

Levels of Physician Involvement with Patients and Their Families

A Model for Teaching and Research

M. Kim Marvel, PhD; Rae Schilling, PsyD; William J. Doherty, PhD; and Macaran A. Baird, MD, MS

Fort Collins, Colorado; Eau Claire, Wisconsin; St Paul, Minnesota; and Syracuse, New York

Background. We present an educational model that describes physician skills for addressing psychosocial concerns of patients, ranging from basic medical questions to in-depth psychotherapy. This model improves upon previously published models by integrating into one hierarchy levels of physician involvement with individual patients and levels of involvement with families.

Methods. Ten faculty family physicians were videotaped during 200 office visits. Interviews were categorized according to the model, with a 79% interrater agreement.

Results. Most visits involved the lower three levels of physician involvement (41%, level 1; 35.5%, level 2; and 23%, level 3). Discussion of family context occurred in a

majority (58.5%) of visits, primarily when another family member was in the room and during preventive care visits. Higher levels were associated with longer visits—about 3 minutes more for each additional level.

Conclusions. This investigation suggests that the levels of physician involvement model can be reliably measured. This model may be a useful tool for education and research, particularly the study of physician interview skills appropriate to family medicine.

Key words. Physician-patient relations; family physicians; family practice; family; education, medical, graduate; internship and residency; office visits. (*J Fam Pract* 1994; 39:535-544)

Teaching patient interview skills is a challenging task for family medicine educators. Resident physicians are expected to diagnose a wide range of biomedical problems, address patient psychosocial concerns, and promote health education in an efficient, empathic manner. These educational expectations of resident physicians can be overwhelming to students and teachers alike. Fortunately, teaching models such as patient-centered interviewing¹ and levels of physician involvement² help define specific skills that should be mastered during residency training.

The levels of physician involvement (LPI) model is a five-level hierarchy in which each step describes increased physician competence to deal with patient and family concerns. The model is based on Doherty and Baird's levels of physician involvement with families.³ Marvel et al² have modified the family levels model to describe physician involvement with the psychosocial concerns of individual patients. Because the levels of involvement are competency-based and describe interview skills in a developmental sequence, they are easily applied in resident education settings. Several studies show that the LPI model can be used by researchers to reliably categorize the level of involvement by resident and faculty family physicians during office visits.⁴⁻⁶

The primary purpose of this paper is to integrate the level of physician involvement with families and individual patients into one hierarchy. The integrated model presented here improves on the two earlier LPI models that

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From the Fort Collins Family Medicine Residency Program, Fort Collins, Colorado (M.K.M.); the University of Wisconsin Department of Family Medicine, Madison, and Family Practice Residency Program, Eau Claire (R.S.); the Department of Family Social Science, University of Minnesota, St Paul (W.J.D.); and the Department of Family Medicine, State University of New York, Syracuse (M.A.B.). Requests for reprints should be addressed to M. Kim Marvel, PhD, Family Medicine Center, 1025 Pennock Place, Fort Collins, CO 80524.

focused on involvement with either the family^{3,4} or individual patients.^{2,5} The integrated LPI model, for example, incorporates the common situation in which a physician discusses family information or concerns with an individual patient. A second goal of this paper is to present operational definitions for each level of the model along with the results of a preliminary study. This specific information will help increase reliability among investigators who use this model for research purposes.

Description of the Model

The integrated LPI model is a five-level hierarchy that describes a range of physician skills used to address the psychosocial concerns of patients and their families. Each higher level requires additional physician competencies for addressing increasingly complex psychosocial issues. The levels are arranged in a developmental sequence to describe the evolution of physician skills that occurs as a result of training and experience.

In this hierarchical configuration, the intervention-oriented skills at levels 4 and 5 require a preexisting medical knowledge base as implied in level 1 and a collaborative relationship as developed in level 2, and presuppose a therapeutic relationship necessary for addressing patient and physician affective issues as implied in level 3. Each level builds on the preceding levels and is prerequisite for the next higher level. Just as increasingly sophisticated medical interventions imply more sophisticated prerequisite information, attitudes, and skills, these levels of physician involvement are built on sets of knowledge, skills, and attitudes that support the increasingly sophisticated intervention.

Within each level, interviews can be characterized by individual focus or family context, depending on whether the encounter includes discussion about the patient's family. The ability to address family issues is considered a higher skill within each level, as physicians generally develop an awareness of family context and the competence to deal with family issues after they have developed individual patient interview skills.

It is important to recognize that higher levels of physician involvement are not appropriate for every interview. The level of involvement should vary, depending on factors such as the nature of the presenting problem, the nature of the physician-patient relationship, the extent of physician involvement desired by the patient, physician competence, and time limitations. This paper includes a description of the physician involvement levels. The levels are summarized in Table 1, and examples are provided in the Appendix.

Table 1. Summary of Levels of Physician Involvement with Patients and Their Families

Level 1. Medical issues: physician-centered
a. Individual focus
Orienting question: What biomedical information is needed for the physician to make the correct diagnosis and to design a treatment plan?
b. Family context
Orienting question: What biomedical and family information is needed for the physician to make the correct diagnosis and to design a treatment plan?
Level 2. Collaborative information exchange
a. Individual focus
Orienting question: What information should be exchanged with the patient to make the correct diagnosis and to design and agree upon a treatment plan?
b. Family context
Orienting question: What information should be exchanged with the patient (and possibly family members), including opinions and expectations of the family, to make the correct diagnosis and to design and agree upon a treatment plan?
Level 3. Dealing with affect
a. Individual focus
Orienting question: What emotional issues should be discussed with the patient that are potentially affecting the patient's health?
b. Family context
Orienting question: What emotional issues should be discussed with the patient (and possibly family members) about the family context that are potentially affecting the patient's health?
Level 4. Basic psychosocial intervention
a. Brief individual counseling
Orienting question: What systematic approach by the physician and patient will help the patient make desired changes in specific individual psychosocial issues related to the patient's health?
b. Brief family counseling
Orienting question: What systematic approach by the physician and patient (and possibly family members) will help make desired changes in specific family patterns that affect the patient's health or that of other family members?
Level 5. Individual or family therapy
a. Individual psychotherapy
Orienting question: What systematic approach can be used by the physician to engage the patient in ongoing individual psychotherapy to help change behavioral and interpersonal patterns that may be long-standing and resistant to change?
b. Family or marital therapy
Orienting question: What systematic approach can be used by the physician to engage the patient (and possibly family members) in ongoing family or couple therapy to help change unhealthy interpersonal patterns within the family system that may be long-standing and resistant to change?

Physician-Involvement Levels

Medical Issues: Physician-Centered (Level 1)

At level 1, the interview is limited to biomedical problems, and focuses on the physician's questions, diagnosis, and treatment plan. There is no active effort by the phy-

physician to obtain the patient's view of the problem or treatment plan. Psychosocial concerns or feelings spontaneously expressed by the patient either are not addressed or receive only a minimal response from the physician. If present, family members are minimally involved and their participation is not actively sought, except when necessary because of the patient's age or impaired function. The physician may maintain an individual focus (level 1a), restricting the discussion to the immediate medical symptom(s) with no attention to the family context related to the problem; or the interview can be expanded to a family context (level 1b) in which the physician inquires about family-related aspects of the medical problem or treatment, such as family history of an illness, the presence of a smoker in the home, or the availability of someone to help the patient remember to take a medication. Although family data are gathered, the interview is physician-centered when the information is obtained for the physician's data bank but not discussed with either the patient or family. A medical emergency is an example of appropriate level 1 physician involvement.

Collaborative Information Exchange (Level 2)

At level 2, the physician, patient, and family are coparticipants in the exchange of information on a cognitive level. The physician elicits from the patient (and family members, if present) opinions, perceptions, and expectations about the problem and treatment plan. The physician also discusses with the patient and family the physician's understanding of the problem and, if appropriate, works with them to construct a mutually satisfactory treatment plan. At level 2, however, the physician makes no effort to elicit the patient's or family's emotional responses, and when making treatment decisions, does not take into consideration statements of feelings expressed by the patient or family. This information exchange may be focused on an individual patient (level 2a). Additional skills are needed to broaden the discussion to include the opinions, perceptions, and expectations of family members who are present, or to inquire about these issues with the individual patient (family context, level 2b). Other authors, such as Kleinman et al⁷ and Levenstein et al,¹ have emphasized the importance of identifying the patient's viewpoint. Physicians using a patient-centered interview,¹ for example, are using level 2 skills when they prompt patients to express ideas about the problem and their expectations of the office visit.

Dealing with Affect (Level 3)

Level 3 describes interactions in which the physician identifies and responds to the emotional reactions of the pa-

tient and family members to illness and other life stresses. The provider responds empathically to patient and family concerns without intellectualizing, keeping emotional distance, or offering premature reassurance. At level 3, the physician may provide basic suggestions for coping or improving interpersonal relationships, but these efforts are not based on a systematic assessment of the patient's or family's context or on a therapy model. Emotional concerns and interpersonal issues may be discussed with the individual patient (level 3a), or the discussion may expand to include emotional concerns of family members, if present, or exploration of family reactions with the individual patient (family context, level 3b).

The BATHE technique⁸ is a good example of a level 3 interviewing skill. The acronym BATHE prompts the physician to inquire about the background of the patient's concerns, the patient's affect, what is most troubling about the situation (from the patient perspective), and how the patient is handling the problem, with empathic responses from the physician to facilitate the patient's disclosure. This technique is clearly aimed at expanding the interview focus from purely cognitive content (level 2) to the affective realm (level 3). The patient-centered interview¹ described earlier also includes level 3 skills when the physician encourages patients to express their feelings and fears about being ill.

Basic Psychosocial Intervention (Level 4)

At level 4, the physician meets with the patient (and family, if appropriate) for one or more sessions to find new ways to make desired changes related to health problems. Level 4 involves more than advice-giving or basic problem-solving activities associated with levels 2 and 3. Rather, the physician addresses the patient's or family's problem in a more systematic way, often through an extended series of questions aimed at providing a broader understanding of the psychosocial issues that may be interfering with the patient's or a family member's physical health. The physician also applies recognizable counseling models or techniques, such as family systems or Rogerian client-centered counseling,⁹ toward an identified goal. Brief counseling focused on the individual (level 4a) occurs when the physician meets with the patient individually to develop new ways of coping with psychosocial issues related to the patient's health. Brief family-focused counseling (level 4b) involves meetings with the patient, with or without family members present, to foster changes in family patterns that affect the patient's health or that of other family members.

A three-function approach proposed by Cohen-Cole¹⁰ describes interview skills that parallel levels 2 through 4 of the LPI model. The first function is "gath-

ering data to understand the patient's problems," the second is "developing rapport and responding to patient's emotions," and the third is "patient education and motivation." This model is based exclusively on individual interviews but is similar to the LPI model in that the third function involves patient interventions similar to those in LPI levels 4 and 5. Other resources are available for developing level 4 skills for working with individuals^{8,11} and families.^{12,13}

Individual or Family Therapy (Level 5)

In level 5, the physician meets with a patient or family over an extended number of sessions to improve individual or family functioning. The purpose of the sessions is clearly identified as "therapy," and the issues discussed may be independent of the patient's medical concerns. The physician is competent to deal with complex psychosocial problems and to manage the intensity of the psychotherapeutic relationship. Competence at level 5 usually requires fellowship training and continued access to supervision or consultation from therapists. The physician may meet regularly with an individual patient for formal psychotherapy with an individual focus (level 5a), or conduct individual, marital, or family therapy with a family focus (level 5b) by meeting regularly with the patient and perhaps family members to change unhealthy patterns within the family system.

Methods

Data were collected from patient interviews to help determine the reliability of the LPI as a research instrument. Data collection took place in two family practice residency clinics in rural midwestern towns during the spring of 1992 and early summer of 1993. Videocameras had been permanently installed in examination rooms several months before the project began. The cameras were operated by a research assistant in a separate room. Providers were told that the purpose of the research was to better understand their interview methods, but were not specifically informed about the LPI model. Ten board-certified faculty family physicians (five from each residency) were asked to participate, and all agreed. Participants included two female and eight male physicians, who ranged in age from 31 to 63 years (mean, 42.2 years) and had an average of 10.5 years of postresidency experience. Videotapes were made of 20 office visits to each provider, yielding a total of 200 interviews. One hundred of the interviews were reanalyzed from a previous study, and 100 represented new data.

Patients were informed of the project before seeing

their provider. Data were collected only from consenting patients. Approximately 50% of those approached about participating in the study consented. Videotaping was initiated when the provider entered the examination room and continued until the office visit was completed. Despite efforts to minimize the intrusiveness of the data collection, providers were generally aware when their interviews were being recorded.

The videotapes were reviewed by two research assistants. Each interview involving any discussion of family was rated as family context. A physician inquiry about a family history of diabetes, for example, received a rating of level 1b ("medical issues: physician-centered, family context"), whereas discussion of emotional reactions of family members (whether present or not) was rated level 3b ("dealing with affect, family context"). Each interview also was rated according to the highest level of involvement shown by the physician, including whether the interview focused on the individual or family. For example, discussion of a patient's anxiety about upcoming surgery received a rating of level 3a ("dealing with affect, individual focus") even if the physician asked about family medical history (level 1b) later in the same interview. Interviews containing elements of both individual and family focus at the same level were rated as family context because level 2b (family context) is rated higher than level 2a (individual focus). By rating the highest level of physician involvement for each interview, the data reflect the skill level of the providers, even though the coded interactions may have occurred during a small portion of the interview.

All interviews were timed with a stopwatch. To assess the reliability of ratings, both raters independently coded 26 interviews. Chi-square was used to analyze the frequency of occurrence among the five levels of involvement. Differences in the length of office visits across the levels of involvement were analyzed with an analysis of variance (ANOVA) for independent means.

Results

The raters agreed on 73% (19 of 26) of cases for the level of involvement and 85% (22 of 26) of cases for the focus of the interview (individual vs family context), for an overall agreement rate of 79% (41 of 52 ratings).

The levels of physician involvement with patients were as follows: level 1, 41%; level 2, 35.5%; level 3, 23%; level 4, 0.5%; and level 5, 0%. As shown in Table 2, higher levels of involvement occurred during preventive visits (average level, 2.3) as compared with those for acute (average level, 1.7) or chronic (average level, 1.6) health problems ($\chi^2(2)=15.1$; $P<.01$).

Table 2. Highest Levels of Physician Involvement Occurring During 200 Office Visits for Various Patient Problems

Reason for Office Visit	Physician Involvement					Total %
	Level 1, %	Level 2, %	Level 3, %	Level 4, %	Level 5, %	
Acute problem						
Individual focus	17.5	21	6.5	0.0	0.0	45
Family context	9.5	1.5	3.0	0.0	0.0	14
Chronic problem						
Individual focus	5.0	3.5	1.5	0.0	0.0	10
Family context	3.0	0.0	1.0	0.0	0.0	4
Preventive visit						
Individual focus	0.5	4.5	1.0	0.0	0.0	6
Family context	3.5	1.5	6.5	0.5	0.0	12
Other problem*						
Individual focus	1.5	3.0	3.5	0.0	0.0	8
Family context	0.5	0.5	0.0	0.0	0.0	1
Total	41	35.5	23	0.5	0	100

*Other problems included psychosocial problems, such as anxiety, and interviews in which the reason for the visit was unclear.

Family context was discussed in 58.5% (117) of the office visits. In the majority of the family context visits (87 of the 117 visits), the depth of involvement was limited to the physician's inquiry about the medical condition or history of other family members (level 1b). The likelihood of discussing family context was associated with the patient's reason for the visit. Family context was discussed in the majority (67%) of preventive visits. On the other hand, physicians were less likely to ask about family context during acute care visits (24%) and visits for chronic health problems (29%) ($\chi^2(2)=23.3$; $P<.01$). Family context was more likely to be discussed when another family member was present in the examination room (76% of 76 interviews) than when the physician interviewed an individual patient (48% of 124 interviews). Of the 76 visits that included a family member, 50 (66%) were pediatric visits, and 26 (34%) involved a spouse or other adult family member. When family members were present, the level of physician involvement with family context was similar during pediatric (48%) and nonpediatric (42%) visits ($\chi^2(2)=0.65$; $P=NS$).

The average lengths of office visits across levels 1 to 4 were: level 1, 9 min 38 sec; level 2, 12 min 29 sec; level 3, 15 min 18 sec; and level 4, 17 min 18 sec. These results, calculated using only the highest level of individual focus or family context during each interview, indicate that approximately 3 minutes were added to an office visit for each successive level of involvement. The differences in the average lengths of visits at levels 1, 2, and 3 are statistically significant ($F(2,196)=10.7$, $P<.01$). Level 4 was omitted from this calculation because it is based on only one office visit. Interviews with family context were significantly longer than those with individual focus at level 1 ($t=2.33$, $P<.05$) but were not significantly different at

levels 2 and 3 ($t=1.97$ and $t=1.50$, respectively). The Figure shows the average length of office visits at each level of physician involvement.

Discussion

The depth of involvement among the providers in this sample ranged from level 1 to level 3, indicating that the faculty family physicians often exchanged information collaboratively (level 2) and addressed feelings (level 3) with their patients. Despite being at the lower end of the hierarchy, levels 2 and 3 describe fairly sophisticated interview skills that should adequately address the psychosocial needs of most patients and their families. Psycho-

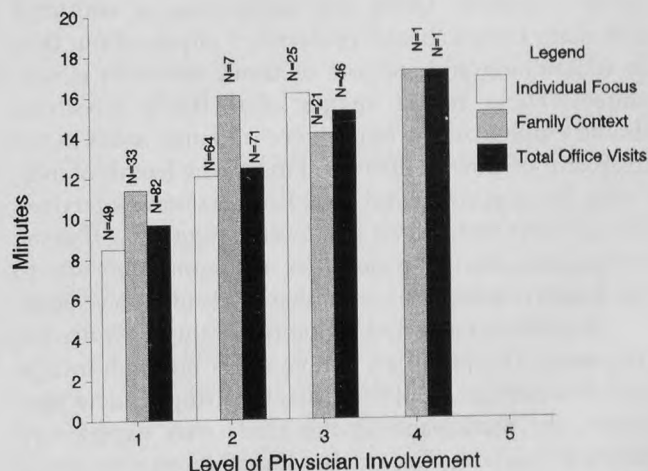


Figure. Average length of office visits (N=200) at each level of physician involvement, based on the levels of physician involvement model.

social interventions, whether at a basic (level 4) or expert (level 5) level, were seldom conducted during routine office visits. The absence of higher level involvement by physicians may indicate that such interventions are rarely necessary during routine patient care. Alternatively, higher level involvement may not occur because of a lack of skill in primary care counseling. This hypothesis is consistent with responses on a recent questionnaire in which family physicians rated themselves competent with level 3 skills, and not competent but highly interested in level 4 skills.¹⁴

Another plausible explanation for the lack of levels 4 and 5 involvement is time constraints. The additional time associated with higher levels of involvement may dissuade family physicians from exploring and intervening with patient and family concerns. The present results suggest that preventive visits (ie, physical examinations, prenatal, and well-child checkups) offer an opportunity to explore patient and family concerns in greater depth.

Inquiry about family context occurred in more than one half of the visits. While this statistic may be encouraging to proponents of family-oriented care, a closer examination of the results reveals that most of the family context interviews consisted of physician inquiry into the medical condition or history of other family members (level 1). A collaborative dialogue about the opinions or expectations of family members (level 2) or their feelings (level 3) seldom occurred, regardless of whether family was present. Again, preventive visits appeared to offer the best opportunity to discuss family context at higher levels, suggesting that time availability and the less "task-oriented" agenda that is associated with a preventive visit lends itself to a focus on the family.

The paucity of family context discussion during visits for chronic health problems in this study sample deserves further attention. Given that family stress is associated with many chronic health problems,¹⁵ inquiry about family functioning and support of family members is warranted. These results suggest that family physicians should emphasize the importance of family issues in the treatment of chronic illnesses. Finally, the length of individual focus as compared with family context interviews did not differ within level 2 or level 3, suggesting that the integration of family issues does not significantly add to the length of office visits at higher levels of involvement.

Several strengths and limitations of this study deserve comment. The physician sample offers both advantages and disadvantages. Unlike studies involving resident physicians, the participants in this study were experienced faculty physicians. The results, therefore, may represent the current state of affairs among community family physicians. Given the small number of participants and their academic affiliation, however, it is unknown whether the

results are generalizable to other physician populations. Second, we have no direct evidence that higher levels of involvement are associated with increased patient satisfaction or health outcome measures, aside from the established association between a collaborative physician-patient relationship (level 2) and increased patient satisfaction.^{16,17} Additional studies are needed to determine the association between level of physician involvement and outcome measures such as the satisfaction of patients, family members, and physicians, patient health status, and frequency of unexpected return visits.

The low rate of patients consenting to participate (approximately 50%) is an additional limitation to this study. Patients who declined to be videotaped may have intended to discuss individual or family problems requiring higher levels of physician involvement. The self-selection of consenting patients, therefore, may conceal a bias in the type of patient problems presented to the physicians. Because no information was obtained about non-participants, the effect of the 50% decline-to-participate rate remains uncertain. In future studies, information about nonconsenting patients should be obtained to address this potential source of bias.

The 73% interrater agreement deserves further comment. Most disagreements occurred between levels 1 and 2 (6 of the 7 divergent ratings). These disagreements occurred despite several training sessions as well as refinements in the operational definitions of the coding categories. There were no consistent discrepancies between how the two raters evaluated interviews, however, suggesting that the method of coding was not systematically biased. The marginal rate of agreement most likely reflects the complex continuum of physician-patient interactions described in levels 1 and 2 that are difficult to categorize by specific physician statements. Breaking down the levels into smaller, more clearly defined and prescribed units of behavior is an alternative coding strategy likely to yield higher interrater agreement. Such a reductionistic approach, however, may sacrifice the simplicity and intuitive appeal of the broader levels. Based on the experience of the authors, the broader levels, as found in the LPI model, can be usefully applied in educational settings. Other researchers¹⁸ have made a similar appeal for analysis of broader units of physician behavior in the study of interview skills. Coding with the LPI model may be improved in future studies by using typed transcripts rather than coding directly from videotapes.

The richness of data revealed in the present study confirms the LPI model as a comprehensive taxonomy capable of describing the depth of physician involvement with patients and their families. The LPI model can be applied to both educational and research endeavors. In family medicine residency education, for example, it can

be used to identify educational goals, assess resident progress, and encourage resident self-assessment during reviews of their videotaped interviews. Researchers can use the model to study the physician-patient communication in practices outside academic settings. Such information may generate reality-based goals for resident education. Observations of physicians who emphasize the family in their medical care would reveal the upper limits of what might be expected from family-oriented physicians. Operational definitions of the model are provided in the Appendix to encourage further research. We hope that further inquiry with the integrated LPI model will help establish a more complete understanding of how family physicians provide comprehensive care for patients and their families.

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