

## Active Precepting in the Residency Clinic: A Pilot Study of a New Model

David W. Lillich, MD; Ken Mace, MA; Maryellen Goodell, MD; Connie Kinnee

**Objective:** *This study's objective was to develop and implement a model of "active precepting" as a teaching and patient care quality improvement project at a community-based family medicine residency program. **Methods:** The Prepare, Orchestrate, Educate, Review (POwER) model was developed with input from faculty, students, residents, and staff. Five measures of conformance to the model were monitored with daily feedback cards from November 2001 to February 2002. Faculty, residents, and clinic staff were surveyed and interviewed after the intervention for perceptions about active precepting. Two follow-up patient flow studies were completed for concomitant quality improvement efforts, and those findings were reviewed along with intervention findings. **Results:** Preceptors reported reviewing resident schedules prior to clinic sessions more often after the model was put in place, and clinic staff reported that residents and faculty were more willing to help solve problems. Concurrent flow studies showed that patient time in clinic decreased from 110 minutes before the intervention to <70 minutes after, while resident time with patients, including precepting time, decreased from 44 minutes to <30 minutes. **Conclusions:** Our results point to the potential of the POwER model of active precepting to contribute to improved patient care, teaching, stakeholder satisfaction, and better flow in the family medicine teaching clinic.*

(Fam Med 2005;37(3):205-10.)

"In addition to [family medicine center preceptors'] availability when needed by residents, these supervisors must provide active precepting of the residents."<sup>1</sup> So says the program requirement for accreditation of family medicine residencies.

Yet, the traditional role of family medicine preceptors is one of consultant to the resident in managing patient care in ambulatory teaching clinics.<sup>2</sup> This role is essentially passive, directed by the resident's self-determined "need to know." It may not make optimal use of the preceptor's skills, knowledge, and experience. In addition to the active precepting mandate by the Accreditation Council for Graduate Medical Education (ACGME) to improve teaching, the increasing pressure on faculty and resident time as well as quality initiatives to improve systems and patient care argue for systematically maximizing use of preceptors.

While active precepting is not defined, the mandate implies a more-proactive approach. Teaching methods for ambulatory settings have been described by

Wilkerson,<sup>3</sup> Whitman,<sup>4</sup> Heidenreich,<sup>5</sup> and Irby.<sup>6,7</sup> While many of these methods are active methods for preceptor-learner interactions, they generally have not been linked in the medical literature to effectiveness, efficiency, or other patient care and resident learning outcomes.

Changes in other ACGME residency requirements, Medicare payments, and clinical productivity expectations have increased the number of patients that residents must see and the amount of time preceptors must spend with both residents and patients. Third-year family medicine residents are now required to see 1,000 outpatient visits during their third year of training,<sup>1</sup> and faculty must provide evidence of their presence and supervision for Medicare reimbursement.<sup>8</sup> Along with these requirements, the decline in outside funding sources makes increased clinical productivity a matter of survival for residency programs.<sup>9</sup> Accordingly, preceptors must oversee more clinical interactions more intensively, which may require different applications of their time. Time with the physician and wait times are also factors in patient satisfaction. While the relationship between precepting and patient wait times has not been described, it is commonly believed that there is a direct relationship between the two.

---

From the Department of Family and Community Medicine, Medical College of Wisconsin.

Balancing the demands for quality and quantity of precepting with those of efficient clinical operations poses a challenge and an opportunity. Quality improvement efforts in patient care are increasingly aimed at “giving patients exactly the help they want and need exactly when they want and need it.”<sup>10</sup> The Prepare, Orchestrate, Educate, and Review (POwER) model is designed to give residents exactly the help they want and need exactly when they want and need it. This paper describes our experience pilot testing a process of defining, implementing, and monitoring active precepting strategies in a residency clinic using the POwER model.

### The POwER Model of Active Precepting

The POwER model to improve the efficacy of precepting is based on two premises. The first is that maximizing the use of preceptor knowledge and experience will benefit resident learning, patient care and satisfaction, teamwork, and clinic flow. The second is that resident learning will be enhanced by proactive, timely, and frequent precepting interactions. As outlined below and in Table 1, the clinic preceptor becomes an active coach for the resident and staff rather than a passive consultant to the resident, thus meeting both patients’ and residents’ needs and creating better teamwork with the office staff.

The components of the POwER model are: prepare, orchestrate, educate, and review. To prepare, preceptors arrive prior to the clinic session and meet informally (huddle) with residents and staff to organize the session for efficiency and to empower everyone involved to share the care of the patient and anticipate

needs. The preceptor orchestrates care by circulating into the patient care area and providing timely assistance and mini-huddles throughout the session to residents or staff, as well as being available in the staffing room. To educate efficiently and meet resident learning needs during consultative sessions, preceptors use the teaching microskills identified by Neber et al<sup>11</sup> (Table 2). Finally, the preceptor, resident, and clinic team review to learn from the session. They review what could have been done to enhance patient flow, whether patient needs and expectations were met, whether clinical guidelines were followed, what they learned from their patients, and what learning issues they will pursue after the clinic session.

### Methods

#### Setting and Participants

The setting for this study was the Racine Family Practice Center (RFPC), affiliated with All Saints Health System in Racine, Wisconsin. The clinic provides approximately 1,000 patient visits per month. All residents (16), faculty (5 full-time, 4 part-time), and 15 staff who were present between November 2001 and February 2002 participated.

#### Implementation of POwER

**Survey.** Prior to implementing the quality improvement study,<sup>12</sup> the leadership team surveyed faculty, residents, staff, and patients regarding the role and behavior of the physician preceptor and his/her effects on patient care and resident education. The questionnaire items were scored on a 6-point Likert scale (1=strongly disagree, 6=strongly agree). Specific survey items included

Table 1

### POwER: Active Precepting in the Family Medicine Center

<i>POwER</i>	<i>Goal</i>	<i>Method</i>
<b>Prepare</b>	Efficient patient care and learning through teamwork	Arrive before session, review schedules, touch base with staff, “huddle” with team to plan and assign.
<b>Orchestrate</b>	Maximize use of preceptor knowledge, experience	Anticipate needs, monitor flow, orchestrate team functioning, circulate throughout staffing session.
<b>Educate</b>	Enhance learning during session. Increase use of evidence-based resources.	Use microskills. <sup>11</sup> Help resident articulate clinical questions as they arise, use point-of-care information management skills to perform searches, continue discussion in journal club, translate information to QI projects where relevant.
<b>Review</b>	Give learners more and better feedback to assist learning and assure quality. Provide time for reflection and problem solving to reduce later problems.	Intercept problems early. Provide appropriate information. Guide residents in defining, focusing, and reinforcing own learning needs.  Debrief with team at the end of each session.

Table 2

## Five Teaching Microskills

1. Get resident to commit to a diagnosis, work-up, or therapeutic plan.
2. Probe for supporting evidence.
3. Teach general rules.
4. Reinforce what the resident has done right.
5. Correct resident's mistakes.

Modeled after Neber J, Gordon KC, Meyer B, Stevens N. A five-step "microskills" model of clinical teaching. *J Am Board Fam Pract* 1992;5:419-24.

preparation (eg, "I review my schedule with my preceptor."), orchestration (eg, "I encourage residents to discuss patient needs with nursing staff."), and review (eg, "I seek feedback after session."). Completed surveys were returned to the central department and compiled and reviewed by the leadership group.

**Action Planning.** The medical director and residency administrator met with preceptors, residents, and staff to discuss survey results, the concept of active precepting, and components of the P<sup>O</sup>W<sup>E</sup>R model. We identified five actions to facilitate active precepting in the RFPC (Table 3).

**Intervention.** We implemented a 3-month trial of the P<sup>O</sup>W<sup>E</sup>R model from November 20, 2001, to February 29, 2002. Conformance to the model was monitored on 3"x5" daily feedback cards. Residents and faculty circled yes or no at the end of each session for the following questions: Did you arrive on time for your session today? Did you feel active precepting occurred today? Did you huddle before the session? Was there a wrap-up at the end of the session? Did these activities improve session flow?

#### Time Studies

In August 2001, prior to implementing the P<sup>O</sup>W<sup>E</sup>R model, a clinic flow study was undertaken. Fifty patients who arrived at the RFPC were given clocks to measure intervals of time during their office visit and were asked to record the time and return the form to the clinic front desk at the end of their visit. The process was repeated in March and August 2002 after the P<sup>O</sup>W<sup>E</sup>R model was in place.

**Follow-up Studies.** The original surveys of faculty physician, resident, and staff perceptions of precepting in the RFPC were revised and readministered in March 2002. Follow-up clinic flow studies were performed in March and August 2002.

Table 3

## Actions Needed to Facilitate Active Precepting

1. Obtain faculty and resident commitment to arrive at or before the start of each clinic session.
2. Develop and use a notification system to identify preceptor presence in or absence from the staffing area.
3. Institute small informal group meetings (huddles) with faculty, residents, and staff prior to each clinic session to help the resident plan patient care and educational needs.
4. Review with faculty five teaching microskills<sup>11</sup> to enhance clinical teaching.
5. Conduct faculty and resident conferences after each session to debrief and give feedback (wrap-up).

## Results

### Card Completion

During the 3-month study period, faculty preceptors submitted 86 of 127 (75%) cards received at the end of each clinic session. Residents completed 286 of 421 (68%).

### Self-reports From Daily Feedback

Faculty reported arriving on time 84% of the time and residents 96% of the time. Both faculty and residents thought that active precepting had occurred in 94% of the sessions. Faculty reported huddling prior to 88% of the sessions and residents before 72% of the sessions. Both faculty and residents reported wrap-ups at the end of 85% of sessions. Perceptions that the activities improved session flow were reported by 97% of the faculty and 95% of the residents.

### Time Studies

Total average patient time spent in the clinic decreased 35%, from 110 minutes before the intervention to less than 70 minutes immediately after. Additional post-study period data are included in Figure 1. Faculty numbers and resident mix by year of residency were found to be similar in the baseline and follow-up flow studies.

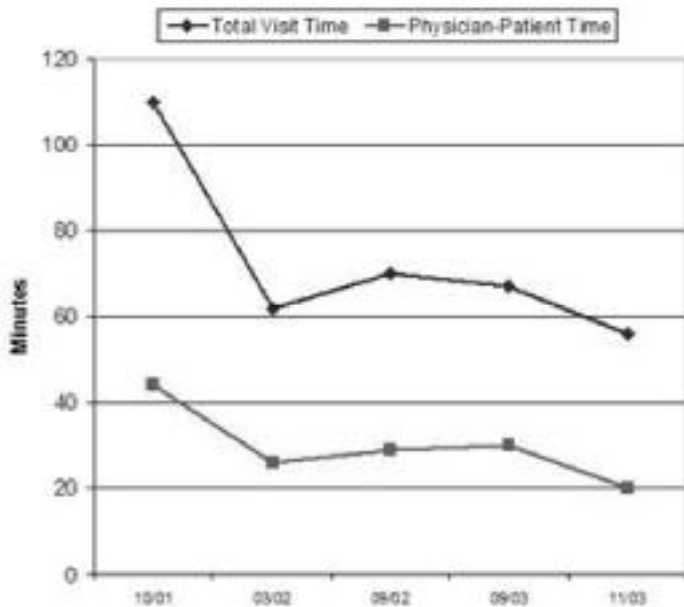
### Post-intervention Surveys

Surveys returned by 6 faculty, 15 residents, and 15 staff showed predominantly positive results in the ratings of attitudes and behaviors toward precepting compared to pre-intervention ratings. Statistically significant positive changes ( $P < .05$ ,  $t$  test) were found in staff members' perceptions of resident and faculty help with patient flow and preceptors' reports of reviewing schedules prior to the clinic session (Table 4). Survey ratings from 15 residents showed mostly positive, but not statistically significant, changes.

Overall clinical teaching skill ratings of the five full-time faculty were very good to outstanding both be-

Figure 1

Flow Study of Total Visit Time and Patient Time With Physician\*



\* Data points after September 2002 were obtained subsequent to completion of the present study.

fore and after the intervention. On a 5-point scale (1=outstanding, 2=very good, 3=acceptable, 4=marginal, 5=unsatisfactory), the average rating for the faculty was 1.72 before and 1.82 after the intervention. This difference was not significant. ( $P=.607$ )

**Discussion**

This study was a pilot test of a model and was not designed to measure educational outcomes of active precepting directly. However, our findings suggest that the POWER model helps define active precepting and improve stakeholder satisfaction with precepting in a family medicine residency clinic. It was easy to implement, and we observed positive outcomes in a short 3-month period.

While our aim was to improve the precepting process, we were encouraged to find that implementing a new model did not slow patient flow in the clinic, as might be expected when initiating new processes. Rather, it appeared to be associated with increased efficiency as demonstrated by shorter wait times. The time-motion studies in 2001 by Xakellis and Bennett<sup>13</sup> found that the average

Table 4

Mean Pre- and Post-intervention Attitude and Behavior Survey Results<sup>†</sup>

Question on Survey**	Pre-Intervention Score	Post-Intervention Score	P Value
<b>Full-time faculty (n=6/6)</b>			
Staffing is a rewarding experience .....	5.00	5.00	1.000
I arrive prior to patient scheduled visits .....	4.43	5.17	.493
I review schedules prior to clinic .....	2.71	4.83	.022*
I encourage resident to discuss patient needs with nursing staff.....	3.33	4.83	.083
I seek feedback after session .....	3.67	4.33	.511
<b>Residents (n=15/16)</b>			
I arrive prior to scheduled visits .....	5.20	5.54	.228
I review my schedule with my preceptor .....	3.40	4.08	.220
I discuss my patient's needs with staff prior to clinic .....	4.07	3.85	.674
I believe staff helps me be a more efficient and effective clinician .....	4.93	4.38	.276
I seek feedback from my preceptor .....	3.29	3.31	.962
<b>Staff (n=15/15)</b>			
Residents and faculty work well with our staff .....	3.86	4.20	.338
Residents and faculty arrive prior to scheduled visits.....	2.86	3.24	.360
Residents and faculty help me with patient flow issues.....	3.38	4.56	.014*
Residents review patients with nursing staff prior to visits.....	3.17	4.00	.043
Faculty check with staff for feedback about flow .....	2.21	3.00	.115

<sup>†</sup> Likert scale anchors: strongly disagree=1, disagree=2, slightly disagree=3, slightly agree=4, agree=5, strongly agree=6

\* Statistically significant,  $P<.05$

\*\* This table displays selected questions related to preparing, orchestrating, and reviewing.

Number of survey questions: faculty, 21; resident, 15; staff, 13. Complete data available from corresponding author.

length of time that patients were present in the residency clinic was 81 minutes, and the physician spent 27 minutes with the patient, including both face-to-face and precepting time.

These were similar to our pre-intervention flow times. In a follow-up study, Xakellis and Bennett<sup>14</sup> attempted to address the root cause of inefficiency in clinics through reorganizing physician schedules. Productivity increased, and patient satisfaction with wait times increased slightly. Future studies may show that the POWER model accomplishes similar goals.

Our findings of improved flow cannot be attributed entirely to active precepting. However, they suggest that the POWER model makes the most of faculty knowledge and experience in orchestrating the entire staffing session by improving the functioning of the health care team by anticipating patient, resident, and staff needs for help in managing people, information, materials, and time.

The survey of faculty, residents, staff, and patients showed generally positive perceptions of care in the family medicine center. Interestingly, perceptions of precepting were generally positive before the intervention as well as after. In the post-intervention debriefing, residents attributed the lack of significant change in their satisfaction with precepting to (1) generally high satisfaction with pre-intervention precepting and (2) some dissatisfaction stemming from simultaneous efforts to increase patient volumes to meet the ACGME requirements, canceling out increases in satisfaction with precepting.

The POWER model was designed to provide residents with more-timely feedback to assist their learning. While we cannot determine whether the residents received more feedback, there were more opportunities to give feedback, as shown by the high concordance with the commitment to arrive on time and the frequency of huddling and wrap-ups. We infer that feedback was more effective, since staff reported that faculty seemed more accessible and, along with residents, were more helpful. This proactive approach may seem at odds with beliefs that adult learning requires a hands-off approach, letting learners choose the “teachable moment.” However, the interactions in active precepting with POWER do not limit residents’ ability to direct their own learning but help them to better define, focus, and reinforce their learning needs.

The POWER model appears to assure quality care while promoting resident and staff learning and teamwork. In a post-intervention debriefing session with the leadership group, residents reported that huddling with faculty and staff before the sessions helped them define work tasks and recruit help with patients. Faculty members thought the model helped them understand their role as preceptors, prompted them to arrive on time, and encouraged precepting that is more active.

Staff members observed that preceptors were much more approachable and that residents used their assistance more efficiently.

### Limitations

The flow study reported in this paper was undertaken concurrently with other quality improvement efforts. These included implementation of a modified open-access scheduling system, identifying patient flow process changes, implementing clinical projects in diabetes and immunizations, and promoting team care. These all may have contributed to better patient flow and better team member satisfaction. Thus, we cannot attribute improvements solely to the POWER model.

Further, this study was a pilot test of a teaching quality improvement process, not a quantitative research study. As appropriate for such interventions, its scope was limited. It took place in one clinic over a short time; the numbers of preceptors, residents, and staff were small; and data collection was geared to guide the next steps in development. The model developed during the intervention. Accordingly, scales and survey were not completely congruent. The ability to interpret and generalize significant findings is extremely limited as is the ability to predict whether changes will be sustained over time.

### Conclusions

This quality improvement project expanded the role of the preceptor in the family medicine residency center. The POWER model invigorated teaching and challenged preceptors to take a more-active role in the clinic, both in teaching residents and in coordinating workflow for the entire team. Recent time data suggest that active precepting continues to improve patient time efficiency in this clinic. Further study is merited to determine as well its effect on educational outcomes and whether the model is effective when implemented on its own, without other simultaneous quality improvement projects. A POWER Precepting Toolkit is available from the Center for Ambulatory Teaching Education.<sup>17</sup>

*Acknowledgment:* We thank David B. Schubot, PhD, for his help in survey development and statistical analysis and Chris McLaughlin for editing assistance.

*Corresponding Author:* Address correspondence to Dr Lillich, Medical College of Wisconsin, Department of Family and Community Medicine, 8701 Watertown Plank Road, Milwaukee, WI 53226. 414-456-8189. Fax: 414-456-6523. dlillich@mcw.edu.

### REFERENCES

1. Accreditation Council for Graduate Medical Education. Program requirements for residency education in family practice. In: American Medical Association. Graduate medical education directory 2002–2003. Chicago: American Medical Association, 2003:70-9.
2. Zweig S. Activities of the attending physician in the ambulatory setting: what part is teaching? *Fam Med* 1989;21(4):263-7.

3. Wilkerson L, Armstrong E, Lesky L. Faculty development for ambulatory teaching. *J Gen Intern Med* 1990;5(1 suppl):S44-S53.
4. Whitman N, Schwenk TL. *Preceptors as teachers: a guide to clinical teaching*, second edition. Salt Lake City: University of Utah, Department of Family and Preventive Medicine, 1995.
5. Heidenreich C, Lye P, Simpson D, Lourich M. The search for effective and efficient ambulatory teaching methods through the literature. *Pediatrics* 2000;105(1):231-7.
6. Irby D, Aagaard E, Teherani A. Teaching points identified by preceptors observing one-minute preceptor and traditional preceptor encounters. *Acad Med* 2004;79(1):50-5.
7. Aagaard E, Teherani A, Irby D. Effectiveness of the one-minute preceptor model for diagnosing the patient and the learner: proof of concept. *Acad Med* 2004;79:42-9.
8. Medical College of Wisconsin. *Medical College of Wisconsin medical documentation and compliance manual*, academic year 2003. Milwaukee: Medical College of Wisconsin, 2003.
9. Pauwels J, Oliveira A, Stevens N. Benchmarking the costs of residency training in family practice. *Fam Med* 2003;35(5):330-6.
10. Berwick D. Idealized design of clinical office practices, The Institute of Healthcare Improvement. <http://ihi.org/idealized/idcop/background.asp>. Accessed June 22, 2004.
11. Neber J, Gordon KC, Meyer B, Stevens N. A five-step "microskills" model of clinical teaching. *J Am Board Fam Pract* 1992;5:419-24.
12. Coleman MT, Endsley S. Quality improvement: first steps. *Fam Pract Manage* 1999;March:23-6.
13. Xakellis GD Jr, Bennett A. Improving clinic efficiency of a family medicine teaching clinic. *Fam Med* 2001;33(7):533-8.
14. Xakellis GD Jr, Bennett A. Improving efficiency in a residency training clinic: results from addressing a root cause of inefficiency. *Fam Med* 2003;35(7):514-8.
15. Ramos K, Linscheid R, Schafer S. Real-time information-seeking behavior of residency physicians. *Fam Med* 2003;35(4):257-60.
16. Shaughnessy AF, Slawson DC, Bennett JH. *Becoming an information master: a guidebook to the medical information jungle*. *J Fam Pract* 1994;39:489-99.
17. Goodell M, Lillich D, Mace K, Kinnee C. *POWER Precepting Toolkit*. Milwaukee: Center for Ambulatory Teaching Excellence, Medical College of Wisconsin, 2004.