The Virtual Practice: Using the Residents' Continuity Clinic to Teach Practice Management and Systems-Based Practice

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Abstract

Background Education in systems-based practice is a required component of all postgraduate medical education programs in the United States. Competency in this area requires that trainees have an understanding of the health care system sufficient to provide optimal care to patients. Most trainees in residency programs have little understanding of the complexities and challenges of present-day practice in the current system of care and consider themselves unprepared to undertake this activity following completion of training. Training in practice management in residency programs has not been emphasized as an important component of systems-based practice. Historically, practice management training in residency programs has been done using a fully didactic model, and residents have expressed a desire to learn this skill by becoming more directly involved in the operations and management of a practice. The patient visit touches many aspects of the health care system, including clinic operations, insurance, quality, and finances.

Approach At our institution, we used the residents' continuity clinic practices as a vehicle to provide education in practice management and systems-based practice by creating a curriculum that included the residents' perceived gaps in knowledge regarding going into practice. This is known as the virtual practice. This curriculum is taught using data obtained from residents' practice to illustrate concepts in many areas, including primary practice operations, malpractice insurance, financial benchmarks, and career planning.

Results Resident self-assessed knowledge of these areas increased after participating in the curriculum, and resident testimonials indicate satisfaction with the project. In addition, residents have become engaged and interested in how their effort translates into performance and how they participate in the health care system.

Introduction

In February 1999, the Accreditation Council for Graduate Medical Education endorsed 6 general competencies that would form the template for the training of future physicians.[1] These competencies comprise the basis for training in all graduate medical education programs in the United States. One of these competencies, the ability to "have an awareness and responsiveness to the larger context and system of healthcare and the ability to effectively call on the system to provide care that is of optimal value," is known as systems-based practice (SBP)[2]. Because the health care system is complex, individual practitioners require practical knowledge that helps them recognize their role and functional context. Resident physicians may first come into contact with the health care system when they see an outpatient in the context of practice. This contact with a patient may involve many components of the system, including clinic operations, insurance, and quality.

It is well known that most residents have little knowledge of the complexities and problems associated with our present-day health care system, specifically regarding Medicare billing and reimbursement.[3] Trainees have traditionally considered themselves unprepared for the realities of practice.[4] Most medical schools do not have a structured curriculum to teach this subject.[5] As a result, new resident physicians come into training with little background in the systems of care and the business of medicine. Correspondingly, most recent residency graduates learn to engage in the details of practice operations and the broader health care system on the job.

As budgets for care diminish in many sectors, future practitioners will be called on to navigate the health care system for their patients and to ensure the viability of their practice. Education in the system of health care and the business of medicine before entering practice has not been a traditional emphasis of SBP education. In addition, practice management training has occurred in isolation from real-

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TABLE 1 **Virtual Practice Modules With Practical Exercises**

Module	Practical Exercise
Introduction to the Virtual Practice	Case discussion on patient flow in the office
Starting a Practice	Brainstorming of the components of setting up "shop" using a sample pro forma
Operating Finances 1 (charges, collections, relative value units, operating expense, accounts receivable, payer mix, gross collection rate, net collection rate)	Calculation of break-even points for current structure and in the event of provider expansion
Operating Finances 2 (*Current Procedural Terminology* codes, fee schedules)	Calculation of revenue and expenses per work relative value units
Operating Finances 3	Brainstorming of the implications of practice expansion or addition of a practice
Marketing	SWOT analysis using the PCC as an example
Billing and Collections	Calculation of coinsurance-based visit fee and Medicare-allowable rate
The Revenue Cycle	Brainstorming of the effect of denial of claims on reimbursement and resolution of denied claims
Managing Payer Mix	Calculation of appropriateness of reimbursement based on contracted rates
Quality	Completion of an outline of a PDSA project to be conducted in the PCC
Compensation Plans	Analysis of a mock offer of physician compensation
Wrap-Up and Post-Modules Survey	Post-modules examination and survey

Abbreviations: PCC, primary care clinic; PDSA, plan, do, study, act; SWOT, strengths, weaknesses, opportunities, threats.

world experience.[6] Most practice management education relies on a model that is fully didactic and primarily lecture based, with some small-group teaching.[7] Residents have expressed a desire to learn practice management by being more involved in the daily aspects of operations and management.[8] Our goal was to bring a more realistic practice experience into the realm of residency training. This involves treating the residents' continuity clinic practices as an actual medical practice. We term this the *virtual practice*.

Setting

The Methodist Hospital is a large tertiary facility located in Houston, Texas. Following a change in academic affiliation, the formation of a physician organization, and in preparation for the development of a new internal medicine residency program, a faculty practice began operations in 2005. The internal medicine residency program was approved in February 2007, and the first residents started the program in July of that year. It was envisioned that the residents' continuity clinic, known as the primary care clinic (PCC), for the new residency program would function alongside the faculty practice and would be administratively linked to it. The PCC is the home of the virtual practice. Data used in the curriculum regarding finances and operations derive from this clinic. Twenty-seven internal medicine residents are providers in the virtual practice.

The PCC has 7 examination rooms and is adjacent to the academic faculty practice. It uses these examination rooms in a separate module, has 2 full-time medical assistants, and shares receptionists and billing and management services with the academic faculty practice. The residency director serves as the medical director for the PCC. The PCC sees patients 5 days per week, and after-hours calls are handled by the resident on call, with faculty backup if needed. Three or four residents are scheduled in morning or afternoon sessions, with 1 attending physician available as a preceptor. Patients are referred from various sources, including teaching service discharges, the emergency department, physician referrals of patients needing primary care, preoperative evaluations, recruitment from health fairs, and patients referred for primary care from the employee health center. During the first few weeks of each year, coding specialists from the hospital's compliance office spend time teaching the residents how to use coding systems for physician billing.

Needs Assessment and Curriculum

In spring 2008, a needs assessment was performed to identify key areas of need related to education in practice

TABLE 2 **Resident Self-Assessment**[a]

Question	Pre-Modules Survey (n = 10)	Post-Modules Survey (n = 10)	*P* Value
If my practice is going really well, I am able to use financial data to make a decision about expanding the practice by adding equipment or personnel	3.2	3.9	.02
I believe patient satisfaction is key to the success of my practice	5.0	4.6	.04
I am confident in my ability to institute a quality-of-care program in my practice	3.8	4.3	.05
I understand the importance of the payer mix in the financial success of my practice	3.4	4.2	.07
If I am not getting paid for my work by insurance companies, I am comfortable in taking the necessary steps to find out why this is the case	3.4	4.1	.09
I am comfortable developing a marketing plan for my practice	3.3	4.0	.09
I am able to determine how many patients I have to see for my practice to break even	3.2	3.6	.27
I would be comfortable setting fees for my practice if I was just starting out	3.2	3.6	.27
I am able to analyze differing modes of compensation and determine which one will help me earn the most	3.4	3.8	.27
I am confident in my ability to name the steps required for me to get paid for my services	3.4	3.7	.43
I am confident in my ability to list most of the costs required to start a practice	3.4	3.6	.56

[a] Scores range from 1 (strongly disagree) to 5 (strongly agree).

management and SBP by residents. A meeting with residents was led by the program director. The residents were asked to brainstorm and create a list of elements of practice management in which they believed they needed more knowledge. The program director assisted in developing themes based on their ideas. Using the Delphi technique, residents identified in order of priority the following topics: practice start-up, managed care contracts, malpractice insurance, financial management, billing, government payers, compensation, marketing, and personnel management.

Based on these themes and with assistance from the administrator and financial operations manager of the department of medicine, a 12-module curriculum was created that encompassed the following 3 major areas: the practical and financial operations of the clinic, the relationship of physicians with payers (including organizations outside of the clinic), and career planning. The 12 modules and the practical exercises associated with each module are given in TABLE 1. These exercises may be discussion points for applying the concepts or may serve as a springboard for more quantitative exercises having to do with finances, insurance, or practice expansion.

The didactic modules were organized into 30-minute interactive sessions with associated practical exercises to illustrate concepts discussed as part of virtual practice business meetings. At these meetings, detailed discussion of current operations and finances served as real examples of the concepts in the curriculum. Revenues, expenses, and other practice variables were discussed with the residents participating in a real-life scenario of the finances and operations of the PCC. All discussions occurred within the

TABLE 3 **Resident Testimonials**

Postgraduate Year	Testimonial
1	"I think the virtual practice sessions have been very helpful. I have learned a great deal. At the beginning of residency, I was not aware of all the details related to the insurance and the business aspect of medicine. We have learned about the different types of insurances, billing and returns, payer mix, proper documentation, starting a private practice, and maintaining it. I am looking forward to more of these sessions."
1	"It was a useful experience. It gave us a good idea as to how a private practice works and the different aspects to be considered while setting up and running a practice. The examples used were useful."
1	"I learned a lot about the business of starting a practice, as well as how to manage one, which I really enjoyed. These types of things aren't taught at all at most other residencies, and it is vitally important for our future welfare that we are educated on these matters. I look forward to future virtual practice modules as I progress in my residency."
2	"The virtual practice curriculum has completely transformed the way that I view and spend my time in the clinic each week. The modules have covered a wide range of topics from starting a new practice to managing a growing, successful practice. Included in these modules are sessions on managing the income and expenses of a practice, understanding the billing and coding process, and troubleshooting problems that may prevent a practice from thriving. Throughout the curriculum, we analyze actual data and numbers from our residents' clinic to provide a meaningful tie-in to our actual experiences. We discuss and address areas of our own practice that can be improved based on what we have learned and are able to return to the clinic with a better understanding for how it is run. The virtual practice curriculum has helped me to feel like the residents' clinic is a practice which I am an integral part of rather than just a clinic that I am assigned to for half a day per week."
3	"As a resident about to graduate, this curriculum has provided tremendous, valuable information that will definitely help me create an effective patient practice. Various practice elements that are important in building a successful practice were discussed in detail from insurance diversity to achieving effective patient satisfaction. This has been a very important aspect of real-world medicine that should be included in present-day residency education."
3	"I found the virtual practice to be a very useful exercise because I feel that learning about the actual business aspects of medicine is often a neglected aspect of resident/medical student education. I feel that the virtual practice alongside teaching sessions in combination with the actual business/financial data from the continuity clinic really taught some important, practical lessons."
3	"It was very practical and important for us as we move ahead in our careers into the real world. Very useful and this should be a regular part of our curriculum. Should continue to think of new and interesting ways to make it fun and interactive."

context of established benchmarks from the Medical Group Management Association,[9] adjusted for the time residents spend seeing patients in the clinic. To facilitate discussions of opportunities to improve clinic operations, patient satisfaction data were also reviewed and shared with residents. The assessment included the distribution of individual comments from patients whose names had been deleted.

Evaluation of the Program

Before initiating the didactic modules, resident knowledge of practice management topics was assessed by a self-administered survey that graded responses from 1 (strongly disagree) to 5 (strongly agree). The survey is given in TABLE 2.

In an attempt to gauge the effectiveness of the curriculum, residents were asked to repeat a self-assessment after completion of the modules. This information is also given in TABLE 2. Student *t* test was performed to analyze the data. Although statistical significance with this small sample size was reached for only a few of the items, scoring trended higher on the second self-assessment. Statistical significance was reached for items related to the use of financial data in a practice, the importance of patient satisfaction in a successful practice, and the ability to institute a quality-of-care program.

Discussion

Continuous feedback in the form of individual and group productivity reports, patient satisfaction data, and budget variance reports is instrumental in learning the basic concepts of practice management. With these data, the residents learn about the revenue cycle, collection rates, payer mix, and accounts receivable and discern how these affect the financial viability of the practice in real time. Residents receive performance feedback that relates to their work. We believe this to be one of the major advantages of this approach because it directly engages residents in learning. Evidence of this is summarized in TABLE 2.

However, the challenge of providing these data is significant because of the variety of information systems needed to generate these reports. Practice data have an important role in educating and illustrating concepts to residents because these data are generated as a consequence of their daily effort and experience. The clinical education model uses patients and cases to teach concepts. Our model for teaching practice management and SBP uses resident-generated financial and operational data, modular didactic learning, practical exercises, and real-world practice experience. As the PCC has grown, residents have gained real-life education in patient satisfaction, expense control, and clinic efficiency, while

obtaining a better understanding of their role in the larger system of care.

Resident testimonials listed in TABLE 3 have provided encouragement for continuing this experience in the future and for refining it further. It should be noted that this project was conducted at a single institution with a small sample size and did not include randomized groups or group comparisons. Its wide application may also be limited by the challenge of building the data systems required to create and communicate individualized performance reports in larger residency programs.

Although simulated businesses in the context of education have been used in other disciplines,[10] the practical application of concepts to a real medical practice (residents' continuity clinic) while the resident is in training is a novel concept. Current performance data are analyzed and used to educate residents in SBP by using the residents' practice as the focal point. Although some programs have implemented practice management education as an important part of SBP, the literature suggests that this aspect of SBP education has not been emphasized.[11] Future practitioners will be asked to work in an increasingly complex environment, and education in this aspect of SBP should be emphasized.

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