

Title: Routine text-messaging Assessment of Trainee Wellness with a Wellness Fuel Tank

PI: James Fox, MD, FAAP/School of Medicine/Pediatrics

Email: james.fox@duke.edu

School: School of Medicine

Collaborators:

- Kyle Covington, PT, DPT, PhD/School of Medicine/Physical Therapy
- Nick Hudak, MEd, MPA, PA-C/School of Medicine/PA Division
- Heflin/School of Medicine/Pediatrics
- Will Bynum, MD/School of Medicine/Community and Family Medicine

Focused Question: 1.What factors are associated with varied wellness levels in trainees in a variety of health professions training programs? 2.How often do programs contact trainees due to low trainee wellness levels? 3.What are health professions learners' perceptions of weekly wellness assessments through a texting-based Wellness Fuel Tank survey?

Background: Health professions trainee wellness is crucial to provider well-being and better patient outcomes¹⁻⁴. Health professions training programs are actively developing curriculae to educate trainees on burnout, wellness, and resiliency. Assessment of trainee wellness is often done semi-annually or annually as part of overall program assessments. This long-term assessment misses the ebb and flow of wellness and burnout at the individual level in the short-term. Recently, the University of Texas Southwestern (UTSW) implemented the use of a "Wellness Fuel Tank" in their Internal Medicine program⁵ to more effectively monitor individual and program wellness. Trainees received weekly email invitations via MedHub to participate. Residents simply indicated self-perceived wellness from 1 (empty Wellness Tank) to 5 (full tank) and could include free text comments, if desired. Participation could take as little as few seconds to several minutes depending on the decision to provide comments. Over 90% of residents in their training program completed the Wellness Fuel Tank survey, with weekly average participation of 52%. When low scores (1 or 2) were submitted, residents were contacted within 24 hours via email by program leadership to offer support and engage the resident in developing a strategy to work through the this challenging period. If more urgent concerns were identified in submitted comments or the resident reported 2 low wellness fuel tank levels in a short period of time, a member of the residency program leadership would call or visit with the resident. Comments were submitted 16% of the time; submission was associated with lower wellness fuel tank levels. Program leadership was able to identify residents in need of support and address comments/concerns quickly and program-related comments were addressed with all of the residents in weekly emails from the Program Director. According to the authors of this study, "Many residents have come forward and shared their excitement regarding the well-being fuel gauge and the program director's communications addressing their well-being comments. Program directors, associate program directors, and faculty have received many positive comments and e-mails in this capacity. Surprisingly, we learned from numerous applicants that our residents have been using the well-being fuel gauge as a positive aspect of our program—and, in turn, applicants are recognizing the program as a 'well-being friendly' residency." UTSW utilized automated weekly email notifications via MedHub to alert trainees the fuel tank survey was open. Informal assessment of trainees at Duke indicate email notifications are undesirable. We believe text message communication is ideally suited to efficiently survey medical trainees due to ubiquitous use of this modality and speed at which our short survey may be completed. Several pediatric residents have come forward and indicated that initiating a conversation about burnout in themselves or peers with program leadership is difficult. They have stated that face-to-face discussions are necessary for these discussions. Time constraints (limited free time for residents in general and residents infrequently able to arrange meetings during office hours due to patient care responsibilities on emotionally and physically difficult rotations), physical distance between patient care sites and residency leadership offices, concern about subsequent negative

perceptions of resident by program leadership have been sighted as barriers for reaching out to program leadership when a resident may be experiencing significant burnout. This text-based wellness survey may help to mitigate some of these barriers and open the door a bit more for trainees to communicate with program leadership about their overall wellness. (Of note, in the time interval between approval of our Letter of Intent for this project and the development of this final proposal, our leadership team investigated smartphone app development through the leadership of Duke Mobile Apps. Based on factors including budgetary constraints, we decided to pursue a text message-based project rather than development of smartphone app as was indicated in our LOI.)

Specific Aims: 1. Develop a text message-based wellness survey for health professions trainees. 2. Evaluate the utilization and impact of this survey in various health professions training programs at Duke. 3. Improve communication with regards to trainee and program wellness among trainees and program leadership.

Methods: Brief Description: Our team will work with the Duke Office of Clinical Research (DOCR) to develop a text message-based survey for the trainees of our various programs. Included trainees will be regularly engaged in direct patient care: all level residents in the Pediatric, Family Medicine, and Internal Medicine-Pediatric residency training programs, 3rd-year Doctor of Physical Therapy students, 2nd-year Physician Assistant students. Weekly, trainees will be sent a text with the Wellness Fuel Tank through the messaging software, Twilio. Health professions trainees may simply respond with a number indicating their self-perceived wellness fuel tank level (0, 1, 2, 3, or 4) or they may choose to also include comments. Responses will be collected in REDCap for review by the designated program leader. Similar to the interventions employed at UTSW, if a trainee inputs a fuel tank level of zero or one, the program designee will receive immediate notification from REDCap. Trainees will be contacted for any 0 or 1 score, a score of 2 on more than one occasion within a 4-week period, or concerning comments are submitted. Time line: November and December 2018: DOCR to develop the Wellness Fuel Tank survey in Twilio and assure appropriate data transfer to REDCap. Discussions with DOCR to determine appropriate data (quantitative and possible qualitative) analysis. January through June 2019: Implementation of Wellness Fuel Tank amongst the the Pediatric residency, Family Medicine residency, Doctor of Physical Therapy, and Physician Assistants programs. July and August 2019: Qualtrics survey of resident perceptions of the Wellness Fuel Tank intervention. Data analysis and project assessment. Outcomes and Measures: 1. Number of trainees completing the survey on a biweekly basis 2. Median weekly wellness fuel tank levels 3. Associations of fuel tank levels with health professions program, time of year, rotation, level of training, location of training, and other variables 4. Number of times designated program faculty contact trainees with low wellness scores and interventions employed 5. Trainee perception of usefulness of this project - to be assessed by an anonymous Qualtrics survey Data Management and Analysis: DOCR will be our resource for project development. Text messages will be delivered and received via Twilio which will communicate directly with REDCap. REDCap is a secure data warehouse behind the Duke firewall. Access will only be granted to project leadership and administrative support personnel. Additionally, DOCR resources will be employed for our data analysis (see outcomes and measure above). We plan to use de-identified data which will be reported in aggregate and analyzed with descriptive statistics. Sub-group analyses by, including but not limited to, trainee program and level of training are planned. In addition, we will also study the results of the trainee Qualtrics survey. This survey has yet to be developed, but analysis will likely include quantitative and qualitative assessments. Budget requests: JF (PI) will likely spend ~3 hours per week during project development, implementation, ongoing maintenance, and data analysis. This will include responding to low wellness levels via email, texts, in-person discussions. This will also include addressing resident comments via weekly emails or in-person discussions depending on the content. \$500 is a nominal amount for the time to be spent on this project. Consultant costs of \$2000 equate to \$500 for each collaborator. Each collaborator will be performing the tasks described for the PI above for their individual programs. Travel: JF plans to present the findings of this project at a national educators conferences – considerations include the annual Association of Pediatric Program Directors conference and the annual Accreditation Council for Graduate Medical Education conference.

IRB Status: Submission in progress

Challenges: While the Fuel Tank was well-received by Internal Medicine residents at UTSW, it is unknown how trainees here at Duke will perceive and use this tool. Trainees will participate via an opt-in option. We hope to gain high participation rates by effective messaging as to the positive intent of this program prior to implementation. We hope residents will realize the value of this tool through timely contact with trainees with low fuel tank levels as well as regular responses from program leadership to free text comments by trainees. We anticipate there may be unexpected glitches in development and bugs in implementation. Hopefully these will be minimal and not lead to trainee frustration.

Budget: \$8500

PI effort		500
Consultant		2000
Equipment		5000
Computer		
Supplies		
Travel		1000

Works Cited: 1. de Oliveira GS, et al. The prevalence of burnout and depression and their association with adherence to safety and practice standards: a survey of United States anesthesiology trainees. *Anesth Analg.*2013;117:182. 2. Fahrenkopf AM, et al. Rates of medication errors among depressed and burnt out residents: prospective cohort study. *BMJ.*2008;336:488. 3. Shanafelt TD, et al. Burnout and self-reported patient care in an internal medicine residency program. *Ann Intern Med.*2002;136:358. 4. Shanafelt, TD, Balch CM, Bechamps G, et al. Burnout and medical errors among American surgeons. *Annals of Surgery.*2010;251:995. 5. Scielzo SA et al. Resident Fuel Levels: Reframing, Assessing, and Addressing Well-Being. *JGME.*2018;10:198.