

Family Physician Perceptions of Personal Health Records

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Abstract

The purpose of this qualitative study was to examine family practice physician and staff views on the benefits of, barriers to, and use of personal health records (PHRs). Four focus groups were conducted at four family medicine practices in Iowa and included a total of 28 providers. Overall, participants seemed to view PHRs as a source of medical information for healthcare providers when the patient's medical record is not available. Providers appeared unaware of the patient-centered features available in many electronic PHRs and how such features might affect patients and their medical practice. While physicians identified numerous patient groups that could benefit from using PHRs, they also perceived several unique barriers, including the potential of PHRs to facilitate narcotic abuse, low levels of patient computer and health literacy, low levels of patient motivation, and difficulties with PHR and electronic medical record interoperability. Physicians' relatively narrow view of PHR functions and benefits and perception of barriers to using PHRs may restrict widespread support of PHR use.

Key words: personal health record, health information technology, primary care, family practice, physicians, electronic medical record

Introduction

Health information technology (HIT) has been identified as a target for healthcare improvement in the United States.¹ Development of a national HIT infrastructure, including electronic medical records (EMRs), personal health records (PHRs), and medical record interoperability, has the potential to increase efficiency, decrease medical errors, and improve healthcare quality.² PHRs, when used in conjunction with EMRs, may change how patients interact with the healthcare system and help move the U.S. healthcare system toward goals outlined by the Institute of Medicine including safety, effectiveness, timeliness, efficiency, and particularly patient-centeredness.^{3,4}

The definition of a PHR as any paper-based or electronic health record maintained by the patient has evolved to "an Internet-based set of tools that allows people to access and coordinate their lifelong health information and make appropriate parts of it available to those who need it."⁵ PHR components continue to expand and now include disease-state management tools, Web-based decision support, provider communication tools, health information resources, and patient annotation capabilities.⁶⁻¹¹ Through these features and others, electronic PHRs have the potential to advance personal engagement in healthcare, resulting in a transformation of the patient-provider relationship.¹² PHRs also can coordinate fragmented health information such as test results and medical records from different providers and incorporate new data sources such as nonprescription and alternative medicines a patient may take, patient-reported blood pressure or glucose readings, information from allied health professionals, and contributions from wellness providers, such as weight managers.¹³

While the potential for electronic PHRs to improve healthcare is significant, there are barriers to widespread adoption of PHRs. First, the public is relatively unfamiliar and inexperienced with electronic PHRs.^{14,15} And, despite the fact that 60 percent of Americans responded favorably toward the idea of an online PHR service, the likelihood that an individual would consider PHRs as a method to manage personal health information appears low.^{16,17} Researchers have voiced concerns about computer and health literacy affecting PHR usability, especially in older adults.^{18,19} Americans also are concerned with the privacy of their personal health data, including concerns about inappropriate use by employers and insurers.^{20,21}

Another important barrier to widespread PHR implementation is integrating PHRs into medical practice. A 2008 survey of ambulatory care physicians found that 25 percent of respondents were unfamiliar with PHRs and 60 percent were unaware of whether any of their patients maintained PHRs.²² The study also showed that paper-based PHRs were currently the most

popular among patients. Very few physicians in the survey reported an ability to integrate PHR information into their EMRs, and physician attitudes regarding the use of PHRs were not addressed.

Purpose

Understanding physician views of PHRs is vital because physicians are instrumental stakeholders in the successful use of interactive PHRs. Although some literature exists that reports physician attitudes toward electronic communication, little is known about practicing physicians' views of PHRs.²³ Furthermore, provider attitudes toward PHRs have been identified as an area where more research is needed, especially in the areas of integration into physician workflow and provider and patient acceptance.^{24,25} The objective of this study was to explore physician and medical staff views on the benefits of, barriers to, and use of PHRs.

Methods

This study used focus groups as the qualitative methodology because of their ability to capture spontaneous comments and reactions to questions by the facilitator and statements made by other participants. These focus groups were conducted during the early phase of a study to evaluate the effects of personal health records on medication-use quality among older adults. This study was approved by the Institutional Review Board at the University of Iowa.

Participants

Four focus groups were conducted by two facilitators. Participants were recruited from a list of medical practices that are members of the Iowa Research Network (IRENE), a practice-based research network of Iowa physicians. Faxes were sent to IRENE family or general medicine practices within 120 miles of the researchers, and four sites committed to participate during the initial study recruitment. Further recruitment was not done as response saturation had occurred. Participants provided informed consent and were offered compensation for their time.

Focus Groups

An initial pilot focus group was conducted in the family medicine department at a large academic medical center to evaluate the appropriateness of the focus group script in addition to collecting physician views on PHRs (see [Appendix](#)). Four faculty physicians and four resident physicians were in attendance. Detailed notes were taken during the pilot focus group. Questions for the focus groups assessed PHR benefits and problems, ideal content of PHRs, and how PHRs might be used in the participants' practice, and follow-up probes were used to elicit additional attitudes and opinions (see [Appendix](#)). PHRs were defined for the focus groups as "a health record that is initiated and maintained by a patient." The moderator also stated that PHRs have been created using various media including paper, Internet, personal digital assistants, and USB drives. Notes from the pilot focus group were summarized, and focus group questions were evaluated for appropriateness. Researchers deemed the questions acceptable and used the same set of questions and prompts for the remaining three focus groups.

The three subsequent focus groups were conducted in primary care offices in rural and urban areas. The first of these focus groups included four physicians and four nurses and was conducted at clinic in a town of 25,000 persons; the second included one physician and two nurses (a second physician was unable to attend due to an emergency) and was conducted in a town of 2,500 persons; and the final focus group included three physicians, four residents, two nurses, and a pharmacist and was conducted in a city of 120,000 persons. Each focus group was audio recorded and transcribed. Notes also were taken by both facilitators. Each medical practice used a combination of paper records and electronic medical records.

Data Analysis

Transcripts and notes from the focus groups were analyzed using a multistep process to identify core themes that represented the perceptions of participants about personal health records.^{26,27} The research team, which included a nurse, a physician, and two pharmacists, reviewed the transcripts. First, each investigator independently developed a preliminary code by separating participant comments into individual ideas and then creating a concise description, or code, for each idea. Each member of the research team combined his or her codes into categories, or themes, to capture a more general organization of ideas. The research team then met and agreed upon a set of common main themes. No new overarching themes were identified during a

final review of the transcripts conducted during manuscript preparation. The research team selected quotations from the transcripts that characterized the main themes from the focus groups. These quotations were compiled, grouped according to theme, and placed into context when necessary. Themes, codes, and quotes were used together to guide the summary and interpretation of the results.

Results

The authors agreed upon five main themes from the provider focus groups relating to PHRs:

1. PHR benefits
2. concerns with PHRs
3. how PHRs might be used by providers
4. PHR maintenance
5. perceptions about how patients might use and interact with PHRs

The following is a summary of each theme along with sample comments.

PHR Benefits

Focus group participants identified patient groups they thought could especially benefit from using PHRs. Numerous participants suggested that mobile populations, such as truckers, snowbirds (retirees who travel south for the winter months), or anyone else who spends a significant amount of time away from home, could benefit. There were also medical reasons for using a PHR such as pregnancy, complex medical conditions, or taking numerous medications. Lastly, providers expressed the potential value that PHRs could have for patients visiting the emergency room.

I'll visit with a patient and their children will hand me a piece of paper that has all the meds, allergies, past medical history, what surgeries they have had before, and that's awesome. It doesn't negate me talking to them, but just to have that makes life easier at 2 in the morning when you are trying to find out what's wrong with a patient.

In addition to emergency care situations, providers thought PHRs could provide information when traditional means of record sharing fail.

When patients return from a specialist, what changes did they make? I'll have people come back to me sometimes before I get the report from the specialist.

Fax[ed] items get lost. Having the patient hand carry their record ensures that someone at least has a copy.

Overall, focus group participants seemed optimistic regarding the potential for PHRs to increase efficiency and decrease healthcare costs.

For quality and efficiency it is worth it, because of drug errors and adverse drug reactions. It is worth it to give it to people for free. You'd save the government money.

Information is power. If you don't have the right info you don't have the right power to help them.

Concerns with PHRs

Providers voiced two main concerns: accuracy and privacy. Providers were concerned about the validity of information contained in PHRs and the implications of bad information for treatment. The privacy concern entailed inappropriate and unauthorized access to sensitive medical information contained in PHRs.

It's only as good as what goes in. If there is an error, that goes in everyone's system.

Providers expressed the concern that patients may not know what is appropriate to put in their health record or may input information that has not been verified by a professional.

I think sometimes patients don't know what is significant-if you tell a person they have autoimmune hepatitis, they go "What?"

People will say, "I had a stomach ache and diarrhea and Joe next door says yeah you probably have diverticulitis." So they write that on their past medical history.

Some providers, however, were less concerned about possible inaccuracies, stating that PHRs should be treated no differently than other forms of patient report.

But how is that [PHRs] different than the things we have in our chart now? If a new patient comes in with a record of their meds, we put it in.

On the other hand, patients may deliberately omit information from their PHR. One physician expressed concern that some patients may withhold some information due to possible insurance ramifications.

Some asthmatics don't want it on their record because if they change insurance they don't want it as a preexisting [condition].

Skepticism over narcotic histories was also commonly discussed. Providers were concerned that some patients might try to use PHRs to inappropriately elicit prescriptions for narcotics.

The patient can say, "I have chronic back pain that is treated with methadone, Dilaudid, and Percocet for the past 15 years. That's my baseline, I need you to refill that for me."

For privacy, providers were concerned about the risk of fraud and inappropriate access with electronic or online PHRs.

There is going to be some way that identities get stolen, or medical information gets accessed. I'd say, watch where your money is going, you might be getting scammed, especially the elderly.

PHR Use by Providers

Some providers had already had exposure to paper-based or online PHRs, while others had not. Participants identified several desirable components for PHRs, including an up-to-date list of medications, allergies, past medical history, diagnoses, surgeries, and a list of providers. Providers also speculated about how they might incorporate PHRs into their existing workflow. Two options surfaced for incorporating PHRs into the medical record-scanning documents and manual data entry.

We would scan it [the PHR]. Then enter the info into the actual EMR. I'm not going to go looking for that scanned piece of paper.

One physician also suggested that PHRs could serve as a check for the official medical record.

I think it should be compatible with [the] EMR. It would populate my past medical history or double check with my past medical history and my medications, how does that match up.

Providers also identified potential barriers related to PHRs.

I don't have time in a 15-minute appointment for someone to log me into Google and page through multiple pages to find the information.

Proficiency with computers also may affect physicians' adoption of PHRs in their practices.

I'm not a computer whiz, I like the paper stuff.

Myself being technology oriented, I would take that responsibility for my clinic to do that [use PHRs].

Ultimately, several providers questioned the need for PHRs given the possibility of universal medical records.

Why are we adding more layers of complexity that will just add more errors? Why don't we just make the layers we do have talk with each other?

PHR Maintenance

Concerns over accuracy seemed to contribute to providers wanting control over data input into the PHRs.

[We should be] in control from the medical side of it, and pharmacies from the pharmacy side.

I think patients should have total control of who gets access, but the information put in there should be from professionals like pharmac[ists] or doctors. Patients should not be able to enter any information without the doctor or someone else validating it. Otherwise that information is just subjective.

Participants were also adamant that insurers not be involved with PHRs and that claims data should not be used to populate PHRs.

We participate in the [insurer] quality program and trying to get an accurate list of people is a nightmare. There are so many errors.

Perspectives on Patient Use of and Interaction with PHRs

Overall, providers seemed to doubt that patients would take the necessary responsibility for creating a PHR and keeping it updated.

I think it's the patient's responsibility to keep track of what's going on. If they don't want to keep track of what's going on, it's really difficult for [the] physician to keep track of everything because they're the ones that actually go to the visit. You have to rely on the patient to do it, but 70 percent of people won't.

Two focus groups suggested patients may not see the need for PHRs because they assume that providers have more information access than they actually do.

[Patients] think that if one doctor has their chart [then] everyone has the same chart. Patient think if I know something, well obviously cardiology knows it too. But that doesn't often happen.

Consistent with the notion that PHRs may be too demanding for patients, several physicians stated that simpler personal records, such as medication lists, may be sufficient.

Maybe preprinted med sheets are the way to go-meds, allergies, and specialty doctors.

We have had the best luck with asking our patients to put all your medications in a bag and bring them with you.

Discussion

The findings from our focus groups help expand on previous survey research on physician attitudes toward PHRs and address several assumptions made by early PHR innovators and researchers.²⁸ First, comments regarding the benefits and potential uses of PHRs suggest that the participants view PHRs primarily as a resource for physicians rather than a tool for patients.

The information that providers wanted in a PHR was that which they already were accustomed to getting from some patients via patient reports or paper-based PHRs. Some physicians had patients who maintained a PHR using a spreadsheet or word-processing document, but few if any had experience viewing a patient's PHR in an electronic format. Our findings triangulate with previous survey research concluding that providers are relatively unfamiliar with electronic PHRs and their potential benefit as a tool for patients.²⁹ This unfamiliarity appears to have created preconceptions about PHRs that may slow PHR adoption.

The providers in our study expressed a general pessimism about their patients' motivation and ability to maintain electronic PHRs, which also may decrease provider support for widespread PHR use. Surveys have shown a discrepancy between provider perceptions of patient PHR use and actual patient PHR use, with patients using PHRs more often than physicians estimate.³⁰ One way to address this discrepancy may be to encourage patients using PHRs to show their PHRs to their providers. Conversely, some physicians felt that overuse of a PHR could promote hypochondria, although this sentiment appeared to be based on a limited number of past experiences. Another concern was the potential for online PHRs to increase the use of Internet physicians. This especially may be relevant to the controversy over online prescriptions.³¹

Providers in our focus groups largely viewed PHRs as a source of information when the patient's full record was not accessible. Some providers, however, suggested that maintaining a PHR could increase patients' involvement in their own care and that increased involvement may lead to better outcomes. While physicians did not explicitly mention potential changes in the patient-physician relationship, physicians did seem positive toward patients' taking a more active role in their own health. Ultimately, however, providers were concerned about the amount of time required to interact with patients and their PHRs. Many providers suggested that a paper-based PHR may be just as useful as, and more convenient than, viewing a patient's PHR online. Participants were concerned that time spent logging into a patient's electronic PHR and searching for information would impose on already constrained clinic visits. Participants did not mention spending time discussing PHR content with patients, which likely would require additional time during an appointment. These findings suggest providers will need information on the benefits of PHRs to patients in addition to information on how PHRs may be used as a tool during appointments.

One feature that has been proposed for PHRs is the ability for patients, allied health professionals, and wellness providers to document health-related information in PHRs. While our focus groups did not explicitly address this feature, our participants did support pharmacist involvement in the maintenance of prescription records in a widespread, interoperable electronic health record system. One focus group suggested that the pharmacy or clinic waiting rooms could be a good place for patients to make entries into their PHRs.

Providers in our study echoed some common concerns about accuracy and privacy.³²⁻³⁵ Providers were concerned that patient-entered data would not be correct and that existing medical information should not be reentered into a PHR but rather that medical records should be shared, with PHRs being one access point. A unique theme was physician concern about PHRs' facilitating narcotic abuse. Physicians were concerned that patient-fabricated entries in a PHR could assist someone in getting an inappropriate narcotic prescription from a provider, for example in the emergency department. This concern supports the common sentiment from our participants that data that already exist in official medical records should not be reentered into a PHR, but rather PHRs should draw verified information from the patient's medical record. Many researchers support interoperable PHRs/EMRs, and this appears to be supported by the providers in our study.³⁶⁻³⁹

Providers also voiced concern about the role of insurers, the fidelity of claims data populating PHRs, and the potential misuse of PHR data by parties not involved with direct patient care. This concern will be important for PHR administrators to address because a recent study of insurer-provided PHR administrators showed that the majority already used claims data to populate some PHR entries, and all but 1 of 12 were planning to utilize claims data in the near future.⁴⁰ This concern should not be overlooked as health insurers, including the government, are likely to be involved with widespread PHR implementation initiatives, and providers' acceptance of the insurer's role, whatever it may be, could be important to their adoption and support of PHRs in their practice.

Participants also offered valuable insight into how PHRs might be used in their practice. While our participants did not have EMRs that could interoperate with PHRs, when asked how they might import PHR data into their EMRs, all four focus groups proposed methods their clinic could utilize, most commonly scanning a printout or manually entering data points. This is in contrast to the 7.9 percent of survey respondents who said they could electronically integrate PHR information into their

EMRs.⁴¹ It appears providers may be willing to find creative ways to integrate PHR data into their EMRs in certain situations even though specific mechanisms may not yet exist for direct PHR/EMR interoperability.

Limitations

All four medical practices that participated in our focus groups used some form of electronic medical record, which exceeds national estimates that 13 to 27 percent of physician offices use electronic medical records.^{42,43} The high use of electronic medical records, combined with all the physician groups' being from Iowa, may limit the generalizability of our results to the general physician population.

Implications for Future Research

As PHRs continue to move toward becoming an online, interoperable, interactive, and patient-centered tool, continued research on stakeholder awareness and attitudes will help guide the healthcare system toward implementation of effective and useful PHRs. Existing concerns from providers about integrating PHRs into the workflow in an efficient and timely fashion, privacy, security, and the patient's role in using PHRs should be further addressed to obtain provider support for widespread PHR use.

Additional qualitative research questions for physicians might include the following: What are your views on allied health professional or wellness provider entries into PHRs? What are your views on interactive PHR features such as various disease-state management tools, or patient alerts? How might using a PHR change the patient-provider relationship?

Conclusion

The potential for PHRs to improve healthcare is significant. However, the task of securely, efficiently, and effectively incorporating PHRs into the current medical system and society will be challenging. This study suggests that providers predominantly view PHRs as a backup source of medical information secondary to the patient's medical record as opposed to a tool for patients. While providers believe PHRs have the potential to decrease errors and increase efficiency, they are concerned about how to integrate PHRs into patient appointments that are already too short. Increasing provider exposure to electronic, patient-centered PHRs may foster support for their use in practice and help the healthcare system transition from paper-based to electronic PHRs.

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Appendix: Focus Group Questions and Prompts

Physician Focus Group Guide PHR and Medication Management Activities

I. Introduction

1. Introductions
2. Administrative details (confidentiality, food)
3. Explain purpose of focus group
4. Overview of topics: Patient medication management activities, Interface with PHR

II. Personal Health Record

1. Give brief definition of PHR to physicians
"PHRs have been defined as any health record maintained by the patient. PHRs could be paper based, Web based, carried on a USB drive, or something else."
2. What are the benefits to a patient keeping a personal health record?
Prompt: How do you think it would affect a patient's health?
Prompt: What about the medical care they receive?

3. What information should be part of a PHR?
Prompt: What info in a PHR would be helpful to you, or to the patient, or to other practitioners?
4. How might you use a PHR in managing a patient's medications?
Prompt: At follow up visits?
Prompt: With prescription refills?
Prompt: When a patient calls with problems?
5. How might you interface a PHR with your EMR?
6. What problems or obstacles do you see with PHRs?
7. What impacts do you think a PHR would have on your practice?

III. Summary

Thanks for your participation today. Do you have any final comments about medication management or PHRs?

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