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Trauma Centers Need Nonphysicians in the Mix

Study helps trauma programs find the right balance of physicians and nonphysicians to meet regulations and improve community care.

By Jason Lee and Dwight Asuncion

Traumatic injury claims nearly 200,000 U.S. lives each year — or one death every three minutes, according to the Centers for Disease Control and Prevention. The number of lives lost would be dramatically higher were it not for the heroic work trauma teams perform on a daily basis. Trauma programs are one of the critical pillars holding up the health care system and are an invaluable community asset.

To effectively fulfill their role, trauma programs — including the 124 Level I and 166 Level II programs in the country certified by the American College of Surgeons — must strike the right balance of physician and nonphysician resources to meet stringent accreditation and regulatory requirements as well as the community's care needs. And programs have to accomplish these goals while remaining cost effective and financially sustainable. Improperly staffed programs may lower physician satisfaction, affect care quality and limit the ability to provide public health services to the community.

Determining the appropriate level and mix of nonphysician staff is one of the most challenging aspects of building and maintaining a high-performing trauma program. Although the ACS provides physician coverage requirements and direction for facilities on becoming verified trauma centers, there is virtually no guidance on appropriate staffing of nonphysician team members, including advanced practice clinicians, registrars, injury prevention coordinators and process improvement coordinators. Consequently, program managers have had little evidence beyond anecdotes and conjecture to justify proposed staffing levels to administrators and physician leaders.

To help fill this information void, we recently conducted a study that delves into the staffing of nonphysician team members at 14 Level II trauma centers across the country. The results of the study offer guidance on effective staffing and personnel ratios for different positions. Additionally, our findings provide trauma program managers and emergency department directors with an objective peer comparison to help create model trauma programs.

Learning from your peers

To better understand nonphysician-staffing practices, trauma program managers were interviewed and asked for current staffing levels and responsibilities by position. The programs included in the study ranged in age from less than a year to nearly 30 years in existence, with eight of the programs certified in the last five years. Program statistics — such as the total volume of trauma activations, the total volume of patients in the trauma registry and the injury severity score — were also obtained for each program.

The qualitative insights and quantitative analysis of the 14 programs, along with additional market review and scholarly research, informed the development of a set of guidelines for Level II facilities in the form of personnel ratios. To provide the most broadly applicable guidance, the recommended staffing ratios are based on full-time equivalents per the appropriate burden factor (registry patient ratio, ISS ratio or activation ratio) at a Level II facility. Your trauma center can apply these ratios, described in the table below,

Staffing Guidance Ratios for Nonphysician Trauma Positions

Position	Staffing Guidance Ratio per Full-Time Equivalent	Comments
Advanced practice clinician	Total activations per APC FTE: 300 Total injury severity score per APC FTE: 3,400	APC staffing should be considered along with other hospital-spe factors after activation volume exceeds 750 cases.
Registrar	Total registry patients per registrar FTE: 750	American College of Surgeons guidlines are 500 to 750 patients per registrar FTE.
Injury prevention coordinator	Total registry patients per IPC FTE: 2,700 Total injury severity score per IPC FTE: 25,000	The findings point to a minimum recommendation of 0.5 IPC FTE. The indicated guidance ratio should be applied at facilities with more than 1,350 registry patients.
Process improvement coordinator	Total activations per PIC: 2,200	The minimum recommended PIC FTE is 0.5. The indicated guidance ratio should be applied at facilities with more than 1,000 activations.

to place your current patient load into context with similar centers and understand whether you truly are busier and your patients are sicker than in other places or if it just seems that way to your staff.

These ratios should serve as a guide in planning discussions to gauge staffing needs for current trauma volume and the future projected volume at Level II facilities. These ratios offer a market comparison, however, and not a strict rule. Approximately 70 percent of the studied facilities were staffed within 0.25 FTE of optimal levels based on these guidelines for the APC, IPC and PIC roles. Due to the introduction of new registrar ratios by ACS at the end of 2014, approximately half of the facilities were not within 0.25 FTE of targeted levels for registrars but were working to meet the target ratio for fiscal year 2016.

To assess your facility with respect to the guidance ratios, simply divide your current staff FTE at each position by the burden factor indicated in the table. Note that each position has different evaluation criteria. For positions with two ratios, you must use both ratios when making hiring decisions; meeting at least one staffing ratio for a given position is recommended.

Below is an example of optimal staffing, before any consideration of other external factors, for a Level II trauma center with 1,000 activations, 1,500 registry patients and an ISS of 16,800 (average ISS of 11.2).

- **APC: 3.33 FTEs**

1,000 activations ÷ 300 activations per APC FTE = 3.33 APC FTEs

- **Registrar: 2 FTEs**

1,500 registry patients ÷ 750 registry patients per registrar FTE = 2 registrar FTEs

- IPC: 0.55 to 0.67 FTEs (minimum recommended 0.5 FTEs)

1,500 registry patients ÷ 2,700 registry patients per IPC FTE = 0.55 IPC FTE

16,800 ISS ÷ 25,000 ISS per IPC FTE = 0.67 IPC FTE

- **PIC: 0.5 FTE (minimum recommended 0.5 FTE)**

1,000 activations ÷ 2,200 activations per PIC FTE = 0.45 PIC FTE

By completing this exercise, your hospital will have the tools to confidently identify the appropriate staffing for your trauma team (e.g., determine whether an additional nonphysician staff member is needed). It is important to note that program quality and patient outcomes were not factored into the calculated ratios.

Addressing additional staffing considerations

As your organization determines the desired staffing levels for your trauma program, it is important to factor in the size of your geographic catchment area, the number of transferring hospitals, your unique market conditions and the responsibilities placed on your trauma program staff. Several factors can influence program ratios and are worthy of consideration:

- Additional support teams at the facility that may provide overlapping services (e.g., communications department, community outreach department) decrease demand on IPCs.

- Trauma teams that may deliver support to clinical services in addition to trauma (e.g., intensive care unit, general surgery) increase demand on APCs.
- Physician coverage models (e.g., contracted versus employed, restricted versus unrestricted) that may affect the availability of physicians who are able to respond to activations and thus the need for APCs impact demand on APCs.
- Neighboring facilities that may offer similar services, reducing the burden on a given facility, decrease demand on APCs.
- Extensive geographic coverage responsibility that may result in undue burden on respective programs because of the general volume of patients increases demand on APCs, IPCs and PICs.

Eliminating the guesswork

Many trauma program managers are besieged by requests from physicians for more coverage and support while being asked by chief operating officers to justify budgeted staffing. To maintain the financial viability of your trauma program and ensure that clinical personnel are supported appropriately, your organization should give additional consideration to nonphysician staff. During the next budget cycle, you can apply the guidance ratios presented here to determine whether the staffing at your facility is commensurate with comparable programs or if changes in personnel levels and mix need to be considered. These measures will allow your trauma program to be proactive instead of reacting to the next staffing crisis.

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