

respectively). In a similar study using RT-PCR<sup>3</sup> followed by nucleotide sequence of amplicons, 2 out of 23 patients from the state of Amazonas had Rocio virus, another Flavivirus, identified in the CSF. They were a 53-year-old man and a 30-year-old woman, both with AIDS. In the above cases, as in the Zika virus reported case,<sup>4</sup> it is very likely that CNS invasion was facilitated by immune deficiency or previous blood-brain barrier damage.

In conclusion, it is important to be aware that in patients who have underlying diseases and additional new CNS manifestations, arbovirus infections should be considered in the differential diagnosis.

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Physicians in the 21st  
 Century: Between  
 Identification With  
 Medicine as a Calling and  
 Self-Diagnosing Burnout,  
 Depression, and Anxiety



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**To the Editor:** The father of medicine, William Osler said: “The practice of

medicine is an art, not a trade; a calling, not a business; a calling in which your heart will be exercised equally with your head. Often the best part of your work will have nothing to do with potions or powders, but with the exercise of an influence of the strong upon the weak, of the righteous upon the wicked, of the wise upon the foolish.”<sup>1</sup>

Jager et al’s<sup>2</sup> article, published in the March 2017 issue of *Mayo Clinic Proceedings*, raised an important association between physician burnout and identification with medicine as a calling. The authors randomly selected and surveyed 2263 physicians from all specialties between 2014 and 2015, using the American Medical Association Physician Masterfile. About one-third of the respondents experienced burnout symptoms. Those who reported burnout symptoms were less likely to be engaged in their profession, find satisfaction, or recognize the importance of their work.<sup>2</sup>

An absent sense of calling in medicine correlates with burnout and other psychopathological illnesses. The relationship between burnout and symptoms of depression has been studied, and their theoretical similarity in the work setting has been supported.<sup>3,4</sup> Previous studies found that burnout, emotional exhaustion, and depersonalization are more common among physicians than among the general US population.<sup>5</sup>

We surveyed medical trainees (students, residents, and fellows) at a medical university between 2013 and 2014 and incorporated screening tools for major depression disorder (MDD) and generalized anxiety disorder (GAD).<sup>6</sup> A total of 462 responded to the survey, and we compared the results to age-matched controls from the National Health and Nutrition Examination Survey database. The prevalence of a positive screen for MDD and GAD was more than 5- and 8-fold higher in medical trainees, respectively.

Even though Jager et al<sup>2</sup> excluded medical residents from their study, we reported both critical psychopathological issues in current and future health care professionals.<sup>6</sup> In addition, both populations work and train under similar medical environments and challenges. As a result, we propose that medical trainees who experience depression and anxiety are likely to experience burnout and are less likely to identify with medicine as a calling. Both physicians and medical trainees may not self-recognize such symptoms and potential illnesses, or may not seek help because of concern for stigma. Interventions are needed at all institutional levels to keep physicians in all specialties, the young vulnerable trainees, and their patients away from the adverse mental health consequences of the medical profession. Lacking the sense of calling can be a critical marker of mental health illnesses.

In this era of fast-moving science and everyday challenges, it is important for every physician and trainee to remember Dr Charlie Mayo’s words: “Medicine is a profession for social service and it developed organization in response to social need. Medicine gives only to those who give, but her reward for those who serve is finer than much fine gold.”<sup>7</sup>

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## In Reply—Physicians in the 21st Century: Between Identification With Medicine as a Calling and Self-Diagnosing Burnout, Depression, and Anxiety



**To the Editor:** I thank Mousa et al<sup>1</sup> for submitting a letter to the editor in response to our article titled “Association Between Physician Burnout and Identification With Medicine as a Calling.”<sup>2</sup> Although our study assessed the relationship between burnout and calling only among practicing physicians, I would support the premise that Mousa et al posit: that is, this inverse calling-burnout association is likely to be found among medical trainees.

However, given the focus of our study, I am reluctant to claim that “lacking the sense of calling can be a critical marker of mental health illnesses.”<sup>1</sup> Whether lacking a sense of calling is associated with psychiatric diagnoses such as major depressive or general anxiety disorder, it

would seem that there are ways of assessing for such disorders more directly (eg, through the use of formal, validated screening tools as used in the Mousa et al study of medical trainees<sup>3</sup>) or indirectly (eg, measures of burnout) without having to invoke a lack of calling as a critical marker of such disorders.

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## A Differing Opinion on Primary Percutaneous Coronary Intervention in Patients Who Have Had Cancer: Stent Choice in Onco-cardiology Revisited



**To The Editor:** We are writing in reference to the report of Wang et al<sup>1</sup> titled “Cancer History Portends Worse Acute and Long-term Noncardiac (but Not Cardiac) Mortality After Primary Percutaneous Coronary Intervention for Acute ST-Segment Elevation Myocardial Infarction,” as well as the accompanying editorial by Al-Kindi and Oliveira<sup>2</sup> titled “Onco-Cardiology: A Tale of Interplay Between 2 Families of Diseases,” published in the December 2016 issue of *Mayo Clinic Proceedings*. Specifically, we wish to expound upon our differing opinion on the use of

coronary artery stents in select oncocardiology patients.

The study by Wang et al<sup>1</sup> demonstrated the importance of aggressive cardiovascular care in patients with a history of cancer, but also suggested that these patients are less likely to receive drug-eluting stents (DESs) to treat coronary artery disease (CAD), out of concern for high bleeding risk and expectant need for cancer-directed surgery. Although characterized as a “safe” treatment strategy, in our opinion, it might not be optimal for all patients with CAD and a history of cancer.

Many of the clinical risk factors for cancer such as diabetes mellitus, smoking, and a chronic inflammatory state are also risk factors for coronary artery stenosis and thrombosis after stenting. The current generation of DES reduces the risk of restenosis and stent thrombosis as compared with bare-metal stents.<sup>3</sup> It was previously felt that the biggest disadvantage of DESs was the requirement of dual antiplatelet therapy (DAPT) for at least 12 months after stent placement. This interpretation of anticoagulant therapy resulted from the experience with first-generation DESs, in which it was inferred that DES stent failure was more likely because of inhibition of neointimal formation resulting in incomplete endothelialization.<sup>4</sup> However, data on the current generation of DES calls this interpretation of the pathophysiology into question.

A prespecified analysis from the Zatarolimus-Eluting Endeavour Sprint Stent in Uncertain DES Candidates (ZEUS) trial found that patients with high bleeding risk and those receiving stents that slowly eluted zotarolimus (an immunosuppressant) had a lower rate of stent thrombosis, myocardial infarction, and target vessel revascularization compared with those receiving bare-metal stents, despite shorter duration of