

## **The Value of Board Certification and Residency Training in Emergency Medicine (8/8/2011)**

Heatherlee Bailey, MD FAAEM  
Director of Critical Care Education, Division on Emergency Medicine,  
Duke University Medical Center

Michael C. Bond, MD FAAEM  
University of Maryland School of Medicine

Mark Reiter, MD MBA FAAEM  
St. Luke's Hospital, Bethlehem, PA

Lisa Moreno-Walton, MD MSCR FAAEM  
Louisiana State University Health Sciences Center – New Orleans

Mary Claire O'Brien, MD FAAEM  
Wake Forest School of Medicine

Roger J. Chirugi, MD FAAEM  
New York Medical College at Metropolitan Hospital Center

J. David Barry, MD FAAEM\*  
Naval Medical Center, Portsmouth

Leslie S. Zun, MD MBA FAAEM

Mark A. Foppe, DO FAAEM  
JFK Medical Center, Atlantis, FL

Tevor Mills, MD MPH FAAEM  
Professor of Clinical Medicine, Section of Emergency Medicine, LSU-New Orleans

Robert M. McNamara, MD FAAEM  
Chair, Department of Emergency Medicine, Temple University

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### **Introduction**

The 1999 Institute of Medicine (IOM) Report “To Err is Human: Building a Safer Health Care System” focused attention on the quality of medical care in the United States.<sup>1</sup> However,

concerns regarding patient care in the nation's emergency departments (ED) have existed since the 1950s.<sup>2</sup> The data from the Harvard Medical Practice Study, which played a key role in this IOM report, supported these concerns as the ED was the hospital area with the highest rate of adverse events due to negligence.<sup>3</sup> Emergency Medicine has existed as a formal specialty since 1979 but the current supply of board-certified emergency physicians meets less than two-thirds of the demand.<sup>4</sup> As health system and graduate medical education reform progress it is important to consider the physician needs related to care in the ED. The intent of this paper is to examine the evidence regarding the value of residency training or board-certification in emergency medicine (EM) and how it affects the quality of care in the ED. This matter is of importance to policy makers and others in decisions regarding the future ED physician workforce.

### **Evidence regarding board-certification in EM and the quality of care**

The best evidence that board certification and residency training in EM leads to improved quality of care comes from studies that examine what happens when a hospital emergency department transitions to such physicians from non-board certified physicians. Data comparing the quality of care before and after the addition of board-certified EM physicians or an EM residency demonstrates improvement in several areas including treatment of acute myocardial infarction (AMI), airway management, chest pain, abdominal pain in females, head trauma, headache and extremity lacerations.<sup>5-9</sup>

Weaver, et al, showed that the addition of qualified EM faculty resulted in a significant decrease in median time to thrombolytic administration and a significant increase in the percent of patients receiving thrombolytic therapy within 30 minutes of hospital arrival in patients with an AMI.

The hospital length of stay was also significantly decreased. There was also a non-significant decrease in mortality noted.<sup>5</sup>

Airway management has also been shown to improve with the presence of EM faculty or residents. In a study by Jones, et al, the success rate of first attempt intubation improved from 46% to 62%. Intubation requiring more than six attempts for completion decreased from 2.9% to 1.1% and the overall mean time to intubation improved from 9.2 minutes to 4.6 minutes with EM faculty present.<sup>6</sup> Friedman, et al, concluded that the addition of an EM residency reduced the number of patients who were admitted to the hospital without undergoing clinically necessary endotracheal intubation in the ED.<sup>7</sup> Chang, et al, reported a decrease in the need for surgical cricothyrotomy, a surrogate marker of improved airway management, in trauma patients after the institution of an EM residency training program at a Level 1 trauma center.<sup>8</sup>

Good documentation reflecting the process of care is believed to reflect good medical practice. ED physician documentation was evaluated for patients discharged home with five chief complaints: non-traumatic chest pain, lower abdominal pain in women, head trauma, headache and extremity laceration. These complaints were selected because they are frequently encountered in the ED and represented areas identified as high risk for malpractice claims.

After the addition of EM residents and EM faculty, there were statistically significant improvements in the process of care for all of the complaints.<sup>9</sup>

Existing EM residency programs also seem to impact the quality of care. Taylor compared patient outcomes in ten Level 1 trauma centers and found that those with an emergency medicine residency training program present had a significantly lower complication rate, death rate and shorter hospital stays despite seeing an older population.<sup>10</sup>

## **Evidence from malpractice data**

The risk of litigation involvement for the EM physician is high due to a lack of a continued physician-patient relationship, frequent interruptions and interactions with patients and their families at stressful or traumatic times. A study by Branney, et al, examined 218 closed insurance claims against “emergency medicine physicians” and found that 61.4% of the claims were against non-certified EM physicians. These claims accounted for 71.5% of money paid. There was on average 1 closed claim for every 30.2 doctor years for non EM trained physicians versus 1 closed claim for every 72 doctor years for EM trained physicians .<sup>11</sup>

Press, et al conducted a retrospective analysis of malpractice claims and awards from August 1984 to July 1990 in a pediatric emergency department. In 1987, their ED changed from part-time attending coverage (coverage was provided part of the day by physicians in training without supervision) to full time attending coverage (e.g. 24 hour supervision). Their data showed a 41.7% decrease in the numbers of claims. Prior to attending coverage they averaged 1 claim for every 10,196 visits, and afterwards, 1 claim in 15,296 visits. There was also a 44.3% decrease in the amount of money paid out in claims.<sup>12</sup> In a sister study, Press et al looked at the same information for their adult ED. In 1987, they increased their attending coverage from 6000 hours per year to 26,280 hours. This change resulted in an 18.5% decrease in claims filed and a 70.1% decrease in monies paid.<sup>13</sup> Although the data from these two studies did not directly examine whether the physician was board certified in EM they do suggest that the presence of more senior physicians decreases the malpractice risk in the ED.

## **Discussion**

The available literature indicates an improvement in quality of care in the ED with the presence of board-certified emergency physicians or a residency training program in EM. This is not surprising as board certification in other specialties has been shown to improve the quality of care and patient outcomes. This has been shown regarding anesthesia related deaths,<sup>14</sup> complications of surgical procedures,<sup>15</sup> the inpatient care of acute myocardial infarction,<sup>16</sup> prenatal care and birth outcomes,<sup>17</sup> and the delivery of preventive services (hemoglobin A1c monitoring, mammography, colon cancer screening, and influenza vaccination).<sup>18</sup>

## **Conclusion**

There is clear evidence in the literature that supports that board certification and residency training in EM improves the quality of care provided to patients in the nation's emergency departments. The public, hospitals and the government should be aware of this fact.

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