THE EFFECTS OF FATIGUE ON DRIVING SAFETY: A COMPARISON OF BRAKE REACTION TIMES IN NIGHT-FLOAT AND POST-CALL PHYSICIANS IN TRAINING

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BACKGROUND: Duty hour changes for resident physicians have fostered a great deal of discussion about post-shift fatigue and driving impairment. Other studies have found a high incidence of motor vehicle collisions among post-call trainees. Using a driving simulator, trainees on heavy call rotations have also been found to have similar impairment to trainees on light-call rotations with a blood alcohol concentration of 0.04 to 0.05 g%. Under current duty hour regulations, moving to night-float systems instead of traditional 28-hour call has been implemented in an effort to improve safety among intern and resident trainees. However, it remains unknown whether night-float systems improve the driving safety of trainees.

METHODS: Internal medicine and orthopaedic surgery trainees were enrolled during a traditional 28-hour call shift or at the beginning of a night-float shift. We defined night-float trainees as those that had worked at least one consecutive night prior to the current night shift, in an effort to study the effects of contiguous night shifts in a row. Brake reaction times were tested using a Vericom driving simulator at the time of enrollment and following their shifts. We calculated average reaction times for each participant, and conducted matched pair t-tests of the pre- and post-shift averages. We also had participants complete the Epworth Sleepiness Scale, and we performed the Wilcoxon Signed Rank test to detect differences pre- and post-shift.

RESULTS: From June 2013 to July 2013, 61 pre-shift simulations were conducted, and 58 post-shift simulations were conducted (28 orthopaedic surgery, 30 internal medicine). Three simulations were excluded from the analysis because no post-shift responses were recorded. We included 24 trainees on night-float rotations (41%) and 34 trainees on traditional 28-hour call shifts (59%). The average reaction times for internal medicine trainees were not significantly changed pre- and post-shift (p = 0.763). There was an increase in reaction times for orthopaedic trainees (p = 0.007). For trainees on night-float rotations, there was no significant difference pre- and post-shift (p = 0.65). However, there was an increase in reaction times among trainees on traditional 28-hour call rotations (p = 0.011).

CONCLUSIONS: In our study of internal medicine and orthopaedic surgery interns and residents, trainees on traditional 28-hour call rotations had worse brake reaction times post-shift, and trainees on night-float rotations had no difference in reaction times post-shift. While the results of our study suggest that driving safety may be improved through the use of a night-float system, this conclusion should not be taken in isolation of other considerations such as educational tradeoffs and increased hand-offs.
ATTITUDES TOWARD INTERNAL MEDICINE RESIDENT PROFESSIONALISM TRAINING
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BACKGROUND: Professional conduct is a core competency of medical practice and residency training. Defining, teaching and evaluating professionalism is challenging and requires collaboration between residents and faculty. In order to facilitate this effort, it is important to understand the beliefs and attitudes of those involved in the process. It was our objective to understand current modalities used, attitudes toward currently utilized curriculum and potential areas for improvement in professionalism training.

METHODS: Two surveys (one for residents and another for program directors) were developed using previously identified methods of teaching and evaluating professionalism. We distributed the survey link via email. Data was analyzed for associations using a chi-squared test.

RESULTS: Sixty-seven program directors and 589 residents completed the respective surveys. The majority (94%) of residents felt that professionalism education was relevant to their development as physicians. Forty-two percent of programs reported having a formal professionalism curriculum, though the majority of program directors (86.6%) and residents (87.1%) felt that residents could be taught professionalism. Residents who reported having a formal professionalism curriculum were significantly more likely to rate the quality of their professionalism training as adequate (27%) or very good (28%) (P<0.0001). Commonly utilized evaluation modalities included faculty evaluation forms (97.0%) and completion of administrative tasks (85.1%). Role modeling was the most utilized teaching modality (80.3%). Residents noted faculty evaluation (66.0%) and ancillary staff evaluation (61.9%) to be most effective evaluation methods, while Objective Structured Clinical Examinations (OSCE) and traditional examinations ranked lowest. Role modeling (66%) and faculty mentorship (48.7%) were felt by residents to be the most useful methods of teaching professionalism.

CONCLUSIONS: We examined attitudes of residents and program directors toward professionalism curricula to aide in the formation of effective professionalism education. Consistent with previous literature, formal didactics and examinations were noted to be less effective than staff evaluations and role modeling. Less than half of programs reported having professionalism curricula; however, residents who had a formal curriculum were more likely to report high quality professionalism teaching. A multifaceted approach with a focus on faculty and ancillary staff evaluation, role modeling and mentorship is likely to be the most well-received curriculum.
SUCCESS OF A FACULTY DEVELOPMENT PROGRAM FOR REMEDIATING CLINICAL TEACHERS

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BACKGROUND: The remediation of medical learners has been widely studied, but there has been limited research on the remediation of clinical teachers. The objective of this study was to determine whether a faculty development program could improve the evaluations of underperforming clinical teachers in an internal medicine residency program.

METHODS: 123 teachers completed faculty development at the Mayo Clinic from 2009 to 2012. The faculty enhancement and education development program (FEED) consists of six one-hour sessions that are taught by experienced Mayo Clinic faculty. These sessions address the following competencies: asking questions, diagnosing learners, giving feedback, utilizing teaching frameworks, recognizing learning styles, and providing clinical supervision. Resident-of-faculty Mayo teaching effectiveness (MTE) scores have previously demonstrated content, internal structure and criterion validity. Teachers were grouped into the top 80% or the bottom 20%, according to baseline MTE scores. Scores from the all the MTE items were combined to form an overall score ranging from 1 to 5. Mixed linear models were used to compare these groups regarding changes in MTE scores after completion of FEED. Results were adjusted for teacher age, gender, medical specialty, academic rank, and teaching awards.

RESULTS: Of the 123 faculty members in this study, most (N,%) were males (82, 67) in non-procedural specialties (88, 72), and they averaged 9 years on faculty and 45.4 years of age. A small proportion of faculty members had received major teaching awards (12, 10), and only a minority held advanced ranks of associate professor or professor (29, 24). For all faculty combined, the adjusted MTE scores (mean; standard error) improved from baseline (3.80; 0.04) to completion of the FEED intervention (3.93; 0.04; p<0.0001). However, the bottom 20% of teachers had a significantly greater improvement in scores than the top 80% (score-change difference=0.166; p<0.0001). In multivariate models, there were significant associations (β; p-value) between changes in scores after exposure to FEED and the following variables: bottom 20% versus top 80% of teachers (0.166; p<0.0001), age (-0.007; p<0.0001), procedural versus non-procedural specialty (-0.119; p<0.0001), academic rank (β range: -0.166 - 0.263; p<0.0001), and receiving a teaching award (0.074; p<0.0001). There were no significant associations for years on faculty (tenure) or gender.

CONCLUSIONS: We describe a faculty development initiative that was effective at remediating underperforming clinical teachers in internal medicine. These findings have implications for improving the quality of graduate medical education programs.
GRATEFUL PATIENT PHILANTHROPY: A QUALITATIVE STUDY OF PATIENTS WHO GIVE BACK TO THEIR DOCTORS
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BACKGROUND: Philanthropy is a vital source of financial support for academic medical centers, and grateful patients are the single most important source for substantive philanthropic gifts. The factors surrounding patients' decisions to make financial donations have not been empirically studied.

METHODS: Individual structured interviews were conducted with 20 patients who were identified by the Johns Hopkins Medicine development office as having made significant financial contributions to Johns Hopkins Medicine. An interview guide was developed to elicit patients' initial motivations for giving, how patients became aware of the need for financial support, how their gifts may have affected their care or relationships with treating physicians, and the elements of stewardship that were most effective. Interviews were transcribed verbatim. Content analysis was performed by two investigators using an editing analysis style.

RESULTS: Informants were on average 65.1 years old (range 45-87 years) and had affiliations with Johns Hopkins Medicine for a mean of 22.3 years (range 3-64 years). Most (13/20, 65%) were men. Estimated personal financial donations ranged from a few thousand dollars to over $15 million (median $500,000), and most (11/20, 55%) also supported the institution in other ways (e.g. serving on a board). Their donations were directed in various ways, including unrestricted gifts to individual physicians, support for specific research projects that relate to illnesses of interest (e.g. those affecting donors themselves or donors' loved ones), endowed chairs, and institutional gifts directed to new construction. While some donations were made after the first clinical encounter, others came after decades of exposure to Johns Hopkins physicians. Five themes emerged from the analysis that shed light on this content area: (i) excellence in patient care was an activating provocation that stimulated patients to consider making donations, (ii) patients welcomed learning about, and were comfortable discussing, specific ways in which they could direct donations, (iii) gifts were often intended to support the work and effort of physicians whom patients had come to respect and admire, (iv) patients felt satisfied knowing their gift could make things better for future patients, and (v) stewardship and explanations about how gifts were being used further encouraged and activated donors. Additionally, while most patients sensed that they now receive "VIP" treatment, they maintained that they did not expect special treatment as a result of their gifts. Similarly, none felt that their gift impacted the doctor-patient component of their relationship, and none believed that there were ethical issues associated with their giving.

CONCLUSIONS: This study of patients that have made philanthropic contributions to our institution suggests that the best way to attract significant donations is to make exceptional patient care routine. Patients with significant means who are grateful for the care they have received appreciate knowing how they can contribute and feel gratified from giving back.
LAPSES IN MEDICAL PROFESSIONALISM: A LACK OF CONSENSUS ON APPROPRIATE SANCTIONS

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BACKGROUND: With recent literature increasingly citing strong associations between disciplinary actions taken against practicing physicians and prior unprofessional behavior observed in medical schools, the teaching of professionalism has received renewed attention. However, relatively little research has focused on methods for responding to professionalism lapses when identified. The goal of this study was to examine differences in perspective between medical students and faculty regarding appropriate consequences for lapses in medical professionalism - views we predicted would vary with level of training. We sought answers to three primary questions: was there consensus regarding sanction assignment within each cohort? How did views change with level of training? Were there scenarios that respondents felt were not remediable and thus meriting immediate expulsion?

METHODS: A cross-sectional sample of medical students (preclinical vs. clinical) and Internal Medicine faculty at Baylor College of Medicine were asked to assign sanctions (no sanction, verbal warning, written warning, probation, expulsion) to 25 scenarios involving first-time lapses in professionalism. For each scenario, respondents were asked to comment on reasons for sanctions assigned. A mixed methods (quantitative and qualitative) analysis of the data was conducted.

RESULTS: 513 medical students and 37 faculty members completed the survey. There was a lack of homogeneity in sanction assignment within cohorts. On average, there was a significant decrease (p<0.001) in the severity of sanctions applied between preclinical and clinical years. The faculty were more like preclinical students in their pattern of sanction assignment. Clinical students were less likely to choose "expulsion" than their preclinical counterparts (p<.001); however, no group had >35% of respondents selecting expulsion. Text responses suggested that preclinical students were more "policy-oriented," clinical students more "context-oriented" and faculty more "morality-oriented" in their justifications.

CONCLUSIONS: There were significant differences between preclinical and clinical students and between clinical students and faculty in the severity of sanctions applied but no significant differences between preclinical students and faculty on these measures. However, all cohorts favored sanctions with opportunity for remediation suggesting that, short of expulsion, there is a lack of consensus between students and faculty regarding appropriate consequences for lapses in medication professionalism. The hidden curriculum may play a significant role in sanction assignment and much of the variability seems to be guided by preservation of self. We must thus find ways to reconstruct the framework in which learners and faculty see themselves.
THE IMPACT OF JOB BURNOUT ON MEASURES OF PROFESSIONALISM IN FIRST-YEAR INTERNAL MEDICINE RESIDENTS AT A LARGE URBAN ACADEMIC MEDICAL CENTER

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BACKGROUND: Internal Medicine (IM) residents commonly develop job burnout, which may lead to self-perceived sub-optimal patient care, depression, needle stick injuries and motor vehicle accidents. It remains uncertain what impact burnout has on professional behavior in this population. We hypothesize that first-year IM residents with burnout are more likely to demonstrate decreased levels of professionalism as compared with their burnout-free counterparts.

METHODS: We administered surveys to first-year IM residents at the Icahn School of Medicine at Mount Sinai twice between June 2011 and July 2012. Our survey, which has been previously reported, measured job burnout, sleepiness and other characteristics. Burnout was measured using the Maslach Burnout Inventory and defined by a high score on either the depersonalization or emotional exhaustion domain, in keeping with the most widely used convention. We subsequently gathered data on the following 3 measures of professional behavior for the same residents during the same time period: 1) Percentage of inpatient discharge summaries completed within 48 hours of patient discharge, 2) Percentage of outpatient clinic charts completed within 3 days of patient encounter, and 3) Average time to review of outpatient test results ordered during patient encounters, specifically laboratory and imaging reports. The data were analyzed using SAS statistical software to identify relationships between job burnout and these measures of professionalism.

RESULTS: Of 54 eligible first-year IM residents, 53 (98%) completed the initial survey and 32 (59%) completed the year-end survey. Nineteen (36%) of the 53 residents who completed the survey prior to the start of residency met criteria for job burnout. When comparing burnt out residents at the start of training with their burnout-free colleagues, there were no significant differences in timely discharge summary completion (84.5% vs. 83.5%; P=0.64), timely outpatient clinic chart completion (91.4% v. 96.1%; P=0.11), and average time to review of test results (53.9 min. vs. 393.4 min; P=0.23) Of the 32 residents who completed the year-end surveys, 24 (75%) met criteria for burnout. When comparing burnt out residents with their burnout-free colleagues at year end, there were no significant differences in timely discharge summary completion (84.2% vs. 84.1%; P=0.98), timely outpatient clinic chart completion (93.6% vs. 93.7%; P>0.99), and average time to review of test results. (72.3 min vs. 26.89 min; P=0.28)

CONCLUSIONS: Our study found that job burnout did not correlate with certain measures of professional behavior in a single group of first-year IM residents. Furthermore, residents maintained high levels of professionalism, by our measurement, despite burnout being quite common in their cohort. These findings could be explained by a number of reasons, including the possibility that burnout has no impact on professional behavior or that the measures we chose did not adequately assess the impact of burnout on professionalism. Given that interpersonal relations are central to the professional role of the physician and depersonalization is a domain of burnout, future study should perhaps be directed at measuring the influence of burnout on other aspects of professional behavior.