Survey Documents Physician Burnout

On February 3, Studer Group (Pensacola, FL), a health care organization consultancy, released the results of a survey focused on the prevalence of physician burnout. Of the more than 350 practicing physicians who completed the survey, 90% reported experiencing symptoms of burnout at some point in their careers. The anonymous and voluntary survey launched in October 2015 and closed in December 2015 and included 10 multiple-choice or short-answer items. According to a press release from Studer, these results "support evidence that suggests the trend of burnout could result in a future shortage of physicians in the United States." Of physicians responding:

- 90% said they had experienced some symptoms of burnout at varying stages of frequency;
- 41% with 10–20 y of experience showed the highest rate of "always" experiencing symptoms;
- 66% said they do not have the tools and resources to help themselves or their peers handle burnout;
- 65% of those who reported experiencing burnout said they sometimes consider leaving medicine; and
- 54% of respondents said their leaders are not actively taking steps to treat and prevent burnout.

"There's no question that burnout among physicians is high and rising, which is not only bad for physicians and their families, but it's bad for patients too," said Studer Group Executive Medical Director, Rob Schreiner, MD. Respondents listed the following as the top 3 factors that contribute most to burnout: psychological challenges (loss of control, too much change too fast, downward pressure in compensation, sense of disconnection from patients and community); the health care environment (ICD-10, pay for performance, meaningful use); and practical hurdles (staffing, access, time). Respondents reported that more control and lighter workload alleviate burnout symptoms. They reported feeling rewarded by positive patient experiences and making an impact in their patients' lives. Results are available at www.StuderGroup.com.

Studer Group

Amyloid Pathology After Brain Trauma

In a study widely covered in the public media, Scott and colleagues from the Imperial College London, King's College London, and University College London (all in the UK); Sahlgrenska University Hospital and the University of Gothenburg (both in Sweden); and Aarhus University (Denmark) reported on February 3 ahead of print in *Neurology* on imaging of β-amyloid (Aβ) plaque burden in long-term survivors of traumatic brain injury (TBI). The study included 28 individuals (9 with TBI, 10 with Alzheimer disease [AD], and 9 healthy older controls). Individuals with TBI, who were 11 mo–17 y postinjury, underwent ^{11}C-Pittsburgh compound B (^{11}C-PiB) PET imaging, structural and diffusion MR imaging, and neuropsychological assessment. Control individuals and those with AD underwent PET and structural MR imaging. The authors compared tracer binding potential in the images as an index of Aβ plaque density and found increased ^{11}C-PiB binding potential in the posterior cingulate cortex and cerebellum in TBI patients compared with controls. This binding increased with time since injury. Binding potential distribution overlapped with that in individuals with AD, although binding in the TBI group was lower in neocortical regions and higher in the cerebellum, suggesting that the processes leading to Aβ buildup are different in the 2 groups. The authors concluded that these results suggest "a mechanistic link between TBI and the development of neuropathologic features of dementia, which may relate to axonal damage produced by the injury."

Neurology

Dementia Rates Fall

Satizabal and researchers from the Boston University Schools of Medicine and Public Health (MA) and the University of Bordeaux (France) reported on February 11 in the *New England Journal of Medicine* (2016;374:523–532) on the results of almost 40 y of dementia surveillance in participants in the Framingham Heart Study. This analysis included 5,205 individuals who were ≥60 y old. Results were analyzed between 1975 and the early 2010s and were divided into 4 "epochs": (1) late 1970s and early 1980s; (2) late 1980s and early 1990s; (3) late 1990s and early 2000s; and (4) late 1990s and early 2000s. Five-y age- and sex-adjusted hazard rates were 3.6/100 persons for epoch 1, 2.8/100 for epoch 2; 2.2/100 for epoch 3; and 2.0/100 for epoch 4, representing declines of 22%, 38%, and 44% from the first epoch during the second, third, and fourth epochs, respectively. However, this decline over time and what the authors termed a "parallel improvement in cardiovascular health" were seen only in the cohort of volunteers who had at least a high school education. The researchers documented a 5-y delay in onset of dementia over the entire study time period. This delay cannot be entirely accounted for by rising education levels and improvements in vascular risk factors during that period. The results, however, suggested that "primary and secondary prevention might be key to diminishing the magnitude" of expected increases in dementia with rapidly growing numbers of older individuals. The authors noted that "our study offers cautious hope that some cases of dementia might be preventable or at least delayed. However, it also emphasizes our incomplete understanding of the observed temporal trend and the need for further exploration of factors that contribute to this decline in order to better understand and possibly accelerate this beneficial trend in this subgroup."

New England Journal of Medicine

Wilfred R. Konneker (1922–2016)

Wilfred R. Konneker, PhD, a physicist and philanthropist who founded Nuclear Consultants Corporation in St. Louis, MO, died on January 7 in St. Louis. He was born in Greenfield, OH, and received his bachelor's degree in chemistry in 1943 and a master's in physics in 1947, both from Ohio University (Athens). He left the university to serve in the U.S. Army during World War II, and, among other assignments, worked on the Manhattan Project. He received his doctorate in nuclear physics in 1950 from Washington University (St. Louis). With his wife, he founded Nuclear Consultants Corporation in St. Louis and continued to head the company's diagnostics division after its merger with Mallinckrodt, Inc. in the 1960s. He also founded or cofounded 6 additional companies. Dr. Konneker served on advisory boards for the U.S. Food and Drug Administration and the former U.S. Atomic Energy Commission. He was a founder of the Ohio Innovation Center, where he served as director from 1983 to 1991 and, through the center, was cofounder and president of Embryogen, Inc., and Diagnostic Hybrids, Inc. In addition to numerous philanthropic activities, particularly in the areas of music, scholarship, and conservation, Dr. Konneker made substantial donations to both Ohio University and Washington University. Each institution today has scientific and cultural centers, awards, and programs named in his honor.

Ohio University
Washington University in St. Louis

Genetic Profiling in Pediatric Cancer

Two studies published on January 28 in *JAMA Oncology* provided promising data on the potential for routine clinical genetic sequencing in pediatric cancers. Harris and researchers from Boston Children's Hospital (MA), University of California–San Francisco Benioff Children's Hospital, New York–Presbyterian Morgan Stanley Children's Hospital (NY), Children's National Medical Center (Washington, DC), Dana–Farber/Boston Children's Cancer and Blood Disorders Center (MA), Harvard Medical School (Boston, MA), and the Brigham and Women's Hospital (Boston, MA) reported ahead of print on a multicenter feasibility study of the utility of tumor molecular profiling in therapeutic decision making in advanced pediatric solid tumors. The Individualized Cancer Therapy (iCAT) study focused on 100 patients (60 male, 40 female) at 4 academic medical centers who were ≤30 y old with high-risk, recurrent, or refractory extracranial solid tumors. Median participant age was 13.4 y (range, 0.8–29.8 y), with a median follow-up of 6.8 mo (range, 2.0–23.6 mo). Tumor profiling was successful in 89% of participants. A total of 31 patients received a recommendation from the iCAT study on the basis of profiling results, and 3 received matched therapy. Common profiling alterations leading to recommendations were cancer-associated signaling pathway gene mutations ($n = 10$) and copy number alterations in MYC/MYCN ($n = 6$) and cell cycle genes ($n = 11$). The study identified additional alterations with implications for clinical care that did not result in recommendations, including mutations indicating the possible presence of a cancer predisposition syndrome and translocations suggesting a change in diagnosis. Forty-three percent of participants had results that suggested potential clinical significance. The authors summarized their findings that "a multi-institution clinical genomics study in pediatric oncology is feasible and a substantial proportion of relapsed or refractory pediatric solid tumors have actionable alterations."

Parsons et al. from Baylor College of Medicine (Houston, TX) reported on the same day ahead of print in *JAMA Oncology* on a study of the utility of combined clinical tumor and germline whole-exome sequencing (WES) in children with solid tumors. The study report included 150 participants (80 boys, 70 girls; mean age, 7.4 y) who were newly diagnosed with central nervous system (CNS) and non-CNS solid tumors. WES of blood and tumor samples was possible in 121 (81%) of patients. Somatic mutations with established and actionable clinical utility were identified in 4 (3%) patients. Mutations with potential clinical utility were identified in 29 (24%) patients. Mutations in consensus cancer genes were found in an additional 24 (20%) of the 121 tumors. Diagnostic germline findings related to patient phenotype were discovered in 15 (10%) of 150 cases. The majority of patients were found to have germline-uncertain variants in cancer genes (98%), pharmacogenetic variants (89%), and recessive carrier mutations (85%). Identified mutations in a broad spectrum of genes implicated in both adult and pediatric cancers led the authors to conclude that tumor and germline WES may have significant utility in newly diagnosed pediatric patients with solid tumors as well as in broader pediatric oncology applications.

JAMA Oncology