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To Leave or to Lie? Are Concerns about a Shift-Work Mentality and Eroding Professionalism as a result of Duty Hour Rules Justified?

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Abstract

Context—Among medical educators, there are concerns that the 2003 Accreditation Council for Graduate Medical Education (ACGME) duty hour rules (DHR) has encouraged the development of a "shift work" mentality among residents while eroding professionalism by forcing residents to either abandon patients when they hit 80 hours or lie about hours worked. In this qualitative study, we explore how medical and surgical residents perceive and respond to DHR by examining the 'local' organizational culture in which their work is embedded.

Methods—In 2008, we conducted three months of ethnographic observation of internal medicine and general surgery residents as they went about their everyday work in two hospitals affiliated with the same training program. We also conducted in-depth interviews with seventeen residents. Field notes and interview transcripts were analyzed for perceptions and behaviors surrounding coming and leaving work, reporting of duty hours, and resident opinion about DHR.

Findings—Our respondents did not exhibit a "shift work" mentality in relation to their work. We found that residents: 1) occasionally stay in the hospital in order to complete patient care tasks even when, according to the clock, they were required to leave because the organizational culture stressed performing work thoroughly, 2) do not blindly embrace noncompliance with DHR but are thoughtful about the tradeoffs inherent in the regulations, and 3) express nuanced and complex reasons for erroneously reporting duty hours that suggest that reporting hours worked is not a simple issue of lying or truth telling.

Conclusions—Concerns about DHR and the erosion of resident professionalism via the development of a "shift work" mentality are likely to have been over-stated. At the institution we examined, residents did not behave as automatons punching in and out at prescribed times. Rather, they are mindful of the consequences and meaning surrounding the decisions they make to stay or leave work. When work hour rules are broken, residents do not perceive this behavior to be deviant but rather as a reflection of the higher priority that they place on providing patient care

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than on complying strictly with DHR. The influence of DHR on professionalism is more complex than conventional wisdom suggests and requires additional assessment.

Keywords

internship and residency; duty hour regulations; professionalism

Introduction

In 2003 the Accreditation Council for Graduate Medical Education (ACGME), the organization responsible for accreditation of residency training programs in the United States, introduced one of the most substantial overhauls of graduate medical education in more than a century (Yoon 2007). In response to growing public and professional concern about the effects of sleep deprivation (long recognized as a typical feature of the residency experience) on patient safety, education and resident well-being, the ACGME developed new duty hour rules (which we refer to as DHR throughout the paper). For the first time nationally, a limit was set on the number of hours residents could work – no more than 80 hours per week, averaged across four weeks. Shifts are limited to 30 hours in duration with a minimum 10 hour rest period between them.

Medical educators, residency program directors and policy makers have expressed concerns about potential negative unintended consequences of DHR on patient care and resident training. Residents working fewer hours necessitate more care transitions from one doctor to another which can lead to lost information, fragmentation of care and failures of coordination—all of which increase the potential for medical errors. There is also the fear that DHR constrains residents in their efforts to receive quality training when the demands of care are in conflict with participation in didactic activities. Finally, there is concern that DHR curtails the development of the ‘service ethic’ that medicine’s leaders claim is the bedrock of professionalism.

Directors of residency programs responded to DHR by redesigning resident schedules, trying new educational approaches, strengthening their work-hour monitoring practices, and transferring work traditionally done by residents to other health professionals and support staff (IOM 2009: 89). These changes were costly, especially given that no national funding was allocated to support them, and were not easy for all programs to adopt. In 2008 the Institute of Medicine (IOM) issued a report that revisited the 2003 rules. The IOM recommended a further reduction in work hours to alleviate resident fatigue and sleep loss, greater supervision of trainees, improved procedures for handoffs of patient care responsibilities and more stringent enforcement of regulations via federal oversight of DHR (Iglehart 2008; IOM 2009). Estimates suggest that implementing the new IOM recommendations would cost $1.6 billion (Nuckols et al. 2009).

Concerns about DHR go beyond logistics, however. Statements made in the literature reflect deeper collective anxieties about the attitudes with which physicians training under DHR will approach their work now and in the future. These collective anxieties are formulated as a pair of binary oppositions: DHR does not merely create constraints that impede effective care, but actually encourages an entirely new resident *mentality* that portends a new, less rigorous *professional morality* (Botta 2003; DeBord 2009; Fischer 2005; Higginson 2009; O’Neill Jr. 2009; Pories 2004; Rosenbaum 2004; Rybock 2009). This new mentality supposedly manifests itself in residents who are primarily concerned with their own lifestyle needs, are eager to sign out when they have reached their 80 hours, and feel little to no ownership of, or responsibility for, their patients. In essence, under DHR residents would cease to be “professionals” and become “shift workers,” regulating their work hours

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according to the clock instead of patient needs. If residents do not adopt this shift work mentality, they, nonetheless, would still have to behave in an unprofessional way—to lie about how many hours they worked. Either way, there is concern that DHR undercut core values of professionalism

Residents and Attendings are Concerned about Development of Shift Work Mentality

A large literature considers resident and attending faculty perceptions of the impact of DHR on a number of aspects of patient care, the training environment, resident quality of life and professionalism (see Longnecker 2006 for overview). A number of these studies explicitly consider the influence of DHR on resident professionalism. For example, Ratanawongsa et al. (2006) surveyed residents in internal medicine, neurology and family practice programs asking if DHR had affected their professionalism. 45% of residents felt professionalism had been reduced, 32% felt there was no change and 19% felt professionalism had actually improved. The survey instrument also provided an opportunity for residents to provide open-ended narrative comments on the impact of DHR on professionalism. In these responses, some residents suggested that DHR had curtailed time to talk with patients and families, which led to a decrease in shared decision making. Other residents said that their colleagues demonstrated less accountability to their patients, experienced little difficulty with saying "I've got to go" and handing over work. The residents' narrative responses indicated specific dimensions of professional behavior that that they felt DHR compromised.

Opinion leaders express concerns about the impact of DHR on residents' professionalism in editorials and letters to the editor (Higginson 2009; Rosenbaum 2004; Rybock 2009). Peterson et al. (2006) found that family medicine residency program directors are particularly concerned about the impact of DHR on resident professionalism. They surveyed 369 family medicine program directors, including two open-ended items in their questionnaire, one of which asked "What are your concerns regarding how duty hours regulations are affecting your residents and their training?" This question elicited a number of strong responses. Program directors expressed concerns about the development of a "punch the clock" mentality. One respondent commented "residents feel more like clocked employees, less like professionals. It's not 'my' patient." Respondents also said they felt that DHR have encouraged a mentality of "entitlement" to free time that undermined a commitment to patient needs.

Surgeons have expressed particular concern about the shift-worker mentality in editorials. They have written that the 80-hour work week is "the antithesis of a profession" (Fischer 2005), that it brings a loss of ownership of work and personal responsibility (Botta 2003), and that it threatens to break the particular bond surgeons have with their patients (Fischer, Healy and Britt 2009). Pories writes that "we have diminished a profession that took great pride in total devotion to patient care to one where the time clock rules whether to finish a task, the patient be damned" (2004: 515). Multiple authors fear an emphasis on personal lifestyle over patient care (DeBord 2009; O'Neill Jr. 2009).

Studies about perceptions of DHR among surgeons echo the apprehensions that are found in editorials. Hutter et al. (2006) interviewed attending surgeons and found a concern about increasing shift-work mentality was predominant. Vanderveen, Chen and Scherer (2007) surveyed teaching faculty about their views on DHR, finding that a quarter of respondents who provided additional commentary were concerned about an increasing "shift work" mentality, as well of lack of resident commitment to patients.

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To Leave or to Lie?

In a recent letter to the editor of *The New England Journal of Medicine*, John Rybock (2009), an assistant dean and the compliance officer for Graduate Medical Education at Johns Hopkins, calls attention to the erosion of professionalism as a cost of DHR that should be considered in addition to the financial cost of reform. He describes how his institution, in the process of maintaining compliance with ACGME rules, reduced residents' decision-making and autonomy, both of which are key components of professional behavior. He says

> We took away their control, preventing them from making the decisions that characterize a professional. We now force them to leave a patient with whose treatment they are intimately involved or to cease the observation of an instructive surgical procedure midstream. *It did not take long for this system to produce residents who would either walk away when their time had expired or else lie in order to violate the rules.* Although we added "professionalism" as a training goal, we began giving our trainees the choice between abandoning a patient and lying (Rybock 2009: 930, emphasis added).

In the process of complying with the ACGME rules, Rybock says that his institution "transformed the trainees in [their] core programs from dedicated professionals into shift workers."

Rybock is not alone in his concern about forcing residents to choose between fidelity to patient care or lying about duty hours. Carpenter et al. (2006), in a survey of pediatric, internal medicine and general surgery residents at one institution, found that 49% of respondents admitted to underreporting their work hours. These authors argue that DHR has actually created ethical dilemmas for residents who pay attention to truth telling. They suggest, referring to the many residents who admit to underreporting, that

> It is our collective desire that residents be truthful to patients (e.g., obtaining informed consent), to families (e.g., delivering bad news), and to their colleagues (e.g., reporting medical error, admitting limitations in knowledge/capability, reporting disability of a coworker, identification of system-based defects, and so on). The fact that these regulations are prompting a deviance from this practice of truthfulness is of concern (Carpenter el al. 2006: 530).

These authors suggest that being faced with the decision to lie or not when reporting hours worked represents a significant source of anxiety for residents because it undermines a professional commitment to truth telling in other domains of behavior.

A general surgery resident with a flair for the dramatic title expressed this anxiety in a letter to the editor of the *Journal of the American College of Surgeons* "Should I lie about my work hours this week?" The resident describes a situation in which he was asked by his program director to leave work because he was approaching 80 hours. He summarizes the moral dilemma that he feels DHR has created for him:

> So which was the greater good? To do the right thing for patients and my education or, to be honest, carry a clean conscience and play by the rules that I did not set or sign up for when I started in 1999 (Grogan 2005: 635).

Grogan describes how difficult this decision is for him on an everyday basis, as his responsibility towards patients and desire to obtain valuable operative experience are challenged by the need to follow a rule the wisdom of which he questions. He decides to leave when the rules dictate, but is uneasy with the tradeoffs embedded in this decision. He asks his father, a general surgeon who trained "back when men were men and giants walked the earth," for advice (2005: 636). Grogan is surprised when his father advises him, after ascertaining that it is possible to be caught in the lie, to follow the rules in order to protect

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his credibility and career. This letter elicits a reply from a vascular surgeon who questions Grogan's father's advice. The vascular surgeon responds with an affirmation that the rule does not yet exist for which the successful workaround can not be devised. He says:

> But, what would Father have done in a similar situation during his own training years. He might have figured out some kind of "work-around." Turn in an honest card, but with footnotes…(Tilson 2005: 490).

He goes on to lament the influence of DHR on the training environment, "what kind of world has this become when a surgeon cannot fulfill his unwritten covenant with his or her patient" (Tilson 2005: 490)? Tilson's response characterizes the heightened tension that surrounds working time and the everyday choices residents make about leaving or lying. It also suggests how lying in this situation may take on a different meaning than it does in other contexts. When lying about hours worked means honoring an "unwritten covenant" to a patient, what is the lie's status as a moral breach? How do residents navigate this tension? How do they handle the reporting of their own hours? How do they feel about lying and truth telling in relation to a contentious but consequential rule?

Given widespread and intense fears about DHR eroding professionalism via the development of a "shift work" mentality or requiring dishonesty when reporting we sought to observe and understand how residents actually behaved in relation to and felt about DHR, leaving or staying at work over hours and reporting duty hours. The following questions frame our research: Do residents "watch the clock" and exhibit a shift work mentality? Or do they violate the rules in the name of a higher 'professional duty'? How do residents perceive decisions about staying or leaving work when DHR conflict with other priorities? How do residents report their duty hours? Are they accurate? Do they lie? Do the think about lying in this context as a threat to their personal or professional integrity? How do they understand the reporting process? What does it mean to them? We know that there is a nearly infinite number of points along a social continuum, the poles of which are clock-watching shift-worker and dedicated professional, but we picked up the question as we found it in the literature that discussed the impact of the 2003 ACGME resident duty hour rules on resident professionalism.

Methods

Study Design, Sample and Data Collection

We conducted participant observation and in-depth interviews with internal medicine and general surgery residents affiliated with a large, elite medical school in the Eastern United States in 2008 in order to understand the influence of DHR in different specialties. We utilized qualitative methods in order to generate hypotheses regarding how DHR affect the provision of clinical care and resident education. Participant observation and in-depth interviews are particularly suited to gathering data to complement survey data. Instead of simply asking residents a fixed question about their behavior, participant observation allows the researcher to *see* these behaviors unfolding. One strength of qualitative research is that a careful inspection of social processes by an 'outsider' with a fresh perspective may reveal features of those processes no longer noticed or questioned by those with daily involvement in those processes (Garfinkel 1967; Geertz 1977; Simmel 1971).

While concerns are often raised that observation changes practice, the impact of observation in medical settings is often minimized because the pace and intensity of the workload overwhelm attempts by subjects to be on their best behavior (Patton 1999). In addition, habitual patterns of workplace behavior are hard to modify. For example, Reiss (1967) found, while observing police behavior, that officers who accepted bribes had no compunction about accepting bribes in the presence of an observer by the end of the first

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shift. To deny that observer effect occurs is too extreme. To specify its nature, however unfortunately, is impossible. To place our data in the context of survey and interview data gathered by others gives us great confidence that despite site-selection bias, our data permits a more nuanced description of how work hour limits for residents interact with and help shape current understandings, operational definitions, and formal assessments of professionalism.

Our research team, comprised of four graduate students in sociology, spent three months in the summer of 2008 observing housestaff as they went about their day to day work. The majority of our time (2.5 months) was spent in a Veteran's Affairs (VA) hospital. The remaining time was spent in the main University hospital. Our study was approved by the Institutional Review Board at both of these institutions. Each observer spent approximately two weeks shadowing the same sub-intern,1 intern or resident, although there was some variation in the duration of time spent shadowing any one individual. We attempted to tie our observation period to the scheduled shift of the resident we were observing. We arrived at and left the hospital with them, saw patients, went to attending rounds, attended didactic conferences, observed operations, and sat with them while they entered notes and orders into the computers. We observed their work on nights, weekends and holidays including spending the night at the hospital as part of their on-call responsibilities. We observed approximately ten general surgery and twelve internal medicine residents closely, although much of this time involved observing groups of residents together in various settings.

We told residents we were interested in learning about the experience of their day-to-day workflow, the social organization of work, particularly in the face of DHR and the various issues that they dealt with on a day-to-day basis. As observers, we attempted to be as unobtrusive as possible and communicated that we were not there as agents of surveillance for the program. We were careful to pay attention to the impact of our presence on the behavior of the residents we studied. After an initial period of adjustment (usually only a few hours), residents became comfortable with our presence and did not appear to be "on their best behavior" – they occasionally engaged in gallows humor (Shem 1978) and used us as sounding boards for their anger and frustration about various aspects of resident life. They actively engaged with us, occasionally treating us as medical students and including us as a part of their team. Each observer carried a small piece of paper or notebook with them and jotted down short notations whenever it felt appropriate to do so, and typed up detailed field notes at the conclusion of each day. Collectively, we accumulated over 1000 hours of observation and 640 pages of single-spaced typed notes. One of the project's PIs and co-author, CLB, reviewed all field notes. Observers meet weekly, both collectively and as individuals, with CLB for supervision to discuss issues of data collection.

Using a semi-structured format that grew inductively from observations, we conducted seventeen in-depth interviews with residents. The interview sample consisted of residents that we had observed over the summer, as well as one respondent who was referred to us. We interviewed seven general surgery residents, one physical medicine and rehabilitation resident (who had rotated on the surgical service when we were observing), eight internal medicine residents and two medical students who had rotated through the internal medicine and general surgery services as "sub-interns." That we conducted the interviews after we had finished our observations allowed us to ask more nuanced questions and to reflect on specific events we had observed. Additionally, we knew many of our respondents quite well

[1]A sub-intern is a fourth year medical student who essentially replaces an intern for four weeks. At the medical school affiliated with our observation site, the sub-internship program is very rigorous and for all intents and purposes, a sub-intern has equivalent responsibilities as an intern.

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from the time we had spent with them. This enhanced trust likely allowed for more in-depth and candid responses. All interviews were digitally recorded and transcribed.

Data Analysis

All field notes and interview transcripts were uploaded to QSR's NVivo 2 qualitative data analysis software. Analysis was largely inductive, although we approached the data with an interest in residents' perceptions of DHR that informed the creation of code categories. Two of the authors (JS, JVB) coded the documents separately and then came together to discuss the codes, theme generation and to resolve any discrepancies. Although we did not formally assess inter-coder reliability, JS and JVB were in general agreement about the themes identified and consulted CLB throughout the analysis process. The themes that we found in the data echoed and resonated with earlier studies of medical socialization. We actively circulated memos throughout data analysis and used these memos to refine our coding schema and theme generation (Charmaz 2006). All names used in this paper are pseudonyms but we maintain the respondent's actual year in the program and specialty (internal medicine [IM] or general surgery [GS]).

Results

We found that residents: (1) occasionally stay in the hospital in order to complete patient care tasks when, according to the clock or arrival of replacements, they could have gone home, (2) do not blindly embrace noncompliance with DHR but are aware of the tensions surrounding DHR and attempt to balance these tensions as best they can while prioritizing patient care, and (3) express nuanced and complex reasons for reporting their duty hours erroneously, which suggests that reporting hours worked is not a simple issue of lying or truth telling.

1.) Even when residents were entitled to leave work they often chose to stay because they had a strong sense that there was a "right" or "thorough" way to do things in the provision of patient care, which both trumped the clock and concerns for personal lifestyle.

Residents engaged in the work of providing patient care without much thought to the clock or total hours worked[2]. One IM intern described this orientation towards work in an interview:

> No. I mean, 80 hours is such a hard thing. I think that's why they put it as an average, because there's going to be times when you have to stay. You don't even feel it. It's not like you're like, "oh, I wish I was at home." There's things you have to do and that's just hard…you can't put it in a certain timeframe to get everything done that needs to be done. You're depending on other things to get finished. You're waiting for someone else to do this to a patient or waiting for a test to come back. Things like that have to happen.

This quote illustrates how important it is that the ACGME specifies the 80 hour weekly limit as an average over four weeks. This allows for flexibility by residents in responding to the unpredictable nature of medical work. A GS intern explains how he feels about his working hours in an interview:

[2]The only negative case to this rule was the 30 hour (24 hour limit + 6 hours for continuity) rule in IM. Attention was called to this rule in the course of everyday post call labor among IM trainees, but residents (especially interns) found it very difficult to be compliant because the work involved with new admissions from the night before often reached a frenetic pace in the middle of the day, right when they were supposed to leave. As one senior resident suggests: "the problem is when you admit people you try to leave at noon [on your post-call day] but there is always a lot of like things to like tie up 'cause there's a lot of stuff going on when people come into the hospital… the time when there's stuff most going on and that's when you're trying to leave."

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> …I mean it's not something that I keep tabs of, it's not like I have a little journal and I'm like ok, I worked an extra three hours today.

Residents did not just drop what they were doing when the clock reached a certain hour. This attitude towards work was often seen in instances where residents needed to leave inpatient wards to attend continuity clinic, as these two observations of IM residents make clear:

> Mary (an intern) is ready to sign out to Peter (an intern). She calls him and tells him to come down to the 3rd floor. Mary tells me "this service is kind of crazy." I ask her about clinic this afternoon and she grumbles, saying that it is really annoying to have to travel four blocks and leave behind all of the stuff she has to do here. She says she is going to be really late, but that she can't just pick up and leave.

> Jesse (an intern) and I meet up with Brian (Jesse's senior resident) at the nurse's station. Brian says that he thinks they need to talk to Mr. X's family today. Mr. X has inoperable and terminal colon cancer. He offers to do it this morning while Jesse is at clinic. She says she wants to be in on it for continuity of care because the family knows her and trusts her. She says "if I'm late to clinic, I'm late to clinic."

These excerpts suggest that norms about time (being late) are different here than in other work environments (Zerubavel 1979). The resident in the first situation expresses an understanding that the demands of work on an inpatient unit are such that she cannot just drop what she is doing and leave, even to meet the demands of another aspect of her training. The resident in the second situation prioritizes continuity of care when she decides to stay late in order to deliver bad news to the family of one of her patients.

We observed that during the course of their everyday labor residents did not "watch the clock," but often stayed to complete tasks even when they had reached the work hour limits or their schedule indicated they could go (another resident arrived to take their place). This observation is based on spending many hours with the same residents over the course of their workweek. We do not have reliable work hour data for the residents (from computer log-ins, for example) who we shadowed. We were able to calculate their work hours based on our own comings and goings. Additionally, residents that we shadowed engaged us while we were observing them and would make comments to us about what they were doing and their motivations for doing it. We gathered no data that suggests they hid "clock watching" from us.

A number of examples from our field notes illustrate residents staying at work later than was dictated by the clock or their scheduled hours. In the excerpt from our field notes below, two IM residents stay late on their post-call day (the day following a continuous 30 hour duty period) to care for a critically ill patient who develops an extremely rapid and irregular heartbeat. They decide to use adenosine (a drug) to visualize better his heart rhythm and to try to slow it down. Instead of saying, "Time's up. I'm out of here," they stay to administer the medication and speak with the patient's wife. A nurse comments approvingly on their decision to stay:

> I just happen to be hanging out against the bay and a nurse tells me how good it is to see the intern and his senior resident still here. She says, "I'm glad to see that they are breaking their own rules." She tells me how things are worse for nurses post duty-hour reform "their (residents) attitudes have changed. Now, when a nurse contacts them for something and they are about to leave they say 'my shift is done so call the cross-cover.'" She gestures to the intern "look at him. If he had left he would have missed this great clinical experience (giving adenosine)."

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This nurse perceives that residents have developed a shift work mentality in response to DHR, but she also notices this exception to her general rule.

We cannot more fully unpack the nurse's statement. We did not systematically observe or interview nurses. Future research should consider the impact of DHR on resident-nurse interactions, particularly communication surrounding tasks that need to be completed towards the end of the day, when a resident is signing out tasks to the covering resident.

In the next example where a resident chooses to stay late, Alex (a GS junior resident) has been on call all night and under usual circumstances, he would sign out to his replacement (Rob, a junior resident) starting at 6am. But there is an extremely sick and complicated patient in the Medical Intensive Care Unit (MICU) who does not seem to have received much treatment throughout the night and is coughing up blood. So Alex stays and deals with the problem because he believes the patient is in critical condition.

> Rounding takes a long time this morning. At 7:20 I ask Alex why he's still here. He tells me, laughing, that they got a late start (the incoming resident was late). "You have to subtract 20 minutes." We go to the MICU and see the patient with a GI bleed. Alex asks the nurse to do something, and he says "give me a minute." Alex retorts: "he's been here since midnight." Alex also says "you got to be all over this guy" and the nurse, who is not moving as fast as Alex would like, says "I like to have gloves on with blood." At 7:49, Alex is still on the computer and talks with the MICU doctor about all the orders that need to happen. The MICU doctor, who was on call the night before, has disheveled hair and asks Alex: "do you need anything else?" The MICU doctor gets on the phone right away and calls the blood bank. Alex tells the MICU doctor to talk with the family and "let them know he's in pretty critical condition, he could die." Alex later tells Rob: "You saw up there, you gotta take care of them. If we hadn't gone up there, he would have died." Alex tells Rob he has to be "on top of this guy" and Rob says: "I know, I know the drill." At 8:26 Alex finally leaves.

On a different day, Rob is told by his chief, Greg, to sign out early to Alex, who will be covering for the night.

> This is the Friday that Rob is supposed to sign out to Alex since Alex is going to be on for the night anyway. I ask Rob when he's gonna sign out and he says "if I sign out to Alex, then Greg has to get everything from Alex, and that's how shit gets lost." Rob doesn't sign out early. At 6:18 p.m., Alex, Rob, and I meet Greg in the PACU (Post Anesthesia Care Unit) for sign out. Meanwhile, Rob is getting texts from his dinner partner. Throughout these interactions, Greg uses me as an audience and tells me that "this is the A team, they don't listen to me yet" (referring to the fact that Rob was still there and hadn't signed out early). Greg tells me Rob is "defiant, and a wise ass, and good." At 6:40 p.m. Rob finally leaves.

In the first two instances residents make decisions to stay longer at work in order to manage critical situations despite, in the first case, violating DHR and, in the second case, being able to leave because one's replacement has arrived. In the third instance, the resident decides to stay later than necessary in an effort to eliminate an extra handoff and reduce the risk of losing patient information. The residents we observed were sensitive to issues surrounding care transitions.

When we asked residents about DHR in interviews, they described situations when they or their colleagues violated the rules in order to accomplish tasks thoroughly. One IM senior resident expressed the challenges she faced in managing an intern who consistently violated DHR:

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> Right. So, I have an intern. He is an excellent physician. Oh, he could be my doctor any day, and he's still younger than me in training. He would break duty hours left and right, and I was his resident, so I was freaking out, because I'm always trying to get people home at noon.
>
> I was very big on it, but what was he doing? He was calling their primary care doctors, writing notes, making sure they knew exactly what happened to that patient. This was not a lazy person who was wasting any amount of time. People called him inefficient. He was, in my mind, probably the most efficient doctor there was, but it took more time than we had, and there's a part of me that wished I cared as much as he did, and I had to give him a recommendation for something, and I had to speak to a supervisor about it, and I said, "People call him inefficient. It's really because he's doing what we all should be doing," but there was not time to do it, and he'd be there two hours late. I'm not talking 15 minutes. He would call that doctor, he would call the family member, the kind of things that people wanna believe doctors would do for them, and he did them all.

This intern was performing work that "people wanna believe doctors would do for them." This resident recognizes the tensions inherent in disciplining someone who performs excellently by one set of criteria but not another. This intern's behavior is consistent with a more general norm we observed in the residents: namely, they would disregard time worked in order to accomplish work to their standards. Residents reported in interviews that violating duty hours did not bother them so long as violations served to complete patient care tasks to their level of satisfaction. An IM intern says:

> So, I'd rather stay late myself. I don't really care if I violate duty hours, because I think that those are important times when [in a handoff, patient information can] drop. I'd rather do it because I'm the primary, it's my patient. That's why like the day before yesterday, Saturday, we were post call. Me and my senior resident, we stayed till maybe 2:00 pm, when you know you're supposed to be out of the hospital by 12:00pm or something like that. It didn't matter because I wanted to finish certain things and then hand it off to the day float…

A GS intern says:

> I'm willing to work as much as it takes; I knew that coming in. I knew that surgical residency is not easy; I knew that you're going to be worked hard. And that's a decision that I made and I'm willing to, so if I have to be here until from 5:30 in the morning until 9:30 at night in order to get the things done that I need to get done, or that I want to get done, then I'm willing to do that.

These residents express a sense that there is a right way to do things in the provision of patient care. Getting work done the "right" way may mean violating DHR. This is considered appropriate behavior because it is more important to do what's "right" than to follow rules about time spent performing the work. In an interview, two IM interns describe the challenges of their workload:

Respondent 1: So I would say realistically you could see your morning patients in 15 minutes if you're really efficient, 15 minutes per patient.

Interviewer: What do you think about that?

Respondent 1: Right, and the only way to actually meet that goal is to not do a thorough job as a physician. Meaning peek your head into [the patient's] room and say "hey, how's it going? Any pain?" Or like address their one major issue, like, if they have belly pain saying "hey, how's your belly feel? Ok? Ok, bye."

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Respondent 2: Oh yeah, you know the physical exam where you just stick the stethoscope on one spot on their chest and that's it. That's how you do it that fast. A full physical exam would take 15 minutes.

Respondent 1: That's not being a good physician. That's shocking. But is that the reality? … I mean if that's what the work hours are gonna entail and if you're gonna keep everything at status quo and expect you to do the same amount of work in less time, eventually it's not gonna make any sense. It's not. It doesn't add up. If your cap is ten patients and you have an hour to see them all, it's impossible.

While these residents want to improve their efficiency as clinicians, they also express a strong sense of what it means to be a "good physician." There are certain shortcuts they refuse to take (the pseudo-stethoscope exam); even if it means that they violate DHR. Respondent 1 expressed frustration at the program for what he felt was an unreasonable workload. While this was not a universal view amongst respondents (the program we studied had implemented a number of strategies to reduce resident workload in order to improve compliance with DHR such as night float, day float, nurse practitioner and non-teaching services), his comment about being expected to "do the same amount of work in less time" is likely to be a very real concern for programs with limited resources as further changes to DHR, which are estimated to be very costly, are made (Nuckols et al. 2009; Payette, Chatterjee & Weeks 2009). We found, contrary to fears about the erosion of professionalism via decreased accountability to patients, that residents put patient care first and recognized that the exigencies of working in a hospital will, at times, supplant the ability to leave when one wants, plans, hopes or is required.

2.) Residents realize and are aware of the tensions inherent in DHR and try to balance what often appears to be a "zero-sum game" to the best of their ability. Although they recognized that some situations required the violation of DHR, they did not blindly embrace noncompliance.

While the residents we observed stayed at work to get the job done well for their patients, they were aware and spoke thoughtfully of the tradeoffs involved with regulating their work hours. They actively struggled with the tensions involved in providing safe patient care, managing their fatigue and obtaining quality training. Residents were particularly aware of the transaction costs that DHR impose on patient care, specifically that the cost of fatigue reduction is an increase in the number of care transfers.

> Stuff definitely gets missed through the sign out because there's something you forget to tell somebody and then it doesn't happen or you can't tell somebody everybody's active issues and remember them all. But that's just the nature of the system. I mean there's no way to really get around that without it being abuse like it used to be where you just never slept and you were always here taking care of the people. You knew the patients really well but your life was complete misery, so I don't know. (GS junior resident)

> I think it's a really fine balance between being more hand offs you do or longer hours when people are tired, not paying attention and distracted. (IM intern)

An IM intern elaborates on what this "really fine balance" means in practice:

> I think it's all about how you hand off your patients. If you're like I need to get out of here, and you just leave without doing the things you need to do, and without giving a good handoff to someone, then yeah, it's probably not a good idea. Yeah, that's probably not good for your patients. But I think that those tasks that you sign out to people are not things that you have to do because you admitted the patient.

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> There are some things that you have to do because you admitted the patient, like discharge paperwork. It's really hard for a person who doesn't know the patient at all to follow-up their discharge paperwork. It's those are things I think the admitting physician should do, but other things like I'm going to do a procedure on you… well, if I were a patient I would rather someone who'd just come on that day who didn't even know me do the procedure than someone who knows me but was here all night. And up all night. You know?

Balancing the tradeoff between fatigue and continuity of care, especially given a lack of evidence about which is worse (a fatigued resident or a poorly done handoff), involves making thoughtful decisions about work and how it is organized. This means making fine judgments about what work is most appropriate for the admitting doctor and what can be signed out to a colleague. There is no one size fits all way in which residents figure out how to manage these tensions, rather interns and residents are always actively thinking about and making decisions based on the particular needs of the situation.

Residents were also thoughtful about the impact of DHR on attendings' workload and residents' education, as this field note excerpt makes clear:

> A GS senior resident voices another concern to me. He brings up how much attendings have to work: "cut back on our work, protect us, that's great, but when you save residents, you hurt attendings. And you want attendings fresh, they're teaching us, doing cases…" He also tells me that if they keep regulating down the hours for residents, then they are just going to be delaying residents working crazy hours until they're an attending, and then as new attendings, they will be at a disadvantage, because "we won't have been trained to work those long hours."

Our findings are consistent with other studies of resident perceptions of DHR which find that residents are especially aware of what they perceive to be a "zero sum game" between fatigue and discontinuity (Jagsi and Surender 2004; Myers et al. 2006). Carpenter et al. (2006) are correct to point out that DHR create ethical dilemmas for residents that provoke anxiety about the best way to provide patient care and receive training in an environment characterized by a rapid pace and intensity of work. Residents do not see DHR as a simple issue of staying or leaving work. Rather, everyday choices involve a number of trade-offs: To stay or to sign out? To sleep or to know patients better? To help residents or to hurt attendings? To be rested or to see fewer operations or procedures? To sign out or to feel physically abused? These are the questions of a group actively thinking about what it means to behave like a *professional* under considerable human, organizational and regulatory constraints. These choices force upon residents the judgment that *professional behavior* involves choosing a course of action when one set of rules is in conflict with another.

Residents in our study noted both the lack of evidence for the actual form of the rules (as one IM senior resident said, "80 hours came out of nowhere") and the inconsistent research evidence that DHR have reduced mortality (Shetty & Bhattacharya 2007; Volpp et al. 2007A, 2007B; Volpp & Landrigan 2008). Their decisions about staying or leaving in a particular situation are not evidence-based. Rather, it is likely that residents make decisions based on the specifics of the situation, their past experiences (if they had a near-miss while fatigued or because of a sloppy handoff, where they went to medical school, etc.), how they feel about working while fatigued (some of our respondents said that they did not believe that fatigue made them more likely to make mistakes) and local resident culture about the most appropriate way to manage one's workload.

Although residents stay at the hospital in order to get their work done in a satisfactory way, even if that meant violating DHR, they did not blindly embrace noncompliance. Residents recognize that it is not feasible to be in the hospital all the time, even though that would be

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the ideal for continuity of care. As one GS senior resident says “obviously the most continuous care is for that doctor to take care of that patient 24/7 for their entire hospitalization, but that’s unrealistic.” Our respondents suggested that there are limits on the upper bound of time that a resident should work. In other words, the organizational culture only tolerates working extra long hours up to a point. The precise point involves applying a rough rule of thumb that is difficult to calculate in any specific case. Violations are tolerated when they are necessary to provide patient care that cannot be provided by someone else without jeopardizing other patients (and even then there is a recognition that there is a limit to the amount of good a fatigued resident can do for a patient). As the following excerpt of an interview with an IM senior resident suggests, noncompliance has its limits:

Interviewer: Interesting, and he (an intern who consistently broke DHR) got some crap about it.

Respondent: Well, breaking duty rules, but he could not and yeah, maybe he was slow doing it, but he did it well.

Interviewer: Did he get talked to? Did you have to talk to him about it? Did you have to say, “Hey, stop doing this.”

Respondent: Sometimes, yes. I had to stop him. I was his resident on the wards, but prior to that, I was his resident in the intensive care unit, so I had more than one experience with this individual, and when you’re in Q3 (taking overnight call every third night), you need to get home at some point…he’s there until 7:00 at night, 8:00, and then we’re on call the next day. At the end of the day, for his safety, for the safety of the next patient he’s gonna see, it has to end at some point.

This resident expresses frustration at having to stop her colleague from working extra long hours, but recognizes that there comes a point in time when the drawbacks of his being there outweigh the benefits. Making this distinction is part of the “really fine balance” residents attempt to achieve for themselves and encourage in their colleagues on a daily basis.

Residents also suggested that there is a limited tolerance for people working extra long hours. There is the ever-present danger that extra hours will be interpreted as inefficiency rather than dedication. As one GS senior resident described in an interview:

> I mean I think if anything [the 80-hour work week] has forced people to become more efficient…As opposed to waiting till the end of the day after all the cases are done in the operating room to round on all the patients on the service, rounding at like 2:00 or 3:00 between a case or something. Or, you know, having your team round without the chief and basically have one person sign out for the team. Those are things you implement to kind of like make things more efficient. From what I understood before the 80-hour work week people would just sit around and wait for their chief to finish in the operating room and then like they’d be just waiting and you know for them to get out of the OR to sign out. I don’t think that’s acceptable any more.

Residents recognize that working extra long hours can be dangerous to patients, discourage efficiency, make learning difficult and contribute to burnout. Although we observed that residents worked without regard to clock this did not justify routinely working excessive hours. The only acceptable justification for extra hours were the demands of patient care that could not be met in any other way save for a violation of DHR. Residents understand DHR as rules that they can sometimes ignore but must generally obey.

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3.) Residents often forgot how many hours they worked, reported inconsistently and sporadically and, as a result, "fudged" their hours. This "fudging" is not understood as a moral breach. Trainees have a number of reasons for erroneously reporting their duty hours, which when explored, reflect their priorities and directly address some of the concerns about the development of a "shift work" mentality.

Residents provided us a number of different reasons for erroneously reporting their duty hours. First, consistent with what we previously reported, they simply do not keep close track of their hours worked—they do not "clock watch." The programs we observed used retrospective self-report so when residents eventually logged their hours3, many said they simply forgot how long they had worked. A GS intern explains how he reports his hours in an interview:

Interviewer: How do you report your duty hours?

Respondent: I report them exactly as scheduled.

Interviewer: Yeah?

Respondent: Well, a part of the problem is that when I go back at the end of the week to put my hours in, I forget what I've worked. So I just default to what I was scheduled. I mean honestly I really could not tell you what I worked last Friday or I could not tell you… I couldn't tell you what I worked last Wednesday. I have no idea. So when I look at my schedule and I see that I was scheduled from 6:00 a.m. to 6:00 p.m., well, that's probably pretty close, I don't know.

An IM intern describes how she reports her work hours in an interview:

Interviewer: How do you report your hours?

Respondent: Yeah, so we report them on a computerized system… So we just go on and it's like a calendar and you highlight the amount of time you've been there each day. It's really easy to use. And, yeah, I do report mine honestly to the extent that I can remember. I don't remember to do it every day, so I end up doing it a week or two later which, you know, probably contributes to slightly erroneous reporting, but I don't think it's horribly off at all.

Below is an excerpt from our field notes in which we observed a GS intern reporting his duty hours:

> Before his senior resident gets there, I watch the intern as he fills out "My Duty Hours" for the week. I look with him as it says that "exceptions" to the rules will be marked in red or something like that. Basically, they have a drop down menu (call, educational, patient care, etc.) and they highlight the amount of time they did each, and as the intern does his, he says "that doesn't look like much time, does it?" and I agree, the way it is pictured makes it seem like there are a lot of hours *not* worked. He tells me he does this a week at a time. He guesses at the beginning of the week "I don't know what I did at the beginning" (of the week) he tells me. I ask him so you knowingly put the wrong hours? (as he's just 'guessing' happens to be no more than 80 hours) and he says "well, not knowingly."

Second, we found that residents report sporadically and inconsistently because they felt that the process of reporting adds to the burden of work by becoming another system to learn and

[3]There is clearly variation in the frequency of reporting, as these excerpts suggest. Some residents log their hours every week, others every two weeks and others still forget for months at a time.

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manage. Not surprisingly, this new work burden falls to the bottom of the priority list of tasks that need to be accomplished.

Interviewer: Do you feel that the potential ramifications of breaking hours are severe enough that it motivates people to adhere to them?

Respondent: With the program, it is.

Interviewer: Yeah, I mean in terms of I know about accreditation… I know that it's a recall system.

Respondent: I think it's a stupid system.

Interviewer: Yeah?

Respondent: As someone who probably is more supportive of duty hours than most people, I did not do it. First of all, I'm terrible with computers. It was yet another system. I couldn't remember my password. Give me a break with all that stuff. If that was going to take me an extra 20 minutes a week of working, I'm not doing it. It was so stupid. I'd rather spend my time getting my job done and getting my people out. The computer system.…the whole system is ridiculous. Talk about efficiency, you have 82 passwords, and systems…the login, and the this and the that, and then check your schedule, then check the labs, and check… honestly, they need one system. That takes minutes here and minutes there. That was just dumb, really silly, so that really stopped productivity, and at the end of the day, I couldn't even remember how to get into the thing to log in my hours after one vacation once. I was like, "Forget that." I'm a goody two-shoes, so that was hard for me to deal with, but then I embraced it. I was like, "If it's so stupid that I'm not doing it, forget about it." (IM, senior resident)

A GS senior resident says:

> In the real world, that's super time consuming for no real gain on your part, so in the real world, what you end up doing is you wait 'til the end of the week, and then you just try to remember what time you came in, or what time you left each day, and sometimes you can, sometimes you can't, so you just make it up if you can't remember, and for me personally, I'm okay with doing that, and I justify it by saying that I know that I'm under 80 hours, and so whatever a half hour here, a half hour there in terms of if I can't remember exactly what time I left, it doesn't really matter…

Third, residents admitted to purposely underreporting their hours. The meaning of "lying" in order to violate the rules is not as clear as Carpenter et al. (2006), Grogan (2005), Rybock (2009) and Tilson (2005) suggest. By more deeply considering the reasons why residents say that they lie about their hours, we can understand that perhaps lying in this case is not the antithesis of professional behavior, and is instead, a reasoned response by actors faced with conflicting imperatives. Residents are neither shift-workers nor professionals; they are captives in dynamic emergent situations.

Trainees say that they themselves and their peers purposely lie about how many hours they worked for the following reasons. First, residents lied about their hours to protect the program, their chief resident, and their work team. The penalty for programs that are in violation of DHR is either probation or withdrawal of ACGME accreditation. Loss of accreditation has serious consequences. Programs without accreditation are not eligible for Medicare GME funding. Residents must complete an accredited residency program in order

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to be eligible to sit for board certification in their specialty. The stakes are high – at both the program and individual levels. As one GS intern says in an interview:

> I mean honestly I don't, I can't imagine that I work less than 80 hours a week. I don't know, maybe I do. It's hard for me to remember, but I'm willing to work as much as it takes…And at the end of the day I care enough about myself, my chief, and the program that if I have to go back and forget that I worked three hours then it's not a big deal.

From an interview with an IM senior resident:

Respondent: But I don't think it's accurate, and I think the kind of eople like my superstar intern probably wasn't honest about his hours.

Interviewer: No.

Respondent: We all feel there's a team spirit about protecting your residency, or whatever it is, and nobody wants to have it discredited, but I think we're lucky because we are from a program who really wanted to hear what the problems were.

From an interview with a GS sub-intern:

Respondent: It's not in my personality to kind of be this like well, to take a word of the day, a maverick and to kind of go against the grain… You don't want to be that guy who's like I'm working 97 [hours]. I'm working a 100 [hour shift], you know because you don't want to compromise the integrity of the program that you're in to potentially have it fined or you know "de" whatever --

Interviewer: Lose accreditation?

Respondent: Or lose accreditation. Bad things will happen which will inevitably affect you.

Second, residents felt that their ability to perform work efficiently was an important benchmark by which to evaluate their worth as a resident. They underreported their hours worked to avoid being labeled inefficient or calling attention to themselves. As one GS senior resident says:

> The fact is that the junior residents in general I think are… they are the ones that are categorical who are gonna become general surgery residents. I think they're more motivated to try to still be like the old generation. Because that's what they've seen. They've seen all these other… they've seen all their mentors act like that and they're trying to be like that. And I can say my current intern is very much like that. He's like I won't tell anyone what my hours are. I always work from 6:00 to 6:00 type of thing when he's there at 8:00 or 9:00 at night.

An excerpt from our field notes illustrates how residents judged their own performance in relation to the time it took them to complete tasks:

> In the stairwell we run into Marge, an IM intern. Marge is post-call and we ask her if she is going home soon. Marge sighs and says "I don't know. When I go to report my hours this week I'm going to have to say that I was here on Friday until 8:30pm. They're going to say 'you're the worst intern ever, you're so slow.' In an ideal world I'd leave by 1pm."

A GS sub-intern suggests in an interview that honest reporting of excessive hours worked can bring unwanted attention:

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> Then people will get pissed at you [if you honestly report working 97, 100 hours per week], even if they say, "Oh, it's under anonymity." I don't really believe that. I think that once you're in the hospital, it's a really small world. Gossip travels really quickly. You tell one person or you even don't and people find out. I think next year I'm kind of as I hate to admit it, I'm just going to go with the flow and kind of do what everybody else does.

Although reporting work hours may appear to be an individual task, residents understood it as highly *social*, insofar as they considered the implications that reporting a certain number of hours would have for their work group as a whole, as well as their own place within it.

Although trainees believed that lying and fudging about hours worked can and does occur, they felt more comfortable accurately reporting their hours because they felt their program leadership was responsive. This was especially true if there were egregious violations as a result of what they perceived to be *systemic* or *structural* problems related to the work. Time spent working in the MICU is a good example that illuminates this distinction; many residents explained to us that "you just can't get out of the MICU," and this was almost universally understood to be true so it was acceptable to report these violations to get the program leadership to change the amount of time residents spend in the MICU (which was done). Residents in both IM and GS felt that their program directors took violations seriously as an indication that something about the structure of the program needed to change, as the following fieldnote excerpt suggests:

> I chat with an IM senior resident a bit more about duty hours and he explains to me that he is especially careful to report his hours accurately when he goes over the 80 hour limit because "that is how the program gets tweaked. The administrators are very responsive to what we report."

A GS junior resident says the following in an interview:

> Our program director will tell you 100 percent of the time that he wants you to report exactly what hours you worked. He doesn't care if it's 150 hours, he wants to know so that he can fix it…so I think the system, at least at this program, because you're being supported by the program director to report honestly, I think it works pretty well, because the months that I actually have been on a rotation where I really was working morbidly long hours, and I had no control over it, it wasn't because I was choosing to stay later and tie stuff up. It was because I literally couldn't get out of the hospital. I have reported it honestly…because I knew that I had the support of my program director, and it was a rotation where they weren't getting everyone out in the amount of time they need to get people out, and something needs to be done to fix it. I think there's a chance that in other programs, the system might not be working, where you have a program director who's sort of old school and doesn't really like that they've got a (regulated) work week, and thinks that it's bullshit and people are lazy, and so if you're reporting over hours, they might not be directly yelling at you, but they're still losing respect for you, and thinking of you as weak or whatever, and so that's really forcing people to under report…so I think the most important thing is that you have someone in charge who unconditionally says, "I wanna know how many hours you're working. I don't care what it is. If I don't know how many hours you're working, I can't fix it."

That residents report accurately in situations where they are routinely forced to break DHR because of systematic scheduling problems indicates they are making an important distinction. They generally adhere to the rules and do not mind "fudging" their hours when they a) choose to stay late to "tie stuff up" or b) are unable to leave because of occasional

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situational exigencies. But, if they are asked to work extra hours routinely they will start to record their time more carefully in order to force structural change. Residents think about their work in a more nuanced way than policy makers who fear shift work and the erosion of professionalism might predict.

Discussion

An observational study of how internal medicine and surgical residents from the same training program respond to DHR is not generalizable to the population of all training programs. We are aware that the response to duty hours is likely to be variable across settings. However, our study identifies factors most likely to account for variability in compliance with DHR as well as factors that influence how residents interpret and respond to DHR. Three factors seem most critical.

First, local culture plays a large role in how residents interpret compliance with DHR. In the setting we observed there was a widespread consensus that when the letter of compliance with DHR came into conflict with patient needs, then residents placed a higher priority on patient needs. In situations in which compliance with DHR presented a threat to patient safety or quality care such as extra handoffs, following up on critical moments in care, or holding sensitive conversations with patients and families, residents choose to place a higher priority on optimizing patient care rather than comply with DHR.

Second, residents had no problems with accurately reporting non-compliance when the causes of non-compliance were perceived to be ‘structural.’ In both internal medicine and surgery, residents felt that their program directors were sources of strong support. On rotations where work intensity made it impossible to do an adequate job in the time allotted, frequent reports of being out of compliance on specific rotations sent a strong signal to program directors that staffing on these rotations needed to be changed. In the programs we observed residents believed that program directors would be receptive to these signals and remedy the underlying problem.

Third, residents have two strong incentives to report compliance with duty hour rules, even when they have been noncompliant. First, being out of compliance is a threat to the program itself. Programs that are out of compliance face negative consequences, the strongest of which is a loss of accreditation. No resident has a strong incentive to play a role in their program losing accreditation. Second, residents fear reporting more than eighty hours will hurt their reputations within the program. They fear being seen as inefficient, slow, or incompetent. These two strong incentives are reinforced by a reporting system based on recall often weeks after the hours were actually worked, which allowed residents the default position of saying that they ‘honestly did not remember’ rather than they were consciously lying.

Our exploration of the reasons for erroneous reporting of hours suggests that residents may not see lying about hours worked as a violation of their professional commitment to truth telling that holds in other circumstance (in interactions with patients and families, for example). Instead, it may reflect allegiance to a professional culture whose autonomy and integrity they are invested in protecting (Freidson 1970; 2001). Residents are not subject to a single system of rules. DHR compete with other rule systems that residents work under. These multiple rule systems create situations in which rules contradict one another. In such situations, the force of one rule cancels out or neutralizes another. (Sykes and Matza 1957) Residents, then, are free to choose which rule to honor in the situation. In the local culture that we observed the demands of accomplishing high quality patient care trumped DHR. In

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privileging patient care, residents felt that they were honoring professional values, exercising independence and resisting a transformation into shift workers.

All of this is not to say that duty hour rules have not had an impact on hours worked. The very fact that regulations exist appears to set an upper bound on acceptable non-compliance. Peers exert pressure on one another to get out of the hospital as soon as their shifts are completed. However, there is some tolerance at the margins for an extra hour here or there, especially when that extra hour is seen as integral to quality care.

Conclusion

Our work indicates that the intense fears about DHR eroding professionalism via the development of a "shift work" mentality or requiring dishonesty when reporting hours worked are likely overstated. In at least one setting, residents did not behave as mindless automatons – following rules without considering the impact of those rules on patient care. Further, our work suggests that a local culture that places a high priority on quality care and safety discourages honest reporting of work hours in some situations while program directors who are responsive to and supportive of resident needs encourages honest reporting in others. In addition, there are both group and individual disincentives to reporting violations of DHR.

More work is needed in other settings to determine how much variation there is in compliance with DHR. Observational research in other settings will help determine how the factors that we have identified here (1) a local culture that emphasizes quality care and patient safety, (2) strong supportive and responsive program directors, and (3) group and individual disincentives to honest reporting of hours work affect compliance with DHR.

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