Facilitating change in clinical behavior is not always successful. Yet, with the proliferation of clinical practice guidelines, the decrease in numbers of small, independent practices, and the growth of managed care, physicians are under pressure to change and adjust to change. Unfortunately, “one size fits all” interventions to facilitate change often don’t have long-term effects because physicians and their practices, while seeming similar, are each unique in practice behavior, motivation, and office culture. Recent literature suggests that it may be effective to use systems theory models in which primary care practices are viewed as complex adaptive systems.

However, little research has been done on systems models of change in clinical settings, and, therefore, tools to assess primary care practices are lacking. We developed such a tool, loosely based on the family genogram, a technique with which most residency-trained family physicians are familiar. We created a “practice genogram” that allows researchers to understand practice behaviors and relationships in the same way that a family genogram promotes understanding of family dynamics. This paper defines the practice genogram, describes data-gathering methods, gives a case example, and discusses implications for use.

Using Practice Genograms to Understand and Describe Practice Configurations

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**Background:** Demands for change in medical practices are coming from multiple sources. Since interventions to change clinical practice continue to have limited success, understanding the functional structure of primary care practices and the dynamics of providing care have become increasingly important. **Methods:** To portray and understand the primary care office system, we developed “practice genograms” that describe practice participants and their relationships with each other. **Results:** Practice genograms provided a more dynamic, relational model than the organizational chart and promoted identification of relationship strengths and weaknesses within a practice the same way that family genograms identify these characteristics in a family system. **Conclusions:** Research implications for the use of the practice genogram include enhanced data gathering, increased understanding of the complexity of practices as adaptive systems, and increased understanding of current and potential approaches to changing practices.

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tered biopsychosocial approach to care. Particular emphasis is placed on emotional connections among family members, across generations, and with important individuals or systems outside of the family system. Constructing a genogram involves three activities: 1) visually mapping the structure of a family, 2) recording important information, i.e., demographics, critical events, and crucial issues, and 3) showing emotional relationships and informal roles among members of the family.

Increasingly, organizations are being viewed as complex, adaptive systems “that are conscious entities, possessing many of the properties of living systems.” The commonly used “machine” metaphor that emphasizes structure and parts is no longer adequate. Instead, organizations are now studied as “whole” systems, especially when considering change. As family therapists discovered with families, to comprehend fully the “gestalt” of an organizational system, it is helpful to visualize the organization in terms of its complex relationships.

Organizational charts can be used to understand how a practice functions; however, they are more likely to indicate how things are supposed to be than how they really are. Organizational charts rarely identify the informal, emotional, and relational patterns that are obvious to anyone who has ever worked in an organization. Genograms give that information, expanding a basic organizational chart into a more useful tool. It seemed a reasonable extension for us to use this tool to understand the organizational dynamics that could promote or prevent the implementation of change at the practice level. In constructing our practice genograms, we use similar concepts and terminology (Figure 1) to those used by McGoldrick and Gerson.

**Development of the Practice Genogram**

Since 1994, researchers in the departments of family medicine at the University of Nebraska Medical Center (UNMC) and Case Western Reserve University (CWRU) have been collaborating in the analysis of preventive service data from 82 primary care practices in northern Ohio. Concurrently, UNMC researchers were initiating an intervention study in eight Nebraska family practices using the Put Prevention into Practice materials. In the process of assessing those eight practices, one of the authors started informally using the genogram technique to keep track of the individuals involved in the practices and their formal and informal relationships to one another. This helped us understand the strengths and weaknesses of each system relative to the intervention. Although not formally used in all 82 Ohio practices, our knowledge of these practices provided an opportunity for discussion and expansion of the genogram concept. We currently have experience using the practice genogram in 59 locations, ranging from simply describing some practices to interventional changes in others. These experiences are described in more depth as follows.

**The Nebraska Experience: Practice Genograms Through Participant Observation**

The UNMC experience was designed to provide detailed descriptions of practices to understand their processes for providing preventive care. We used a case study framework employing a multi-method ethnographic data collection approach. Research sites were told that we would like to study their practices and delivery of preventive services to better understand the barriers and facilitators to providing preventive care in real-life practices. Methods of data collection and analysis, including the genogram, were discussed prior to the practice agreeing to participate. Practices were told that they would be given a summary of their prevention practices, including the genogram, at the end of the analysis.

Primary data were participant observation field notes, key informant interviews, in-depth interviews of physicians and office staff, documents used in the practice, and medical record reviews. A research nurse collected these data as she observed practice activities. Observational field notes and key informant interviews were the primary data used to understand behavioral patterns within the practices. Field jottings (short reminders) taken during observation and clinical encounters were later expanded into more extensive field notes describing the research
nurse's impressions of the practice. Informal, unstructured key informant interviews with office personnel were undertaken to clarify observations. By reading the notes, the investigators got a sense of the practice before working with the research nurse to construct the genogram.

Once the research nurse was in the practice long enough to understand the basic practice environment, the research team interviewed her to construct the genogram. We found that a large, easily erased white board is the best place to work on initial drafts of genograms. The organizational chart format was used, starting with the assumed hierarchy of authority and responsibility that would be expected with a given set of related roles (Figure 2). The research nurse was asked to identify all participants in the practice and their roles. Demographics of the

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**Figure 2**

Practice Genogram Formatted in Organizational Chart Format

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**Figure 3**

Practice Genogram With Relationships and Footnotes Obtained After 2 Days of Practice Observation

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**FOOTNOTES:**
1. "Bee in bonnet" about prevention—wants to make changes
individual members were elicited, including age, gender, number of years with the practice, current and past job responsibilities, percentage of time employed, and any characteristic personality traits identified during data gathering. Individuals or groups outside of the practice that significantly influenced the system were also included (eg, other clinics in Figure 3). Once the basic genogram structure had been constructed, it was expanded by asking the research nurse about functional and emotional relationships observed in the practices. Information was gathered in areas indicated by the questions listed in Table 1, which were developed from our own experience and from recommendations outlined in Webber et al.30 A footnote process was used to highlight important information about a group or individual. Once the pen and paper version of the genogram was completed, computerized practice genograms were prepared using Visio® 4.0, a software program specifically designed for creating flowcharts, network diagrams, organization charts, and cause-and-effect diagrams (Version 4.0, 1995, Visio Corporation, Seattle, 206-521-4500).

We have found that the length of time spent in the field has an impact on the depth of understanding. Figure 3 shows a typical genogram after 2 days in a practice. Positive relationships were readily discernible, but there were no conflicts identified. After more extensive time at the practice (2 weeks), the picture became more complex (Figure 4), and some conflicts came to light. In our experience, it required a minimum of 1–2 weeks in the practice, depending on the number of physicians and staff, to get these types of details. Anecdotally, we have given reports to six of the 11 practices. In five of those six, we received positive feedback about the perceived validity of our analysis, including the genogram.

The Case Western Experience: Practice Genograms as Interview Guide

Researchers at CWRU developed an alternative approach to practice genograms for their clinical trial, Study to Enhance Prevention by Understanding Practice (STEP-UP). This trial sought to increase prevention activities in randomly selected practices by tailoring office-level interventions based on a 2-day assessment of office practices. In the STEP-UP protocol, an initial practice genogram was completed by a research nurse during her first visit to each prac-

Figure 4

More Complex Practice Genogram Obtained After 2 Weeks of Practice Observation

FOOTNOTES:
1. “Bee in bonnet” about prevention—wants to make changes
2. Left in 1992 after 7 years because of conflict with practice—now works for competing practice
3. Considering retirement in a few years
4. Concerned about practice survival if MD #1 retires and MD #2 leaves
5. Supports projects of MD #1
The purpose for this initial visit, as presented to the practice, was to “get to know how the practice functions and learn who’s who.” The process began with the research nurse conducting brief structured interviews (Table 2) with the practice manager or lead physician and proceeded to interviews with other informants. To enhance validity and reliability, an emerging genogram was shared with other key informants with both similar and different roles in the office. These informants were asked to expand on, confirm, or disconfirm what had already been written. Also included in the assessment were medical record reviews; a structured practice environment checklist; brief qualitative field notes dictated by the facilitators; questionnaires completed by physicians, staff, and patients; and several patient-path diagrams. Subsequent triangulation of information from these multiple sources was used to construct the final practice genogram. This was then used as one of the feedback tools when the facilitator subsequently met with the practice staff to plan their prevention enhancement intervention.

Genogram Construction: A Case Example

The role of the practice genogram is to provide a clear and succinct portrayal of an organization’s relational dynamics that highlights important patterns, strengths, and vulnerabilities. It focuses on multiple people and processes, using the organizational chart as a starting point, just as a family genogram uses a family tree. Multiple sources of data are combined to understand the complexity of a practice system. These can include checklists, surveys and questionnaires, observations, interviews, and medical record reviews.

To illustrate the process, a fictitious practice was created based on several sites in the Nebraska study. Figure 2 is the organizational chart of the fictional practice, indicating formal levels of power, authority, and responsibility; Figure 4 is the final genogram. It reveals the greater complexity of the practice by including information on other important parts of the larger community system (eg, other clinics and physicians) and some of the key relationships among the physicians and staff.
As shown in Figure 4, the important relationships identified in the fictional practice included the following: 1) There is a competitive/conflicted relationship with the two other practices in town. 2) A previous partner (MD #3) left the practice after having disagreements with the senior physician (MD #1) and now works for a competing practice. 3) While MD #1 and MD #2 have an amicable relationship, the relationship between MD #1 and the physician assistant (PA) seems closer, as is that of MD #1 and the office manager. 4) MD #2 has a distant relationship with the PA and an amicable, but not close, relationship with the office manager. 5) The office manager’s relationship with the nurse (RN) who works with MD #2 is conflicted.

MD #1 is considering retirement, which turns out to be an important issue in this system. The office manager has shifted away somewhat from the exclusionary triangle represented by MD #1, the PA, and the office manager. She voiced concern that the practice would probably close if the new physician left as the previous one did. At the same time, MD #2 wants to do some new things (prevention) that threaten the “old ways,” and he gets the RN involved in his new projects. This alliance seems to create tension between the office manager and the RN, possibly related to some perceived change in the power relationship.

The strengths of this system include the positive relationship between the two physicians, the current positive relationship between MD #2 and the office manager, the office manager’s vested interest in keeping MD #2 in the practice, MD #2’s interest in prevention and willingness to make changes, and the close relationship between MD #2 and the RN and her willingness to participate in change. The vulnerabilities include the many levels of conflict that undermine cooperation and change, the strong coalition between MD #1, the PA, and the office manager that has been exclusionary in the past, and the lack of strong internal motivation for change on the part of this coalition.

A reasonable but yet-to-be-validated hypothesis is that any planned intervention to change aspects of the system must account for these patterns of relationships. In this case, a possible opportunity to facilitate change in this practice might rest in the relationship between the office manager and MD #2. Given the office manager’s key role in the day-to-day functioning of the practice and MD #2’s interest in increasing preventive activities, it is plausible that fostering a creative alliance between the two of them that had mutual benefit might result in positive, and possibly enduring, change.

**Issues in Using Genograms**

As is true when using any type of research or assessment tool, certain assumptions and limitations must be kept in mind. This is especially true for the practice genogram because it deals with emotional and relational issues, areas in which people and organizations often feel most vulnerable. Issues of confidentiality, how the information is gathered and used, and ethical issues are important. The following are some issues with which we have dealt.

First, genograms are tools used to generate hypotheses, which must then be validated to be useful. Because they describe dynamic relationships, genograms are always considered to be in progress. Genograms describe the way things may be now, but things can change at any time. Genograms can be used to describe outcome but usually only in the context of having a picture of how things are now as compared with a previous genogram of how things were then.

Second, genograms are intended to be positively therapeutic and should never be used in a way that could injure the people involved. In family therapy, genograms are shared with the family when it is perceived that doing so will be therapeutic and used in a positive way.

Third, genograms and systems theory constructs are complicated and easily misinterpreted or misused by those unfamiliar with them. Most family practice residencies teach these techniques and theoretical perspectives, and, thus, most family physicians are familiar with them.

These precepts also hold for practice genograms. One approach to dealing with these ethical precepts is to fully involve the participants in genogram construction and to keep the genogram process available for their ongoing use. In the Nebraska study, for example, where more time is spent in each practice and the goal is descriptive understanding rather than intervention, we chose to share selected information on a case-by-case basis. Each practice is given options for different levels of feedback on our findings, including hypotheses generated by the genogram.

**Discussion**

It is inevitable that primary care practices and other aspects of the health care system will change. It is our experience that efforts to change practices should be preceded by efforts to understand them. While primary care practices have much in common, our research suggests that each is uniquely configured in response to the particular needs of its clinicians, staff, patients, and environment. Practice genograms have been useful to us in understanding these issues.

To date, the lack of measurement methods that could increase our understanding of practice dynamics and characteristics have limited our success at understanding change. The practice genogram is one attempt to address this deficiency. Currently, it should be considered a research tool, because we do not feel that it has been sufficiently studied to recommend it for application as a practice management tool. Nonetheless, given their familiarity with the tool
and concepts, many family physicians could consider experimenting with practice genograms during their individual efforts at change, keeping the previously mentioned caveats in mind.

Theoretically, using practice genograms to understand practices prior to interventions is likely to have important consequences. First, the genogram may identify “lever points” in the practice through which small efforts could result in large changes. The genogram may also identify approaches that are unlikely to be effective in a particular practice and may highlight unforeseen consequences of a planned intervention. Just as important, practice genograms may provide insights into the underlying reasons for current configurations and operations of practices.

Whether the practice genogram is practical or cost-effective as a general change technique is yet to be proven. The family genogram has proven helpful in family medical problems. For understanding the seemingly irrational and often paradoxical behavior of medical practices, the practice genogram contains exciting possibilities.

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References