House Call Practices: A Comparison by Specialty

Alan M. Adelman, MD, MS; Lisa Fredman, PhD; and Aubrey L. Knight, MD
Hershey, Pennsylvania; Baltimore, Maryland; and Roanoke, Virginia

Background. There has been no national survey of physician house calls since 1980, and in particular, no survey of pediatric house calls in 30 years. This national study was undertaken to compare physician house call practices among family physicians, general internists, and general pediatricians.

Methods. A mail survey was conducted of 1500 primary care physicians who were randomly selected from the American Medical Association Physician Master File. Five hundred physicians were selected from each of three specialties: family medicine, internal medicine, and pediatrics.

Results. Nine hundred six questionnaires were returned for a response rate of 59%. The percentage of family physicians making house calls was significantly greater than that of internists or pediatricians (63%, 47%, and 15%, respectively). Factors associated with making house calls were: house calls being a common practice in the community, solo practice, specialty (family practice), sex (male), and practice location in the northeast. Physicians who agreed with the following attitudes were more likely to make house calls: (1) making house calls leads to high patient satisfaction; (2) house calls are important for good comprehensive patient care; and (3) house calls are satisfying for physicians. Physicians who agreed that making house calls exposes them to a significant malpractice risk were half as likely to make house calls.

Conclusions. Family physicians made significantly more house calls than internists or pediatricians.

Key words. House calls; physician's practice patterns; family, physicians. (*J Fam Pract 1994; 38:39-44*)

The home was once an important site of medical care for all age groups. Over the past few decades, there has been a steady decline in the number of house calls made in this country. Between 1960 and 1975, the number of house calls by physicians declined from 68 million to 17 million visits per year.[1] Not only has the number of home visits by physicians declined, but the percentage of physicians who make house calls has steadily declined. This decline seems to have leveled off in recent years.[2–8] Recent national surveys show that only 44% to 65% of primary care physicians make house calls.[6,8]

Despite this trend, the need for physician house calls is increasing rather than decreasing. Changes in hospital reimbursement and decreasing length of stay has resulted in patient discharge before optimal recovery. The number of patients of all ages receiving intravenous fluids, chemotherapy, and mechanical ventilation at home is increasing. Because of the increasing number of homebound, frail, elderly patients, the American Medical Association (AMA), the American College of Physicians, and the American Academy of Family Physicians have all called for increased physician house calls.[9–11]

Most published studies on house call practices deal with a single specialty or compare family physicians with internists. Additionally, studies of internists have included subspecialists. The purpose of this study was to compare the house call practices among three primary care specialties (family medicine, general internal medicine, and general pediatrics) and to identify factors that are associated with making house calls. Although the American Academy of Pediatrics has no policy statement on physician house calls, we included pediatricians because their house call practices have not been examined since the 1960s,

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From the Department of Family and Community Medicine, Pennsylvania State University, The Milton S. Hershey Medical Center, Hershey (A.M.A.); the Department of Family Medicine, University of Maryland at Baltimore (L.F.); and the Department of Family Medicine, University of Virginia, Roanoke Program, Roanoke (A.L.K.). Requests for reprints should be addressed to Alan M. Adelman, MD, MS, Department of Family and Community Medicine, Hershey Medical Center, PO Box 850, Hershey, PA 17033–0805.

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and an increasing number of pediatric patients are receiving high-technology care in the home.

Methods

Questionnaire

The questionnaire (available on request from the first author) used by Knight et al[6] was modified for use in this study. Areas addressed by the modified questionnaire included house call practices, reasons for making house calls, reasons for not making house calls, and attitudes toward some aspects of house calls.

All questions were closed-ended except those regarding the number of house calls in the past 2 weeks, number of patients seen in a typical 2-week period, length of time in practice, and number of years the respondent has made house calls. The questions addressing reasons for not making house calls and attitudes concerning house calls were scored on a Likert scale of 1 to 4, in which 1=strongly agree and 4=strongly disagree. Physicians who were currently not making house calls were asked their reasons for not doing so, while attitudes concerning the practice of home visits were solicited from all respondents. In the analyses concerning these questions, responses were collapsed into two categories: "agree" or "disagree." Before mailing, the questionnaire was pretested on 10 academic family physicians, some of whom made house calls.

Sample

The survey sample was drawn from the AMA Physician Master File and included only nonfederal, office-based physicians in the continental United States. A stratified random sample of 500 physicians from each specialty (family practice, internal medicine, pediatrics) was selected for a total of 1500 physicians. Internists and pediatricians with a reported subspecialty were excluded prior to sampling; however, internists and family physicians with the self-reported subspecialty of geriatrics were included. Physician name, address, age, sex, medical school, year of medical school graduation, and board certification were obtained from the master file. During the spring and summer of 1991, the questionnaire was mailed with a stamped return envelope. Nonrespondents were contacted with two additional mailings at 1-month intervals, for a total of three mailings.

Sample Size

The sample size was based on a study that showed that 82% of general practitioners and family physicians made house calls in contrast to 74% of internists.[4] For a power of .8 and an alpha of .05, 313 subjects per group were needed to determine a difference between 70% and 80% of two groups of physicians making house calls. Assuming a response rate similar to that obtained by Knight et al[6] (66%), 474 questionnaires would have to be mailed to obtain an effective sample of 313.

Statistical Analysis

Chi-square analysis was used to compare proportions among specialties. One-way analysis of variance was used to compare responses to continuous variables among the three specialties. Odds ratios and associated 95% confidence intervals were used to calculate the magnitude of association between physician characteristics and attitudes and the performance of house calls. Multiple logistic regression analyses were used to determine the factors associated with house call practices, while controlling for multiple covariables. Backward elimination procedures were used to construct the most parsimonious models of physician house calls.[12] The dependent variable was whether the physician made house calls. All independent variables that were significantly associated with performing house calls in the univariate analyses were initially entered into the multivariate models. A P value of .05 was used to exclude nonsignificant variables from the models.

Results

Nine hundred six of the 1500 questionnaires were completed and returned. Fifty-one of the 906 questionnaires were returned without responses because of retirement, medical specialty other than the three under study, refusal to complete, death, and in one instance, the respondent was not making house calls and did not complete the questionnaire. The remaining 857 questionnaires were used in the analyses for an effective response rate of 59% (855/1451).

There was no difference between respondents and nonrespondents with respect to sex, age, year of graduation from medical school, and region of country. There was a significant difference ($P<.01$) in the response rate by specialty, with 62% of pediatricians responding compared with 57% of family physicians and 52% of internists.

Table 1 shows characteristics of the respondents by specialty. The average age of respondents was 45.8 years ±11.0. The average number of patients seen in a typical 2-week period was 207±137. There was no statistically significant difference by specialty with respect to either age or number of patients seen.

Family physicians were significantly more likely to

Table 1. Characteristics of Respondents, by Specialty

Characteristic	Family Medicine (n=284) %	Internal Medicine (n=259) %	Pediatrics (n=312) %	*P* Value
Female	11	15	32	<.001
Completed residency training	73	99	99	<.001
Board certified	86	75	91	<.001
Practice site				
Urban	28	47	43	<.001
Suburban	34	42	46	<.05
Rural	38	12	13	<.001
Practice type				
Solo	40	36	30	<.05
Single specialty group	34	28	42	<.05
Multi-specialty group	16	17	14	NS
HMO/prepaid	4	9	7	NS
Academic	3	8	6	NS
Urgent care/emergency room	3	2	1	NS

NS denotes not significant.

Table 2. Characteristics of House Call Practice, by Specialty

Characteristic	Family Medicine (n=284) %	Internal Medicine (n=259) %	Pediatrics (n= 312) %
Type*			
Urgent only	29	34	75
Regularly scheduled only	11	17	7
Urgent and regularly scheduled visits	60	49	18
Frequency of house calls			
More than 5 per week	2	4	2
Between 1 per week and 5 per week	15	8	6
Between 1 per month and 1 per week	42	41	35
Under 1 per month	41	47	57
Time of day of house call†			
7 AM–noon	14	15	15
Noon–6 PM	40	38	13
6 PM–11 PM	41	43	66
11 PM–7 AM	4	3	6
Day usually make house calls†			
Weekday	85	86	66
Weekend	14	13	30
Holiday	1	1	5

*P<.05.
†P<.001.

make house calls compared with internists and pediatricians (63%, 47%, and 15%, respectively; $P<.001$). Of the physicians who were not currently making house calls, family physicians were more likely than internists and pediatricians to have made house calls in the past (57%, 28%, and 27%, respectively). The average number of house calls made in a typical 2-week period was 1.6±2.7. There was no statistically significant difference by specialty. Over 25% of the physicians who said that they made house calls had not made a house call in the previous 2 weeks. When questioned about changes in the number of house calls made each year, more than 80% of the physicians responded that the number had stayed the same or decreased. There was no statistically significant difference by specialty.

The characteristics of house call practices by specialty are shown in Table 2. As a percentage of all house calls made, pediatricians made more "urgent only" house calls than did family physicians or internists. Pediatricians also made more house calls between 6:00 PM and 11:00 PM. A higher proportion of family physicians traveled more than 10 miles to make a house call. The majority of physicians spent between 20 and 40 minutes on the house call. There was no difference by specialty with respect to frequency of house calls (>5 per week, 3%; 1 to 5 per week, 11%; >1 per month, 40.7%; <1 per month, 45.3%); average time spent on house calls (<20 minutes, 10%; 20 to 40 minutes, 56%; 41 to 60 minutes, 29%; >60 minutes, 5%); and number of years making house calls (0 to 5 years, 24%; 6 to 10 years, 25%; 11 to 20 years, 26%; >20 years, 25%). Table 3 shows the major reasons for making house calls and the resulting diagnoses. The major reasons for making house calls by family physicians and internists were chronic illness and terminal care, while the major reasons for pediatricians were acute and chronic illness.

The reasons for physicians not making house calls were examined. This group included physicians who never made house calls and those who made house calls in the past but were no longer making house calls. Significantly fewer family physicians reported the following reasons for not making house calls as very important or somewhat important: personal safety issues (family practice [FP], 31%; internal medicine [IM], 50%; pediatrics [Ped], 54%; $P<.01$); medical liability issues (FP, 43%; IM, 48%; Ped, 64%; $P<.01$); or concern for inability to provide usual quality of care in the home (FP, 76%; IM, 81%; Ped, 89%; $P<.05$). There was no difference by specialty regarding time constraints (FP, 87%; IM, 88%; Ped, 93%); inadequate reimbursement (FP, 63%; IM, 68%; Ped, 59%); or lack of laboratory and x-ray facilities (FP, 70%; IM, 67%; Ped, 69%).

Attitudes toward house calls were solicited from all respondents. The majority of physicians agreed or strongly agreed that: (1) house calls are useful for gathering information about the family and home environment; (2) house calls are a poor use of physician time; (3) house calls lead to high patient satisfaction; and (4) reimbursement for house calls is inadequate. Few physicians considered house calls important for comprehensive care or be-

Table 3. Percentage of Physicians Who Reported the Following Reasons and Diagnoses for Making House Calls Sometimes or Often

Characteristic	Family Medicine (n=284) %	Internal Medicine (n=259) %	Pediatrics (n=312) %	*P* Value
Reason for house call				
Acute illness	53	42	56	<.01
Chronic illness	80	84	42	<.001
Terminal care	86	81	34	<.001
Emotional problem/ family crisis	16	16	20	NS
Emotional support to patient/family	27	23	33	NS
Death pronouncement	39	33	11	<.05
Evaluation of home/ family situation	18	18	21	NS
Diagnosis for house call				
Cancer	74	73	18	<.001
AIDS	7	8	0	NS
Dementia	38	40	0	<.001
Mechanical ventilation	12	6	14	NS
Pressure sores	26	25	0	<.001
Arthritis	27	31	0	<.001
Stroke	54	58	0	<.001
Congestive heart failure	45	50	2	<.001
Paraplegia/quadriplegia	35	45	11	<.001
Newborn follow-up	8	0	41	<.001

AIDS denotes acquired immunodeficiency syndrome; NS denotes not significant.

lieved that house calls exposed them to significant malpractice risks. The majority of family physicians indicated that house calls are very satisfying for physicians while most of the internists and pediatricians disagreed with this statement ($P<.001$).

Table 4 shows the results of the univariate analyses regarding factors associated with making house calls. There was no statistically significant difference by age, year of medical school graduation, or years in practice between physicians who made house calls and those who did not. Male physicians were more likely to make house calls than were female physicians (odds ratio=2.87, 95% confidence interval, 1.96 to 4.20).

A logistic regression model was constructed. The strongest factor associated with making house calls was whether making house calls was a common practice in the community (odds ratio [OR]=10.24). Physicians who agreed with the following three statements of attitude were significantly more likely to make house calls: (1) making house calls leads to high patient satisfaction (OR =6.0); (2) house calls are important for good comprehensive patient care (OR=2.7); and (3) house calls are very satisfying for physicians (OR=1.9). Physicians who agreed that making house calls exposes them to a significant malpractice risk were half as likely to make house calls (OR=0.5). Other factors that were significantly associated with making house calls included: solo practice, specialty (family practice), male sex, and practicing in the

Table 4. Factors Associated with Making Physician House Calls

Factor	Odds Ratio	95% CI
Practice Characteristics		
Specialty		
Family medicine	4.04	3.01–5.41
Internal medicine	1.41	1.05–1.90
Pediatrics	0.15	0.11–0.21
Type of Practice		
Solo practice	1.99	1.49–2.65
Multispecialty practice	0.58	0.39–0.86
HMO/prepaid practice	0.16	0.07–0.34
Urgent care/emergency room practice	0.09	0.02–0.48
Practice Location		
Rural practice	2.67	1.91–3.73
Urban practice	0.60	0.45–0.80
Geographic Region		
Northeast	1.39	1.01–1.92
South	0.69	0.51–0.93
Community Characteristics		
House calls are common in the community	11.97	6.47–22.14
Home care services available in the community	2.45	1.07–5.60
Physician Attitudes		
House calls lead to high patient satisfaction	7.39	4.30–12.70
House calls are important for good comprehensive patient care	4.22	3.14–5.69
House calls are very satisfying for physicians	3.81	2.85–5.09
House calls are useful for gathering information about family relationships	1.79	1.12–2.85
House calls are a poor use of a physician's time	0.38	0.28–0.52
House calls expose physicians to a significant malpractice risk	0.35	0.26–0.48
Physician Educational Characteristics		
Physician made house calls as a resident	4.48	3.14–6.38
Residency faculty made house calls	3.85	2.69–5.53
Physician had residency training in family medicine	3.77	2.71–5.24
Physician had residency training in community-based program	2.05	1.51–2.79
Physician had residency training in internal medicine	1.71	1.26–2.32
Physician had residency training in university program	0.50	0.37–0.67
Physician completed residency training	0.38	0.24–0.61
Physician had residency training in pediatrics	0.16	0.12–0.23

CI denotes confidence interval.

northeast region (OR=2.8, 2.4, 2.3, and 1.8, respectively).

Discussion

Using a large national sample, this study found that the percentage of family physicians making house calls was significantly greater than that of either internists or pediatricians. Other studies have consistently shown that the percentage of family physicians making house calls is greater than that of internists.[2,7,8] Some statewide surveys report an even higher percentage of family physicians making house calls.[2,3,13] The type and frequency of house calls and the average time spent per house call by family physicians is similar to that reported previously.[6]

We found that only 15% of pediatricians made house calls. Previous descriptions of pediatric house call practice range from no visits[14] to an average of 15.1 house calls per week, representing 11% of the total number of visits for the week.[15] The American Academy of Pediatrics has no policy statement on house calls. In a 1989 editorial, Blumberg[16] implied that the house call was "an anachronism that has seen its day." Three years later, Steinkuller[17] stated that "increased interest in pediatric home visits has developed." This renewed interest is not yet reflected in pediatric training programs, since only 13% of pediatric residency programs offer house calls as part of their curriculum[17] as compared with 86% of family practice residency programs.[18]

Attitudes seem to play an important part in a physician's decision to make house calls. Because the overwhelming majority of physicians agreed with the statement "reimbursement for house calls is inadequate," this attitude was not associated with making house calls in either the univariate or multivariate analyses. However, most of the physicians who were not currently making house calls agreed that inadequate reimbursement was a reason for not making house calls. Physicians who make house calls would appear to be influenced by factors other than reimbursement. Keenan et al[8] found that physicians who agreed with the statement "reimbursement is inadequate for physicians' services in the home" were less likely to make house calls. In addition, they reported that nearly one half of their respondents would make more house calls if reimbursement were increased. Whether increased reimbursement would actually result in more physicians making house calls or an increase in the overall number of house calls remains unknown.

Family physicians are more likely to have positive attitudes toward house calls. These attitudes include the perception of a higher level of patient and physician satisfaction and the importance of house calls in providing comprehensive patient care. They are also less likely to believe that making house calls exposes physicians to a significant malpractice risk and that house calls are a poor use of physicians' time. There are no reports of house calls increasing malpractice risk. By increasing patient satisfaction, house calls should actually decrease malpractice risk. It has not been determined whether these beliefs are associated with choosing the specialty of family practice or develop as the result of family practice residency training.

Knight and colleagues[19] suggested that positive attitudes develop during training among graduates of family medicine programs in which the faculty or residents make house calls on a longitudinal basis, and that these new physicians are more likely to make house calls in their practice. Neale and associates[20] reported positive attitude changes in family practice residents' perceptions of the usefulness of home visits following completion of a home visit rotation. Steinkuller[17] reported that pediatric residents who had participated in a pilot home visit program had more positive attitudes than nonparticipating residents. Exposure to a structured house call rotation can increase favorable attitudes among medical students and residents.[21] Our results also suggest that the performance of house calls by residency faculty may be a factor in creating a positive attitude.

With an aging population and a growing number of homebound elderly patients, there is a need for strategies to increase both the number of physicians making house calls and the number of house calls each physician makes. This and other studies suggest possible strategies. First, negative attitudes among physicians toward house calls need to be changed. Physicians who make house calls feel that the experience is very satisfying for both themselves and their patients. Exposing medical students and residents to house calls is one way to foster positive attitudes about the practice. A required house call curriculum should be a part of both medical student and resident training. Second, a more favorable reimbursement system should be implemented for house calls. This would serve to encourage physicians making house calls to continue, and would provide an incentive for physicians to begin or resume making house calls. Approximately one third of the physicians who do not currently make house calls made them in the past.

There are several limitations to this study. Because it was cross-sectional, it is impossible to determine whether factors associated with house calls preceded or resulted from making house calls. This study measured house call practices by physician self-report, which might have resulted in inaccurate recall of house call practices. Actual practice may differ from self-report. Although we could not assess the potential for this bias, it is likely that inaccuracies in recall occurred in all physician groups, and that

these inaccuracies were not systematic. The percentage of physicians making house calls as reported in this study may be inflated if physicians who made house calls were more likely to respond. This did not appear to be the case with pediatricians, since, as a group, they had the highest response rate and the lowest percentage of physicians making house calls.

The percentage of family physicians making house calls is significantly greater than that of either internists or pediatricians. Several attitudes (making house calls leads to high patient satisfaction, house calls are important for good comprehensive patient care, and making house calls is very satisfying for physicians) are associated with making house calls. With a growing homebound geriatric population, there is a growing need for house calls. Strategies to increase both the number of physicians making house calls and the number of house calls made by each physician need to be developed.

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References

1. Fry J. Home visiting: more or less? J Fam Pract 1978; 7:385–6.
2. Warburton SW, Sadler GR, Eikenberry EF. House call patterns of New Jersey family physicians. J Fam Pract 1977; 4:933–8.
3. Hayton A, Dietrich A, Simmons J. House calls by New Hampshire family practitioners. Fam Pract Res J 1986; 6:22–7.
4. Wickware DS. Three of four family doctors make house calls. Patient Care 1973; 8:105–18.
5. Profile of office-based practice of active Academy members. Kansas City, Mo: Division of Research and Information Services, American Academy of Family Physicians, 1980: 31–2.
6. Knight AL, Adelman AM, Sobal J. House call practices among young family physicians. J Fam Pract 1989; 29:638–42.
7. Boling PA, Retchin SM, Ellis J, Pancoast SA. The influence of physician specialty on housecalls. Arch Intern Med 1990; 150: 2333–7.
8. Keenan JM, Boling PA, Schwartzberg JG, et al. A national survey of home visiting practice and attitudes of family physicians and internists. Arch Intern Med 1992; 152:2025–32.
9. Council on Scientific Affairs. Home care in the 1990s. JAMA 1990; 263:1241–4.
10. Health and Public Policy Committee A. Home health care. Ann Intern Med 1986; 105:454–60.
11. American Academy of Family Physicians. 1991–1992 Compendium of AAFP positions on selected health issues. Kansas City, Mo: American Academy of Family Physicians, 1992.
12. Kleinbaum DG, Kupper LL, Morgenstern H. Epidemiologic research: principles and quantitative methods. Belmont, Calif: Lifetime Learning Publications, 1982: 476–91.
13. Keenan JM, Bland CJ, Webster L, Myers S. The home care practice and attitudes of Minnesota family physicians. J Am Geriatr Soc 1991; 39:1100–4.
14. Bergman AB, Dassel SW, Wedgwood RJ. Time-motion study of practicing pediatricians. Pediatrics 1966; 38:254–63.
15. Hessel SJ, Haggerty RJ. General pediatrics: a study of practice in the mid-1960's. J Pediatr 1968; 73:271–9.
16. Blumberg RW. The house call—is it an anachronism that has seen its day? Am J Dis Child 1989; 143:1281.
17. Steinkuller JS. Home visits by pediatric residents. A valuable educational tool. Am J Dis Child 1992; 146:1064–7.
18. Graham AV, Krick JP. Family home assessment in family practice residency programs. J Fam Pract 1981; 13:217–21.
19. Knight AL, Adelman AM, Sobal J. The house call in residency training and its relationship to future practice. Fam Med 1991; 23:57–9.
20. Neale AV, Hodgkins BJ, Demers RY. The home visit in resident education: program description and evaluation. Fam Med 1992; 24:36–40.
21. Page AE, Walker-Bartnick L, Taler GA, Snow DA, Wertheimer DS, Al-Ibrahim MS. A program to teach house calls for the elderly to fourth-year medical students. J Med Educ 1988; 63:51–8.