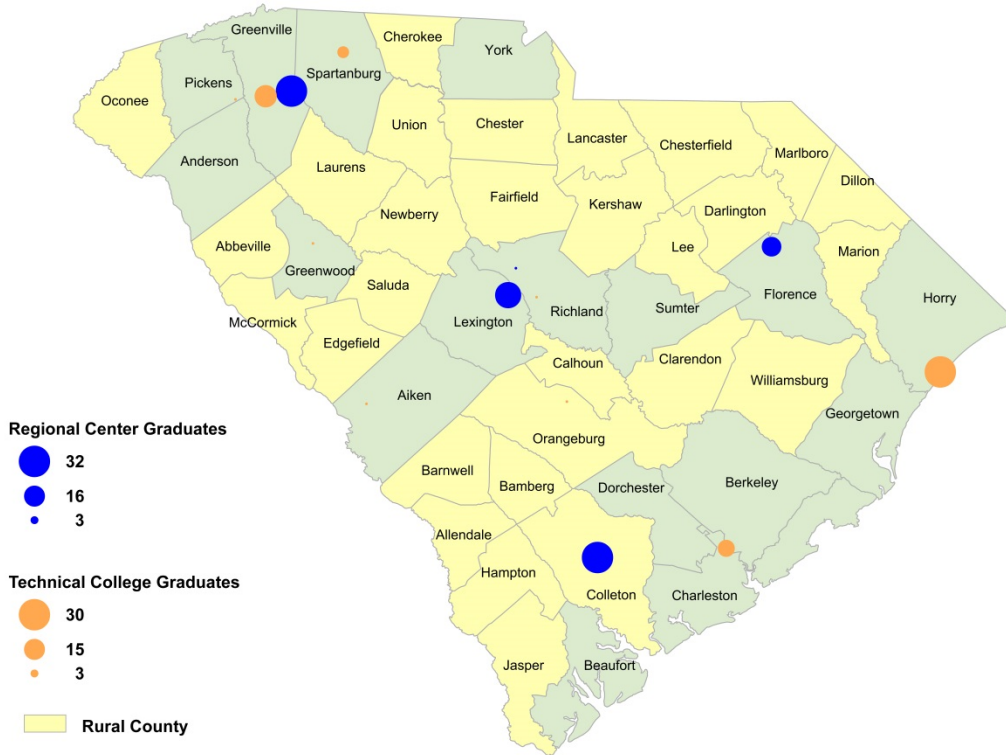
Across the state as a whole, 60% of the capacity for new Paramedic students was filled during the 2017-18 year ($236/393 = 60\%$). However, within each of the programs separately, the percentage of capacity filled ranged from a low of 17% to a high of 90%. Most programs filled 50% to 60% of their capacity for new Paramedic students. Like other EMS programs, there was a wide variety in program size as shown in the chart to the left.

Three of the 10 Paramedic programs active in 2017-18 intend to expand their programs in the next two years. The other seven programs are planning no changes in their programs.

Across the certificate programs, Directors estimated that 92% of graduates planned to go into direct care and/or transport roles, while Directors of the Associate Degree programs had an overall estimate of 98%. However, program size had an influence on these estimates. When adjusting for that factor, the result is that approximately 160 of the 162 paramedic program graduates in 2017-18 were expected to go into direct care roles after graduation.

The Training Pipeline for EMS Personnel in South Carolina

Paramedic Graduates from Regional and Technical Educational Programs



The Regional EMS Centers and technical colleges offering entry-level Paramedic training during the 2017-18 academic year were available in every major region of the state, although primarily in urban centers. The size of the circles reflects the total number of Paramedic students graduating from each program during the 2017-18 academic year, but be aware that the very small programs are difficult to discern on the map.

The largest Paramedic training programs were located in the regional EMS training centers.

The Training Pipeline for EMS Personnel in South Carolina

EMS Program Faculty

The EMS education programs participating in the survey were asked to report on the size and composition of their faculty/instructor resources. Not every program answered each question. As a result it is not possible to report the total size of the workforce engaged in training EMS entry-level students in the state. The following information is based on the programs that did provide information about their faculty and instructors.

- All programs had a Program Director in place at the time of the survey. The majority of those directors (86.7%) were in full-time positions. One program was searching for a full-time Program Director.
- The majority (80.7%) of lead instructor positions were part-time positions at the time of the survey.
- There was a 25% vacancy rate in full-time positions for lead instructors at the time of the survey.
- The vacancy rate for part-time lead instructors was 9%.
- The majority of skills instructor positions (77%) filled at the time of the survey were part-time positions.
- There were no vacancies reported for full-time skills instructors, but there was a 9% vacancy rate for part-time skills instructors at the time of the survey.

Programs were asked whether their current program budget was sufficient to support their need for instructors, equipment and support personnel. Their answers are summarized in the table below.

As a follow-up to that question, programs were asked to describe how they would spend any additional budget dollars they might receive.

	Yes	No	% said Yes
Lead Instructors	13	2	86.7%
Skills instructors	13	2	86.7%
Administrative support	9	6	60.0%
Equipment	13	2	86.7%

- 11 programs (73%) cited the need for more or newer equipment. Several of those expressed a specific need for newer or more sophisticated simulator equipment.
- 7 programs (47%) would use additional funds to hire more faculty or instructors, clerical support or clinical coordinators.
- 3 programs (20%) expressed a desire to subsidize the cost of EMS education for students.
- 2 programs (13%) would use additional funds to expand their programs.
- 2 programs (13%) would use additional funds for student recruitment efforts.

Program Directors were also asked if they had seen any evidence of a shortage of EMTs or Paramedics in their region of the state. The majority (53%) said yes, 20% gave a qualified 'maybe', and one Program Director provided a thoughtful 'No' that addressed the importance of using all levels of EMS personnel in the most effective and efficient configurations to avoid creating a shortage of Paramedics.

The Training Pipeline for EMS Personnel in South Carolina

Putting the Numbers in Context

The table below includes information made available by the South Carolina Department of Health and Environmental Control, Emergency Services Section, that allows us to put the information gathered during our survey of EMS programs into a larger context. The numbers in the table are the total sum of students in each category during a specific year.

Entry-Level EMS Program Totals *	2013	2014	2015	2016	2017
	DHEC Entry-Level Program Summaries				Survey Results
Basic / Emergency Medical Technician					
Total number of students admitted	1,329	1,305	1,160	1,449	964
Total number of students enrolled	1,319	1,300	1,153	1,436	940
Total number who completed a program that year	1,047	1,039	937	1,117	807
Advanced Emergency Medical Technician					
Total number of students admitted	27	27	60	54	72
Total number of students enrolled	27	27	59	54	66
Total number who completed a program that year	26	23	52	41	50
Paramedic					
Total number of students admitted	148	163	166	77	236
Total number of students enrolled	146	162	165	76	218
Total number who completed a program that year	114	115	132	57	162

* Note: The DHEC source for these numbers identifies these entry-level programs as “initial” programs.

Based on the trends seen in this table it appears that the number of students coming into the entry-level training programs for EMTs was substantially lower in the 2017-18 academic year than in previous years, as was the total number of graduates. Student numbers applying to and entering into Advanced EMT programs has been on the rise in recent years and the number of graduates has been relatively steady. For Paramedic training, the number of students admitted and enrolled increased during the 2017-18 year compared to earlier years,³ and the total number of students graduating from those entry-level Paramedic programs has been on a steady increase over the 5 year period contained in the table.

On the whole, the pattern for entry-level EMTs supports some comments we heard from program directors about an insufficient number of new students coming into their programs and the need to increase student recruitment efforts.

³ The numbers reported by DHEC for 2016 may be incomplete.

The Training Pipeline for EMS Personnel in South Carolina

Conclusions

There seems to be interest in entry-level EMT programs, but not all applicants meet program requirements. Of those that did meet requirements in the 2017-18 year, all were admitted into programs with only a very few exceptions. This suggests that our entry-level EMT programs are either at capacity or below capacity. Eight of the 14 active programs (4 technical colleges and 4 regional EMS centers) plan to expand their Basic EMT program enrollment in the next two years. However, without an increase in qualified applicants it will be difficult to achieve that expansion. The other issue affecting the pipeline for new EMTs into the workforce is that not all EMT graduates go into direct care roles. Program Directors estimated that only 83% of last year's graduates planned to go into direct patient care roles after graduation.

In 2017-18, less than half of the state-wide capacity to train new Advanced EMTs was filled with new students. All of these programs are relatively small with fewer than 20 students in each. Two of the five programs active in 2017-18 said they intend to take fewer students in the future. The other three intend to expand their programs.

The training pipeline for new Paramedics is the most diverse with a total of 10 programs divided across regional training centers and technical colleges, offering either certificate programs or Associate Degrees. Across the state as a whole, 60% of the capacity for new Paramedic students was filled during the 2017-18 year. However, within each of the programs separately, the percentage of capacity filled ranged from a low of 17% to a high of 90%. Most programs filled 50% to 60% of their capacity for new students. Like other EMS programs, there was a wide variety in program size.

The maps of the various EMS training programs show that very few are available in the rural areas of our state and this may be limiting the availability of EMS personnel in those communities. More research is needed to understand why people choose to become EMTs and Paramedics and how those choices might be influenced by easy access to training programs and the cost of training. We also need a better understanding of how long EMTs and Paramedics stay actively employed in their respective fields; why some go through the training but not into direct patient-care roles; and why they leave the field. When EMTs and Paramedics leave a job are they also withdrawing from the occupation? Where do they go and what do they do? Is there a 'career progression' that moves them away from Emergency Services? Is burnout an issue affecting the decision to leave the profession? Once an EMT or Paramedic leaves the field do they ever return? What circumstances might encourage those who have left to return to the workforce?

Knowing more about how EMS career decisions are made, and how work place dynamics affect retention, will be important to improving our EMS workforce in South Carolina.