Does Time Use in Outpatient Residency Training Reflect Community Practice?

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Background: The degree to which the ideals practiced during residency training persist amidst the pressures of community practice is unknown. Therefore, this paper compares time use during outpatient visits to family practice residents and experienced family physicians. Methods: Visits of 244 new adult outpatients to 33 second- and third-year residents in a university clinic in Northern California were compared to 277 new adult outpatient visits to 92 community family physicians in Northeast Ohio, using the Davis Observation Code (DOC). The DOC uses observation to classify visit time into 20 different behavioral categories, reflecting different physician styles of interaction with patients. Results: Controlling for patient mix, residents had longer visits, a less technical focus, and spent a greater percent of the visit on efforts to promote health behavior change, patient activation, preventive services, discussion of substance abuse, and counseling. Conclusions: Experienced family physicians provide more technical and less preventive and psychosocially oriented care than residents. This may reflect differences in patient mix, practice setting, physician experience, and the time and financial pressures of community practice. These findings may be used to modify residency training to better reflect actual community practice and to guide future studies of the effects of experience and different practice environments on physician style with patients.

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Every major change in medical education has been reflected in how trainees are taught to use visit time with patients. Family physicians learn to use visit time during residency, developing a practice style that later evolves with experience in community practice. Yet, time use during visits to family physicians in residency training has not been compared to that of community physicians. Understanding whether residents’ practice styles resemble those of community physicians can help educators determine how to provide training that matches the eventual needs of experienced physicians and begin to develop hypotheses about how practice in non-training settings affects physician style.

It is now possible to examine practice style in residency and in community practice due to the development of new measurement tools that assess the content of the outpatient visit. Direct observation has been used to explore questions as diverse as what interactions predict patient satisfaction, how emotional factors (e.g., depression) influence the physician-patient encounter, how the family is incorporated into visits, and how much time the presence of medical students adds to the patient visit.

Direct observation also has revealed that use of time in physician-patient interaction is related to patient outcomes. A style of care emphasizing counseling predicts improvement in health status over 1 year, while visits emphasizing behaviors centered on patient activation predict increases in patient satisfaction. Teaching clinical skills that produce these and other valued outcomes is an important challenge for residency training. Creating environments that support and reward such practice styles is a challenge for payers and consumers of medical care alike.

To understand the degree to which outpatient visits during residency reflect the practice of experienced community family physicians, we compared how time
was used in new outpatient visits to family practice residents with similar visits to experienced family physicians. We hypothesized that community physicians would provide shorter visits but that visit content would be similar to residents’ visits with the exception of time spent on health promotion. Residents were expected to use more visit time asking patients to change health behavior since this is an area of emphasis in family practice training that is not well supported by the community practice environment.

Methods

Study Cohort I: Family Practice Resident Visits

Observations for the residency cohort were drawn from a study exploring visit behavior and health outcomes in new patients randomly assigned to either our university’s family medicine or general internal medicine clinics by schedulers using a previously assigned sequence generated from a random numbers table. Data from new adult patients assigned to family practice residents are presented in this paper (n=244).

The practice is located in an urban setting. Thirty-three senior resident/physicians (in the second and third years of training at a university-based program in Northern California) were videotaped in their visits with study patients. These videotapes were then coded using the Davis Observation Code (DOC).

Study Cohort II: Community Family Physicians

The second sample was drawn from the Direct Observation of Primary Care (DOPC) Study, a cross-sectional study of the content of outpatient visits to 138 family physicians in 84 practices in Northeast Ohio. Of the 84 practices, 54 were group practices and 30 were solo practices; 60% were in a suburban location, 22% rural, and 18% urban. The mean age of physicians was 43 years; 37% were female. Participants had been in practice an average of 11 years and saw an average of 109 outpatients per week. DOPC physicians were demographically similar to national samples of family physicians with the exception of having more residency trained and female physicians, reflecting recent trends in resident and newly graduating physicians.

Research nurses observed participating physicians providing outpatient care on 2 separate days. Visits of consecutive patients consenting to participate were coded using DOC. Only data from the initial visits of new adult patients were used (n=277) to maximize comparability to the initial visits that comprised the residency sample; 92 of the 138 community physicians were observed in new patient visits.

Both the California and Ohio samples were in an early to intermediate stage of penetration by managed care at the time of observations.

Measures

In each cohort, we collected patient sociodemographic information, including gender, ethnicity, marital status, and age. As noted, visits were coded using the DOC by videotape for the resident sample and by live coding by research nurses in the community sample. All observers were trained by the same investigator.

Davis Observation Code. DOC is a reliable and valid system for direct observation of the medical visit. It has been used in a variety of practice, practitioner, and patient conditions, including differing patient age. It has detected differences in physician practice style in male and female physicians. In this study, observers record the occurrence or nonoccurrence of 20 clinically significant behaviors during successive 15-second observation intervals. For each DOC code, the number of intervals during which a behavior was observed is expressed as a percentage of total observation intervals.

Patient encounters were coded by 14 observers in the first sample and eight in the second. Approximately 20% of videotaped visits were coded by a second observer, with a stratified kappa coefficient of agreement of .92. Comparable levels of agreement were evaluated and sustained by using biweekly team meetings and videotape reviews by study nurses in the DOPC study. Because the DOC was designed to code behaviors occurring concurrently, (eg, both history taking and physical examination can be observed in the same observation interval), the proportion of time spent per cluster can add to more than 100%. "Clusters of DOC codes derived from a previous factor analysis of initial visits were used to summarize visit behavior into broader categories."

Data Analysis

Cohorts were first tested for all differences in patient demographics for which comparable data were available, including age, gender, race, and education. Identified differences in patient mix were controlled in subsequent analyses through analysis of covariance. Visit duration and time use on the 20 DOC categories and six clusters were then compared at the two treatment sites. The number of observed behavioral codes per observation interval was then contrasted using analysis of covariance to deal with identified potential confounders. Bias due to testing multiple comparisons was controlled by application of Holm’s simultaneous testing procedure and subsequent adjustment of P values to reduce the risk of error due to multiple testing.

Results

The patient cohorts differed significantly on three demographic factors: patient gender (67% female in the residency sample, 55% female in the community
sample. χ²=8.05, P=0.0045), racial makeup (36% minorities in the residency sample, 15% in the community sample, χ²= 31.6, P<0.0001), and education (55% versus 37% with less than a high school education for residency versus community, χ²=13.5, P=.0002). We made statistical adjustments for these differences in all subsequent analyses.

Visit duration was significantly longer for resident physicians than for community physicians (mean=33 minutes and 12.6 minutes, respectively, F=12.84, P<.0001). Community physicians engaged in significantly more behaviors per 15-second coding interval than residents (1.87 codes per interval versus 1.75, or 6% more behaviors for each 15-second interval, P<.0001).

Observed behaviors are presented in Table 1 as percentage of the visit spent on each of the six behavioral clusters and on the individual behaviors that make up the clusters. Resident and community physicians differed significantly in how they spend time with patients. Community physicians devoted a greater proportion of visit time to technical behaviors, while residents’ visits showed relatively more emphasis on the other five clusters: health behavior, addiction, patient activation, preventive services, and counseling. In total, nine individual DOC codes (of 20) differ significantly between resident and community family physicians.

Discussion

The direct observation method used in this study reveals considerable differences in time use between family practice residents and community family physicians. While residents had longer visits overall, community family physicians engaged in 6% more behaviors per time interval. While 6% may appear to be a small number overall, in combination with the observed shorter visit duration it reflects greater productivity across a practice day, suggesting greater efficiency with greater experience.

Both sets of physicians showed marked similarity in the percent of visit used for history taking (roughly 60% of intervals) and physical examination (slightly over 20% of intervals). These two behaviors comprised much of the visit for both sets of physicians and provide the cornerstones for primary care. However, residents were more likely than experienced physicians to spend time on prevention, health behavior change, patient activation, and psychosocial factors, whereas experienced physicians were more likely to spend time on the technical and treatment oriented aspects of care. This may reflect the current emphasis of residency training and the divergent pressures of the practice setting to focus on billable behaviors.

Counseling around emotional or interpersonal topics did not occur often in either sample, but residents engaged in it more (twice as much as practicing physicians). Even occurring at a low rate, counseling appears to be an important marker for a different style of care since its presence predicts improvement in health status. The shorter visit may make counseling less likely for community family physicians and may identify counseling as a likely casualty to increased time demands in primary care.

Although a difference in psychosocial care delivery was seen in the cluster called patient activation, this difference resulted from residents allowing patients to take more visit time to state their personal ideas about health problems (health knowledge). Both sets of physicians used comparable percentages of visit time on the other aspects of patient activation—chatting and hearing patient questions. While an earlier study showed that patient activation behaviors predicted improvements in patient satisfaction over a year of care, it is not clear whether either style of care studied here would be more effective in enhancing patient satisfaction.

Limitations

Our findings must be tempered by the study’s limitations. First, a reactive effect (observation altering behavior) was possible. However, physicians in both cohorts were told only that the purpose of observation was to study “the content of primary care practice,” were unaware of what behaviors were coded, and observation was relatively unobtrusive. For resident visits, video cameras were placed high on the wall of exam rooms. In the community study, experienced nurses conducted observations from an unobtrusive comer. Nurses were chosen as observers because they are a common presence in primary care visits, and patients and physicians generally reported that the presence of an observer did not change their behavior.

Since the community physician cohort overrepresented female and residency-trained physicians, any differences observed would likely be greater for samples with more male and non-residency trained physicians. Further, although we adjusted for all available patient mix differences, other unmeasured differences may exist. Although both practice environments were experiencing a similar degree of managed care penetration at the time of the study, the observed differences between residents and community physicians may reflect other differences in the health care environments in California and Ohio, in addition to differences due to physician experience and practicing outside of a training setting.

Future studies could overcome some of these limitations in attribution of the reason for differences between resident and community physician practice by following a cohort of family physicians through residency into practice. A “natural history” study of family practice through physicians’ training and career would be challenging to conduct but would be very useful in identifying appropriate training and practice support needs.
at different stages in the evolution of a family physician’s career.

Conclusions

Direct observation reveals important similarities and differences between initial visits for family physicians in training and more-experienced family physicians in community practice. Physical examination and history taking form the core of the visit for both groups. Residents’ visits, however, showed greater emphasis on counseling and preventive service delivery, skills that may need protection from time pressure as health care systems continue to evolve. After training, community practice pressures may sway physicians to a more technical practice style with shorter, more-complex visits with less opportunity for psycho-social aspects of care, including counseling and preventive services. Educators training family practice residents may wish to examine their outpatient training experiences in light of these findings.

In addition, these findings have important implications for policy in the design of systems and practice settings and reimbursement for care. There is a strong need to further identify and protect those components of the primary care encounter that enhance health outcomes but that appear to be less prevalent in community practice than in residency.

Finally, patients may be asked why they would seek medical care from those in training, rather than from more-experienced physicians in practice. The findings of this study show differences in the process of care that may be valued by certain types of patients.

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Table 1

Differences Between Residents and Community Physicians in the Percent of Time Spent in Clusters of Behaviors During Outpatient Visits

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Resident Physicians*</th>
<th>Community Physicians*</th>
<th>F</th>
<th>Significance</th>
</tr>
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<tr>
<td><strong>Style 1: Technical Cluster</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Structuring interactions</td>
<td>6.6</td>
<td>8.1</td>
<td>-2.75</td>
<td>.0002</td>
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<tr>
<td>History taking</td>
<td>59.9</td>
<td>61.2</td>
<td>-.97</td>
<td>NS</td>
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<tr>
<td>Family information</td>
<td>7.7</td>
<td>13.1</td>
<td>-7.33</td>
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<td>Physical examination</td>
<td>23.1</td>
<td>21.6</td>
<td>1.33</td>
<td>NS</td>
</tr>
<tr>
<td>Evaluation feedback</td>
<td>6.3</td>
<td>10.4</td>
<td>-7.24</td>
<td>&lt;.0001</td>
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<tr>
<td>Planning treatment</td>
<td>14.6</td>
<td>28.1</td>
<td>-13.4</td>
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<tr>
<td>Procedures</td>
<td>.4</td>
<td>1.2</td>
<td>-1.79</td>
<td>.07</td>
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<td><strong>Style 2: Health Behavior Cluster</strong></td>
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<tr>
<td>Compliance checking</td>
<td>.8</td>
<td>.5</td>
<td>1.78</td>
<td>NS</td>
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<td>Health education</td>
<td>21.8</td>
<td>17.3</td>
<td>4.14</td>
<td>.0001</td>
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<tr>
<td>Health promotion</td>
<td>.9</td>
<td>1.2</td>
<td>-1.39</td>
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<tr>
<td>Nutrition</td>
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<td>1.2</td>
<td>1.79</td>
<td>.07</td>
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<tr>
<td>Exercise</td>
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<td>1.7</td>
<td>1.21</td>
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<td><strong>Style 3: Addiction Cluster</strong></td>
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<td>Substance use</td>
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<td>Smoking</td>
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<td><strong>Style 4: Activation Cluster</strong></td>
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<td>Health knowledge</td>
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<td>Patient question</td>
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<td>Chatting</td>
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<td>7.9</td>
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<td><strong>Style 6: Counseling</strong></td>
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<td>2.2</td>
<td>1.0</td>
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* Percent of time intervals during the outpatient visit, controlling for gender, ethnicity, and education

NS— not significant

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