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CORR Insights®: What Effects Have Resident Work-hour Changes Had on Education, Quality of Life, and Safety? A Systematic Review

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Where Are We Now?

Nearly 15 years ago, the Institute of Medicine (IOM) issued a report [4] on medical errors and fatigue. This took place following the in-hospital death of Libby Zion, a young woman who developed fatal serotonin syndrome

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caused by the interaction of two drugs, one previously prescribed and one administered for presenting symptoms by an on-call resident. Due to the public nature of the trial, the state of New York passed the “Libby Zion law,” which allowed resident physicians to work no more than 80 hours per week [4]. In the wake of this law, the Accreditation Council on Graduate Medical Education (ACGME), followed suit with a similar set of regulations governing accredited residency training programs. This regulation has been met with more controversy than perhaps any other in graduate medical education in recent memory. Proponents believe the act has led to increased patient safety, superior quality of life for trainees, and more opportunity for learning from sources such as books, the internet, and peer-reviewed publications. Opponents believe that it leads to less ownership

of patients, poorer preparation for independent practice, and decreased surgical skill level at graduation necessitating additional years in training.

With the IOM report, Libby Zion law, and ACGME regulations as a backdrop, Harris and colleagues provide a systematic review of the literature regarding the early to mid-term effects of the work-hour restrictions with respect to patient outcomes, resident quality of life, and technical skill. Though this particular study found no objective data on patient outcomes, a previous systematic review [1] found a positive effect on patient mortality that was similar to what was seen in a nonteaching cohort, likely an effect of other advances in patient safety and not directly due to the decrease in work hours. Resident quality of life has subjectively improved as measured by member studies and quality of life questionnaires. Interestingly, although the number of operative cases actually increased after the ACGME work-hour rules, attitudes toward training received were generally negative – only 56% of residents and 17% of

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program directors felt that the graduating residents were ready to be attending surgeons.

Where Do We Need To Go?

A recent survey at our institution [2] revealed that 58.6% of internal medicine physicians and 41.8% of surgeons agreed with the work-hour rules as written. Still, more than 90% of internal medicine physicians and more than three-quarters of surgeons agreed that some level of work-hour restriction was warranted. This highlights the need to “get it right” for our trainees – a simplistic goal, yet difficult to achieve. Ultimately, it is our responsibility as a profession to educate high-quality physicians and provide musculoskeletal care for the community, while keeping work hours (and the overall length of residency training) reasonable for those going through it. At our own institution, since the inception of the work-hour rules, technology has been used extensively to augment the education of residents. Usage of dry labs for arthroscopy, cadaver courses and dissection for surgical approaches, and iPads with preloaded reading have all been employed to augment education. Additionally, physician extenders have been used to offload junior resident workload, so they may focus more on

learning surgical skills. As positive as all of these changes are, have they produced the effect of replacing the training benefits of long hours in the hospital? That is still unclear. As such I believe only competency based training and promotion will determine if we are providing the community with qualified orthopaedic practitioners.

How Do We Get There?

Consensus and agreement are difficult to obtain within the orthopaedic community. This is particularly true among orthopaedic subspecialties, especially as it pertains to hot-button issues such as resident education. However, if we are to achieve our goal of excellence in training, consensus is mandatory. How do we define a competent practitioner? Is it the performance of technical tasks? Is it diagnostic acumen? Is it compassionate care? These questions need to be addressed. The Orthopaedic in-Training Exam likely needs to reflect current diagnostic dilemmas in a fashion that represents the second- or third-order thinking that is commonplace in medical practice. This likely is the easiest to solve. The performance of technical tasks is also a requisite of an operative practice. Cadaver labs or dry labs can be used to assess and improve upon resident skills in these areas. A list of required competency

areas is likely required. Compassionate caring is the most difficult. How do we teach ownership and caring for patients? I believe the biggest risk of work-hour restrictions is a “shift” worker mentality, with multiple hand-offs and limited ownership. This is the antithesis of what it is to be a doctor. In future studies, interventions should be studied concurrently, one of the issues with the studies of work-hour rules is that they rely on memory, or consist of cohorts which exist at two separate points in time. These flaws markedly decrease the quality of those studies. The task is daunting, but we owe it to our patients and our residents to succeed at it.

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