## INTRODUCTION

Burnout has been described as a syndrome of depersonalization, emotional exhaustion, and a sense of low personal accomplishment and has been associated with absenteeism, low job satisfaction, and medical errors among physicians-in-training.<sup>1,2</sup> A current leading tool for the definition of burnout is the Maslach Burnout Inventory, which has been validated among physicians.<sup>3</sup> It consists of a three part definition of burnout consisting primarily of exhaustion, cynicism, and inefficacy or loss of a personal sense of accomplishment.<sup>4</sup> While all three domains play a role in this definition of burnout, However, Maslach and colleagues have shown that the domain of personal accomplishment may be excluded from the diagnostic criteria and several authors in the field have begun to do this.<sup>5,6</sup>

Burnout has been shown to affect all tiers of the medical professional system, from first-year medical students to practicing physicians. Estimates of burnout prevalence among U.S. medical students range from 43-45%. Among graduate medical residents, burnout estimates range from 40-76%. Practicing specialists and general practitioners have estimates from 22-60%, while family medicine physicians have the highest estimates of 56-80%. 1,14-17

To our knowledge it has never been explored in a premedical education population. The question becomes "at what point does physician burnout begin?" Could burnout be an entity that begins before the burgeoning physician even enters medical school? How does the prevalence of premedical student burnout compare to non-premedical college students? This study sought to publish the first estimate of burnout in premedical students attending a major university.

## **METHODS**

The design was a cross sectional survey of undergraduate students at Texas A&M University. The team sought and gained approval via the Institutional Review Board at Texas A&M Health Science Center for the study. We then contacted the Office of Student Affairs at Texas A&M University to get permission to email the student body and to determine which students were currently enrolled in the pre-medical pathway. The survey was mailed out at the beginning of the school year to all levels of student from freshmen to senior.

The electronic survey was emailed to the entire student body (n= 50,054) in August-September 2012. This timing was in an attempt to determine the change in burnout, if any, in the premedical students as they advanced through their education. This also allowed the team to avoid end of semester finals or midterms. The survey consisted of the Maslach Burnout Inventory, Human Services Survey version (MBI-HSS), and demographic questions such as age, gender, race/ethnicity, county/state of adolescence, major and intent on medical career, grade point average, and current year in school. All participating students were incentivized to respond by being offered online college study techniques and speed reading videos thought to appeal to a wide audience.

## **REFERENCES**

- 1. Shanafelt TD, Bradley KA, Wipf JE, Back AL. Burnout and self-reported patient care in an internal medicine residency program. Ann Intern Med 2002;136:358-67.
- 2. McCray LW, Cronholm PF, Bogner HR, Gallo JJ, Neill RA. Resident physician burnout: is there hope? Fam Med 2008;40:626-32.
- 3. Rafferty JP, Lemkau JP, Purdy RR, Rudisill JR. Validity of the Maslach Burnout Inventory for family practice physicians. J Clin Psychol 1986;42:488-92.
- 4. Maslach C, Jackson SE, Leiter MP. Maslach Burnout Inventory Manual. 3 ed: Consulting Psychologists; 1996.
- 5. Sanders GS, Maslach C. Burnout in health professionals: a social psychological analysis: Psychology Press; 1989.
- 6. Maslach C. The truth about burnout: how organizations cause personal stress and what to do about it: John, Wiley and Sons; 1997.
- 7. Dyrbye LN, Thomas MR, Huntington JL, et al. Personal life events and medical student burnout: a multicenter study. Acad Med 2006;81:374-84.
- 8. Dyrbye LN, Thomas MR, Huschka MM, et al. A multicenter study of burnout, depression, and quality of life in minority and nonminority US medical students. Mayo Clin Proc 2006;81:1435-42.
- 9. Gelfand DV, Podnos YD, Carmichael JC, Saltzman DJ, Wilson SE, Williams RA. Effect of the 80-hour workweek on resident burnout. Arch Surg 2004;139:933-8; discussion 8-40.
- 10. McCue JD, Sachs CL. A stress management workshop improves residents' coping skills. Arch Intern Med 1991;151:2273-7.
- 11. Ramirez AJ, Graham J, Richards MA, et al. Burnout and psychiatric disorder among cancer clinicians. Br J Cancer 1995;71:1263-9.
- 12. Bellini LM, Baime M, Shea JA. Variation of mood and empathy during internship. JAMA 2002;287:3143-6.
- 13. Lemkau JP, Purdy RR, Rafferty JP, Rudisill JR. Correlates of burnout among family practice residents. J Med Educ 1988;63:682-91.
- 14. Lemkau J, Rafferty J, Gordon R, Jr. Burnout and career-choice regret among family practice physicians in early practice. Fam Pract Res J 1994;14:213-22.
- 15. Linzer M, Visser MR, Oort FJ, et al. Predicting and preventing physician burnout: results from the United States and the Netherlands. Am J Med 2001;111:170-5.
- 16. Deckard GJ, Hicks LL, Hamory BH. From the Infectious Diseases Society of America. The Occurrence and Distribution of Burnout among Infectious Diseases Physicians. J Infect Dis 1992;165:224-8.
- 17. Shanafelt TD, Sloan JA, Habermann TM. The well-being of physicians. Am J Med 2003;114:513-9.