Physician and Parent Perspectives on Psychosocial and Emotional Data Entry in the Electronic Medical Record in a Pediatric Setting

Christopher Busack, BS[1], Constantine Daskalakis, ScD[2], and Paul Rosen, MD, MPH, MMM[3]

Abstract

Objective: This pilot study was conducted to evaluate physician and patient preferences for documentation of emotional and psychosocial information in the electronic medical record (EMR). **Methods:** Pediatricians from an academic medical center and parents of patients in an academic pediatric rheumatology practice were surveyed on 10 different elements using Likert-type scale items (1 = *not at all important*, 10 = *extremely important*). The importance of the proposed categories was evaluated by means testing and pairwise comparisons of the responses. **Results:** Responses were obtained from 45 physicians and 35 parents. The overall mean scores for physicians and parents were 7.70 and 7.44, respectively. Scores on personality, friends, and school differed between physicians and parents, but those differences were not significant after adjustment for multiple comparisons (*P* = .13, .17, and .26, respectively). Fears, special requests, and special needs were in the high-score group for both physicians and parents. **Conclusion:** Physicians and parents reported that the incorporation of emotional and psychosocial information into the EMR added value to the health care of children.

Keywords

EMR, parent, patient, emotional, perspective

Objective

The purpose of this pilot study is to evaluate physician and patient preferences for documentation of emotional and psychosocial information in the electronic medical record (EMR). The study will elucidate if there are different viewpoints between physicians and families on documentation of a child's personal traits in the EMR.

Background and Significance

The EMR has increased the hospitals' capacity to organize patient files and do so in a more efficient manner (1). In order for continued advancement in modern health-care integration and for patients to assume an active role, experts agree that electronic health solutions must be user friendly, secure, and efficient (2,3). In the United States, the Health Information and Technology for Economic and Clinical Health Act has propelled EMR growth by outlining criteria for "meaningful use of data" and patient access to data (1). With trends toward opening up the EMR to enhance patient

access (4), it is important to understand what key stakeholders—patients and physicians—desire in terms of information contained within the EMR.

Physicians are most likely to accept a new EMR system if they perceive the EMR to be easy to use, coherent with professional norms, supported by their peers and patients, and able to demonstrate tangible results (5). With physicians enthusiastic about the EMR they use, they will likely encourage patients to utilize the patient functions of the EMR

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[1] Sidney Kimmel Medical College of Thomas Jefferson University, Philadelphia, PA, USA
[2] Division of Biostatistics, Department of Pharmacology & Experimental Therapeutics, Thomas Jefferson University, Philadelphia, PA, USA
[3] Nemours/A.I. duPont Hospital for Children, Wilmington, DE, and Thomas Jefferson University, Philadelphia, PA, USA

Corresponding Author:
Christopher Busack, Sidney Kimmel Medical College of Thomas Jefferson University, 302 S. 10th St, Room 2F Philadelphia, PA 19107, USA.
Email: christopher.busack@jefferson.edu

systems (6). Without a system that integrates both physician and patient perspectives, it is unrealistic to expect to gain the full benefits the EMR system can provide (7–9).

As hospitals transition to quality-based reimbursement models, focus on the patient experience will continue to gain importance. Physicians who use an EMR receive higher quality of care ratings than physicians who do not, indicating the importance of employing an EMR in overall patient satisfaction (10). Furthermore, many EMR systems incorporate an online "patient portal" into their system. This gives patients the autonomy to be active in their own care by reviewing their records. Not only have patients reported satisfaction with such systems, but "patient portals" have also demonstrated successful applications in preventative health screening and long-term follow-up (11). Other successful applications of the EMR include, but are not limited to, improvements in identification of at-risk individuals in health screening initiatives and improvements in the safety culture at medical practices (12–14).

Despite many successes, EMR systems still have various problems (7,15). One of those pertains to psychosocial and emotional information, which has been difficult to capture in the current EMR formats. Psychosocial and emotional information can be defined as information pertaining to the cognitive drivers for patient interactions with their environment via their behaviors and actions. Characteristics that describe such information can be transient in nature, and so caregivers have been hesitant to permanently record them in the EMR (16,17). Although the research benefits of collecting standardized data on behavioral health in the EMR are clear (18,19), the clinical utility of such information is often questioned. Spending more time in front of the computer than in front of the patient is a legitimate fear for physicians (20). However, collecting psychosocial and behavioral data in the EMR opens the door to sharing more personal stories and building a stronger connection during the interaction (18,21). Furthermore, social information stored within the EMR can facilitate selection of appropriate counseling approaches (18,19), bolster individualized care (19,21), and elucidate risk factors more clearly (18). Ideally, the EMR could evolve into a tool to facilitate communication and patient involvement in their own care.

To our knowledge, no prior studies have assessed physician and patient values regarding EMR design. However, previous studies in various medical fields have demonstrated differences in physician and patient perceptions to the best course of treatment (22). Additionally, physicians and patients are known to focus on different aspects of their disease when telling narratives (7). Given differences in physician and patient perceptions elsewhere in medicine, we hypothesized that differences in opinion may also exist regarding EMR design.

Physicians support measures to enhance documentation of the social history in the EMR (18,21), so we anticipate strong physician approval for documenting behavioral information, such as interactions with friends and family, education, and hobbies (9). Similarly, physicians may value a place for documentation of special considerations due to the movement toward more patient-centered medicine (23,24).

Various studies have demonstrated the importance patients place on empathy and trust during their visits (25–28). In addition, better outcomes have been reported from more patient-centered encounters (29,30). Patients consistently report higher satisfaction scores for providers who utilize EMR systems in general (10). Patients may feel an added sense of personalization with expanded behavioral and psychosocial information in the EMR.

In general, there now exists strong support for incorporating patient-reported data elements into the EMR, especially in areas of behavior, psychosocial factors, and demographic information (31), and the Institute of Medicine (IOM) has recommended a panel of standard measures of social and behavioral determinants to be incorporated into the EMR (18). To our knowledge, no such standard panel has been proposed in pediatrics, and our study attempted to incorporate the IOM standard into more relevant categories for pediatric patients.

Our goal, and the goal outlined by others, is for EMR design to convey information relevant both to the patient (7,31) and to the physician (17,18). Although EMR data collection and design are well studied in the medical literature, few studies have examined the impact of EMR implementation in the pediatric setting, and, to our knowledge, none have looked at physician and parent attitudes about potential improvements. This pilot study was designed as an exploratory effort to examine the perspectives of both physicians and parents regarding the value of documenting the psychosocial influences and personality traits of children in the EMR. More specifically, we aimed to assess whether physicians and parents value specific psychosocial and behavioral elements differentially.

Methods

At a physician meeting, pediatric physicians and subspecialists were invited to participate in a survey about their perspectives on patient emotional data entered into the EMR. Nemours/Alfred I. duPont Hospital is a pediatric academic quaternary care institution in a suburban setting. The hospital features 200 inpatient beds, an emergency department that has 50 000 encounters annually, and an outpatient clinic that features subspecialty care across the pediatric spectrum. The physicians surveyed were all trained in pediatric medical specialties, pediatric surgical specialties, or pediatric behavioral health. Parents of patients in an academic pediatric rheumatology practice were e-mailed an invitation to participate in the same survey regarding family perspectives on emotional concerns documented in the EMR. The study received institutional review board approval from the Nemours Office of Human Subjects Protection.

1. Hobbies (for example: sports, reading, video games, crafts, etc.)
2. School performance (for example: reading level, best subject, change ingrades, etc.)
3. Fears (for example: needles, hospitals, white coats, being sick, etc.)
4. Interactions with friends (for example: bas a lot of friends, has a best friend, etc.)
5. Interactions with family (for example: gets along well with siblings, parents are divorced, etc.)
6. Goals (for example: win the spelling bee, go to college, play travel soccer, future career, etc.)
7. Personality (for example: easy going, perfectionist, shy, gets easily upset, etc.)
8. Behavior (for example: tantrums, picky eater, etc.)
9. Special needs (for example: gluten free diet, etc.)
10. Special requests (for example: do not discuss diagnosis in front of child, blood work preferred on left arm, avoid appointments during child's nap time, etc.)

Figure 1. Survey categories completed by physicians and parents, ranking their opinion of importance to be documented in the electronic medical record (EMR) of each item from 1 (*not at all important*) to 10 (*extremely important*).

Surveys included 10 prompts asking for respondents to rate each category on their level of importance for being included in the EMR. (Figure 1, Appendix A). The categories were determined based on perceived knowledge gaps in EMR formats. A Likert-type scale ranging from 1 (*not at all important*) to 10 (*extremely important*) was used.

Data Analysis

Mean scores of physicians and parents for each category were compared with t tests, using an α of .05. To account for multiple comparisons, a Bonferroni correction was also applied (α of 0.005 for each t test). Our Likert-type scale questionnaire is an untested instrument to assess differences in parents and physician opinions, so an overall mean for physicians and parents was recorded in order to assess the intrinsic tendencies for parents and physicians to assign Likert scores differently. The difference in overall means for physicians and parents was used to calibrate the results of the t tests. Additionally, mean scores were compared across the 10 categories with linear regression that accounted for the correlation of each respondent's scores across the 10 categories. A Bonferroni correction was applied for the 45 pairwise comparisons of the 10 category scores (α of .001 for each of the 10 physician–parent comparisons). The analyses were performed with StatPlus: mac LE for Microsoft Excel and with Stata 13.
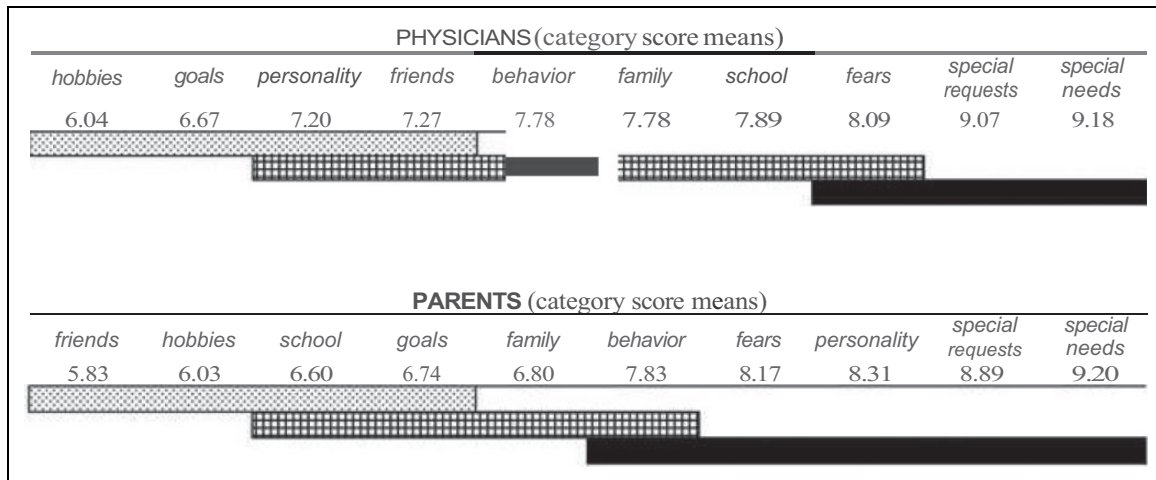
Results

A total of 80 pediatric subspecialists were invited, and 45 completed the survey (56.3% response rate). Additionally, an e-mail invitation was sent twice to 154 parents of patients. Ten e-mails generated a notification of outdated e-mail address. From the 144 e-mails, 35 parents completed the survey (24.3% response rate). The overall mean score across all 10 categories was 7.70 for the 45 physicians and 7.44 for the 35 parents. The difference in these means (0.26) was subtracted from physicians' responses in order to calibrate responses for 2-sided t tests (Table 1). The difference (0.26) represented a relatively small difference when compared

Table 1. Physician Versus Parent 2-Sided t Tests.

Categories	Physician Mean	Standard Deviation	Parent Mean	Standard Deviation	P Value
Behavior	7.78	2.03	7.83	2.50	.923
Family	7.78	1.95	6.80	2.69	.075
Fears	8.09	1.93	8.17	2.38	.867
Friends	7.27	2.04	5.83	2.97	.017
Goals	6.67	2.35	6.74	2.90	.900
Hobbies	6.04	2.50	6.03	3.12	.981
Personality	7.20	2.20	8.31	2.17	.013
School	7.89	1.79	6.60	2.93	.026
Special needs	9.18	1.27	9.20	1.45	.943
Special requests	9.07	1.07	8.89	1.78	.598

to the standard deviations of both the physician (1.28) and the patient (1.83) samples. The results were not greatly affected by the calibration, so the unaltered scores were kept (Table 1). The *personality, friends,* and *school* categories represented the smallest P values (unadjusted P values for uncalibrated data = .013, .017, and .026, respectively; and .007, .048, and .072, for calibrated data). However, those physician–parent differences did not remain significant after adjustment for multiple comparisons.

For physicians, the scores for the 10 categories were generally positively correlated. Correlations range from -0.19 (*family* with *special needs*) to $+0.87$ (*family* with *friends*), with a median of 0.37. For parents, the scores for the 10 categories again tend to be positively correlated. Correlations range from -0.15 (*goals* with *special requests*) to $+0.84$ (*behavior* with *personality*), with a median of 0.56. The scores differ significantly across the 10 categories for physicians ($P = .001$) and parents ($P = .001$). By pairwise comparisons, there are 3 groups of categories for both physicians and parents (Figure 2). Although the categories that group together are not completely identical for physicians and parents, some results are consistent. *Home*, *goals*, and *friends* are in the low-score group for both physicians and parents. *Fears*, *special requests*, and *special needs* are in the high-score group for both physicians and parents.

Figure 2. Pairwise comparisons of category score means for physicians and parents. Shaded bars span categories whose means are not different in pairwise comparisons ($\alpha = .001$) resulting in low-, middle-, and high-score groups.
Note: this figure is not to scale.

Discussion

It has been shown that good physician–patient communication constitutes the heart of medicine (23). Unfortunately, it has also been shown that the EMR may in fact hinder effective communication between patients and physicians (10,11,20). Designing the EMR in order to incorporate psychosocial elements is an initial step toward transforming the EMR into a tool for facilitating communication (9,32). In an era of healthcare reform in the United States, the EMR will be a target of many changes. Our research shows that it will be important to evaluate and incorporate both the physician and the patient's perspectives prior to redesigning new systems.

This study demonstrates the attitudes of families and physicians toward the inclusion of emotional and psychosocial information in the EMR in an academic pediatric subspecialty practice. Parents of patients and physicians both indicated various categories as having high levels of importance. The data suggest that the proposed categorical changes represent important components that could be incorporated into future EMR systems. Further inquiry and design thinking may uncover the best way to incorporate these elements into the EMR (32).

Our data imply that physicians and parents agree on the high level of importance of documenting special considerations in patient care. The 2 most important categories according to both physicians and parents were the *special needs* and *special requests* categories. These categories highlight the uniqueness of each individual patient that distinguishes him or her from others. Commonly, the unique qualities of a patient may not conform to the general framework of the EMR.

The true clinical utility of our proposed categories may derive from emphasizing aspects of the social history that are often left undocumented. The physician could quickly review the social aspects of a patient's life prior to encounters and make a stronger connection during the interaction

(18,21). Counseling approaches (18,19), individualized care (21,19), and identification of risk factors (18) are just some of the reasons why psychosocial information deserves a proper place in the EMR. More importantly, adapting the EMR to include special needs or special requests categories can foster a higher quality patient experience. A placeholder in the EMR to remind the physician that the patient is afraid of the reflex hammer or afraid of white coats could improve the patient experience. As hospitals are pressured to innovate toward increasing quality measures (33), patient-centered design will continue to remain a theme for future innovation.

The ideal mode of collecting and storing emotional and psychosocial information in the EMR is not yet established, and future studies with regard to how such information can be optimally applied in the clinical setting are warranted. Traditional EMR models have withheld the EMR separate from patient influence (34). In order to empower patients and foster involvement in their care, a deeper connection between the EMR model and the patient voice is necessary. New design concepts could make it easier for physicians to rediscover patient information hidden by current EMR formats and empower patients to become more involved in their care (9). How to actually annotate and organize special considerations for each patient will be a task for physicians and EMR developers in the near future.

The future of EMR use in physician practices will certainly change in many respects. For example, a current initiative to improve physician–patient communication and understanding is the use of medical notes that are transparent to patients. Transparent notes allow patients to directly participate in the physician's documentation process. A study conducted on OpenNotes, an EMR transparency initiative, demonstrated patient desire for further interaction in the writing of doctor notes (35). Patients also reported an "increased sense of control, greater understanding of their medical issues, improved recall of their plans for care, and better preparation for future visits" based on their inclusion

in the note-writing process (35). Additional proposals for building patient-centered care include incorporation of social media into the health-care setting (36). Patients use social media in order to feel heard and to interact with supporting communities based around their medical condition (34). An EMR could be redesigned to merge the benefits of patient involvement and the information necessary for practicing clinical medicine (37). Our data are consistent with similar studies demonstrating the importance of patient-centered principles in redesigning EMR formats (23,24). However, the optimal mode of redesigning the EMR remains to be seen.

The aim of this article is not to add 10 categories to the EMR but to encourage appropriate design—thinking about both physician and patient preferences—when updating EMR systems. It is our goal to encourage future EMR developers to keep emotional and psychosocial information in mind when designing EMR formats. Our study begins to illustrate the value both physicians and parents place on such information. More elaborate studies are needed in order to optimize the scope and capacity in which emotional information will be represented in the EMR. Our goal was to obtain a broad overview of the feelings physicians and patients have toward this issue, and future study is needed to assess generalizability among specific groups of physicians and patients. Ultimately, the clinical utility of any EMR design changes will need to be supported by outcomes research.

Our study has a number of limitations. The physician respondents included more subspecialists than primary care physicians, and the parent population came from just one pediatric specialty area. Furthermore, the survey used is not a standardized instrument and its reliability is untested. In addition, the use of convenience sampling and low-response rates raise concern regarding the representativeness of the study population and generalizability of the findings. And finally, the study sample size is modest, limiting the power to detect differences between physicians and parents. While our study had these limitations, it did demonstrate that physicians and parents value the discussion of a child's emotional well-being and social environment. Both physicians and parents agree that this conversation is important enough to be included in the child's health record. We hope that these findings will be replicated across broader settings, using more representative recruitment and surveying, and with a larger sample size. This would in turn lead to improved design or revision of EMR systems for pediatric patient populations.

Conclusion

Health-care leaders, government officials, and policy makers have been promoting the use of EMR systems for 2 decades. Despite widespread implementation of the EMR, research regarding its effectiveness and functionality has been limited. More study in the area of optimal EMR design and usefulness is warranted. Our study indicates that our small sample of physicians and parents in pediatrics value storage of psychosocial and emotional information in the EMR.

Appendix A

Survey

Hello:

I am conducting a 2 minute survey about what information parents want to be included in their child's medical chart.

How important is it for your child's information, about the following topics, be included in the electronic medical chart? Please select the number that best corresponds to your opinion (1 being "not at all important" and 10 being "extremely important"). Please write in any comments if you wish to add anything.

Thank you for your help with this study! Dr. Rosen

Parent and Caregiver Preferences for Electronic Medical Record (1=not at all important; 10=extremely important)

1. Your child's **hobbies and activities** (for example: sports, reading, video games, crafts, etc.)
   1 2 3 4 5 6 7 8 9 10
2. Your child's **school performance** (for example: reading level, best subject, change in grades, etc.)
   1 2 3 4 5 6 7 8 9 10
3. Your child's **fears** (for example: needles, hospitals, white coats, being sick, etc)
   1 2 3 4 5 6 7 8 9 10
4. Your child's **interactions with friends** (for example: has a lot of friends; has a best friend, etc.)
   1 2 3 4 5 6 7 8 9 10
5. Your child's **interactions with family** (for example: gets along well with siblings; parents are divorced, etc.)
   1 2 3 4 5 6 7 8 9 10
6. Your child's **goals** (for example: win the spelling bee, go to college, play travel soccer, future career, etc.)
   1 2 3 4 5 6 7 8 9 10
7. Your child's **personality** (for example: easy going, perfectionist, shy, gets upset easily, etc.)
   1 2 3 4 5 6 7 8 9 10
8. Your child's **behavior** (for example: tantrums, picky eater, etc,)
   1 2 3 4 5 6 7 8 9 10
9. Your child's **special needs** (for example: gluten free diet, etc.)
   1 2 3 4 5 6 7 8 9 10
10. **Special requests** for your child (for example: do not discuss diagnosis in front of child, blood work preferred on left arm, avoid appointments during child's nap time, etc.)
    1 2 3 4 5 6 7 8 9 10

Authors' Note

The paper adhered to the Nemours/A.I. duPont Hospital for Children and Thomas Jefferson University ethical guidelines, and consent was obtained from the guardians and physicians.

Declaration of Conflicting Interests

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Author Biographies

Christopher Busack is a medical student of the Sidney Kimmel Medical College at Thomas Jefferson University class of 2017. He was born in Norway, but raised in Pennsylvania. He plans to study health economics, public health, and innovation in medicine during his career.

Constantine Daskalakis is associate professor in the Department of Pharmacology & Experimental Therapeutics, Division of Biostatistics at Sidney Kimmel Medical College at Thomas Jefferson University. He is also Director of Student Summer Research Program at Sidney Kimmel Medical College. He is engaged in various educational and training activities with recent focus on introductory biostatistics and epidemiology, clinical trials, and missing data.

Paul Rosen is a pediatric rheumatologist at Nemours/Alfred I. duPont Hospital for Children. He is an associate professor of pediatrics at the Sidney Kimmel Medical College at Thomas Jefferson University. Dr. Rosen's interests include patient-physician communication, family-centered care, team building across health disciplines, the patient experience, and improvement of health care delivery.