February 1, 2016

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Dear Dr. Nasca:

Thank you for inviting the Association of Pediatric Program Directors (APPD) to provide input regarding the impact of the current resident duty hour requirements and recommendations for the future. Our organization consists of 3000 Pediatric GME leaders including categorical and fellowship program directors, associate program directors, program coordinators and other key faculty charged with assuring the preparation of the child health workforce of the future. We developed the statements below via open conference call, invited comments from our members, and review of the literature specific to the Pediatric experience since the implementation of the 2011 duty hour requirements. We find that the anecdotal reports are often not supported by the limited data available and offer suggestions for next steps below. This response is supported by the Association of Medical School Pediatric Department Chairs (AMSPDC).

Resident fatigue and well-being

- Anecdotal reports-
  - Programs that have measured resident burnout have not seen a change post implementation of the 2011 duty hour regulations.
  - Interns report more exhaustion due to shorter shifts, but more days worked.
  - Work compression and increased workload contribute to fatigue.
  - Limiting interns to 16-hour work periods inhibits the development of skills related to time management and managing fatigue. When residents transition to the 2nd year and work for up to 24-hour periods, they are not prepared.
  - Residents have more time for non-work and non-sleep activities, contributing to improved well-being.
  - Residents are not sleeping more.
Data regarding sleep and fatigue-

- Prior to implementation of the 2011 duty hour regulations, a report from a single institution revealed that nightly and total sleep time unexpectedly decreased after implementation of a night-team system to reduce extended work shifts (Chua, K-P, Gordon, MB, Sectish, T, Landrigan, CP. Effects of a Night-Team System on Resident Sleep and Work Hours. Pediatrics 2011; 128: 1142-1147). While shift length and mean daily work hours decreased, mean nightly and total sleep time also decreased, suggesting that residents were not compensating for decreased nightly sleep by napping during the day. Several aspects of the intervention schedule at this institution, including a decrease in resident staffing overnight, may have accounted for the unexpected results.

- A report in 2015 examined pediatric residents’ experience of the impact of fatigue pre and post implementation of duty hour regulations (Residents' Reports on the Impact of Fatigue Over the Past Decade of Duty Hour Changes. Schumacher DJ, Frintner MP, Winn A, Cull W. Acad Pediatr. 2015 Jul-Aug;15(4):362-6). A national random sample of graduating pediatric residents in 2002, 2004 and 2013 reported that they were less likely in 2004 and 2013 than in 2002 to fall asleep during educational conferences and while driving home from work. In 2004, residents were less likely than in 2002 to report making a patient care error due to fatigue, but residents in 2013 reported making errors due to fatigue at the same rate as in 2002.

- A national survey was conducted in 2012 of graduating pediatric residents regarding perceptions of several aspects of the working and learning environments in the year since implementation of the 2011 duty hour regulations. (The 2011 ACGME Standards: Impact Reported by Graduating Residents on the Working and Learning Environment. Daniel J. Schumacher, MD, MEd; Mary Pat Frintner, MSPH; Anuja Jain, MD, MEd; William Cull, PhD. Academic Pediatrics 2014;14:149–15). Continuity of care, handoffs, and senior resident workload were reported to have worsened, while supervision, quality of care and amount of sleep were felt to be unchanged. Residents reported an average of 6.7 hours of sleep in a 24-hour period, unchanged since prior to implementation of the 2011 standards. As the authors note, “although no worsening in sleep is reassuring, the amount of sleep these residents report compares unfavourably with both the general population and young pediatricians... While 41% of respondents in this study reported less than 7 hours of sleep per night, only 30% of adults aged 18 to 44 years in the 2010 National Health Interview Survey of the general population (1) and 26% of young physicians in the AAP Pediatric Life and Career Experiences Study (2) reported less than 7 hours.”

(1) General population data: National Center for Health Statistics. Health indicators warehouse, 2010. Available at:
Supervision, autonomy and resident learning

- Anecdotal reports-
  - Duty hour restrictions result overall in 20% less exposure to patients.
  - Work compression has led to less time for educational activity.
  - Many programs have moved to a day/night team structure in which the overnight admitting intern does not present the patient to the attending on morning rounds. This is felt to represent a lost opportunity to develop the critical thinking skills inherent in preparing an oral presentation to the attending of record and getting feedback about decision making overnight as well as on aspects of the oral presentation.
  - A greatly expanded workforce of faculty hospitalists has included many new graduates who have little teaching or patient care experience.
  - Limiting duty hour periods to no more than 16 consecutive hours for interns may limit exposure to the early evolution of disease.
  - Limiting interns to 16 consecutive hours decreases their availability for educational conferences, debriefing and time for reflection.
  - Increased handoffs and increased patient load lead to decreased learning about patients.
  - Residents are less well prepared for fellowship, particularly with respect to competence in procedures. This has resulted in a proliferation of fellowship "bootcamps" for the incoming residents.
  - Residents are less well prepared for independent practice.
  - Increased availability of attending physicians, particularly at night, has negatively impacted resident decision-making and autonomy.

- Data regarding supervision and autonomy-
  - A study at a single academic tertiary care center (Resident Perceptions of Autonomy in a Complex Tertiary Care Environment Improve When Supervised by Hospitalists. Burgis, JC, Lockspier, TM, Stumpf, EC, Wilson, SD. Hospital Pediatrics 2012; 2(4): 228-234) reported the results of restructuring from subspecialist–led to hospitalist-led teams and from q4 to day/night teams on pediatric inpatient wards. Resident ratings of attending teaching, promotion of resident autonomy, balance of autonomy and supervision improved after the restructuring. Greater attending presence provided by hospitalists improved resident perceptions of autonomy, senior resident leadership and independent decision making.
Patient “ownership” and “shift mentality”

- Anecdotal reports:
  o Program Directors report less concern about the impact of duty hour restrictions on patient ownership than anticipated.
  o Residents may feel more “ownership” of patients on 12-13 hour shifts (day/night” teams) than traditional q4 cross-coverage.
  o Interns want to take “ownership” of patients and find it frustrating to have to leave at the end of their shifts.
  o Some residents have a “shift mentality” and “work by the clock”, want to get their discharge summaries done so they can leave on time, rather than attend a debriefing or educational session.
  o Residents may be less engaged in the management of patients they did not admit.
  o Duty hour restrictions may impact team camaraderie and cohesiveness.
  o Duty hour restrictions may have negatively impacted patient continuity in both in and outpatient settings. Resident continuity clinic assignments require significant accommodations to fulfill the inpatient duty hour limitations, resulting in loss of patient continuity and need for clinic-based hand off/provider follow up issues.
  o There may be better continuity when interns and residents work in blocks of nights.

- Data regarding ordering behavior suggestive of “ownership”-
  o A retrospective study from a single institution (Association between Ordering Patterns and Shift-based Care in General Pediatric Inpatients. Vukkadala, N, Auerbach, A, Maselli, JH, Rosenbluth, G. Journal of Hospital Medicine, 2015; Nov 12) reported significant increase in the number of orders written within the first 12 hours after a change from a traditional q4 model with extended duty hour periods to a day/night team model. The authors suggest that this reflects more active management of clinical problems associated with the day/night shift model, perhaps supporting the idea that residents feel an enhanced sense of patient “ownership”.

Patient safety

- Anecdotal reports:
  o More handoffs increase the risk of miscommunication and error.
  o Work compression increases the risk of error.
  o We have seen no change in actual error rates, although reporting has increased due to education regarding the culture of safety and safety/QI efforts involving residents.

- Data regarding structured handoffs and improved safety-
  o A multicenter prospective intervention study examining the implementation of a hand-off program demonstrated a decrease in the medical-error rate by 23% from the pre-intervention period to the post-

Cost

- Anecdotal reports:
  - Increased cost associated with hiring more faculty members to create inpatient hospitalist teams as well as hiring additional residents (supported by the institution), support staff and mid-level providers.
- Data regarding length of stay and total cost of hospitalization:
  - A study at a single institution that reduced shift length to 12-13 hours in a day/night team structure reported reduction in length of stay for non-ICU patients by 18% and a decrease in total cost of 10%. This association might be related to more efficient care at night with residents at night being more willing to advance care than those “cross-covering” on a q4 schedule. Other possible explanations for the association were presented. (Association between Adaptations to ACGME Duty hour Requirements, Length of Stay, and Costs. Rosenbluth, G, Fiore DM, Maselli, JH, Vittinghoff, E, Wilson, SD, Auerbach, AD. Sleep 2013; 36(2):245-248).

Other domains of impact

- Anecdotal reports:
  - Increased resident work-loads related to increased acuity, decreased length of stay (resulting in more patients to admit and discharge daily), arduous documentation responsibilities and time spent completing electronic data forms results in work compression and decreased time spent with patients, learning about patients and reflecting on experiences.
  - Residents make choices about what work to do at home, they may not be logging those hours.
  - Faculty report working harder and spending more time on patient care and documentation than teaching and supervising residents.

We conclude that despite passionately articulated and often conflicting impressions and
anecdotal experience, we have conducted limited research and we do not yet know the true and complete impact of the duty hour requirements on any aspect of the resident or patient experience. Changes in duty hour requirements have occurred in the context of changes in health care and health systems that have resulted in residents caring for patients of higher acuity, with more complex medical problems, admitted for shorter periods of time, as well as requirements for more extensive and burdensome electronic documentation. Faculty workload has increased, partly related to a shift in responsibilities from residents to faculty and partly related to the RVU-driven payment system for faculty. Faculty may not be as available to teach, to observe, to facilitate debriefing and reflection and may not be optimally aware of resident fatigue such that they may not intervene appropriately. While not directly related to the duty hour requirements, these are factors that impact the clinical learning environment and need to be considered in the examination of resident learning and well-being as well as patient safety.

Programs have adapted with great variation to the duty hour requirements and we value the flexibility to do so. We urge the ACGME to continue to allow for flexibility and innovation, and to support the research that would help us develop best practices, even if this involves modification of current duty hour regulations.

Suggestions for research directions include:

• Given the complexity of the clinical learning environment, research should not simply focus on duty hours but should study the impact of bundled interventions including provision of more support to clinical care (resident assistants), patient caps, resident/patient ratios, elimination of redundant documentation requirements for residents and even interventions designed to enhance faculty engagement in teaching, observation and guided reflection.

• It is of paramount importance to consider that residency training should prepare residents for the real world of practice; the current duty hour regulations have created training environments and working styles that are not consistent with current practice settings. In addition, it may be the case that physicians need a period of mentored or proctored practice after they graduate from residency. Among the most critical areas to study are ways in which resident supervision can be provided to optimize preparation for independent decision-making and autonomy.

• The ACGME Resident Survey data may provide insight into trends in perception of supervision and other aspects of the learning environment that would suggest additional avenues of research.

We respectfully ask that the ACGME consider a stronger partnership with the major educational organizations in each discipline and invest in a very detailed investigation of the learning environment. We believe, with appropriate representation from our organizations, we can more fully partner with ACGME leadership to study and improve
the future of education in this country. We would also welcome the opportunity to more
completely assess the current state of training within our diverse array of training
programs. We must respond to our mandate to improve child health by evaluating each
component of our educational system to identify our strengths, address our challenges
and keep our commitment to our patients and their families. Pediatric leaders continue to
be willing to push forward and think about creative solutions and with a strong
commitment from ACGME, we feel we can ask and answer many questions that will
improve not just education, but child health as well.

We urge you to include voices from the Pediatric community, including APPD and
AMSPDC, in the Congress. All of our organizations look forward to working together
with ACGME on a proactive and forward thinking process for studying the impact of the
requirements and developing best practices.

Sincerely,

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