Effects of Establishing Focus in the Medical Interview

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Abstract

Purpose:

To implement and comprehensively evaluate the effects of a piloted intervention to improve physicians' communication skills (Establishing Focus – EF) on the behaviors and attitudes of community practice physicians and the health outcomes, functional status, and attitudes of patients.

Scope:

Improved patient health outcomes, trust, and satisfaction are associated with physicians' use of verbal behaviors that facilitate relationship development, collaborative agenda setting, patient autonomy, and decision making. Research linking outcomes to descriptions of the specific behaviors taught and their subsequent use in daily practice is limited.

Methods:

A randomized, controlled, post-test design was used to examine the qualitative and quantitative outcomes of EF training. Physicians at 12 community-based primary care clinics were randomly assigned to an intervention group (n = 26) or a control group (n = 22). Patients (n= 1460) were recruited from the panels of participating physicians (mean = 30.4 patients per physician). The intervention group received training composed of a workshop and individualized in-clinic feedback by trained coaches for 2 hours per week over 4 weeks. Physician and patient outcomes were assessed using data obtained through self-report, coding of audio-taped encounters, and electronic medical records.

Results:

Intervention group physicians used significantly more additional elicitations and requests for problem lists than controls. However, orientation, prioritization, and negotiation, which are core to EF and facilitate collaborative agenda setting, patient autonomy, and informed decision making, were negligible in the sample. The intervention changed physician behavior in ways that were unanticipated and that had no effect on physician or patient satisfaction or patient health outcomes and trust.

Key Words: Physician-patient communication, educational intervention, RCT

Purpose

The Establishing Focus protocol (EF) is a provider education intervention that was designed for use in primary care settings as a time-neutral means to a) elicit and prioritize a thorough list of patient concerns, b) improve patient and provider satisfaction, and c) improve patients' functional status and health-related quality of life. The goals of the protocol not only support patient-provider relationship building and shared decision making, but also acknowledge and address provider fears about time management and loss of control in the interview.

Self-determination theory[1] provides a conceptual rationale to explain how teaching providers EF skills, such as eliciting the patient's full list of concerns and negotiating an agenda, might lead to improved patient outcomes. Supporting patient autonomy begins with shared decision making. According to self-determination theory, patients demonstrate more motivation to adhere to recommended treatments if their providers take full account of their perspectives, afford them choice, offer information, encourage self-initiation, provide a rationale for recommended actions, and accept their decisions.[2] The demonstrated benefits of fostering autonomous patient motivation include greater adherence to medications among people with chronic illnesses, better long-term maintenance of weight-loss among morbidly obese patients, improved glucose control among people with diabetes, and greater attendance and involvement in an addiction-treatment program.[3-5]

In this study, we implemented and comprehensively evaluated the EF intervention to assess its effects on the behaviors and attitudes of community practice physicians and the health outcomes, functional status, and attitudes of patients.

Scope

Participants

We invited all physicians caring for adult patients in 12 community-based primary care clinics serving the Puget Sound area (n= 44+31 = 75) to participate in a study to improve care through better time management in office visits. A total of 59 (79%) physicians (33 + 26) consented to participate. For logistics reasons, we elected not to collect data from one clinic with six consented physicians (n=33 + 20 = 53). Thirty-three participating physicians were affiliated with a university-affiliated primary care network consisting of eight neighborhood clinics

(University Neighborhood Clinics - UNC). Of these, 31 completed all components of the study (two disenrolled). Twenty physicians were affiliated with a consumer-governed, nonprofit health care system that coordinates care and coverage (Neighborhood Clinics - NC). Of these, 17 completed all components of the study (three disenrolled).

Table 1. Characteristics of the Provider Sample

	Control		Intervention	
Variable	UNC (n = 14)	NC (n = 8)	UNC (n = 17)	NC (n = 9)
Sex				
Women	8 (57.1)	2 (25%)	8 (47.1%)	2 (22.2%)
Men	6 (42.9)	6 (75%)	9 (52.9%)	7 (77.8%)
Age, mean (range)	44.2 (37-59)	50.3 (36-59)	43.4 (37-55)	55.1 (44-62)
Ethnicity *				
White	13 (92.9%)	7 (100%)	11 (68.8%)	7 (87.5%)
African American	0	0	0	1 (12.5%)
Native American or Alaska Native	0	0	0	0
Asian	1 (7.1%)	0	3 (18.8%)	0
Native Hawaiian or Pacific Islander	0	0	0	0
Hispanic	0	0	1 (6.3%)	0
Other	0	0	0	0
Mixed	0	0	1 (6.3%)	0

*Totals may not match total count for cases in which providers declined to provide their ethnicity.

On average, 30 patients were recruited from the panels of each participating physician (n=1460). On the day prior to their clinic visits, all patients scheduled to see a study physician were screened to generate a list of eligible individuals whom we could approach in person. Eligibility criteria included being 18 years or older, acting as their own legal guardian, having seen the physician at least twice in the previous 2 years, having no serious cognitive impairment, and fluency in English.

Clinic staff had a copy of the list of eligible patients and advised study coordinators when these patients checked in for their appointments. Study coordinators approached these patients to explain the study and obtain consent. hen more than one eligible patient was scheduled at the same time, the study coordinators approached the first patient who arrived in the clinic; 71% of patients approached agreed to participate.

Those patients who agreed to the study completed an informed consent document and were then followed to the exam room, where study coordinators placed an audio recorder and

then left the room and waited nearby until the end of the visit. At that time, they asked the physicians to complete a seven-item, post-encounter questionnaire and then accompanied the patients to the waiting room, where patients completed their own post-encounter questionnaire.

Table 2. Characteristics of the Patient sample

	Control		Intervention	
Variable	UNC (n =360-315)	NC (n = 214-185)	UNC (n = 452-396)	NC (n = 256-218)
Sex				
Women	223 (61.9%)	119 (55.6%)	240 (53.1%)	146 (57.0%)
Men	137 (38.1%)	95 (44.4%)	212 (46.9%)	110 (43.0%)
Age, mean (range)	48.8 (19-90)	62.28 (19-91)	48.7 (18-92)	58.5 (18-90)
Ethnicity				
White	273 (81.0%)	189 (92.2%)	329 (78.5%)	221 (87.7%)
African American	14 (4.2%)	1 (0.5%)	21 (5.0%)	5 (2.1%)
Native American or Alaska Native	1 (0.3%)	0	3 (0.7%)	1 (0.4%)
Asian	19 (5.6%)	6 (2.9%)	22 (5.3%)	7 (2.9%)
Native Hawaiian or Pacific Islander	2 (0.6%)	1 (0.5%)	3 (0.7%)	2 (0.8%)
Hispanic	7 (2.1%)	4 (2.0%)	17 (4.1%)	4 (1.7%)
Other	3 (0.9%)	0	4 (1.0%)	2 (0.8%)
Mixed	18 (5.3%)	4 (2.0%)	20 (4.8%)	10 (4.1%)
Income				
Less than $20000	54 (17.1%)	31 (16.8%)	93 (23.5%)	20 (9.2%)
$20000-$39999	59 (18.7%)	45 (24.3%)	71 (17.9%)	62 (28.4%)
$40000-$59999	39 (12.4%)	38 (20.5%)	76 (19.2%)	52 (23.9%)
$60000-$79999	53 (16.8%)	30 (16.2%)	65 (16.4%)	35 (16.1%)
More than $80000	110 (34.9%)	41 (22.2%)	91 (23.0%)	49 (22.5%)

Physicians received CME credits and a $150 payment for participating in the first component of training. Patients were paid $20 for completing a patient questionnaire at the end of their clinic visit. The institutional review boards at UNC and NC approved the study protocols, and physicians and patients gave written informed consent.

Methods

Study Design[1]

We used a randomized, controlled post-test design to examine the qualitative and quantitative outcomes of EF training. The study was conducted in three phases: 1) training intervention group physicians in the EF protocol; 2) collecting outcome data including audio recordings, self-report questionnaires, and panel-level data extracted from the electronic medical record (EMR); and 3) offering EF training to control group physicians.

Physicians were the unit of randomization for receipt of training[2] and also the primary unit of analysis. Physicians at each clinic site were randomly assigned to the intervention group (n=17+9 = 26) or the control group (n=14 +8 = 22). To help control for the effect of differences between clinics and the potential effects of physician gender, randomization of physicians was stratified by clinic and gender so that approximately half the physicians within each clinic received the EF training; to the extent possible, the split allowed equal representation of male and female physicians. The intervention group received training at the study's outset, whereas control group physicians were offered the opportunity to receive training at the completion of the study.

Intervention

We designed a sequenced intervention consisting of learn–work–learn components, combined with direct observation and feedback based on successes reported in randomized trials to improve communication skills.[6-8] The educational intervention consisted of two phases.

[1] We set a target recruitment goal of 54 physicians. Because we were only able to recruit 33 physicians from University Neighborhood Clinics (UNC), we negotiated an agreement with Neighborhood Clinics of Puget Sound (NC) to add them as a second site to augment physician recruitment. We successfully recruited 26 physicians from four clinics located in areas similar to the UNC clinics, reflecting similar patient populations and demographics. Complete pre and post data were collected for the UNC clinics. For logistic and budgetary reasons, we decided to only collect post data from NC and address our study's hypotheses using a post-only design, combining data from both the UNC and NC systems. UNC pre- and post-intervention data have been retained and will be analyzed in additional studies.

Data Collection Pd.	Approx. # patients/MD	UNC Physicians (n=33)	NC Physicians (n=17)	Total Patients
Pre intervention	10	316	N/A	316
Post intervention	30	966	494	1460
Total patients		**1282**	**494**	**1776**

[2] Patients are not randomly assigned to condition; they receive the intervention as a function of their provider's randomization assignment.

In the first phase, physicians participated in a 2-hour group training session led by Mr. Mauksch, a co-investigator. The training included an overview of the EF protocol, a videotape demonstration of a physician-patient visit using the EF protocol, multiple role plays, and an interactive group discussion. At the end of the training session, physicians received an EF handbook and an EF cue card detailing EF behaviors. In the second phase, trained behavioral scientists shadowed the physicians for 2 hours per week over 4 weeks and coached them in the use of EF skills. The coaches received specific training in the use of a checklist for sequentially tracking physician and patient communication behaviors as a means of guiding and standardizing their feedback.

The skills and cognitive cues that comprise the EF protocol and were explicitly taught during didactic training, and coaching sessions are described in Figure 1.

Figure 1. The EF Protocol

EF Component	*Example*
1. **Orient the patient to the EF process**. Frame the medical encounter with statements that signal the patient to list the concerns first before going into a discussion of each concern.	*Before we talk about any problems, let's make a list of all your concerns so we can make the best use of our time***.**
Cue: Remind yourself that you need not address all problems in one visit	
2. **Ask the patient to list problems** When patients indicate that all their concerns have been elicited, the interview process can proceed.	*What is on your list of concerns?.... Anything else?*
3. **Make space for upfront stories**, when necessary. If patients are in crisis, therapeutic listening should take precedence over establishing the focus for the encounter.	
4. **Avoid premature diving into diagnostic sequences** and respectfully postpone patients' "prematurely diving" into telling stories until the processes of agenda setting and problem prioritization are completed.	*Patient: "Excuse me for interrupting, I know your headaches are important, but I wonder if there are any other concerns you hoped to address today?"* *Physician "Excuse me, I am getting ahead of myself. Before we talk about the details of your headaches I would like make a list of all your concerns. Are there any other problems you hope to discuss?"*
5. **Summary Statement** Restate the patient's health concerns.	*So snoring, wife's complaining, colon cancer discussion*
Cue: Ask yourself whether you feel able to address all the patient's concerns	
6. **Explicitly ask patient for priorities**	*I am not sure that we can do a good job on all of these problems in one day. Which problems are most important to address today?*
7. **Negotiate priorities** when necessary	*I know that you are most concerned about _____, I want to be honest and let you know my biggest concern*
8. **Seek confirmation and *commitment***	*So, we have agreed to begin with_____ and then talk about _____ and _____ if we can get to them.*
9. **Schedule follow-up** for concerns that cannot be addressed during the visit	*Since erectile dysfunction really is best evaluated in the context of your whole physical examination, why don't we schedule back for a physical examination.*

Measurements

We measured physician and patient outcomes through self-report[3] review of audio-taped encounters, and electronic medical records.

Self Report Measures (See Figure 2 for summary)

Patient Questionnaires: We used self-report instruments to assess patients' perceptions of 1) their physical and mental health status 2) their physicians' shared decision-making behaviors, 3) trust in their physician, and 4) their satisfaction with the physician. Below is a list of the instruments used and a brief description.

1. The SF-8 (24-hour recall version) assesses current functional status. It contains eight Likert-type items each assessing a single health domain that can be combined to form measures of the physical and mental health domains.
2. The Primary Care Evaluation of Mental Disorders (PRIME-MD) Patient Health Questionnaire (PHQ),[9] a self-reported patient assessment of psychiatric symptoms and disorders, was used to assess differences between groups in amounts of depression, anxiety and somatization syndrome. The scale response options reflect the frequency of experience expressed on dichotomous or 4-point scales.
3. The PHQ-15 comprises 15 somatic symptoms from the PHQ. Each symptom is scored from 0 ("not bothered at all") to 2 ("bothered a lot").
4. The Medical Outcomes Study Participatory Decision-Making Scale[10] was used to assess differences in patients' perceptions of their physician's decision-making style. The scale consists of three Likert-type items.
5. The Health Care Climate Questionnaire (HCCQ)[11] contains 15 Likert-type items assessing how supportive of their autonomy patients believed their physicians were on the day of the visit.
6. The trust sub-scale of the Primary Care Assessment Survey (PCAS)[12] assesses differences in patients' confidence about their physician's integrity, competence, and willingness to act in their behalf. This sub-scale contains eight Likert-type items assessing patient trust and has been demonstrated to predict self-reported health improvement.[13] One patient satisfaction item from the PCAS was also used.
7. Participants were asked three dichotomous questions from an instrument developed in the EF pilot study regarding whether 1) physician and patient discussed which problem to address first, 2) the patient's full list of concerns was elicited, and 3) mutual agreement on which concern to address first was achieved. Likert type questions assessed patients' perceptions of physician thoroughness and satisfaction that their issues were addressed and discussed.[8]
8. Items from the Difficult Doctor Patient Relationship Questionnaire (DDPRQ)[14] and developed by Mauksch et al.[8] were used to assess patients' perceptions of difficulty and satisfaction experienced with physicians.

Physician Questionnaires: Immediately following their audio-taped patient encounters, physicians completed self-report questionnaires to assess their satisfaction with the visit and their perceptions of difficulty experienced with the patient.

1) A subset of items from The Difficult Doctor Patient Relationship Questionnaire (DDPRQ) was used to assess physicians' perceptions of difficulty experienced with patients. Six Likert-type items elicited physicians' perceived difficulties in the patient-physician relationship.
2) Two subscales were developed from these six items representing satisfaction with the patient visit and perceived difficulty with the patient.

[3] The questionnaires listed in this report are a subset of the questionnaires administered.They represent the set of questionnaires specifically included to collect information relevant to grant-related hypotheses.

3) Physicians rated how fatigued and how rushed they felt on two seven-point scales.

Additionally, each physician completed the same packet of questionnaires twice: initially, shortly before EF training, and subsequently at the start of the post intervention data collection period (approximately 6 months following EF training). The questionnaires were used to collect information about their attitudes toward practice and patientcenteredness and to assess the EF training protocol's influence on these attitudes. The packet of questionnaires included:

1) An instrument assessing physician attitudes towards psychosocial and patient-centered aspects of patient care developed by Levinson, et al.[15] The instrument contains 23 Likert-type items and exhibits good reliability and predictive validity within primary care settings.
2) The Physician Worklife Survey contains 36 items, providing a multifaceted approach to understanding the factors that underlie physician satisfaction.[16]

Figure 2. Outcome Measures for the EF Protocol by Study Aims

Measure/*Instrument*	**Aim 1**	**Aim 2**	**Aim 3**
Physicians			
EF behaviors (*Audio-taped visits*)	x		
Attitudes and behaviors related to practice (*Psychosocial Attitudes Scale, Physician Worklife Survey)*	x		x
Satisfaction with the visit (*Difficult Doctor Patient Relationship Questionnaire-DDPRQ*)	x		x
Patients			
Health status (*PRIME-MD, PHQ 15, SF-8, physiologic markers from the electronic medical record*)		x	
Satisfaction with and expectations of the visit (*EF-specific evaluation, modified questions from the DDPRQ*)			x
Provider practice style (*Primary Care Assessment Survey, Participatory Decision Making scale, Health Care Climate Questionnaire*)			x

Aim 1: To examine the effects of EF on the behaviors, skills, and attitudes of primary care physicians

Aim 2: To assess whether adoption of the EF protocol by physicians improves the health outcomes, functional status, and health-related quality of life of patients

Aim 3: To assess whether and how adoption of the EF protocol by physicians influences patient attitudes

Communication Behaviors (Audio recordings)

Six months after the intervention, we audio-taped the encounters of control and intervention physicians to study whether and how EF communication skills had been incorporated into practice and to explore whether the use of EF skills increased the use of additional patient-centered communication skills.[4] Because the intervention was aimed at improving direct communication between physician and patient and mediated communication often requires a different skill set, only those visits conducted in English between a single physician and an unaccompanied patient were included in the sample.

[4] Self-reports of speech are often biased by social desirability; audio taping provided a means of empirically studying individuals' actual communication behaviors.

Qualitative Outcomes: Teams of trained coders listened to audio files and coded for the presence of key linguistic data, as described:

1. EF Behaviors Four trained raters listened to selected audio files (n= 965) and coded for the presence of EF behaviors taught in training.
2. Physician- and patient-raised concerns and questions and patient-raised service requests Trained raters coded randomly selected audio files for counts of patient and physician questions (n=646) and interruptions (three raters) and coded the concerns (n=746) raised by patients and physicians (five raters) during the encounter. The time of occurrence for all concerns and requests for service was noted.
3. Time spent with physician To calculate actual face-to-face interaction time with physicians, every audible audio file longer than 3 minutes (n=1282) was reviewed. One investigator recorded the entry and exit times of the medical assistant and other ancillary physicians and the entry and exit times of the physician. Total time spent with the physician was calculated.
4. Patient-centered behaviors To examine whether EF physicians used more patient-centered behaviors than controls, trained raters (five raters) coded audio-taped encounters (n=385) for the presence of nine physician communication behaviors associated with patient involvement and informed decision making.[17, 18] We labeled this collection of behaviors "transparency," because they functioned to make the process and content components of medical interviews transparent (or clear) to patients. This single label groups a number of communication behaviors well described in the Calgary-Cambridge guides to Communication,[17] including providing structure to the consultation, making organization overt, sharing thinking, explaining rationale for questions, signposting, explaining jargon, explaining causation, providing information on action or treatment offered, naming steps involved in how it works, explaining benefits and advantages, and noting possible side effects. We distinguished between instances in which a physician was transparent (unprompted transparency) or was prompted to be transparent (prompted transparency). A physician whose style is transparent is one who offers information proactively rather than in response to a patient request for more information. The five types of process transparency convey the physician's expectations for how the clinical encounter and the patient's subsequent course of action will proceed. These include 1) agenda (what we're going to do today), 2) framing (what I'm going to say), 3) metacomment about physical action (what I'm going to do, am doing), 4) physical exam (what I'm going to do to you), 5) orchestration (what you need to do next). The four types of content transparency explicate the medical content of the encounter. These include the physicians' 1) explaining diagnostic reasoning and proposed treatment plans in lay terms, 2) providing rationales for treatment/management, 3) demystifying jargon, and 4) sharing personal views about how they would interpret or act on the biomedical information that has been shared.

Health Outcomes (Electronic Medical Record - EMR)

From the EMR, we collected key physiological marker variables for all patients (e.g., blood pressure and HbA1c) within each physician's panel. Data were collected on each patient participant for a period of 12 months prior to their audio-taped visit to 12 months following the completion of this visit. To better understand the impact of training on the physicians, aggregate analysis was conducted on all patients within each physician's panel across this same 24-month period. Due to differences between EMRs and the way physicians routinely used these in the two clinic systems from which we recruited participants, we were only able to look at average HbA1c levels and the number of HbA1c tests ordered.

Analytic Strategy

The influence of the Establishing Focus protocol and the influence of the physician's system (UNC or NC) were assessed using analysis of variance (ANOVA) and analysis of covariance (ANCOVA) models and multi-level models. All analyses were conducted in SPSS 13.0. Depending upon the nature of the data being assessed, two general analytic strategies were employed. For variables describing the physician—physician-level variables—and hypothesized as relatively independent of the nature of specific encounters, aggregates were developed across patients for each physician and assessed with ANOVA and ANCOVA models. These aggregates were used as the dependent variables. For dependent variables hypothesized to reflect an interaction between physician and patient, in which a significant intra-class correlation might occur, multilevel analysis was used to generate unbiased estimators.

Results

Aim 1: What are the effects of the EF protocol on the behaviors and attitudes of primary care physicians?

We hypothesized that, compared with controls, EF physicians would 1) elicit more patient concerns, questions, and service requests; 2) use the same amount of scheduled appointment time; 3) demonstrate more patient-centered behaviors and attitudes; 4) report their encounters as less difficult and more satisfying; 5) perceive their patients to be more satisfied; and 6) demonstrate more time management behaviors, including those related to collaborative agenda setting and planning for follow up.

We found that the communication of trained physicians did differ significantly from that of control group physicians. Trained physicians used more additional elicitations and requested more lists of patient concerns at the outset of their interviews than controls. However, core patient engagement and time management behaviors taught in the protocol, including orientation, negotiation, and prioritization, were negligible in the control and intervention groups. The most common difference demonstrated across groups was the use of additional elicitations, but even this behavior was infrequently demonstrated by both control and intervention physicians. Given the low frequency of protocol behaviors and the near absence of time-management behaviors, we decided to establish a "lower bar" as evidence for having implemented EF training than was originally planned.

Minimum implementation of EF behaviors was demonstrated when one of the following conditions was met: 1) If the physician both requested a list of concerns from the patient OR initiated an additional elicitation AND the patient indicated that they had completed listing their concerns. 2) If the physician both asked for a list of concerns from the patient OR initiated an additional elicitation AND demonstrated negotiation or prioritization or scheduled a follow-up with the patient. 3) If the physician made multiple additional elicitations OR asked for a list of concerns multiple times. These behaviors were not counted if they occurred late in the interview (e.g., after patient indicates list is complete). Aggregate scores were developed for each physician, representing the ratio of encounters for which one of the above conditions was met.

The interpretation of all study results should take into account that physicians did not integrate EF into their communication as a piece and that we adjusted down our expectations for having demonstrated a behavioral change.

As seen in Table 3, there was a significant effect for condition ($p = .008$, partial $eta^2 = .131$[5]), showing that physicians trained in the EF protocol were more likely to demonstrate the behaviors represented by the 'lower bar' than controls were. However, these behaviors were infrequent, especially for the time-management behaviors of orientation, negotiation, and prioritization. Orientation, prioritization, and negotiation behaviors were seen in fewer than 5% of control and intervention encounters, indicating that demonstration of the lower bar was attained typically by the presence of an additional elicitation matched with a statement from the patient that their agenda was completely stated.

Tables 4 and 5 demonstrate that, although trained physicians are more likely to use additional elicitations, they were not likely to ask more questions, nor did their patients ask more questions or make significantly more requests for service.

[5] Following the guidelines of Cohen (1988), a partial eta-square of .01 is a small, .06 is a medium, and greater than 0.14 represents a large effect size. Cohen, J. (1988). Statistical power analysis for the behavioural sciences. Hillsdale, NJ: Lawrence Erlbaum.

Table 3. Presence of EF Behaviors in the Speech of Intervention and Control Group Physicians

	Control		Intervention		p**
	UNC (n=14)	NC (n=8)	UNC (n=17)	NC (n=9)	
EF Present*	.152 (.049-.255)	.080 (.-.031-.190)	.213 (.128-.297)	.345 (.192-.499)	p=.008[a](partial eta squared = .131) ns, ns

*Values are created as aggregate physician scores. Means provided with 95% confidence intervals.
** P values not reaching p < .05 are reported as nonsignificant (ns). P values reflect condition[a], system,[b] and condition by system interaction.[c]

Table 4. Physician and Patient Questions and Patient Raised Concerns*

	Control		Intervention		p**
	UNC (n=174-181)	NC (n=105-125)	UNC (n=227-229)	NC (n=138-161)	
Patient Questions (Square root/minute)	.80 (.74-.85)	.70 (.64-.77)	.82 (.77-.86)	.73 (.67-.80)	ns, p = .024, ns
Physician Questions (Square root/minute)	1.39 (1.31-1.47)	1.17 (1.04-1.29)	1.36 (1.28-1.45)	1.35 (1.12-1.58)	ns, p = .008, ns
Patient Raised Concerns	2.88 (2.33-3.42)	3.01 (2.62-3.40)	2.77 (2.44-3.09)	2.50 (2.18-2.83)	ns, ns, ns

*Means provided with 95% confidence intervals. Means and standard errors estimated using SPPS MIXED Procedure.

Table 5. Patient requests for service*

	Control		Intervention		p
	UNC (n=14)	NC (n=8)	UNC (n=17)	NC (n=9)	
Patient Requests for Service*	.41 (.32-.50)	.30 (.21-.39)	.50 (.40-.60)	.35 (.29-.42)	ns, p = .020, ns

*Dichotomized as zero patient requests for service or 1 or more patient requests for service. The MIXED procedure was not used to calculate these means. Aggregate scores were developed for each physician, representing ratio of visits for which there was a request for service.

Patient-Centered Communication Behaviors

We hypothesized that EF trained physicians would demonstrate more patient-centered behaviors. However, as demonstrated in Table 6, physicians in the control group demonstrated more patient-centered communication behaviors than did intervention group physicians. These included the use of transparency behaviors that promote patient involvement, shared decision making, and autonomy promotion by conveying information about the process and content of the clinical interview (i.e., how the physician is structuring the clinic visit (process), why a line of questioning is relevant (content), and what medical terms mean in lay language (content)).

Table 6. Patient-Centered Communication: Transparency Behaviors

	Control		Intervention		p
	UNC (n=14)	NC (n=8)	UNC (n=17)	NC (n=9)	
Transparency (Prompted – Ratio)	.031 (.024-.038)	.056 (.041-.072)	.024 (.019-.029)	.028 (.022-.034)	p=.001[a], p=.000[b], p=.017[c] (partial eta squared = .293, partial eta squared = .216, partial eta squared = . 123)
Transparency (Unprompted – Ratio)	.190 (.168-.202)	.228 (.186-.270)	.159 (.133-.185)	.171 (.135-.208)	p=.010[a], (partial eta squared =.142) ns, ns

Time Usage

We hypothesized that EF-trained physicians would use the same amount of scheduled appointment time as controls. Multilevel analysis was used to examine the relationship between condition and the time that patients spent with their physician. Table 7 provides the adjusted summary statistics for patient time spent with physician. For both the UNC and the NC physicians, control physicians spent more time with patients, but this difference was not significant (p=ns). Control physicians averaged 906 seconds (95% CI=832-980), whereas the trained physician averaged 852 seconds (95% CI=769-934) with their patients (p=ns). Patient scheduled visit length, patient age, and severity of reported depression each were significant predictors of total time spent with patients (all p<.001). When each was accounted for as covariates in the final model, condition, system, and their interaction remained nonsignificant. Table 8 provides the two-level multilevel analysis, including covariance parameter estimates.

Table 7. Comparison of total time patient spent with physician

	Control		Intervention		p*
	UNC (n=360)	NC (n=214)	UNC (n=452)	NC (n=256)	
Time spent (seconds)	888 (779-997)	937 (830-1044)	844 (730-957)	866 (727-1005)	ns, ns, ns

Means provided with 95% confidence intervals. Means and standard errors estimated using SPPS MIXED procedure.
*Values not reaching p<.05 are reported as nonsignificant (ns).

Table 8. Level 1 and Level 2 covariate model parameter estimates*

Parameter	Estimate	SE	df	t	P-Value
Intercept	856.5	124.1	44.4	6.90	p = .000
Condition	47.6	168.4	44.3	-.28	p = .78
System	37.3	85.9	44.4	.43	p = .67
Cond * System	-3.7	117.0	44.1	-.03	p = .98
Patient Age	5.4	.9	35.3	6.16	p = .000

Depression	68.3	12.3	38.2	5.54	p = .000
Scheduled Visit	227.1	56.9	38.2	3.99	p = .000

Covariance Parameters	Estimate	SE	Wald Z	P-Value
Residual	110980.8	5080.9	21.84	p = .000
Intercept	32516.1	7947.9	4.09	p = .001
Patient Age	13.6	8.5	1.61	p = .107
Depression	865.2	1500.6	.58	p = .564
Scheduled Visit	91600.3	28149.6	3.25	p = .001

* Covariates are centered on provider mean.

At the conclusion of each encounter, providers completed a six-item questionnaire representing two subscales—perceived satisfaction with the patient encounter and perceived difficulty with the patient. EF training had no effect on reported difficulty or satisfaction (Table 9).

Table 9. Satisfaction and Difficulty

	Control		Intervention		p
	UNC (n=358)	NC (n=205)	UNC (n=449)	NC (n=242)	
Encounter Total	5.42 (5.19-5.65)	5.87 (5.59-6.14)	5.25 (4.92-5.59)	5.50 (4.99-6.01)	ns, ns, ns
Difficulty *	2.60 (2.27-2.92)	2.15 (1.69-2.60)	2.76 (2.37-3.16)	2.53 (1.74-3.32)	ns, ns, ns
Satisfaction **	5.43 (5.21-5.66)	5.88 (5.75-6.02)	5.27 (4.92-5.62)	5.53 (5.19-5.86)	ns, ns, ns
Patient was Satisfied***	5.23 (4.95-5.52)	5.74 (5.54-5.94)	5.15 (4.77-5.53)	5.37 (5.00-5.76)	ns, ns, ns

* Low values reflect less reported difficulty.
** High value reflect greater satisfaction.
*** Single item reflecting provider's belief that the patient was satisfied with the visit.

Physician Attitudes

The attitudes of providers trained in the EF protocols were compared with those of providers in the control group. Attitude measures included the Work Life Scale (a total score and 11 subscales) and a scale developed to assess provider attitudes toward the psychosocial and patient-centered aspects of care. Each scale and subscale was addressed using 2-way ANCOVA to sasess the effect of condition, system, and their interaction while controlling for baseline scores as a covariate. Only the Work Life Scale - Autonomy subscale demonstrated a significant difference between intervention and control physicians, with intervention providers reporting a lover level of perceived autonomy than did the untrained controls ($F(1,38)=12.29$, $p=.001$, partial eta squared=.24).

Aim 2: Does adoption of the EF protocol improve patient health outcomes and functional status?

We hypothesized that the EF protocol would improve patient-reported health outcomes as well as objective measures of functional status. Four self-report measures of functional status were assessed and hypothesized to improve as a result of EF training (Table 10). No significant difference was noted for the SF8 Physical Score, the SF8 Mental Score, the PHQ Depression Severity Index, or the PHQ 15.

Table 10. Functional status variables and mental health markers

Variable	Control		Intervention		p*
	U-NC (n = 332-324)	NC (n =199-193	U-NC (n = 408-395)	NC (n = 236-229)	
SF8 Physical	43.91 (41.90-45.92)	42.25 (39.72-44.78)	42.72 (41.23-44.20)	42.30 (40.65-43.95)	ns, ns, ns
SF8 Mental	50.32 (49.11-51.53)	51.57 (49.96-53.18)	48.33 (47.23-49.44)	50.09 (48.48-51.70)	ns, ns, ns
Depression (Severity)	1.71 (1.55-1.86)	1.51 (1.36-1.67)	1.74 (1.61-1.87)	1.58 (1.43-1.73)	ns, ns, ns
PHQ 15	6.97 (6.31-7.64)	6.68 (6.01-7.34)	7.53 (6.78-8.28)	7.29 (6.50-8.08)	ns, ns, ns

Adjusted values are provided for condition (control or intervention) and system (U-NC or NC). Means provided with 95% confidence intervals. Means and standard errors estimated using SPPS MIXED procedure.
*Values not reaching p<.05 are reported as nonsignificant (ns).

Patient HbA1c levels and number of HbA1c tests ordered were examined using aggregate data from each system's EMR (Table 11). A total of 24 months of aggregate data was available for each provider – 12 months preceding and following training. For this analysis, average values per physician were determined for the first and last 4 months of the 24-month block. This represented a 4-month pre-study baseline and a 4-month post-training period that was 8 months separated from training. A significant difference between intervention-trained providers was not demonstrated for either level of HbA1c or the frequency with which tests were ordered (ratio of tests ordered to total patient visits). ANCOVA using the aggregate from the first 4-month period was used as a covariate in the analyses.

Table 11. Average patient HbA1c levels and number of HbA1c tests ordered

	Control		Intervention		p
	U-NC (n = 14)	NC (n=8)	U-NC (n = 15* -16)	NC (n = 9)	
HbA1c					
% ordered	2.68 (1.74-3.62)	3.87 (2.93-4.80)	2.96 (2.08-3.82)	4.87 (3.38-6.36)	ns, ns, ns
Av. Value	6.90 (6.66-7.12)	7.37 (6.95-7.79)	7.14 (6.88-7.40)	7.27 (6.88-7.67)	ns, ns, ns

**Average value of HbA1c values could not be calculated for one physician, who ordered no HbA1c tests during the 4-month post period.

Aim 3: How does EF affect patient attitudes?

Multilevel analysis was used to examine the relationship between intervention condition and a number of variables described to assess patient attitudes. We hypothesized that the patients of providers trained in the Establishing Focus protocols would report higher levels of satisfaction with their providers, report feeling more involved in decision-making processes, report higher trust in their provider, and perceive their providers as more satisfied. Satisfaction was operationalized by three variables: A six-item scale developed from items taken from the Difficult Doctor Questionnaire, the Health Care Climate Questionnaire (HCCQ), a measure of perceived patient autonomy and the trust subscale of the Primary Care Assessment Survey (PCAS). Perceived involvement in shared decision making was assessed by the Medical Outcomes Study Participatory Decision-Making Scale (DMS). Trust was further assessed by a single trust item from the PCAS. Patient beliefs regarding their provider's satisfaction with the encounter was assessed by a single item ("My provider was satisfied with my visit today."). In no case did Establishing Focus training significantly improve reported patient attitudes (Table 12).

Table 12. Patient variables hypothesized to change as a response to Establishing Focus training

	Control		Intervention		p
	U-NC (n=334-309)	NC (n=203-183)	U-NC (n=415-382)	NC (n=239-211)	
Satisfaction	6.25 (6.13-6.38)	6.35 (6.20-6.51)	6.31 (6.19-6.43)	6.27 (6.06-6.47)	ns, ns, ns
HCCQ	6.26 (6.12-6.39)	6.39 (6.23-6.54)	6.30 (6.13-6.47)	6.27 (6.09-6.44)	ns, ns, ns
PCAS	6.17 (6.04–6.31)	6.27 (6.13-6.42)	6.20 (6.03-6.36)	6.20 (6.03-6.36)	ns, ns, ns
DMS	4.36 (4.23-4.49)	4.32 (4.16-4.49)	4.32 (4.16-4.49)	4.15 (3.97-4.34)	ns, ns, ns
Trust	6.13 (5.99-6.28)	6.24 (6.09-6.40)	6.16 (5.98-6.33)	6.14 (5.92-6.36)	ns, ns, ns
Provider Satisfied?	5.69 (5.48-5.89)	5.96 (5.74-6.17)	5.80 (5.64-5.96)	5.93 (5.72-6.15)	ns, ns, ns

Discussion

The EF intervention was a physician-focused training designed to "disrupt" routine medical interviewing practices by teaching a skill set that would foster greater patient involvement in shaping the encounter and transform what has been characterized as a physician-centered interaction to one that is truly collaborative. Using teaching methods demonstrated to be effective in changing physician behavior,[19] the EF educational intervention did change the communication behaviors of trained physicians, but not as predicted or desired. Rather than adopt the EF protocol in its entirety, physicians incorporated only a subset of the protocol's recommended communication behaviors. They incorporated protocol behaviors that facilitated information gathering (additional elicitation and requesting a patient's list of concerns) but not

behaviors related to information sharing (orientation, prioritization, and negotiation). These latter behaviors are considered core components of a patient-centered style of interaction that facilitates collaboration, patient involvement, and informed decision making through the sharing of information and power.

EF is designed to enable patients to become actively involved in setting an interview agenda by coaching physicians to verbalize their plans for conducting the interview and to acknowledge that time constraints, long problem lists, and competing priorities will influence mutual decision making about an agenda. The protocol directs physicians to use an orienting statement that lays out the ground rules for an EF interview, which differs from the norm. In the EF interview, physicians overtly explain that, in order to use time most effectively, both parties need to work collaboratively to construct a complete problem list at the outset of the interview. This is accomplished through multiple physician elicitations and the mutual postponement of discussion about any one issue until the patient indicates that the list is complete. In these opening exchanges, complete transparency about the rationale for the rules of the EF interview process (in which interruption is often used to stop a patient from providing details about a concern) theoretically counters what might be perceived to be a high-control style of interaction. In our control and intervention interviews, such transparency behaviors were disappointingly scant. Furthermore, physicians' use of multiple elicitations coupled with unexplained interruptions made the interview sound less like collaboration and more like interrogation.

EF encourages physicians to explicitly ask patients to prioritize the problems on their list and identify aloud the one most important to them Ideally, involving patients in decision making about problem choice makes them feel invested in carrying out a plan to address the health problem. EF discourages physicians from imposing their priorities on patients. Instead, it encourages negotiation, which both serves to uncover conflicting priorities and fosters reciprocal listening, consensus, and enhanced feelings of partnership and respect. Demonstration of prioritization and negotiation conveys a physician's desire for interchange and collaborative practice. In the absence of these behaviors, there is no real opportunity for patients to let their physicians know what concerns them nor can they engage in any kind of mutual decision making about how the encounter will proceed. The result is an encounter characterized by a high degree of physician control unsupportive of patient autonomy. Our results, which merit further investigation, indicate that training did not lead to use of prioritization and negotiation in

practice. In turn, and as one would predict on the basis of self-determination theory, we did not effect improvements in patient health outcomes, trust, or satisfaction.

Like EF, transparency affords patients the opportunity to participate in shaping their visits and subsequent treatment plans. We expected that the EF intervention would increase physicians' use of patient-centered communication behaviors, including multiple types of transparency, by bringing to awareness, through training and practice, the benefits of using communication strategies that increase patient involvement in health care planning and treatment. Instead, we found that intervention group physicians were less transparent with patients than control group physicians were.

A limitation of the study is that we did not record the interactions between coaches and physicians and so do not have insight into what role coaching might have played in the intervention's successes and shortcomings. We are unable to discern how the coaches' feedback to physicians might have been altered to ensure the integration of key protocol behaviors. Similarly, although we know that physician autonomy scores went down after training, we cannot determine whether physicians' perceptions of autonomy negatively influenced their capacity to empower patients to collaborate in decision making. Furthermore, we also can only speculate about the seeming advantages of using patient activation methods in addition to physician training in order to achieve the behavioral and health outcomes we desired.

Based on the pattern of skills adoption, it seems likely that behaviors such as additional elicitation were more easily incorporated into physicians' interviewing repertoires because they are familiar and in line with the routine practices of information gathering. Effecting the adoption of behaviors such as negotiation, prioritization, and orientation (which were absent in the interviews of control and intervention group physicians) is likely to require more targeted intervention and an intervention that includes patient activation.

References

1. Ryan RM, Deci EL. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *Am Psychol.* Jan 2000;55(1):68-78.

2. Deci EL, Ryan RM. The empirical exploration of intrinsic motivation, social development, and well-being. In: Berkowitz L, ed. *Advances in experimental social psychology.* Vol 13. New York: Academic Press; 1980.

3. Williams GC, Freedman ZR, Deci EL. Supporting autonomy to motivate patients with diabetes for glucose control. *Diabetes Care.* Oct 1998;21(10):1644-1651.
4. Williams GC, Rodin GC, Ryan RM, Grolnick WS, Deci EL. Autonomous regulation and long-term medication adherence in adult outpatients. *Health Psychol.* May 1998;17(3):269-276.
5. Williams GC, Frankel R, Campbell TL, Deci EL. Research on Relationship-Centered Care and Healthcare Outcomes from the Rochester Biopsychosocial Program: A Self-Determination Theory Integration. *Families, Systems & Health.* 2000;18(1):79-90.
6. Langewitz WA, Eich P, Kiss A, Wossmer B. Improving communication skills--a randomized controlled behaviorally oriented intervention study for residents in internal medicine. *Psychosom Med.* May-Jun 1998;60(3):268-276.
7. Joos SK, Hickam DH, Gordon GH, Baker LH. Effects of a physician communication intervention on patient care outcomes. *J Gen Intern Med.* Mar 1996;11(3):147-155.
8. Mauksch LB, Hillenburg L, Robins L. The Establishing Focus Protocol: Training for Collaborative Agenda Setting and Time Management in the Medical Interview. *Families, Systems & Health.* 2001;19(2):147-157.
9. Spitzer RL, Kroenke K, Williams JB. Validation and utility of a self-report version of PRIME-MD: the PHQ primary care study. Primary Care Evaluation of Mental Disorders. Patient Health Questionnaire. *Jama.* 1999;282(18):1737-1744.
10. Kaplan SH, Greenfield S, Gandek B, Rogers WH, Ware JE, Jr. Characteristics of physicians with participatory decision-making styles [see comments]. *Ann Intern Med.* 1996;124(5):497-504.
11. Kasser VM, Ryan, R.M. The relation of psychological needs for autonomy and relatedness to health, vitality, well-being, and mortality in a nursing home. *Journal of Applied Social Psychology.* 1999;29:935-954.
12. Safran DG, Kosinski M, Tarlov AR, et al. The Primary Care Assessment Survey: tests of data quality and measurement performance. *Med Care.* May 1998;36(5):728-739.
13. Safran DG, Taira DA, Rogers WH, Kosinski M, Ware JE, Tarlov AR. Linking primary care performance to outcomes of care. *J Fam Pract.* Sep 1998;47(3):213-220.
14. Hahn SR. Physical symptoms and physician-experienced difficulty in the physician-patient relationship. *Ann Intern Med.* May 1 2001;134(9 Pt 2):897-904.
15. Levinson W, Dunn PM, Parker D, Kaufman K. A scale to measure house staff members' attitudes toward psychosocial aspects of patient care. *J Med Educ.* Jul 1988;63(7):562-563.
16. Williams ES, Konrad TR, Linzer M, et al. Refining the measurement of physician job satisfaction: results from the Physician Worklife Survey. SGIM Career Satisfaction Study Group. Society of General Internal Medicine. *Med Care.* Nov 1999;37(11):1140-1154.
17. Silverman J, Kurtz, S., Draper, J. *Skills for Communicating with Patients, Second Edition*. Oxford: Radcliffe Publishing; 2005.
18. Brody H. Transparency: informed consent in primary care. *Hastings Cent Rep.* Sep-Oct 1989;19(5):5-9.
19. Davis D, O'Brien MA, Freemantle N, Wolf FM, Mazmanian P, Taylor-Vaisey A. Impact of formal continuing medical education: do conferences, workshops, rounds, and other traditional continuing education activities change physician behavior or health care outcomes? *Jama.* Sep 1 1999;282(9):867-874.

List of Peer Reviewed Products

Robins, L., Witteborn, S., Miner, L., McElligott, S. Brock, D. Mauksch, L., Uncovering Transparency: A Taxonomy of Types Used in Primary Care. Transparency in Physician-Patient Interaction. Paper presented at the AAPP Annual Research and Teaching Forum: Opening Dialogues in Healthcare Communication on October 1-3, 2004, in Indianapolis, IN

Brock, D, Nagasawa, P, Knapp, A, Kokosinski, E, Ogden, C, Mauksch, L, **Robins, L.** A classification of opening sequence patterns: How are concerns elicited? Paper presented at the AAPP Annual Research and Teaching Forum: Opening Dialogues in Healthcare Communication on October 1-3, 2004, in Indianapolis, IN

Robins, L, Brock, D, Miner, L, Witteborn, S, Fryer-Edwards, K, Mauksch, L. Transparency in Physician-Patient Interaction. Paper presented at the 43rd annual Research in Medical Education Conference, Boston, 2004.