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The Modern Neurosurgical Leader as a Cure for Team Burnout

Burnout has been identified as a potential threat to work effectiveness. It is a syndrome characterized by emotional exhaustion, loss of interest in one's work, and depersonalization (viewing and treating people as if they were objects). The trend toward loss of autonomy by modern practitioners and the increasing administrative burdens of modern practice may be contributing to increased burnout.¹ The impact of organizational leadership on the well-being of individual physicians is poorly understood. Therefore, Shanafelt et al² analyzed data from a survey conducted on physicians and scientists working at Mayo Clinic to assess the impact of their supervisors' leadership qualities on the level of burnout and satisfaction. Their study was published in the journal *Mayo Clinic Proceedings*.

The authors analyzed data from a survey administered to physicians and scientists working at Mayo Clinic in October 2013. All 3 major Mayo academic campuses (Rochester, Scottsdale, and Jacksonville) and an integrated group of community-based healthcare facilities in Iowa, Georgia, Wisconsin, and Minnesota were included in the survey. The survey included 98 questions that explored a variety of topics, including perception of quality and safety, professional burnout, and satisfaction with the organization. The survey also included a detailed evaluation of leadership qualities of the physicians' immediate supervisors. Participation in the survey was voluntary, and all data retrieved were confidential. For assessment of burnout, the authors used 2 single-item measures adapted from the gold-standard 22-item Maslach Burnout Inventory. The 2-item scale (emotional exhaustion and depersonalization) has been shown to have high correlation with burnout as measured by the full Maslach Burnout Inventory scale (0.94 and 0.93, respectively). The authors assessed the overall satisfaction

with the healthcare organization by asking physicians the following question: "Considering everything, how would you rate your overall satisfaction with Mayo Clinic as a whole at the present time?" Response was recorded by the use of a 5-point Likert scale from 1 (very dissatisfied) to 5 (very satisfied). Leadership qualities of the immediate supervisors of participating physicians were evaluated by the use of 12 items that assess specific characteristics of leadership. A 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) was used to record the responses. An overall composite leadership score was reported by summing the scores of all 12 individual items (minimum = 12, maximum = 60).

The survey included 3896 physicians and scientists with a total response rate of 72.2% (n = 2813). There was no statistically significant difference between responders and non-responders in terms of age or sex. Assessment of burnout showed that 38% had high emotional exhaustion, 15% had depersonalization, and 40% had at least 1 burnout symptom. Assessment of satisfaction showed that 79% were satisfied or very satisfied, 12% were neutral, and 9% were dissatisfied or very dissatisfied. Evaluation of leadership showed a significant association with burnout and satisfaction. Physicians who rated their supervisors favorably had less burnout (35%-37%) and more satisfaction (82%-94%) than those who rated their supervisors unfavorably (50%-56% and 41%-69%, respectively). Multivariate analysis showed that each 1-point increase in the composite leadership score was associated with a 3.3% decrease in the likelihood of burnout and 9.0% increase in the likelihood of satisfaction. At the division/department level, the chairperson's leadership score was negatively correlated with the rate of burnout (correlation coefficient = -0.33) and positively correlated with the rate of satisfaction (correlation coefficient = 0.684). Finally, there was no relationship between the leaders' personal degree of burnout and that of the physicians they supervised; however, there was a small significant positive correlation (correlation coefficient = 0.278) between their levels of satisfaction.

Burnout has been identified as a barrier to high-quality health care and as a threat to the well-being of healthcare providers and their institutions. It is therefore imperative to study how burnout is created and how it can be prevented and ameliorated. This study suggests that a nihilistic approach to burnout is not justified and that sound leadership skills can have a positive impact on this syndrome. Modern leadership theory suggests that leaders are made and not born. As

healthcare institutions scramble to define and deliver quality health care, the problem of burnout and investment in leadership development should not be ignored.

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A New Tool in Defining Disease Progression in Glioblastoma

Defining the treatment of glioblastoma multiforme (GBM) continues to be the elusive golden goose of neuro-oncology research. The treatment course of a patient with GBM is complex. After initial surgery and the Stupp protocol, patients may go on to have multiple repeat surgeries, experience multiple chemotherapeutics, enroll in a multitude of clinical trials, or try neuroceuticals and diet modifications. Treatment failure and progression of disease are essentially inevitable in GBM patients, yet determination of progression is, in itself, often challenging.¹ T1-weighted magnetic resonance imaging (MRI) with or without gadolinium is the gold-standard imaging modality but cannot supply information on tumor activity or true tumoral size. Distinguishing between pseudoprogression and true progression is critical because it may mean the difference between a few more effective high-quality months on a current treatment option or a rapid decline of functional ability as the tumor invades and expands. In areas of neuro-oncology research, progression-free survival is often a benchmark used to determine the success or failure of a new drug or treatment regimen.²

The Venneti et al³ recent article in *Science Translational Medicine* addresses this issue of tumoral imaging and monitoring and may offer a new solution. In a fashion analogous to conceptualization of ¹⁸F-fluorodeoxyglucose (¹⁸F-FDG), they looked at using glutamine, rather than glucose, as a metabolic marker of