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Trends in U.S. EMS workforce demographic and employment characteristics, 2011-2019

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Background: Understanding the magnitude and characteristics of the emergency medical services (EMS) workforce is critical for day-to-day operations and disaster planning. It is unclear if efforts to improve diversity among EMS professionals have resulted in changes to the gender, racial, and ethnic composition of the workforce. Our objective was to describe the characteristics and temporal trends of the EMS workforce in the U.S. We hypothesized that there has been little recent change in diversity among the EMS workforce and a substantial proportion work in areas different from those in which they live.

Methods: We performed a repeated cross-sectional evaluation of U.S. Census Bureau's American Community Survey 1-year Public Use Microdata Sample datasets, a nationally representative, probability-based sample of the U.S. population, from 2011-2019. We included all respondents with an occupation reported as emergency medical technician or paramedic. Descriptive statistics of demographic and employment characteristics were calculated, accounting for complex survey weighting. Trend analysis was conducted using joinpoint regression to assess for non-linearity of trends and to estimate the slope for each characteristic over time.

Results: The total estimated number of EMS professionals in the U.S. increased from 216,310 (95%CI 204,957-227,663) in 2011 to 289,830 (95%CI 276,918-302,743) in 2019 (p-trend=0.003). There was a slight increase in the proportion of females (2011: 31%, 95%CI 28-34; 2019: 35%, 95%CI 33-37; p-trend=0.05). There was a significant decrease in proportion of non-Hispanic whites (2011: 80%, 95%CI 78-83; 2019: 72%, 95%CI 70-75; p-trend<0.001) with concurrent increases in other racial/ethnic groups, including a significant increase in Hispanics (2011: 10%, 95%CI 9-12; 2019: 13%, 95%CI 11-14; p-trend=0.01). About half of EMS professionals worked >40 hours per week, with no change over time. Annual personal earnings, inflation adjusted to 2019 dollars, remained relatively stable; in 2019, mean annual earnings were \$46,233 (95%CI \$43,580-48,886). A portion of the workforce lived and worked in different states (15-18% per year, p-trend=0.69), and about 40% traveled ≥ 30 minutes to their workplace.

Conclusion: The EMS workforce has increased over time, with modest changes in diversity. A

substantial number of EMS professionals work across state lines, potentially posing challenges for disaster planning and response.