# A National Survey of Pediatric Residents' Professionalism and Social Networking: Implications for Curriculum Development

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OVER THE PAST decade, social networking sites (SNS), defined as digital spaces conducive to the rapid creating and wide sharing of information, have evolved into a mainstream form of social interaction for multiple demographic groups, including physicians in training.[1–3] As physicians' use of social networking has increased, educators have raised concerns about medical professionalism in the setting of these technologies.[1,4–7]

In a previous study examining social networking and professionalism,[8] more than half of 162 pediatric program directors reported having encountered inappropriate online postings by their residents in the past year. Despite these reports, fewer than half of the program directors had at that time adopted any specific educational strategies addressing online professionalism. Development of effective curricula focused on professionalism and social networking requires both a rigorous assessment of whether trainees' perceptions and experiences on social networking align with those of their program directors and an updated understanding of current training focused on this domain of professionalism.

We surveyed a national sample of pediatric residents in 2014 with partnership from the Association of Pediatric Program Directors Longitudinal Educational Assessment Research Network (APPD LEARN). The LEARN network is a national research collaborative composed of 123 pediatric training programs in the United States, which conducts multisite studies of educational methods, instruments, and outcomes. Our study had 3 aims: 1) to describe pediatric residents' experiences related to social networking (particularly Facebook and Twitter); 2) to compare survey results to previously reported data from pediatric program directors; and 3) to explore how these data may shape future educational interventions related to residents' use of these technologies.

## METHODS

We designed a multisite, cross-sectional study of pediatric residents' perceptions of, experiences with, and training about SNS. We randomly selected a sample of up to 3 participating pediatric residency programs, which are also members of APPD LEARN, from each of the 8 geographical regions within the APPD. Within selected programs, eligible individuals included all trainees of categorical pediatric residency training programs. Trainees in combined programs, such as internal medicine–pediatrics, were excluded from this study.

The survey was minimally adapted from an instrument used in previous work in order to account for the different study population (program directors vs residents).[8] Most questions had multiple-choice or ordinal response formats. Items were grouped into 4 sections, including 1) familiarity with and use of SNS, 2) perceptions of resident professionalism on social network sites, 3) educational interventions or policies about SNS, and 4) demographic information.

The study was approved (or deemed exempt) by the institutional review board at each survey site. From October 2013 to March 2014, program directors distributed the survey electronically to eligible residents in their program. A coded identifier was created for each resident to track respondents. Residents received at least 2

reminders to complete the study within 6 weeks of the original request.

Responses were first analyzed descriptively to measure the frequency with which respondents endorsed various response options for the survey items. Next, we compared data from our previous survey of program directors to those in the current study in order to measure concordance. Wilcoxon rank-sum and chi-square tests were used to compare resident responses with previously reported program director responses.[8]

## RESULTS

### DEMOGRAPHICS

We received 495 surveys, representing an overall response rate of 52%. Thirteen programs participated, and the number of responses by program varied from 9 to 90 (median 39; interquartile range [IQR] 22–46). The response rate varied from 18% to 100% among participating residency programs. The full sample included 146 male (29%) and 349 female (71%) respondents, and the median age was 28 (IQR 27–30). The median total program size was 80 residents (IQR 40–112). Respondents were distributed throughout all postgraduate years with 167 (33%) first years, 170 (34%) second years, 142 (29%) third years, and 15 (3%) fourth years. Programs represented in these data do not differ significantly in geographic distribution, balance of academic versus community settings, or size compared to the full population of programs participating in APPD LEARN. Response rate was not significantly correlated with program size, although larger programs tended to have lower response rates ($r = -.49$, $P = .06$), or with academic/community setting (point-biserial $r = .12$, $P = .66$).

Before engaging in statistical analysis, we looked for clustering in our data set. We examined the sources of item, learner, program, and residual variance in the responses. The majority (94%) of the explained variance was due to survey items, with 6% due to learners and only 0.2% due to program, indicating that learners vary as much within programs as across them and could be treated as independent.

### RESIDENTS' USE OF SOCIAL NETWORKING AND PERCEPTIONS OF PROFESSIONALISM

Four hundred fifty-seven respondents (92%) reported having a personal social networking page, and 284 (57%) reported using social networking web sites "daily or often." Respondents were asked to estimate how often residents as a population engage in various activities using SNS and to rate the appropriateness of such activities (Table). The activities most commonly rated as "daily" were "connecting with friends" (247, 50%), "joining a social network" (ie, logging on; 195, 39%), and "friending colleagues or peers at the same training level" (170, 34%). Over 80% gave ratings of "completely appropriate" to those same 3 online activities. The activities estimated to be happening least frequently were "friending current patients or their families" and "friending former patients

**Table.** Resident Estimates of Frequency of Online Engagements and Their Appropriateness

| Online Activity | Frequency With Which Other Residents Engage in Various Online Behaviors* | | | Resident Rating of Appropriateness of Each Behavior | | |
|---|---|---|---|---|---|---|
| | Score 5, n (%) | Scores 3–4, n (%) | Scores 1–2, n (%) | Completely Inappropriate, n (%) | n (%)† | Completely Appropriate, n (%) |
| Connecting with friends via social networks ("friending") | 247 (50) | 218 (44) | 12 (2) | 1 (0) | 6 (1) | 41 (8) | 447 (90) |
| Joining a social network (eg, Facebook) | 195 (39) | 186 (38) | 46 (9) | 5 (1) | 10 (2) | 42 (9) | 438 (89) |
| Friending colleagues or peers at the same training level | 170 (34) | 298 (60) | 10 (2) | 1 (0) | 9 (2) | 55 (11) | 430 (87) |
| Posting thoughts or observations on a personal blog or Twitter | 21 (4) | 202 (41) | 166 (34) | 107 (22) | 159 (32) | 144 (29) | 85 (17) |
| Posting online comments about the workplace or work-related issues | 16 (3) | 266 (54) | 185 (37) | 251 (51) | 175 (35) | 62 (13) | 7 (1) |
| Friending current patients or their families | 0 (0) | 18 (4) | 427 (86) | 441 (89) | 46 (9) | 7 (1) | 1 (0) |
| Friending former patients or their families | 0 (0) | 18 (4) | 428 (87) | 354 (72) | 126 (25) | 13 (3) | 2 (0) |
| Posting patient information or photos | Frequency not asked | | | 477 (96) | 7 (1) | 6 (1) | 5 (1) |

*Frequency scores were as follows: 5, daily; 3, monthly; 1, never.
†The survey instrument had a 4-point scale anchored by "completely inappropriate" and "completely appropriate," with no labels on the middle 2 options.

or their families," both of which were frequently rated as "completely inappropriate" (441, 89%, and 354, 72%, respectively).

### Residents' Experiences with Inappropriate Online Behavior by Peers

Nearly half of respondents (222, 45%) believed inappropriate behavior on SNS is "somewhat" or "very" prevalent, and 263 (53%) were "somewhat" or "very" concerned that these behaviors may become more common. Respondents were asked to report the number of times within the last year in which their peers/coresidents engaged in various inappropriate activities on SNS (Fig). Forty-two percent reported that they observed trainees posting inappropriate comments about themselves 1 to 4 times during the last year, and 44% reported that they observed trainees posting inappropriate comments about their workplace 1 to 4 times during the last year. Only 7 respondents (1%) had themselves ever received feedback that they had posted anything inappropriate online, and only 47 (10%) reported having given this feedback to a colleague.

### Education and Policy

Most respondents (314, 63%) stated that their institution had a social networking policy. A majority of respondents reported that their residency programs educated trainees about social networking during intern orientation (408, 82%), had written guidelines about online professionalism (419, 85%), and had a full online professionalism curriculum (284, 57%).

### Comparisons Between Resident and Program Director Responses

We compared resident data to responses from an unmatched sample of program directors surveyed in 2011.[8] Behaviors on SNS deemed least appropriate by the program directors ("friending" patients or their families, posting comments about the workplace, posting patient information/photos) were also rated as "completely inappropriate" by the majority of resident respondents (Table).[8] With regard to policies, residents and program directors did not significantly differ in the prevalence of such policies in their institutions ($\chi^2(1) = 3.29$, $P = .07$). However, the resident group was significantly more likely than the program directors to report having an online guideline (85% vs 29%; $\chi^2(1) = 176$, $P < .001$), intern orientation module (82% vs 45%; $\chi^2(1) = 81$, $P < .001$), and full curriculum (57% vs 11%; $\chi^2(1) = 99$, $P < .001$) regarding social networking professionalism.

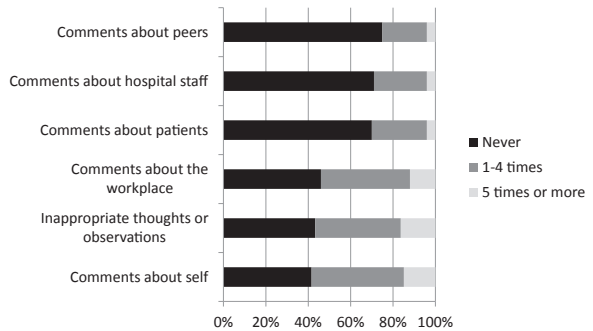


**Figure.** *Residents' reports of incidence of inappropriate SNS postings from residents over the last year.*

## Discussion and Recommendations for Curriculum Design

Our survey assessing pediatric residents' perceptions and behaviors regarding SNS elucidated new findings that should influence future resident education in this area. First, although residents in this sample express disapproval of several activities on SNS, they also admit to observing some of these same behaviors among their peers. Second, residents were significantly more likely than program directors to report the existence of educational interventions related to social networking in their programs, suggesting an increase in the prevalence of training modalities in this area of medical professionalism in the interval between the 2 samples.

The current data clearly demonstrate cognitive dissonance in residents' approach to lapses in professionalism while using social media. For example, the Table shows that more than half of the responding residents rated the posting of online comments about the workplace as "completely inappropriate," yet a similar proportion estimate that residents engage in this behavior at least monthly. Similarly, most responding residents believed that posting information about patients or families is "completely inappropriate," but nearly one-third of them estimated that their coresidents had done so at least 1 to 4 times over the last year. This inconsistency between attitudes and actions has been observed elsewhere[9–11] and is an important finding that must addressed during curriculum development. Whether the inappropriate behaviors witnessed by respondents are demonstrated by only a few trainees or by the broader community of trainees remains unclear. Optimal curricular interventions will depend on knowing not only the incidence of inappropriate behaviors but also the prevalence. Nonetheless, on the basis of the results of our survey, we outline the following recommendations for curricula intended to address professional behavior when using social media.

### Integrate Trainees as Educators

Because the most common consumers, or experts, of social media are the trainees themselves, it is essential for curricula in this domain to be constructed and implemented with close partnership from residents. Teaching faculty and other members of the interprofessional team may not serve as optimal role models, especially if their use of social networking is minimal. We envision a case-based curriculum, delivered longitudinally throughout the postgraduate 1 and 2 years, in which learners would form small groups, each facilitated by a teaching team including both a faculty member and a postgraduate year 3 resident. Integration of a resident as an instructor and facilitator will

ensure that the curriculum remains salient to the resident experience. To keep pace with technological advances, any curriculum that is implemented will require annual updating.

### ENCOURAGE PEER-TO-PEER REGULATION

Effective educational interventions for teaching online professionalism must include the skills necessary for residents not only to recognize inappropriate behavior on social media but also learn how to address it themselves. The low prevalence of feedback surrounding social networking professionalism suggests that speaking up may be uncommon; this is a key area for education and improvement. Feedback from peers, which has been leveraged to teach other skills such as handoff[12,13] and clinical teaching,[14] can be a powerful trigger for trainee learning and self-reflection.[15,16] Hence, trainees' abilities to use their own voices to regulate their peers will be of pivotal importance to remediate inappropriate online behavior encountered during training and beyond. Curricula should provide residents with opportunities to role-play and practice respectful confrontation of peers whose online activities may be unprofessional.

### PROVIDE OPPORTUNITY FOR REFLECTION

A recent article by Chretien and Kind[17] describes a hierarchy of the potential interactions between social networking and medicine. One hierarchical level, reflection, allows us to consider our online identities and how our online actions impact colleagues, patients, hospitals, and other stakeholders in our profession. Curricula must be constructed with reflection in mind. Small group discussion sessions surrounding specific vignettes of social networking behaviors may allow residents to explore the discordance between their beliefs and the behaviors they may see among their peers (and possibly themselves). Explicit discussion of the inconsistency between residents' expectations and reality may further empower trainees to give direct feedback to those peers displaying unprofessional behavior online and to model and celebrate those achieving higher levels of the hierarchy.[17] Whenever possible, case vignettes should derive from residents' actual experience, rather than fictional scenarios.

### EDUCATE BEYOND "WHAT NOT TO DO"

Recent publications have suggested that curricula addressing behaviors on SNS must reach beyond a simple list of "what not to do." While a baseline of professional behavior must be established, educators should seek to also offer case vignettes modeling exemplary online behavior. Residents should be given the opportunity to reflect on how the power of social media may be used to benefit populations of patients. Positive examples of both clinical research and patient care that have been augmented by leveraging social media networks should be shared and discussed.[18–22] By including positive uses of social media, residents can not only learn how to avoid the pitfalls and hazards of social networking but can also begin to think of social media as an instrument of innovation to overcome various challenges in medicine.[23]

This study has several limitations. First, the study relied on self-report and is subject to social desirability and other biases. The response rate was approximately 50%, though it varied by site. This overall response rate is within the range expected for surveys of this kind.[24–26] It is possible that residents who responded to the questionnaire may be different than nonresponders in characteristics important to the study inferences. For example, trainees less engaged in social networking may be disinterested in survey participation and underrepresented in our sample. Moreover, programs more committed to training about SNS may have been more likely to participate in the study. It is possible that the differential response rate by program could have affected results. However, our subject distribution by gender (71% female) and postgraduate year level are similar to national distributions.[27] Last, our study was embedded in pediatric residency training, so its applicability to other specialties remains unknown. Our findings serve as a foundation for future work and should inform the training of all residents and fellows across the graduate medical education landscape in the area of professionalism.

Well-intentioned educational interventions will only succeed if they address the needs and real-world experiences of both residents and their program directors. The optimal training of tomorrow will not only educate learners on how to avoid unprofessional behavior online[28] but will also reveal social networking and similar online technologies to be a mechanism for professional excellence[29] during training and beyond.

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## REFERENCES

1. Greysen SR, Kind T, Chretien KC. Online professionalism and the mirror of social media. *J Gen Intern Med*. 2010;25:1227–1229.
2. Jain SH. Practicing medicine in the age of Facebook. *N Engl J Med*. 2009;361:649–651.
3. Chretien KC, Farnan JM, Greysen SR, et al. To friend or not to friend? Social networking and faculty perceptions of online professionalism. *Acad Med*. 2011;86:1545–1550.
4. Chretien KC, Greysen SR, Chretien JP, et al. Online posting of unprofessional content by medical students. *JAMA*. 2009;302:1309–1315.

5. Greysen SR, Chretien KC, Kind T, et al. Physician violations of online professionalism and disciplinary actions: a national survey of state medical boards. *JAMA*. 2012;307:1141–1142.
6. Langenfeld SJ, Cook G, Sudbeck C, et al. An assessment of unprofessional behavior among surgical residents on Facebook: a warning of the dangers of social media. *J Surg Educ*. 2014;71:e28–e32.
7. Gholami-Kordkheili F, Wild V, Strech D. The impact of social media on medical professionalism: a systematic qualitative review of challenges and opportunities. *J Med Internet Res*. 2013;15:e184.
8. Kesselheim JC, Batra M, Belmonte F, et al. New professionalism challenges in medical training: an exploration of social networking. *J Grad Med Educ*. 2014;6:100–105.
9. George DR, Green MJ, Navarro AM, et al. Medical student views on the use of Facebook profile screening by residency admissions committees. *Postgrad Med J*. 2014;90:251–253.
10. George DR, Navarro AM, Stazyk KK, et al. Ethical quandaries and Facebook use: how do medical students think they (and their peers) should (and would) act? *AJOB Empirical Bioethics*. 2014;5:12.
11. Nagler A, Andolsek A, Rudd M, et al. The professionalism disconnect: do entering residents identify yet participate in unprofessional behaviors? *BMC Med Educ*. 2014;14:1–12.
12. Arora VM, Greenstein EA, Woodruff JN, et al. Implementing peer evaluations of handoffs: associations with experience and workload. *J Hosp Med*. 2013;8:132–136.
13. Dine CJ, Wingate N, Rosen IM, et al. Using peers to assess handoffs: a pilot study. *J Gen Intern Med*. 2013;28:1008–1013.
14. Snydman L, Chandler D, Rencic J, et al. Peer observation and feedback of resident teaching. *Clin Teach*. 2013;10:9–14.
15. American Board of Pediatrics. Assessment in graduate medical education: a primer for pediatric program directors. Available at: https://www.abp.org/sites/abp/files/pdf/primer.pdf. Accessed February 1, 2016.
16. Dupras DM, Edson RS. A survey of resident opinions on peer evaluation in a large internal medicine residency program. *J Grad Med Educ*. 2011;3:138–143.
17. Chretien KC, Kind T. Climbing social media in medicine's hierarchy of needs. *Acad Med*. 2014;89:1318–1320.
18. Kind T, Patel PD, Lie D, et al. Twelve tips for using social media as a medical educator. *Med Teach*. 2014;36:284–290.
19. Dizon DS, Graham D, Thompson MA, et al. Practical guidance: the use of social media in oncology practice. *J Oncol Pract*. 2013;8:114–124.
20. Schumacher KR, Stringer KA, Donohue JE, et al. Social media methods for studying rare diseases. *Pediatrics*. 2014;133:e1345–e1353.
21. Smaldone A, Stockwell MS, Osborne JC, et al. Adolescent and parent use of new technologies for health communication: a study in an urban Latino community. *J Public Health Res*. 2015;4:376.
22. Yonker LM, Zan S, Scirica CV, et al. "Friending" teens: systematic review of social media in adolescent and young adult health care. *J Med Internet Res*. 2015;17:e4.
23. Lonzer J, Lonzer D, Medina M, et al. Social media in pediatrics: a call for guidelines. *J Pediatr*. 2015;166:511–512.
24. Leece P, Bhandari M, Sprague S, et al. Internet versus mailed questionnaires: a controlled comparison (2). *J Med Internet Res*. 2004;6:e39.
25. Sheehan KB, McMillan SJ. Response variation in e-mail surveys: An exploration. *J Advertising Res*. 1999;39:45–54.
26. Wiebe ER, Kaczorowski J, MacKay J. Why are response rates in clinician surveys declining? *Can Fam Physician*. 2012;58:e225–e228.
27. American Board of Pediatrics. Workforce data, 2014–2015. Available at: https://www.abp.org/sites/abp/files/pdf/workforcebook.pdf. Accessed February 1, 2016.
28. Fenwick T. Social media and medical professionalism: rethinking the debate and the way forward. *Acad Med*. 2014;89:1331–1334.
29. Batt-Rawden S, Flickinger T, Weiner J, et al. The role of social media in clinical excellence. *Clin Teach*. 2014;11:264–269.