

the use of intraoperative antimicrobial irrigations. While there is an abundance of literature on the practice of intraoperative antimicrobial wound irrigation, there is considerable heterogeneity in the studies that precludes deriving a clear conclusion. In light of the limited evidence on efficacy, safety, and cost-effectiveness, routine use of intraoperative antimicrobial irrigation in addition to systemic antimicrobial therapy cannot be recommended. Furthermore, the risk of antimicrobial resistance remains with the unnecessary use of antibiotic irrigation. Every effort needs to be made to ensure judicious use of antimicrobials in this era of increasing antimicrobial resistance. Available evidence favors the use of antiseptics over antibiotics, but newer, well-designed randomized controlled trials using standard-of-care protocols are needed to evaluate antiseptics' optimal use. Until then, validated measures such as preoperative assessment of underlying disease, proper aseptic techniques in the operating room, and use of systemic prophylactic antibiotics should be emphasized to prevent SSIs.

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**Karen Abboud, PharmD**

Department of Pharmacy  
Houston Methodist Hospital  
Houston, TX  
[kabboud@houstonmethodist.org](mailto:kabboud@houstonmethodist.org)

**John Blee, PharmD, MS, BCPS**

Department of Pharmacy  
Houston Methodist Sugar Land Hospital  
Sugar Land, TX

**Punit J. Shah, PharmD, BCPS, BCIDP**

Department of Pharmacy  
Houston Methodist Sugar Land Hospital  
Sugar Land, TX

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## Evaluation of burnout among hospital and health-system pharmacy technicians in North Carolina

To date, the majority of published articles assessing burnout in healthcare providers has centered on physicians and nurses. There is minimal published research regarding the incidence of burnout among pharmacy personnel, especially in hospital or health-system settings and among pharmacy technicians.

We used the Maslach Burnout Inventory-Human Services Survey for Medical Professionals (MBI-HSS [MP]) to assess burnout among pharmacy technicians who work in hospital or health-system settings in North Carolina. The

MBI is a measure of burnout, as defined by the World Health Organization, and assesses 3 subscales: emotional exhaustion, depersonalization, and personal accomplishment.

The MBI was delivered to 2,248 pharmacy technicians registered with the North Carolina Board of Pharmacy; 253 responses were received (11.3% response rate). Of the 253 individuals who responded, 236 completed the entire survey (93.3% completion rate) and were included in the data analysis. Majorities of respondents were younger than 45 (68.9%), female (83.1%), white (72.5%), married (57.2%), had

no dependents (54.7%), and/or worked full time (89.8%). The most common practice setting was a community hospital (41.5%). The most common response for years practiced was between 6 and 15 years (42.8%), and the most common response for years in current role was no more than 5 years (46.2%). Most had not used burnout resources in the last 12 months (91.5%) or were even aware that such resources existed at their institution (62.3%).

Emotional exhaustion represented the largest concern for burnout, with 67.8% of respondents scoring high. Of the respondents, 36.4% scored high on that MBI-HSS MP subscale. Of the respondents, 36.4% scored high on depersonalization. In total, 163 pharmacy technicians (69.1%) were experiencing burnout.

Three factors stood out in the survey as potentially being associated with burnout among pharmacy technicians: male gender, younger age, and lack of awareness of burnout resources. Previous studies have mostly failed to find gender differences in burnout rates or have found conflicting data.

With respect to age, younger technicians may experience more burnout. The finding of higher prevalence of burnout among younger individuals is reported among pharmacists as well. It is possible that there is bias in this finding, because older professionals may have handled the early stresses better, while those who handled the early stresses poorly left the career.

Interestingly, with regard to burnout resources, while 20.8% of pharmacy technicians were aware of their existence at their institution, only 6.4% of pharmacy technicians made use of these resources in the preceding 12 months. Nevertheless, the awareness of burnout resources seemed to be associated with lower odds of burnout. It is possible this could be due to the culture of an organization. Organizations that have burnout resources and promote them to employees could be more likely to promote a general environment of well-being and resilience. Hence, employees with these organizations may have reduced levels of burnout regardless of whether they make use of any of the resources.

The goal of our survey was to assess levels of burnout among pharmacy technicians in our state. It is important to recognize that the ultimate goal of future re-

search will be to prevent and reduce burnout. There have been calls from within the pharmacy profession emphasizing that addressing burnout needs to start early. Commentary from as early as the 1980s indicated concern that pharmacy schools tend to overtrain students in technical aspects of the profession while undertraining them in social, cultural, and political realities. Providing more holistic and realistic training in pharmacy school can reduce one potential cause of burnout: the gap between expectations and realities of the job. The same point can apply in the training of pharmacy technicians. Other solutions that have been offered for preventing and reducing burnout include avoiding task redundancy, limiting professional work hours, sharing experiences between employees, decreasing workload, and using cognitive-behavioral and relaxation techniques.

The results of this statewide survey revealed that more than two-thirds of hospital or health system-based pharmacy technicians surveyed in North Carolina are experiencing burnout. These results highlight the need to focus on preventing and reducing burnout among hospital and health system-based pharmacy technicians. Preventing and reducing burnout will help our employees and improve the care provided to patients.

**Kai Kang, PharmD, MS, BCPS**

UNC REX Healthcare  
Raleigh, NC

[kai.kang@unchealth.unc.edu](mailto:kai.kang@unchealth.unc.edu)

**Randy Absher, PharmD, BCPS**

Wesley Long Hospital  
Greensboro, NC

**Robert P Granko, PharmD, MBA, FASHP**

Premier, Inc.  
Raleigh, NC

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## Medication synchronization service for patients with multiple myeloma within a health system-based specialty pharmacy

Specialty drugs are dispensed primarily from manufacturer- and payer-defined network pharmacies. Many of these pharmacies dispense only specialty medications, thereby forcing

patients who are prescribed both specialty and nonspecialty medications to use multiple pharmacies.<sup>1</sup> Multiparmacy use is often associated with reduced medication adherence and in-