

# Concurrent Treatment of Patients with Depression in the Community

## Provider Practices, Attitudes, and Barriers to Collaboration

Marcia Valenstein, MD, MS; Michael Klinkman, MD, MS; Sherry Becker, MPH; Frederic C. Blow, PhD; Kristen Lawton Barry, PhD; Anjan Sattar, MD, MPH; and Elizabeth Hill, PhD  
Ann Arbor and Detroit, Michigan

**BACKGROUND.** In randomized controlled trials, patients with major depression who receive broad-based collaborative treatment by both primary care physicians (PCPs) and mental health providers (MHPs) have better outcomes than patients who receive usual care. However, little is known about the concurrent treatment of patients with depression in the community. This study describes the perceptions of PCPs of the frequency of concurrent treatment in community settings, the degree of collaboration between co-treating providers, and factors associated with greater interaction and collaboration.

**METHODS.** A survey was distributed to a stratified, random sample of 276 eligible family physicians in Michigan. Primary analyses were descriptive statistics (point estimation) of PCP practice patterns. Secondary analyses explored predictors of collaboration with multivariable regression.

**RESULTS.** A total of 162 eligible PCPs (59%) returned the survey. PCPs reported that they co-treated approximately 30% of their depressed patients with MHPs. They made contact with co-treating MHPs in approximately 50% of shared cases; however, provider contact seldom included joint treatment planning. PCPs perceived collaborative treatments to be more problematic when patients were enrolled in managed care programs. In multivariable regression, co-location of MHP and PCP practices (in the same building) was strongly associated with increased interaction and collaboration ( $P < .001$ ).

**CONCLUSIONS.** Concurrent treatment of depressed patients is common in the community, but these treatments are less interactive and collaborative than the treatment models proven effective in randomized controlled trials. If concurrent treatments are to become more collaborative—with regular contact and effective communication—co-location of practices appears important.

**KEY WORDS.** Depressive disorder; primary health care; health services research; physician's practice patterns. (*J Fam Pract* 1999; 48:180-187)

Depression is a common disorder that is often underrecognized and undertreated in primary care settings.<sup>1,2</sup> Approximately 5% to 10% of primary care patients have a major depressive disorder, and an additional 11% to 13% have a dysthymic disorder or a minor depressive syndrome.<sup>2</sup> Depressed patients experience limitations in social, role, and physical functioning that are comparable with or more severe than those experienced by patients with other chronic medical illnesses.<sup>1</sup> They also use more health care resources than comparison primary care patients.<sup>3,4</sup>

Primary care physicians (PCPs) treat the majority of

patients with depressive disorders.<sup>5</sup> Although patients with depression may have better functional outcomes when they are treated by mental health providers (MHPs),<sup>6,7</sup> treatment by MHPs is more expensive<sup>8</sup> and less readily available. PCPs provide a relatively greater proportion of mental health services in rural areas and to minorities, the poor, and the elderly.<sup>9</sup>

Collaborative treatment by MHPs and PCPs may be a treatment option that results in better outcomes for depressed patients, without prohibitive costs. Two randomized controlled trials of broad-based collaborative treatments of patients with depression have shown improved outcomes for patients with major depression

Submitted, revised, November 10, 1998.

Portions of this work were presented in abstract form at the annual meeting of the American Psychiatric Association, Toronto, Canada, May 1998.

From the Serious Mental Illness Treatment Research and Evaluation Center, Health Services Research and Development, Department of Veterans Affairs Medical Center, Ann Arbor, Michigan (M.V., F.C.B., K.L.B., A.S.); the Psychiatry Service, Veterans Affairs Medical Center, Ann Arbor (M.V., S.B.); the Department of Family Practice (M.K.) and the Department of Psychiatry, University of Michigan, Ann Arbor (F.C.B., K.L.B., A.S., M.V., E.H.); and the Department of Psychology, University of Detroit Mercy, Detroit, Michigan (E.H.) All requests for reprints should be addressed to Marcia Valenstein, MD, SMITREC, Health Services Research and Development, PO Box 130170, Ann Arbor, MI 48113-0170.

compared with the outcomes of usual care, with 74% and 70% of intervention patients responding to treatment, compared with 43% and 42% of controls.<sup>10,11</sup> These highly collaborative treatment models were also cost-efficient, resulting in fewer expenditures per successfully treated case of major depressive disorder.<sup>12</sup>

However, the collaborative treatment models proven effective in randomized controlled trials may be difficult to translate into community practice. These models were implemented in a staff model health maintenance organization, a delivery system that accounts for only a small proportion of mental health services within the United States. The models included regular communication between providers, alternating patient appointments, and ongoing monitoring and consultation about medication use. Such models may be very different from current community practice and difficult to implement in less organized health care settings. Other treatment models that incorporate joint education, shifted outpatient psychiatric clinics, or other types of MHP involvement also may be effective.<sup>6,13-16</sup>

We know very little about the frequency or nature of the concurrent treatment of patients with depression in community settings. PCPs refer 5% to 16% of patients they recognize as having a mental disorder to MHPs.<sup>17,18</sup> However, these referrals do not necessarily result in concurrent treatment. Patients often fail to follow through with referrals,<sup>19</sup> and PCPs may request a transfer of a patient's mental health treatment rather than collaborative or conjoint treatment.<sup>17</sup>

The degree of collaboration and interaction between concurrent providers is also unclear. Concurrent treatments may be parallel rather than collaborative. Patients often self-refer, and PCPs may not be aware that their patients are receiving MHP treatment.<sup>20</sup> Provider interactions may be limited to the PCP's recognition of depression and subsequent referral, or may involve joint responsibility for mental health treatment (eg, management of a psychotropic medication by a PCP and provision of psychotherapy by an MHP). There may be no communication or extensive ongoing communication, with joint decision making. The nature and degree of collaboration is likely affected by many factors.

We conducted a survey of family physicians in Michigan that elicited information about the concurrent treatment of patients with depression in the community. Our goals were to describe the concurrent treatment arrangements that exist in community settings, and to explore provider, environmental, and organizational factors that might be associated with increased provider collaboration.

## METHODS

### SURVEY INSTRUMENT DEVELOPMENT

A preliminary survey was drafted after a review of surveys on the concurrent treatment of patients by psychiatrists and nonmedical psychotherapists<sup>21,22</sup> and referrals by

PCPs to medical specialists and MHPs. (Klinkman, personal communication, 1992)<sup>23,24</sup> We conducted 3 focus groups, each consisting of 6 to 8 PCPs, to further develop the survey and ensure coverage of the important aspects of co-treatment.

The first focus group was composed of clinical faculty members from the University of Michigan Department of Family Medicine. The second and third focus groups were composed of community PCPs attending the university's continuing medical education symposia on coronary artery disease and the primary health care of women. These groups included internists, family physicians, physician assistants, and nurse practitioners from locations throughout Michigan. There were a total of 11 men and 11 women in the 3 focus groups. A semi-structured topic outline was used to elicit information about practice patterns and participants' experiences in treating depressed patients with and without an MHP.

Focus group data were analyzed and the survey was revised to include important aspects of co-treatment that emerged. Several items were added to reflect participants' concerns about collaborative treatments when patients were enrolled in managed care organizations. The preliminary survey was piloted with 41 family physicians attending a continuing medical education conference and revised again to improve question flow and eliminate items that did not demonstrate sufficient response variation.

### SURVEY CONTENT

The final self-administered survey contained 71 items and collected information about physician demographics and practice characteristics.\* Providers were asked to estimate the percentage of their time spent treating patients with significant depressive symptoms; the percentages of depressed patients they treated alone, co-treated with an MHP, or referred for treatment; PCP and MHP responsibilities in conjoint treatments; the frequency of and reasons for provider contacts; the effects of co-treatment on the frequency of patient visits; satisfaction with concurrent treatment; and barriers to establishing concurrent treatment. Several questions were asked separately for patients enrolled or not enrolled in managed care organizations. Finally, we asked providers to judge their interest in psychosocial issues compared with those of the "average family practitioner."

The majority of survey items (32) had 10-point Likert-type response scales. Twenty-two items asked physicians to estimate percentages of specific treatment practices (to add to 100%), and 2 items asked physicians to estimate percentages using a Likert-type scale. PCPs were asked 5 questions about the respective responsibilities of co-treating providers for important patient-care activities and were given 3 categorical responses for these items (the PCP, the MHP, or unclear).

\* Thirty-two of the survey items and text anchors are available on the *Journal's* Web site at [www.jfp.denver.co.us](http://www.jfp.denver.co.us).

## SURVEY SAMPLE

We obtained a list of family physicians in Michigan (N=2726) from the American Medical Association (AMA) master list maintained by P.P.S. Marketing Group, Inc. Physicians were eliminated from the list if they were residents, retirees, no longer in practice, or if they did not work in a patient-care area. We stratified the remaining physicians on the basis of practice location (rural or urban, according to the predominant metropolitan statistical area in the county of practice), date of medical school graduation (before 1966, 1966 to 1980, or 1981 and after), sex, and degree (MD or DO). After a random start, we took a systematic sampling fraction, resulting in an implicit stratified random sample. Because of the proportionate sampling strategy, the 320 physicians in the final sample mirrored the overall population of Michigan family physicians in stratified characteristics.

Nonrespondents to the first survey mailing received a second and third mailing as needed. After the second mailing, study personnel telephoned the offices of nonrespondents, leaving messages encouraging participation. Of the 320 physicians who were originally mailed surveys, 11 had retired, 1 was deceased, 1 was a resident, 1 had a revoked license, 10 had left family practice and were working in a non-primary care specialty, 3 were in administration without patient duties, and 17 had closed their practices or moved (nonrecipients). Physicians were considered to have moved if their former office staff confirmed a move before study mailings, or if no telephone listing could be found for the physician's address and the Michigan Licensing Board reported the physician did not have an active license. A total of 44 physicians were thus eliminated, leaving 276 eligible recipients.

Physicians were informed that the survey was confidential but not anonymous, and were offered an incentive for completing the questionnaire—either a \$25 donation to a charity or a \$25 book certificate.

## DATA ANALYSIS

Analyses were conducted on 160 of the 162 returned surveys. Two surveys were excluded from the analyses because the physicians reported that they did not spend any time treating patients with depression and they did not refer patients for treatment of depression—indicating an atypical case-mix or practice style.

We investigated whether there were significant differences between survey respondents and nonrespondents in age, sex, date of graduation, and practice setting, using information from the AMA master list. Chi-square analyses and *t* tests were used as appropriate.

Primary analyses involved point estimation of practice parameters (descriptive statistics). Medians and interquartile ranges are presented rather than means and standard deviations because most items had skewed distributions. To simplify the reporting of frequencies, physicians were said to have “not endorsed or weakly endorsed” an item if they circled 1, 2, or 3 on the 10-point Likert-type scale and

to have “endorsed or strongly endorsed” an item if they circled 8, 9, or 10. Survey items on comfort levels in treating depressed patients with and without an MHP were compared using the Wilcoxon signed rank test.

Secondary analyses explored factors that might be associated with increased collaboration. To ensure parsimony, a composite index of collaborative care was created to serve as the primary dependent measure. The index was constructed from 6 survey items: (1) the percentage of patients with depression in the PCP's practice who were co-treated by MHPs; (2) the PCP's comfort level in providing co-treatment; (3) the quality of working relationships with co-treating MHPs; (4) satisfaction with co-treatments; (5) closeness of working relationships; and (6) frequency of direct communication with co-treating MHPs.\* For items that physicians answered separately for managed and non-managed care patients, a mean response, weighted by percentage of managed care patients in the physician's practice, was calculated to represent the physician's overall practice. Survey items were converted to a common metric, and a mean was calculated for the items. The resulting composite index score had a normal distribution and a Cronbach's coefficient alpha of 0.73.

Multivariable regression was used to analyze the associations between the composite index of collaborative care and potential predictors of increased collaboration, including sex, type of medical degree, co-location of practice with an MHP, size of the town in which the practice was located, numbers of patients in typical half-day clinic, date of medical school graduation, and having a larger proportion of patients in managed care organizations. The independent variable for co-location was dichotomous (yes or no) indicating whether PCPs reported that at least some of the MHPs with whom they worked were located in the same building or practice. The size of the town was also entered as a dichotomous variable; PCPs were considered to work in a less populous area if they worked in a nonsuburban town with a population of less than 25,000. The numbers of patients in a typical half-day clinic were represented by 3 dummy variables, representing the lowest quartile, mid-quartiles, or highest quartile of patients seen in a typical half-day clinic. The variable for having more managed care patients was dichotomous; providers with 45% or more of their patients in managed care organizations (the upper quartile) were considered to have more managed care patients and a sufficient percentage to affect overall practice.

Finally, exploratory analyses were conducted of provider perceptions of co-treatment arrangements for patients enrolled or not enrolled in managed care organizations. If 20% or more of their patients were in managed care organizations, family physicians were instructed to answer 2 sets of identical items about the availability, expertise, and quality of co-treatments (one set for

\* Details of the construction of the composite index of collaborative care are available on the *Journal's* Web site at [www.jfp.denver.co.us](http://www.jfp.denver.co.us).

patients in managed care organizations and another for patients who were not). The significance of differences between replicated items was tested with the Wilcoxon signed-rank test, a nonparametric equivalent of the paired *t* test, using data from physicians who responded to both replicated items. The alpha level for significance was adjusted for multiple comparisons using a Bonferroni adjustment. (With 11 comparisons, a  $\chi$  of 0.005 was required for significance.)

All study analyses were completed using SAS software, version 6.12 (SAS Software, Inc, Cary, NC).

## RESULTS

### SURVEY RETURN

Surveys were returned by 162 (59%) of the 276 eligible physicians. Respondents did not differ from nonrespondents in age, type of medical degree, graduation date, or practice location. Female physicians were more likely to return the survey than male physicians ( $\chi^2 = 4.5$ ;  $P = .034$ ). Women represented 22.1% of the eligible recipients but made up 26.8% of survey respondents.

### PHYSICIAN DEMOGRAPHICS AND PRACTICE CHARACTERISTICS

Table 1 summarizes the demographics and practice characteristics of the physicians in the study analyses. The mean physician age was 45.7 years (standard deviation =  $\pm 11.1$ ) and the median year of medical school graduation was 1981 (range = 1935 to 1994). Seventy-nine percent of physicians spent 80% or more of their professional time in patient care. Most (62%) practiced in an urban location, and a large proportion (46%) worked in group practices. Physicians estimated that 30% (interquartile range [IQR] = 10% to 45%) of their patients were enrolled in managed care organizations.

### PCPs' PERCEPTIONS OF PRACTICE PATTERNS

On average, PCPs reported that 20% (IQR = 10% to 25%) of their patient care time was spent treating patients with significant depressive symptoms. They treated 50% of patients with depression by themselves (IQR = 30% to 70%), co-treated 30% with MHPs (IQR = 20% to 50%), and referred 10% of patients out for treatment (IQR = 5% to 20%). Physicians primarily co-treated with psychologists, a median of 42.5% of co-treatments involved these professionals (IQR = 20% to 60%).

Most PCPs worked with 4 to 6 MHPs, although 19% indicated that they worked with 10 or more. The large majority of PCPs worked with MHPs in different disciplines; only 4 of the 134 PCPs who answered this query worked with a single discipline. Twenty-two percent of PCPs reported that at least some of the MHPs with whom they worked were located in the same practice or building.

Only 16.6% of PCPs always or almost always communicated about shared patients with co-treating MHPs

TABLE 1

#### Physician Demographics and Practice Characteristics (N=160)

Characteristics	Respondents, %
Year of medical school graduation (n=159)	
Before 1974	23.9
1974 to 1986	47.8
After 1986	28.3
Sex (n=160)	
Women	26.8
Men	73.2
Medical degree (n= 160)	
MD	66.3
DO	33.8
Board-certified (n=156)	87.2
Community size* (n=155)	
Rural area	10.3
Small town	15.5
Medium town	12.3
Small city	16.8
Suburb of large city	25.8
Large city	19.4
Practice type (n=158)	
Self-employed solo practice	24.7
Two-physician practice	13.3
Group practice	45.6
Health maintenance organization	1.9
Medical school or academic practice	12.0
Nongovernmental hospital	2.5
No. of patients in a typical half-day clinic (n=160)	
<5	0.6
5 to 10	10.0
11 to 15	48.8
16 to 20	26.3
21 to 25	8.8
26 or more	5.6
Have an MHP in practice or building (n=153)	22.2
No. of MHPs with whom PCP works (n=155)	
0	3.9
1 to 3	27.1
4 to 6	41.9
7 to 9	8.4
>10	18.7
Disciplines of co-treating mental health providers (n=134)†	
Psychologists	46.6
Psychiatrists	26.6
Social workers	22.0
Other MHPs	4.8

Note: Some categories do not total 100% because of rounding. PCP denotes primary care physician; MHP, mental health provider.

\* Small towns have a population of < 5,000; medium towns, < 25,000; small cities, < 100,000, large cities, > 100,000.

†Mean estimate.

**TABLE 2**

**Distribution of Responsibilities Between Primary Care Physicians (PCPs) and Mental Health Providers (MHPs) in Collaborative Treatment of Patients with Depression**

Responsibility	PCP, %	MHP, %	Unclear, %	Both, %
Coverage of telephone calls relating to depression (n=154)	35.1	19.5	37.0	8.4
Coverage of emergencies related to depression during business hours (n= 156)	40.4	22.4	29.5	7.7
Coverage of emergencies related to depression after hours (n=155)	46.5	18.7	27.7	7.1
Developing an overall treatment plan for the patient (n=155)	29.7	28.4	34.2	7.7
Supervising or ensuring overall quality of care for depression (n=154)	51.9	18.2	23.4	6.5

Note: Primary care physicians were asked which provider had responsibility for the outlined patient care activities and were given 3 response categories: Me (the PCP), the MHP, or unclear. Survey instructions did not specify whether more than 1 item could be endorsed. Approximately 7% to 9% of the respondents endorsed both the PCP and the MHP on at least 1 item.

through letters, telephone calls, or in person. Most PCPs communicated with co-treating MHPs in approximately half of the shared cases. When PCPs did contact co-treating MHPs, the most common reason was to communicate at the beginning of treatment (25%; IQR = 10% to 50%) or to discuss a medication change (20%; IQR = 10% to 32%). Communication was rarely for joint treatment planning (10%; IQR = 1% to 25%).

PCPs' perceptions of the respective responsibilities of co-treating providers are summarized in Table 2. When PCPs were asked whether they or the MHP was responsible for taking depression-related calls, developing a treatment plan, and supervising the overall quality of care for depression, the largest proportion of PCPs reported that they were responsible for all these activities, except the treatment plan. Substantial minorities indicated that the responsibilities for these activities were "unclear," and 7% to 8% indicated that both providers were responsible. Only a small proportion (<15%) had ever used a written agreement that outlines co-treating providers' respon-

sibilities, even though 50.3% felt concerned or very concerned about legal liability in conjoint care. Co-treatment appeared to only minimally decrease the frequency with which PCPs saw patients; 43.6% reported that they either saw the patients at the same or greater frequency than when they handled the treatment alone. PCPs seemed receptive to the idea of co-treatment. The PCPs' median

**TABLE 3**

**Results of Multivariable Linear Regression Examining Predictors of Collaborative Care (N=140)**

Predictor	$\beta$	95% CI	P
Male	0.104	-.049 to .694	.732
MD degree	0.482	-.070 to 1.033	.089
Date of graduation	0.001	-.024 to .026	.926
Co-location	0.851	.265 to 1.437	.005*
Less busy	0.077	-.766 to 0.920	.858
Very busy	0.323	-.416 to 1.063	.393
Practice location in less populous area	-0.582	-1.095 to -.069	.028*
More managed care patients	-0.387	-.974 to .200	.199

$\beta$  denotes the regression coefficient; CI, confidence interval.

\*These independent variables were significantly associated with the degree of collaboration, as reflected by the scores on the collaborative care index.

ranking for comfort level “in treating depressed patients by yourself” was 8 on a 10-point scale, and the median ranking for comfort “with a co-treating MHP” was 9. This was a statistically significant difference (Wilcoxon signed-rank test,  $P < .001$ ), with an effect size between the small and medium sizes outlined by Cohen.<sup>25</sup>

**FACTORS ASSOCIATED WITH INCREASED COLLABORATION**

Multivariable regression indicated that physical co-location of MHPs and PCPs (practicing in the same office or building) was an important predictor of increased interaction and collaboration ( $P < .001$ ). Practicing in a nonsuburban town with a population of less than 25,000 was associated with decreased collaboration ( $P < 0.05$ ). Other PCP and practice characteristics, such as sex, date of graduation, type of medical degree, numbers of patients in a half-day clinic, and having a relatively larger proportion of managed care patients ( $\geq 45\%$ ) did not predict collaboration (Table 3).

**EFFECTS OF MANAGED CARE PROGRAMS ON COLLABORATION**

Although having a larger proportion of patients in managed care organizations did not predict collaboration in multivariable regression, PCPs who answered replicated items about co-treatment for patients enrolled or not enrolled in managed care organizations found collaboration to be more difficult when patients were enrolled. They found it more difficult to contact the MHPs of these patients, trusted these MHPs less, and felt that the quality of their working relationships was lower. However, they also reported that these patients were more likely to be able to afford mental health treatment and that MHPs saw these patients in an equally timely fashion (Table 4).

**DISCUSSION**

The concurrent treatment of patients with depression by MHPs and PCPs is common in the community. In our study, PCPs reported that approximately 30% of their patients with depression were being co-treated — an esti-

**TABLE 4**

**Physician Perceptions of Collaborative Treatment for Patients Enrolled and Not Enrolled in Managed Care Programs**

Perceptions*	Non-Managed Care Median Score (IQR)	Managed Care Median Score (IQR)	P
Availability of MHPs in area (n=76)	8 (7, 10)	8 (5, 9)	.0085
Accessibility of MHPs in area (n=75)	8 (6, 10)	7 (5, 9)	.0128
Expertise of available MHPs (n= 69)	8 (5, 9)	7 (5, 8)	.0006†
Quality of working relationships (n= 73)	8 (5, 9)	6 (4, 8)	<.0001†
Trust in the MHPs' care (n= 71)	9 (7, 10)	7 (5, 9)	<.0001†
Satisfaction with collaborative arrangements (n= 91)	6 (4, 8)	5 (4, 7)	<.0001†
Closeness of working relationships (n= 93)	5 (3, 7)	4 (3, 6)	<.0271
Willingness of patients to see an MHP (n= 94)	6 (4, 8)	7 (5, 8)	.0896
Patient's ability to pay for treatment (n= 95)	4 (3, 6)	7 (5, 8)	<.0001†
MHP sees patients in a timely manner (n= 92)	7 (5, 9)	6.5 (4.5, 8)	.0527
Ease of contacting MHPs (n= 93)	6 (4, 8)	5 (3, 7)	<.0001†

Note: If 20% or more of their patients were enrolled in managed care plans, family physicians were asked to answer 2 sets of replicated items about the availability, expertise, and quality of co-treatments: 1 set for patients enrolled in managed care organizations and another for patients not enrolled in managed care organizations.

MHP denotes mental health provider; IQR, interquartile range.

\* Numbers are for paired responses.

†Significance level set at <.005 with Bonferroni adjustment.

mate that did not include patients who may have been seeing an MHP without the PCP's knowledge. Most co-treatments were conducted with psychologists rather than social workers, psychiatrists, or other MHPs. This may reflect psychologists' more extensive involvement in family medicine training programs, a propensity for PCPs to transfer the mental health treatment of patients to psychiatrists rather than to co-treat with them, or the differing availability of these disciplines.

Co-treatments were generally well accepted. Although PCPs felt comfortable treating patients with depression by themselves, they reported a small but significant increase in comfort when co-treating with an MHP. However, the common and accepted community co-treatments did not resemble the intensive models proven effective in randomized controlled trials. The research collaborative models included extensive and ongoing communication about

concurrent cases. In our study, community PCPs and MHPs only made direct contact in approximately half of shared cases, and most contact was only for routine communication at the beginning of treatment.

Communication between co-treating providers did not always result in a clear delegation of patient-care responsibilities. A substantial minority of PCPs indicated that the responsibilities for several patient-care activities, including emergency coverage, were unclear in concurrent treatment. This response may have been because (1) both the PCP and the MHP were responsible for these services and there was double coverage; (2) responsibilities remained undefined or informally defined for a large group of patients; or (3) responsibilities were clearly defined for each patient but varied considerably from patient to patient. All disciplines of MHPs were included in the queries about patient-care responsibilities, and the clarity and distribution of patient-care responsibilities may have varied with MHP discipline.

Nevertheless, PCPs' substantial endorsement of "unclear" when asked about important treatment responsibilities raises concerns about a possible diffusion of responsibility in co-treatment. Even the explicit endorsement of double coverage implies that there may be a lack of clear responsibility or leadership in treatment planning and implementation. This lack of delegation may result in less efficient care. On average, PCPs co-treating with MHPs only minimally decreased the frequency with which they saw their patients with depression, perhaps because they continued to feel an undefined level of responsibility for all patient-care activities.

In our study, the most important predictor of collaborative treatment was the co-location of practices, suggesting that collaborative treatments are easier to develop and maintain if there is physical proximity. This finding may be of interest to providers, policymakers, and managed care organizations that hope to foster collaboration.

PCPs who responded to replicated survey items for managed care and non-managed care patients reported more difficulties when conducting collaborative treatments for those enrolled. This was consonant with the responses from our focus groups and with other reports about the effects of managed care organizations on the coordination and continuity of mental health treatment, especially when mental health benefits are managed separately from general medical benefits through carve-outs.<sup>26,27</sup> Most managed care organizations in Michigan are preferred provider organizations or network models, and carved-out managed behavioral health care organizations (MBHOs) are common. These organizations often have policies that require patients to access their mental health benefits personally and obtain treatment preauthorization, rather than allowing PCPs to directly refer a patient to a particular MHP. They frequently require that patients see MHPs in the organization's provider panel, even if these MHPs do not know or work with the patients' PCPs. Such policies may inadvertently

result in greater geographic or administrative dispersion of co-treating providers.

Although our study analyses are preliminary and may reflect providers' negative views of managed care rather than the impact of specific policies, managed care organizations and MBHOs should consider reviewing and identifying policies that might result in the greater separation of co-treating providers. They might consider providing incentives to increase MHP and PCP co-location and collaboration. Co-treating providers might consider increasing the frequency of their contacts and delegating patient responsibilities more clearly, and training programs might consider adding specific training in the collaborative treatment of patients with depression, and encourage residents to establish these relationships.

Additional research is needed on the effects and the outcomes of the less intensive and formal co-treatment arrangements that are common in community settings. Additional research is also needed on patients' and MHPs' views of collaborative treatment, strategies for increasing collaboration in community settings, and the effects of managed care policies on collaboration.

## LIMITATIONS

Although our response rate (59%) was similar to many other physician surveys,<sup>28-30</sup> selective survey response could have biased our results. Providers more interested in psychosocial issues may have been more likely to respond to the survey and more likely to have been involved in co-treatments. Fifty-eight percent of respondents perceived themselves as being much more interested in psychosocial issues than the typical family physician. Respondents' greater interest in psychosocial issues may also have made them more sensitive to any perceived shortcomings in co-treatment arrangements.

The use of a survey to estimate the frequency of concurrent treatments and the roles of co-treating providers may have been problematic. Although, physicians are commonly asked to describe their patient populations and practice patterns,<sup>31-33</sup> these descriptions may be subject to error. PCPs may have underestimated or overestimated the frequency and intensity of co-treatment arrangements. However, several of their estimates, such as the percentage of time spent treating patients with depression<sup>34</sup> and the percentage of patients in managed care programs,<sup>35</sup> were similar to published reports. Many of the physicians' responses about attitudes toward co-treatment could only have been ascertained through direct questions.

## CONCLUSIONS

Concurrent treatment of patients with depression by PCPs and MHPs is relatively common in the community; 30% of patients with depression who are treated by PCPs are also treated by MHPs. Provider contact occurs in about half of the shared cases and is fairly nonintensive. Thus, commu-

nity treatments do not resemble the intensive collaborative treatments proven effective in research settings. If concurrent treatments in the community are to become more collaborative, physical co-location of practices appears important. Additional research is needed on the effects of the less intensive and less formal collaborative treatments that are common in community settings.

**ACKNOWLEDGMENTS**

This research was supported by a grant from the Blue Cross Blue Shield Foundation of Michigan. The authors thank Carl Christoff for his help with data collection.

**REFERENCES**

1. Wells KB, Stewart A, Hays RD, et al. The functioning and well-being of depressed patients. Results from the Medical Outcomes Study. *JAMA* 1989; 262:914-9.
2. Broadhead WE, Blazer DG, George LK, Tse CK. Depression, disability days, and days lost from work in a prospective epidemiologic survey. *JAMA* 1990; 264:2524-8.
3. Unutzer J, Patrick DL, Simon G, et al. Depressive symptoms and the cost of health services in HMO patients aged 65 years and older. A 4-year prospective study. *JAMA* 1997; 277:1618-23.
4. Simon G, Ormel J, VonKorff M, Barlow W. Health care costs associated with depressive and anxiety disorders in primary care. *Am J Psychiatry* 1995; 152:352-7.
5. Regier DA, Narrow WE, Rae DS, Manderscheid RW, Locke BZ, Goodwin FK. The de facto US mental and addictive disorders service system. Epidemiologic catchment area prospective 1-year prevalence rates of disorders and services. *Arch Gen Psychiatry* 1993; 50:85-94.
6. Balestrieri M, Williams P, Wilkinson G. Specialist mental health treatment in general practice: a meta-analysis. *Psychol Med* 1988; 18:711-7.
7. Sturm R, Wells KB. How can care for depression become more cost-effective? *JAMA* 1995; 273:51-8.
8. Frank RG, Kamlet MS. Economic aspects of patterns of mental health care: cost variation by setting. *Gen Hosp Psychiatry* 1990; 12:11-8.
9. Schurman RA, Kramer PD, Mitchell JB. The hidden mental health network. Treatment of mental illness by nonpsychiatrist physicians. *Arch Gen Psychiatry* 1985; 42:89-94.
10. Katon W, Von Korff M, Lin E, et al. Collaborative management to achieve depression treatment guidelines. *J Clin Psychiatry* 1997; 58(suppl 1):20-3.
11. Katon W, Robinson P, Von Korff M, et al. A multifaceted intervention to improve treatment of depression in primary care. *Arch Gen Psychiatry* 1996; 53:924-32.
12. Von Korff M, Katon W, Bush T, et al. Treatment costs, cost offset, and cost-effectiveness of collaborative management of depression. 1998; 60:143-9.
13. Tyrer P, Ferguson B, Wadsworth J. Liaison psychiatry in general practice: the comprehensive collaborative model. *Acta Psychiatr Scand* 1990; 81:359-63.
14. Williams P, Balestrieri M. Psychiatric clinics in general practice: do they reduce admissions? *Br J Psychiatry* 1989; 154:67-71.

15. Miranda J, Munoz R. Intervention for minor depression in primary care patients. *Psychosom Med* 1994; 56:136-41.
16. Kates N, Craven M, Crustolo A, Nilolaou L, Allen C. Integrating mental health services within primary care: a Canadian program. *Gen Hosp Psychiatry* 1997; 19:324-32.
17. Coulter A, Noone A, Goldacre M. General practitioners' referrals to specialist outpatient clinics. I. Why general practitioners refer patients to specialist outpatient clinics. *BMJ* 1989; 299:304-6.
18. Orleans CT, George LK, Houpt JL, Brodie HK. How primary care physicians treat psychiatric disorders: a national survey of family practitioners. *Am J Psychiatry* 1985; 142:52-7.
19. Subotsky F, Brown RM. Working alongside the general practitioner: a child psychiatric clinic in the general practice setting. *Child Care Health Dev* 1990; 16:189-96.
20. Klinkman M, Coyne J. Undetected depression is not untreated depression: a report from the Michigan Depression Project (abstract). *Int J Psych*. In press.
21. Beitman BD, Chiles J, Carlin A. The pharmacotherapy-psychotherapy triangle: psychiatrist, nonmedical psychotherapist, and patient. *J Clin Psychiatry* 1984; 45:458-9.
22. Goldberg RS, Riba M, Tasman A. Psychiatrists' attitudes toward prescribing medication for patients treated by non-medical psychotherapists. *Hosp Community Psychiatry* 1991; 42:276-80.
23. Rudisill JR, Painter AF, Rodenhauer P, Gillen JC. Family physicians and referral for psychotherapy. *Int J Psychiatry Med* 1989; 19:249-62.
24. Rosenthal TC, Shiffner J, Panebianco S. Physician and psychotherapist beliefs influencing referral of patients for psychotherapy. *Fam Med* 1990; 22:38-41.
25. Cohen J. *Statistical power analysis for the behavioral sciences*. 2nd ed. Hillsdale, NJ: Lawrence Erlbaum Associates, 1988.
26. Lazarus A. The role of primary care physicians in managed mental health care. *Psychiatr Serv* 1995; 46:343-5.
27. White B. Mental health care: from carve-out to collaboration. *Fam Pract Manag* 1997 September; 36-8, 41-2,47.
28. Doukas DJ, Waterhouse D, Gorenflo DW, Seid J. Attitudes and behaviors on physician-assisted death: a study of Michigan oncologists. *J Clin Oncol* 1995; 13:1055-61.
29. Feldman EL, Jaffee A, Galambos N, Robbins A, Kelly RB, Fromm J. Clinical practice guidelines on depression: awareness, attitudes, and content knowledge among family physicians in New York. *Arch Fam Med* 1998; 7:58-62.
30. Asch DA, Jedrzejewski MK CN. Response rates to mail surveys published in medical journals. *J Clin Epidemiol* 1997; 50:1129-36.
31. Keenan JM, Boling PE, Schwartzberg JG, et al. A national survey of the home visiting practice and attitudes of family physicians and internists. *Arch Intern Med* 1992; 152:2025-32.
32. Wigton RS, Nicolas JA, Blank LL. Procedural skills of the general internist. A survey of 2500 physicians. *Ann Intern Med* 1989; 111:1023-34.
33. Lewis C, Clancy C, Leake B, Schwartz J. The counseling practices of internists. *Ann Intern Med* 1991; 114:54-8.
34. Knesper DJ, Pagnucco DJ. Estimated distribution of effort by providers of mental health services to US adults in 1982 and 1983. *Am J Psychiatry* 1987; 144:883-8.
35. HMO-PPO Medicare-Medicaid Digest 1997. *Managed Care Digest Series*. Kansas City, Mo: Hoechst Marion Roussel 1997; 1:18.