

Resident and Preceptor Perceptions of Preceptor Integration Into Resident Clinic Scheduling Templates

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ABSTRACT

Background Some internal medicine residency programs on X+Y schedules have modified clinic preceptor schedules to mimic those of the resident cohort (resident matched). This is in contrast to a traditional model, in which preceptors supervise on the same half-day each week.

Objective We assessed preceptor and resident perceptions of the 2 precepting models.

Methods We surveyed 44 preceptors and 97 residents at 3 clinic sites in 2 academic medical centers. Two clinics used the resident-matched model, and 1 used a traditional model. Surveys were completed at 6 months and 1 year. We assessed resident and preceptor perceptions in 5 domains: relationships between residents and preceptors; preceptor familiarity with complex patients; preceptor ability to assess milestone achievements; ability to follow up on results; and quality of care.

Results There was no difference in perceptions of interpersonal relationships or satisfaction with patient care. Preceptors in the resident-matched schedule reported they were more familiar with complex patients at both 6 months and 1 year, and felt more comfortable evaluating residents' milestone achievements at 6 months, but not at 1 year. At 1 year, residents in the resident-matched model perceived preceptors were more familiar with complex patients than residents in the traditional model. The ability to discuss patient results between clinic weeks was low in both models.

Conclusions The resident-matched model increased resident and preceptor perceptions of familiarity with complex patients and early preceptor perceptions of comfort in assessment of milestone achievements.

Introduction

The ambulatory clinic has long been a key venue for clinical continuity for internal medicine residents, and allows for relationships between patients, preceptors, and interprofessional teams. Continuity between residents and preceptors is important to learner development and patient care.¹⁻⁴ Competency-based education and workplace-based assessment have focused attention on preceptor-resident relationships that enable direct observation, effective assessment, and graduated skill development.⁵⁻¹⁰ Ambulatory preceptors who follow a small group of learners longitudinally over the course of residency may offer a relationship that provides a level of observation and assessment necessary for optimal evaluation.

Newer models of scheduling that separate inpatient and ambulatory rotations (commonly referred to as *block* or X+Y, where X and Y indicate inpatient and ambulatory rotations, respectively) have grown in popularity as programs strive to reduce the conflict

between inpatient and outpatient duties.¹¹⁻¹⁵ However, block scheduling can pose a challenge to preceptor-resident continuity in the ambulatory setting. Traditional clinic precepting models have preceptors attend in clinic on a fixed half-day per week. In a traditional resident schedule, where residents spend on average 1 half-day (ie, Thursday afternoon) in clinic most weeks regardless of rotation, they experienced continuity with the same attending on the same half-day over time. In an X+Y model, residents are in clinic for 1 or more weeks at a time. If traditional precepting continues in the X+Y model, residents work with many different preceptors during their clinic weeks, and preceptors are likewise exposed to and responsible for evaluating many different residents. In an attempt to improve resident and preceptor continuity, some programs have adopted a new model of precepting. In this model, 1 preceptor precepts a cohort of residents on the majority of their days in clinic (resident-matched schedule), and preceptors on a traditional schedule fill gaps a few days per week. The resident-matched preceptor rotates onto a precepting week in an X+Y

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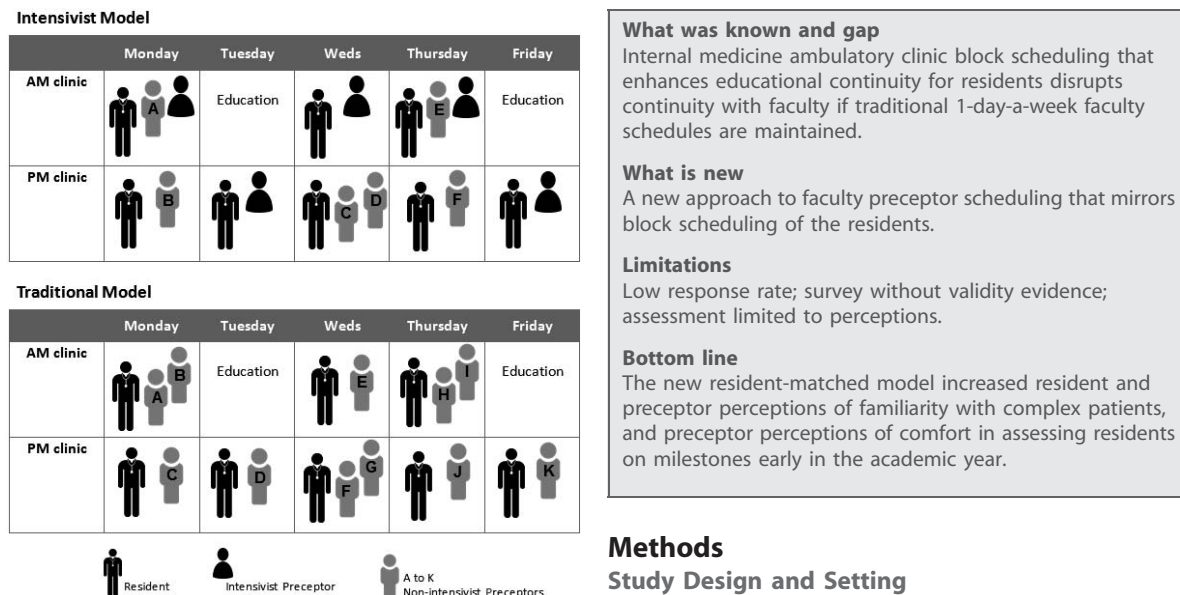


FIGURE
Comparison of Resident-Matched and Traditional Models

fashion, which is integrated into the schedule of his or her resident cohort.

The goal of our study was to assess preceptor and resident perceptions of the resident-matched and traditional models for precepting in the continuity clinic. We explored 5 domains: (1) the opportunity to form interpersonal relationships between residents and preceptors; (2) preceptor familiarity with residents' complex patients; (3) preceptor comfort with assessing milestone achievements; (4) the opportunity to discuss patients' results during and between clinic weeks; and (5) overall satisfaction with quality of care in resident clinic.

We hypothesized that residents and preceptors in the resident-matched model would be more likely to form interpersonal relationships than those in the traditional model. Interpersonal relationships are defined as knowing residents well enough to correctly identify their career goals and their learning needs for advancement. We also hypothesized that preceptors in the resident-matched model would be more familiar with residents' complex patients and would be more comfortable assessing residents on their milestone achievements. We hypothesized that residents may find it easier to reach out to resident-matched preceptors for discussions about patients' test results, and that preceptors in the resident-matched model would be more satisfied with the quality of care in the resident clinic (due to being more familiar with complex chronic patients). Finally, we hypothesized that some of these differences may lessen as the academic year progresses.

What was known and gap

Internal medicine ambulatory clinic block scheduling that enhances educational continuity for residents disrupts continuity with faculty if traditional 1-day-a-week faculty schedules are maintained.

What is new

A new approach to faculty preceptor scheduling that mirrors block scheduling of the residents.

Limitations

Low response rate; survey without validity evidence; assessment limited to perceptions.

Bottom line

The new resident-matched model increased resident and preceptor perceptions of familiarity with complex patients, and preceptor perceptions of comfort in assessing residents on milestones early in the academic year.

Methods

Study Design and Setting

Our study included 2 internal medicine resident continuity clinics at the University of Colorado (Lowry Clinic and Anschutz Clinic), and a single continuity clinic at the University of Vermont Medical Center (Burlington Adult Primary Care Clinic).

All the clinics operate within a 4+1 block-scheduling model. The Lowry and Burlington clinics have a resident-matched preceptor model, and the Anschutz clinic has a traditional model. A pictorial description of the 2 precepting models is shown in the FIGURE. The Burlington clinic started the resident-matched model in June 2012, and the Lowry Clinic started it in June 2014. The preceptors in the resident-matched model supervise an average of 5 (out of 8) clinic sessions per week and remain with the same resident cohort on successive rotations. In the traditional model, preceptors are scheduled to precept 1 to 2 clinic sessions per week. They are in the clinic on days when the resident-matched preceptors are not, and may co-precept with their resident-matched colleagues. In the traditional model, faculty precepts 1 to 2 clinic sessions per week throughout the year regardless of resident schedule. There were 10 clinic weeks per year in both models.

A total of 97 residents and 44 preceptors (10 resident matched, 34 traditional) worked in the 3 clinics (TABLE 1). The authors created the preceptor and resident surveys, and did not further test these instruments. The web-based surveys included definitions of resident-matched and traditional preceptors, basic demographic information, and Likert scale questions (1, strongly disagree, to 5, strongly agree) regarding perceptions of each of the 5 domains previously described. All sites were surveyed in December 2014 (survey 1 at 6 months) and again in May 2015 (survey 2 at approximately 1 year), using the same questions. The purpose of the second survey

TABLE 1
Characteristics of Each Resident Continuity Clinic

Ambulatory Clinic	University of Vermont	Lowry–University of Colorado	Anschutz–University of Colorado
Residents	42	26	29
Cohorts	5	5	5
Traditional	10	11	13
Resident matched	5	5	N/A

Abbreviation: N/A, not applicable.

was to evaluate whether the perceptions of preceptors and residents changed over time. Both residents and preceptors completed the voluntary, anonymous survey via e-mail.

The Institutional Review Board at each academic medical center declared the study to be exempt.

Statistical Analysis

To analyze differences between the resident-matched and traditional precepting models, we used the Wilcoxon rank sum test. Because the surveys were anonymous, it was not possible to link the survey 1 and survey 2 responses for individual respondents, and results for the 2 time points were analyzed separately. Results were analyzed using SAS version 9.4 (SAS Institute Inc, Cary, NC). We did not correct for multiple comparisons.

Results

Survey 1: 6 Months Into Academic Year

There were 26 of 44 preceptor survey responses (59%) and 75 of 97 resident responses (77%) to the first survey (6 months into the academic year) that depict the data from preceptors and residents from survey 1. Resident-matched preceptors reported feeling more familiar with the residents' complex patients (4.00 ± 0.76 versus 2.88 ± 1.23 , $P = .048$) and more comfortable accurately assessing residents' achievement of milestones (4.38 ± 0.52 versus 3.72 ± 0.67 , $P = .017$) than traditional preceptors (TABLE 2A). Both groups gave low ratings to the opportunity to discuss patient results between clinic weeks. There was no difference seen in perception of the quality of care.

TABLE 2B shows resident data at 6 months. Residents gave mean Likert ratings of 4 or above to the opportunity to develop interpersonal relationships with preceptors; knowing preceptor practice preferences and teaching styles; preceptor familiarity with complex patients; preceptors having adequate exposure to assess resident performance; and to their satisfaction with the ability to follow up with preceptors during the clinic week—with no significant differences between residents in resident-matched and

traditional model settings. Ratings of the ability to follow up with preceptors between clinic weeks was low for both groups, though significantly higher for residents in the resident-matched model (3.21 ± 1.00 versus 2.42 ± 0.92 , $P = .001$).

Survey 2: At the End of 1 Academic Year

There were 19 of 44 preceptor responses (43% response rate) and 57 of 97 resident responses (59% response rate) for the second survey at the end of 1 year. TABLE 3A provides preceptor results. Preceptors in the resident-matched model continued to feel more familiar with the residents' complex chronic patients (4.00 ± 0.00 versus 2.71 ± 0.91 , $P = .022$). There was no difference between the 2 groups in perceived ability to assess residents' milestones. Both groups gave low ratings to the opportunity to discuss patient results between clinic weeks.

TABLE 3B shows the resident survey results at the end of 1 year. Trainees in the resident-matched model perceived their preceptors were more familiar with their chronic complex patients than residents in the traditional model (4.32 ± 0.88 versus 3.63 ± 1.02 , $P = .013$). Residents gave ratings of 4 and above to the opportunity to develop interpersonal relationships with preceptors; to know preceptor practice preferences and teaching styles; to having adequate preceptor exposure to inform assessment; and to the ability to follow up with preceptors during clinic weeks, with no significant differences between the resident-matched and traditional groups. Ratings of the ability to follow up between clinic weeks were low and, unlike results at 6 months, showed no difference between groups.

Discussion

After the first 6 months of the academic year, preceptors in the resident-matched model perceived themselves to be more comfortable accurately assessing residents' milestone achievements and to be more familiar with the residents' chronic complex patients than preceptors in the traditional model. At 1 year, the only persistent difference was that preceptors and residents in the resident-matched model perceived

TABLE 2A

Survey 1: Faculty Perceptions—Resident-Matched Versus Traditional Comparisons

Variable	Resident Matched				Traditional				p Value
	N	Mean	Median	SD	N	Mean	Median	SD	
Important to know residents at an interpersonal level	8	4.25	4.0	0.71	18	3.94	4.0	1.06	.64
I know most residents at an interpersonal level	8	3.88	4.0	0.83	18	3.44	3.5	1.10	.30
Familiar with the residents' complex/chronic patients	8	4.00	4.0	0.76	18	2.88	2.5	1.23	.048
Comfortable accurately assessing residents' achievements of milestones	8	4.38	4.0	0.52	18	3.72	4.0	0.67	.017
Adequate opportunity to discuss patient results during clinic weeks	8	4.00	4.0	0.76	18	3.78	4.0	1.00	.74
Adequate opportunity to discuss patient results between clinic weeks	8	1.62	1.0	0.92	18	2.11	2.0	1.23	.35
Satisfied with quality of care we provide in the resident continuity clinic	8	3.62	4.0	1.06	18	3.72	4.0	0.96	.90

Note: Nonparametric Wilcoxon rank sum test results (5, strongly agree, to 1, strongly disagree).

TABLE 2B

Survey 1: Resident Perceptions—Resident-Matched Versus Traditional Comparisons

Variable	Resident Matched				Traditional				p Value
	N	Mean	Median	SD	N	Mean	Median	SD	
Opportunity to develop an interpersonal relationship with preceptors	42	4.10	4.0	1.01	33	3.97	4.0	0.95	.46
Opportunity to know the practice preference of preceptors	42	4.48	5.0	0.63	33	4.24	4.0	0.79	.21
Know the teaching style of preceptors	42	4.69	5.0	0.52	33	4.42	5.0	0.71	.08
Preceptors are familiar with my complex chronic patients	42	3.98	4.0	0.84	33	3.70	4.0	0.88	.16
Preceptors have adequate exposure to assess my performance	42	4.45	5.0	0.67	33	4.00	4.0	1.06	.07
Satisfied with ability to follow up with preceptors during clinic weeks	42	4.38	4.5	0.73	33	4.36	5.0	1.03	.52
Satisfied with ability to follow up with preceptors between clinic weeks	42	3.21	3.0	1.00	33	2.42	2.0	0.94	.001

Note: Nonparametric Wilcoxon rank sum test results (5, strongly agree, to 1, strongly disagree).

preceptors to be more familiar with the residents' chronic complex patients.

Our finding that preceptors in the resident-matched model felt more comfortable accurately assessing residents' milestones at 6 months is important, because identifying learners who may need remediation is important to patient safety and eventual resident success. This difference did not persist at 1 year, which may reflect preceptors in the traditional model becoming more familiar with the residents as the year progresses.

A second finding is that preceptors in the resident-matched model perceived greater familiarity with the residents' chronic complex patients, a finding that was corroborated by the resident survey. Attending familiarity with patients could prove relevant for the quality and cost-effectiveness of care patients receive. Such informational continuity has been associated

with increased patient satisfaction.^{16–18} Residents' ability to discuss results may lead to improved diagnostic closure and enhance diagnostic reasoning,¹⁹ and lower than anticipated performance in this area should be further explored.

Our study has limitations. The reduced preceptor response rate in survey 2, the inability to pair responses between survey periods, and the small number of preceptors in the resident-matched model limit the power to detect potentially meaningful differences between the 2 models. Some of the significant findings may be spurious, as no correction was made for multiple associations. Our survey assessed perceptions, and questions may not have been interpreted by respondents as intended, as no validity evidence was collected.

Studies with larger sample sizes and those that occur over a longer duration should investigate the

TABLE 3A

Survey 2: Faculty Perceptions—Resident-Matched Versus Traditional Comparisons

Variable	Resident Matched				Traditional				P Value
	N	Mean	Median	SD	N	Mean	Median	SD	
Important to know residents at an interpersonal level	5	4.60	5.0	0.55	14	4.07	4.0	0.62	.13
I know most residents at an interpersonal level	5	4.00	4.0	0.00	14	3.29	3.0	0.73	.06
Familiar with the residents' complex/chronic patients	5	4.00	4.0	0.00	14	2.71	2.0	0.91	.022
Comfortable accurately assessing residents' achievements of milestones	5	4.00	4.0	0.00	14	3.57	4.0	0.85	.30
Adequate opportunity to discuss patient results during clinic weeks	5	4.00	4.0	0.00	14	3.71	4.0	0.91	.62
Adequate opportunity to discuss patient results between clinic weeks	5	2.40	2.0	1.14	14	1.93	2.0	0.92	.42
Satisfied with quality of care we provide in the resident continuity clinic	5	4.20	4.0	0.45	14	4.00	4.0	0.39	.39

Note: Nonparametric Wilcoxon rank sum test results (5, strongly agree, to 1, strongly disagree).

TABLE 3B

Survey 2: Resident Perceptions—Resident-Matched Versus Traditional Comparisons

Variable	Resident Matched				Traditional				P Value
	N	Mean	Median	SD	N	Mean	Median	SD	
Opportunity to develop an interpersonal relationship with preceptors	41	4.32	5.0	1.04	16	4.06	4.0	1.12	.32
Opportunity to know the practice preference of preceptors	41	4.49	5.0	0.55	16	4.25	4.0	0.58	.17
Know the teaching style of preceptors	41	4.66	5.0	0.53	16	4.44	4.0	0.51	.12
Preceptors are familiar with my complex chronic patients	41	4.32	4.0	0.88	16	3.63	4.0	1.02	.013
Preceptors have adequate exposure to assess my performance	41	4.34	5.0	0.91	16	4.13	4.0	0.89	.28
Satisfied with ability to follow up with preceptors during clinic weeks	41	4.15	4.0	0.88	16	4.31	4.0	0.70	.62
Satisfied with ability to follow up with preceptors in between clinic weeks	41	2.95	3.0	1.24	16	2.63	2.0	1.26	.38

Note: Nonparametric Wilcoxon rank sum test results (5, strongly agree, to 1, strongly disagree).

impact of the new precepting model on learner and patient outcomes including quality metrics and patient satisfaction.

Conclusion

A resident-matched preceptor model produced perceptions of greater familiarity of preceptors with complex patients over 1 year, in comparison with a traditional model. In the resident-matched model, preceptors felt better prepared to assess residents' milestones at 6 months, although not at 1 year.

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