

Retention of Rural Physicians: Factors Affecting Attrition

by

Alan R. Ertle

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Approved by

[Redacted Signature]

[Redacted Signature]

[Redacted Signature]

(Committee Member)

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[Redacted Text]

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INTRODUCTION

Differences in the supply of health care personnel between urban and rural areas have been recognized for many years. One of the factors that limits access to health care in rural areas is lack of health care personnel. Improving access to health care in rural areas has been a major policy goal in the United States for several decades. The latest era of attention to rural health care resources was ushered in the 1970s and was termed the rural “renaissance” (Patton, 1989).

Controversy over increasing the supply of rural health care personnel occurred in the 1980s. It was debated whether market forces alone would be enough to attract physicians to rural areas or whether governmental intervention was needed (Fruen and Cantwell 1982; Williams et al., 1983). Physician supply in rural areas did improve from 1975 to 1988. The most remote rural areas had an increase in the ratio of primary care physicians to 100,000 population from 29.0 to 38.2, in contrast the ratio of primary care physicians to 100,000 population increased from 86.6 to 116.0 in urban areas (Frenzen, 1991). Despite the improvements in rural physician supply, the health care personnel disparity between rural and urban areas continues to widen. Decreasing medical student interest in primary care specialties complicated efforts to increase rural physician supply in the 1980s (Bruce, 1990).

Programs to recruit and retain rural physicians

Corrective measures have been developed over the last twenty-five years to improve the supply of rural practicing physicians, including governmental and private programs. The medical education establishment has also been involved in attempts to increase the supply of physicians in rural areas. The focus of most of these programs has been to recruit more newly trained physicians into rural practice with the hope that those physicians would remain in rural

areas.

Federal programs to increase physician supply in rural areas took three forms: (1) scholarships and loan forgiveness; (2) funds for new and/or modified medical training programs in primary care; and (3) designation of funds for health service delivery programs (Sheps and Bachar, 1981). The National Health Service Corps (NHSC) is the primary program of the government for scholarships and loan forgiveness and was started in the early 1970s as a result of the Emergency Health Personnel Act of 1970 (PL 91-623). Health Manpower (Personnel) Shortage Areas (HMSAs) were identified as designated sites for the NHSC physicians. The NHSC has placed over 16,500 physicians and other providers in medically underserved rural and urban communities during its first 20 years. However, placement of physicians in rural areas does not translate into long term retention. A study by Pathman and coworkers showed that NHSC physicians are less likely to stay in their initial rural practice, or in any rural practice, compared to non-NHSC physicians. Median tenure in the index practice was 3.0 years for NHSC physicians and 6.0 years for non-NHSC physicians (Pathman, Konrad and Ricketts, 1992). Further evaluation of NHSC physicians in the late 1980s showed that NHSC physicians had lower satisfaction and retention than non-NHSC physicians (Pathman, Konrad and Ricketts, 1994b).

The federally funded Area Health Education Center (AHEC) program was designed to provide educational training opportunities for health care workers in rural areas and provide educational resources to physicians and other health professionals already in rural practice. The AHEC program was described by the Carnegie Commission on Higher Education as a “mini-academic medical center campus” located at some distance from the university, highlighting

AHEC's role as a bridge between the academic and service sectors (Mayer, 1990). AHEC programs do not directly recruit rural physicians.

State governments have also developed programs to help recruit and retain rural physicians. The Oregon Office of Rural Health determines the level of underservice for all rural Oregon areas and then helps the most underserved areas with recruitment and retention activities (Whitaker and Ennis, 1994; Osterud, Cawthon and Whitaker, 1990). Other states have established offices of rural health to help meet their rural health needs (Holden, 1990). Oregon also has a tax incentive program for physicians who practice in rural underserved areas. In contrast, North Carolina, in response to a severe drop in the number of obstetrical providers in rural areas from 1985 to 1989, developed and implemented a malpractice insurance subsidy in an attempt to induce physicians to continue providing obstetrical service in rural areas (Taylor et. al., 1992).

The W. K. Kellogg Foundation and the Robert Wood Johnson Foundation have developed programs to improve the supply of rural physicians and improve access to care in rural areas. The Robert Wood Johnson Foundation launched a major program in the mid-1970s which encouraged the development of physician/administrator teams at Foundation-sponsored clinics in rural areas (Aday, 1985). The model included significant community input and support. This coordinated approach was felt to have the best chance of success; however only thirteen sites were funded. Another Robert Wood Johnson Foundation program, the Community Hospital-Medical Staff Sponsored Primary Care Group Practice Program, had community hospital-sponsored primary care as its core. Fifty three sites were funded of which 26 percent were in rural areas (Aday, 1985). The long-term effect of these various programs on the recruitment and

retention of rural physicians is unknown.

Schools of Medicine have changed to address the need for more primary care physicians and for more rural physicians. Some of the approaches include: preferential admissions policies for students who come from rural areas; required and/or elective rural rotations during medical school in the hope that exposure to rural practice will encourage physicians to practice in rural areas; required and/or elective rural rotations during primary care residencies with the same reasoning; and the establishment of primary care residencies in rural areas. The direction and magnitude these changes in medical training have had on recruiting and retaining rural physicians is not known.

Factors that affect physician's choice to practice in a rural area

Factors affecting a physician's choice of rural practice or a particular rural practice setting have been evaluated by many investigators. The broad categories of factors related to recruitment which have been studied include: practice preference; social/cultural; community; health resources; and economic. Most studies are surveys of physicians who chose to practice in rural areas without a comparison group. Bruce and coworkers surveyed medical students attitudes towards choosing rural practice and found that rural preference, climate, geography, spouse influence, group practice option, medical need of the area, clinical support, cultural and social factors, and schools for children were the most important factors in descending importance (Bruce and Norton, 1984). Anderson and coworkers surveyed rural family physicians who had graduated from a residency program in Minnesota in 1990 and 1991 (Anderson, Bergeron and Crouse, 1994). The physicians' choice of their particular rural practice was dependent on the characteristics of their partners in practice, followed by geographic location, availability of

recreational activities, call schedule characteristics, and opportunities for spouse and children in that geographic area. A study by Ernst and Yett indicated other important factors influencing physicians' choice of entering a particular rural practice including: access to hospital facilities; degree of professional isolation; avoiding excessive workloads; opportunity to join group practices; adequate income; desire to be near family or friends; recreational and cultural opportunities; area population income; and age and racial distributions of the population (Ernst and Yett, 1985). Community factors that affected newly trained physicians decision to locate in rural counties were evaluated by Langwell and coworkers by multivariate analysis (Langwell et al., 1987). County factors which correlate with successful recruitment of physicians included: higher population density; proximity of colleges and universities; higher income levels; increased availability of health resources; cooler climate; more winter precipitation; higher white collar employment; and non-farm based economies (Langwell et al., 1987).

Wide variation exists in the success of medical schools at encouraging physicians to practice in rural areas. Rosenblatt and coworkers found that graduates from 12 of 126 medical schools accounted for 25.6 percent of all physicians in rural practice, and graduates of 61 medical schools accounted for less than 25 percent of the total rural physicians (Rosenblatt et al., 1992). The strongest association with rural practice location is the rurality of the state where the medical school was situated.

Many rural practice opportunities exist. A major barrier to recruitment continues to be finding a practice opportunity that meets the majority of needs and desires of the physician and his or her family (Anderson, Bergeron and Crouse, 1994).

Attrition rate of rural physicians

Even with success in initially recruiting physicians into rural practice, the attrition rate of rural physicians continues to drain their supply. Assessment of the mobility of Arkansas physicians in small communities showed that between 1962 and 1974, 42 percent of physicians who started a practice in a community of less than 6000 left for other practices within two years (Bruce, 1990). A more comprehensive study was done to evaluate attrition of primary care physicians who first registered to practice in rural and urban North Carolina after 1981 (Horner, Samsa, and Ricketts, 1993). This cohort of physicians was followed for length of tenure and for the location of the new practice if the physician left the index practice. Approximately 25 to 30 percent of practices terminated in the first year. Average tenure of rural physicians was 4.6 years with about a 50 percent attrition rate during the follow-up period. The risk of changing of practice sites was 28 percent greater for rural physicians. Of the 20 percent of rural physicians who changed locations within the state, half remained in rural practice and half went to urban practices (Horner, Samsa and Ricketts, 1993). Studies suggest that approximately 50 percent of new rural physicians leave in four to five years. Of those who leave, half will relocate to urban areas, while the other half will relocate to other rural areas. This translates to a 25 percent loss of new rural physicians over four to five years.

Evaluation of factors that affect the retention of rural physicians

Few studies have been done of the factors affecting retention of rural physicians. Most of the studies are surveys and do not have comparisons with other groups of physicians. A survey of 20 physicians in Gadsden County, Florida found that many factors initially appealing to them about this rural practice location became factors adversely affecting retention (Conte, Imershein

and Magill, 1992). Access to a regional medical center and a nearby metropolitan area were both cited as positive attributes in their initial choice of practice location, but they ended up resulting in a highly divided medical system with significant competition for health care services.

Physicians who participated in this study described limited opportunities for professional growth, dissatisfaction with their income potential, and excessive workloads (Conte, Imershein and Magill, 1992). A large Canadian survey of 2400 rural physicians including 400 who moved from rural to urban areas was conducted by the Canadian Medical Association. Factors that were important in the physician's decision to move from a rural to an urban area included: long work hours, lack of professional back-up, lack of access to specialty services, desire to seek additional training, limited hospital services, limited opportunity for continuing medical education; and reduced earning potential (Rourke, 1993). Rural physicians in Oklahoma were surveyed to determine factors that may lead to leaving their current practice and what possible changes that would prevent them from leaving (Hanley, 1990). The most common factors included: unequal pay/reimbursement; lack of up-to-date technology and facilities, lack of adequate staffing; poor local economies; professional isolation; lack of back-up coverage; and lack of specialists or a tertiary care facility. Changes that these rural physicians listed as potentially increasing their satisfaction with practice included: more paying patients; better back-up coverage; equitable Medicare/Medicaid reimbursement; more time off; better quality facilities, equipment, and personnel; and a partner (Hanley, 1990).

Several theories persist relating to medical education and the likelihood of physicians locating and staying in rural areas: 1) medical students who attend public medical schools are more likely to stay in rural practices than students from private medical schools; 2) medical

students who trained in a university hospital-based residency program were less likely to stay in rural practice as compared to those who trained in a community hospital; and 3) retention is increased among students who have a rural rotation as either a student or as a resident. In spite of the persistence of these theories in the academic medical literature, a cohort study by Pathman, Konrad and Ricketts from the University of North Carolina found that rural retention was not affected by these factors. In fact, the study found that both for non-NHSC physicians and NHSC physicians, length of tenure in rural practice was shorter for graduates of public medical schools than for private medical schools (Pathman, Konrad and Ricketts, 1994a). Because of these conflicting findings, our understanding of the issues affecting recruitment and retention of rural physicians is not well understood.

A variety of factors contribute to a physician's decision to leave rural practice for another practice. The most common factors cited above include income, work load, time off, professional isolation, access to specialty care, work facilities, and access to continuing education. It is not clear if these factors are unique to rural physicians who change practice locations. Rapid changes in the health care delivery system may have a significant impact on the attrition rate of rural physicians, but these effects have not been studied. Further evaluation of these factors is important because attrition remains high, resulting in a persistent problem of supply of physicians in rural areas.

Conclusion

Access to health care is limited in rural areas due, in part, to fewer health care providers per capita. Many programs have been developed to improve physician supply in rural areas through recruitment of new physicians into rural practice. The problem of inadequate physician

supply in rural areas is exacerbated by high attrition rates. Many factors contribute to the decision to leave rural practice, but the relative importance of each factor is not understood. It is also not known whether the factors associated with dissatisfaction and the decision to leave a rural practice are unique to this group of physicians or if these factors are common to the practice of medicine in general. Previous studies are largely descriptive with no systematic comparisons to other physician groups. A thorough systematic comparison of factors associated with both practice dissatisfaction and with the decision to leave a given practice could provide valuable insight into individual decision making regarding choice of practice location. This insight could inform policies and programs addressing this problem.

This study will investigate factors that are associated with the attrition of primary care physicians in rural areas who have changed practice locations within the past five years and compare these to three other groups of physicians including primary care physicians who have remained in the same rural practice, physicians in urban areas who have changed practices, and physicians who have remained in the same urban practice. Inadequate income and too much time spent on call are postulated to be the two major reasons that rural practicing physicians cite as the reason to leave their rural practice. The selection of these two factors as primary factors cited is based on personal experience and the study of rural Oklahoma and Canadian physicians (Hanley, 1990; Rourke, 1993). It is expected that the primary reasons will differ from those cited by urban practicing physicians who leave a practice. This study will compare relative satisfaction or dissatisfaction with various aspects of medical practice between groups of physicians. Satisfaction with the financial aspects and time commitments of practice are expected to be significantly lower for rural physicians who left a practice as compared with rural physicians

who have remained in the same practice, urban physicians who changed practices, and urban physicians who have remained in the same practice. This information can then be used for the development of future policies and programs which seek to aid in the retention of rural physicians.

This study is exploratory with small sample sizes, and sampling of some groups will be by convenience. Formal hypothesis testing will not be possible. However it is expected that significant insight will be gained and that refinement of the survey instrument will be possible.

METHODS

Study Design

Physicians licensed in Oregon in 1990 were assigned to one of the following groups: rural physicians who changed towns between 1990 and 1995 (*Rural Leavers*); rural physicians who remained in the same town between 1990 and 1995 (*Rural Stayers*); urban physicians who changed cities between 1990 and 1995 (*Urban Leavers*); and urban physicians who remained in the same city between 1990 and 1995 (*Urban Stayers*). Physicians were excluded if there was a discrepancy between original group assignment prior to mailing and survey response indicating they were not in the original group.

Selection of Rural Towns

Oregon has 127 federally designated primary care service areas used for designation of Health Personnel Shortage Areas as well as for other designations. Of these service areas, 102 are more than ten miles from an urban area of 30,000 population or more, and are thus defined as rural by the Oregon Office of Rural Health. The towns with at least one physician in these 102 rural primary care service areas numbered 117 and were the rural towns used in this study.

Selection of Study Subjects

Primary care physicians (PCPs) were defined as those physicians who listed specialties as Family Practice, General Internal Medicine, Obstetrics and Gynecology, Gynecology, Obstetrics, Pediatrics, or General Practice. PCPs in the 117 rural towns were identified using the *Directory of Registered Licensees: Board of Medical Examiners of the State of Oregon*

1989-1991 published using data from March, 1990 (Jene, 1990). This list was compared to the *Quarterly Physicians List: Board of Medical Examiners of the State of Oregon* from April, 1995 to identify PCPs who were no longer listed in the same towns as 1990 (McKenzie, 1995). The rural PCPs who were not listed in the same towns from 1990 to 1995 totaled 231. The alphabetical index from the *Quarterly List* from April, 1995 was used to determine current addresses for those who had changed practice towns and maintained an active license to practice medicine in the State of Oregon. Sampling methods for the four physician groups varied because current addresses could be found for only small numbers of leavers (rural and urban). Current addresses were found for a total of 62 rural PCPs who had changed practices. These 62 subjects comprised the *Rural Leavers* who were sent surveys. A random sample of 50 of the 541 rural PCP's who had remained in the same town from 1990 to 1995 was obtained and this list comprised the *Rural Stayers*. All urban physicians identified in the *Directory 1989-1991* were systematically compared with *Quarterly List* from April, 1995 to identify urban physicians who had changed towns. Determination of whether a PCP left urban practice from 1990 to 1995 proved to be difficult for the area in and around Portland. Many PCPs who moved did so within the urban area in and around Portland and could not be identified as changing practice locations, and many of those PCPs who did leave the Portland area were physicians in training and would not be appropriate for this study. All urban (by the definition of the Oregon Office of Rural Health) PCPs who were listed in Eugene, Medford, Springfield, Corvallis and Salem who had changed practice towns and who had a current address available were used in this sample. This list from the smaller urban Oregon cities was combined with a random sample of Portland area PCPs who had changed practice towns, for a total of 49 PCPs

as was termed the *Urban Leavers*. A stratified random sample of 50 PCPs from Portland, Eugene, Salem, and Medford who had remained in the same practice city from 1990 to 1995 was obtained which was termed the *Urban Stayers*.

Selection of Variables

Variables included on this survey instrument were adopted from the literature regarding factors that affect the recruitment and retention rural practicing physicians. Survey instruments in previous studies were obtained from the authors, Dr. Donald Pathman and Dr. J.T.B. Rourke (Pathman, Konrad and Ricketts, 1994b; Rourke, 1993). This study was intended to be an exploratory study so an attempt was made to be exhaustive and include all of the previously identified factors that may affect retention. The five main areas of questions were: demographics; practice characteristics; reasons for leaving a practice; measures of satisfaction/dissatisfaction; and inducements to stay/plans to leave. The solicited survey instruments were used to insure that all major topic areas were included and as exhaustively as possible. No questions were used directly from these survey instruments. All questions were rewritten and reformatted for this survey instrument.

In the current study, two different survey instruments were used, one for physicians who had left a practice (*Rural Leavers* and *Urban Leavers*) and the other for physicians who had remained in the same practice from 1990 to 1995 (*Rural Stayers* and *Urban Stayers*). The differences between the two survey instruments were inclusion of practice characteristics and demographic questions relating to both the practice left and the current practice, open ended ranking of reasons for leaving for those who left, possible inducements to stay for those

physicians who left, and questions about plans to leave for those who stayed. Surveys were mailed with a coded stamped self-return envelope. Two weeks after the initial survey was mailed a reminder postcard was sent to non-responders. Three weeks after the initial survey a second survey was mailed to non-responders. This was followed at week four with reminder phone calls to non-responders.

Data Analysis and Statistical Methods

Response rates were calculated for each group of physicians surveyed. Descriptive statistics including mean, median, standard deviation, and quartiles were obtained for all data exclusive of open ended reasons for leaving and questions relating to inducements to stay or plans to leave. The tenure reported is the length of time spent in the practice left for the leavers and the length of time in the current practice for the stayers. Reasons for leaving and their rankings were combined into categories such as financial and work load without statistical analysis. The proportion of both groups of *Leavers* that stated that they could have been induced to stay was calculated as was the proportion of both groups of *Stayers* that were planning to leave their current practices. Specific inducements to stay were tabulated without statistical analysis.

Because of small sample sizes and inability to meet the assumptions necessary for parametrical statistical analysis such as normal distributions and equal variances, the primary method of determining possible differences between all four groups was the Kruskal-Wallis rank sum test. Pairwise comparisons between groups were done using the Wilcoxon rank sum test. Income data were also evaluated using Analysis of Variance and pairwise comparisons with t

tests with the Bonferroni correction technique. All data processing and analysis were performed using the S-PLUS 3.1 for Windows software program (StatSci, Seattle, Washington) (Everitt, 1994; Spector, 1994; Venables and Ripley, 1994).

Between Group Comparisons

Detailed analysis was performed comparing demographics, practice characteristics, and Likert Scale measures of satisfaction/dissatisfaction for the practices **left** by the *Rural* and *Urban Leavers* and both groups of *Stayers*.

Within Group Comparisons

Comparisons were made between the practices which were left and the current practices for the *Rural Leavers* for both the demographics and practice characteristics. The same comparisons were made between the practices which were left and the current practices for the *Urban Leavers*.

Combined Group Comparisons

Measures of satisfaction/dissatisfaction were also compared by combining information from the *Rural Leavers* and *Rural Stayers* and by combining information from *Urban Leavers* and *Urban Stayers* to identify differences between rural and urban physicians.

Limitations

Two definitions of rural were considered for this study because of limitations with all definitions of rural. The first definition of rural considered was non-Metropolitan Statistical Area (non-MSA) counties of Oregon as defined by the federal Office of Management and Budget. A major advantage of MSA versus non-MSA designation is that it is available for all states. The Metropolitan Statistical Area (MSA) counties of Oregon are: Clackamas, Columbia, Jackson, Lane, Marion, Multnomah, Polk, Washington, and Yamhill. All other counties in Oregon are non-MSA counties. The use of MSA and non-MSA designation as the definition of rural is not without problems. There are many portions of MSA counties that are relatively rural and many areas of non-MSA counties that are adjacent to metropolitan areas. The other definition of rural considered was that used by the Oregon Office of Rural Health. There are 127 Primary Care Service Areas within Oregon that are "logical" primary care service areas that are used to define Health Personnel Shortage areas (HPSAs). Of the 127 Primary Care Service Areas, 102 are considered "rural" by the Oregon Office of Rural Health. This definition allows for towns within remote areas of MSA counties to be considered rural. The towns considered rural for this study were within these 102 rural Primary Care Service Areas and totaled 117. Urban cities were defined as all other cities and towns. The definition of rural used by Oregon Office of Rural Health was the one adopted for this study because of small sample sizes and the exploratory nature of this study.

This study must be interpreted with some reservations. The sample sizes were small and random only for the *Rural Stayers* and *Urban Stayers*. *Rural Leavers* and *Urban Leavers* were sampled by convenience in that they could be identified as leavers and a current mailing

address was available. The useable response rate was 39.8% which may introduce possible bias as it is not known if the responders differed from the non-responders. The useable return rate for the *Urban Leavers* was quite low and reflects the difficulty in correctly identifying *Urban Leavers* in the Portland, Oregon metropolitan area with the Oregon Board of Medical Examiners publications. There is an over-representation of OBG physicians in the *Urban Stayers*. This may or may not be appropriate as there were no OBG physicians in either rural group. OBG physicians may differ in many ways compared to other PCPs. Possible solutions are to either over sample OBG physicians in the rural groups or to eliminate them from the urban groups.

Human Subjects

This study was granted an exemption by the Human Subjects Committee of the Institutional Review Board at Oregon Health Sciences University.

RESULTS

There were 24 useable replies for the 62 *Rural Leavers* (38.7%), 25 useable replies for the 50 *Rural Stayers* (50.0%), 12 useable replies for the 49 *Urban Leavers* (24.5%), and 23 useable replies for the *Urban Stayers* (46%) for a total of 84 useable replies from 211 surveys mailed (39.8%). Fifty surveys (23.7%) were returned where the physician had been misidentified as to their status as a stayer or a leaver, or who had retired. Eight surveys were returned unopened due to incorrect addresses (3.9%), and 69 were not returned (32.7%).

Demographics

Table I (below) summarizes the demographic characteristics of each of the four groups. *Rural Leavers* and *Urban Leavers* were 3 to 5 years younger than their counterparts who stayed (Chi Square = 8.55, p value = 0.036). The proportion of male physicians varied from 66.7% to 92% and tended to be higher in both groups of rural physicians. Tenure averaged 8 years for *Rural Leavers* and 16 years for *Rural Stayers* and is significantly different (Z value = -3.61, p value = 0.0003) and averages 4 years for *Urban Leavers* and 13 years for *Urban Stayers* and is significantly different (Z value = -3.16, p value = 0.0016).

Only five of 84 physicians did not report income information. Income values include the last year of the practice which was left for leavers or for the year 1990 for the stayers, and also include 1994 incomes for all groups. The average date of departure for the *Rural Leavers* was January of 1992 indicating an average fiscal year of 1991 for their earlier income values, and for the *Urban Leavers* the average departure was February of 1992 indicating an average

fiscal year of 1991 for their earlier income values. No statistically significant differences were found between the earlier incomes for the four groups by Wilcoxon rank sum testing, however the income for both groups of leavers appeared to be smaller than their counterparts who stayed. Incomes increased from the earlier values to the 1994 for all four groups. These unadjusted incomes increased within the range of \$14,000 to \$34,000. The largest average incomes were in the *Urban Stayers* where 7 of 23 respondents are OBG physicians who had larger incomes. *Rural Leavers* did not have statistically different incomes compared to the *Rural Stayers* either for the earlier reported incomes or for the 1994 values. However, the sample size may preclude identifying a true difference in income if one existed.

TABLE I

Demographic Characteristics

	Rural Leavers	Rural Stayers	Urban Leavers	Urban Stayers	K-W p value
Males (n)	16	23	10	18	
Females (n)	8	2	2	5	
Age (Yrs)	43.6	49.0	42.9	46.0	0.036
Tenure (Yrs)	6.7	16.4	1.5	12.1	<0.0001
First Income (\$)	70,000	90,000	80,000	93,000	0.298
Second Income (\$)	100,000	103,500	101,000	150,000	0.05

(Median values except gender)

Table II (below) summarizes the practice types and the specialties for each group. Most respondents had an office based practice with hospital based, office/hospital combination, Federal Community Health Center, Prison, and HMO listed only occasionally. The majority of rural practitioners, whether leavers or stayers, were FPs followed by IMs, with no OBG physicians in either rural group. A large number of OBG physicians are found in the *Urban Stayers*. Several physicians in each group of leavers changed specialties from the previous

practice to the current practice with their new specialty listed as ER/Urgent Care except for one physician who changed from FP to GP.

TABLE II
Practice Type and Specialties

	Rural Leavers n=24	Rural Stayers n=25	Urban Leavers n=13	Urban Stayers n=23
Practice Type				
Office	22	24	9	19
Hospital	0	0	0	2
Office/Hosp.	1	0	1	0
CHC	1	0	1	0
Prison	0	1	1	0
HMO	0	0	1	2
Specialty				
FP	14	14	8	5
IM	6	6	3	11
OBG	0	0	1	7
PD	3	2	0	0
GP	1	3	0	0
2nd Specialty				
FP	10		4	
IM	6		3	
OBG	0		1	
PD	3		0	
GP	2		0	
ER/Urgent Care	3		4	

First specialty is specialty listed by physician in first practice location, and second specialty is the specialty listed by physicians in their second practice locations.

Practice Characteristics

Table III (below) summarizes the median and mean values as well as comparison by Kruskal-Wallis rank sum and Wilcoxon rank sum testing. There are two sets of data for both the *Rural* and *Urban Leavers*. Data for practices which were left are identified as (O) for old and data for the relocated practices are identified as (N) for new. Practice characteristics are very

similar for all four groups. Significant differences do exist between the rural and urban groups in the miles to the next medical care and referral medical care. Comparing the *Rural Leavers* (O) to the *Rural Stayers* shows no significant differences in numbers of full time or part time providers, scheduled hours per week, nights on call, the percentage of nights which the physicians is called back to the office or hospital, patients seen per day, CME days per year and vacation days per year. *Urban Stayers* appeared to include more full time providers, see fewer inpatients per day, take more CME days per year, and take more vacation days per year compared to *Urban Leavers*, but were only statistically different for the number of inpatients per day.

Practice characteristics changed significantly for *Rural Leavers* from the practice left to the practice relocated to. The new practices of the *Rural Leavers* were closer to the next level of medical care, were nearer to the used referral medical care, included more full time providers, required fewer nights on call per month, were less likely to be called back to the office or hospital at night, included more CME days per year, and included more vacation days per year. The *Urban Leavers* were further from the next level of medical care, were further from the used referral medical care, and had fewer nights on call in the new practices compared to the old practices.

TABLE III
Practice Characteristics

Between Groups

	Rural Leaver (O)	Rural Stayer	Urban Leaver (O)	Urban Stayer	K-W p value
Next Medical Care	30.0/36.3 (UL,US)	25.0/35.8 (UL,US)	0/0	0/0.6	<0.0001
Referral Medical Care	35.0/54.3 (UL,US)	45.0/56.4 (UL,US)	0/0	0/17.3	<0.0001
Full Time Providers	2.0/2.5 (US)	3.0/5.2	2.0/12.1	5.0/21.4	0.053
Part Time Providers	0/0.5	0/0.6	0/1.0	0/2.0	0.86
Sched. Hours/Week	40.0/38.4	35.5/34.9	40.0/43.0	36.0/36.6	0.71
Nights On Call/Month	9.0/12.3 (US)	7.5/11.3	7.0/8.7	7.0/9.8	0.12
Call Back %	45.0/51.0	30.0/48.8	29.0/48.4	50.0/46.8	0.93
Patients Seen/Day	22.5/24.0	24.0/25.4	22.0/22.4	22.3/24.3	0.69
Number of Inpts/Day	2.0/2.0 (UL)	2.0/2.0 (UL)	1.0/1.1 (US)	2.0/2.3	0.092
CME Days/Year	5.0/6.0	7.0/8.1	5.5/7.1	7.0/7.4	0.255
Vacation Days/Year	14.0/14.5	18.0/16.7	15.0/15.4	20/17.4	0.237

Within Groups

	Rural Leaver (O)	Rural Leaver (N)	Urban Leaver (O)	Urban Leaver (N)	K-W p value
Next Medical Care	30.0/36.3 (RL New, UL Old)	14.0/183.3 (UL Old)	0/0 (UL New)	5.0/25.0	<0.0001
Referral Medical Care	35.0/54.3 (RL New, UL Old)	14.0/180.2 (UL Old)	0/0 (UL New)	20.0/29.6	<0.0001
Full Time Providers	2.0/2.5 (RL New)	6.0/27.7	2.0/12.1	3.5/54.9	0.026
Part Time Providers	0/0.5	0/0.5	0/1.0	0/9.8	0.46
Sched. Hours/Week	40.0/38.4	38.0/36.5	40.0/43.0	42.0/38.3	0.78
Nights On Call/Month	9.0/12.3 (RL New, UL New)	5.0/4.7	7.0/8.7 (UL New)	1.0/4.1	<0.0001
Call Back %	45.0/51.0 (RL New)	20.0/30.4	29.0/48.4	75.0/62.0	0.127
Patients Seen/Day	22.5/24.0	25.0/24.1	22.0/22.4	21.0/21.5	0.71
Number of Inpts/Day	2.0/2.0	1.0/1.5	1.0/1.1	1.3/1.8	0.262
CME Days/Year	5.0/6.0 (UL New)	7.0/7.3	5.5/7.1	9.0/8.9	0.082
Vacation Days/Year	14.0/14.5 (RL New, UL New)	20.0/27.9(UL Old)	15.0/15.4	20.0/23.8	0.0021

() Values are Significantly Different by Wilcox rank sum at $p < 0.05$

Median/Mean values within cells

Table IV (below) summarizes the patient insurance status for the four groups. Practices which were left are identified as (O) and the relocated practices are identified as (N). The main difference is that rural practices have a higher proportion of Medicaid, Medicare, and uninsured patients with a lower proportion of managed care. The most dramatic changes are noted for the

Rural Leavers where the proportion of Medicare and uninsured patients decreased significantly after relocation, and the proportion of managed care increased significantly from 14.42 % to 51.67%.

TABLE IV

Practice Characteristics: Patient Insurance Status

Between Groups

	Rural Leaver (O)	Rural Stayer	Urban Leaver (O)	Urban Stayer	K-W p value
Medicaid %	20.0/21.2 (US)	10.0/16.0	15.0/12.0	5.0/13.7	0.055
Medicare %	20/25.45	27.5/31.6 (US)	25.0/23.5	12.5/19.0	0.2
No Insurance %	10/10.14 (US)	6.3/8.8 (US)	7.5/15.0 (US)	3.0/4.6	0.0006
Managed Care %	10/14.42 (UL,US)	25.0/24.7 (US)	25.0/35.9 (US)	55.0/55.7	<0.0001

Within Groups

	Rural Leaver (O)	Rural Leaver (N)	Urban Leaver (O)	Urban Leaver (N)	K-W p value
Medicaid %	20.0/21.2	10.0/18.9	15.0/12.0	10.0/12.0	0.226
Medicare %	20.0/25.5 (RL New)	10.0/12.6(ULOld)	25.0/23.5	20.0/18.7	0.100
No Insurance %	10.0/10.1 (RL New)	5.0/6.2	7.5/15.0	10.0/10.5	0.132
Managed Care %	10.0/14.4 (RLN, ULO,ULN)	40.0/51.7	25.0/35.9	25.0/49.6	0.0012

()Values are Significantly Different by Wilcoxon rank sum at $p < 0.05$

Median /Mean values within each cell

Measures of Satisfaction/Dissatisfaction

Measures of satisfaction/dissatisfaction were included in forty-seven Likert scale questions in five groups: Practice Environment; Economic Environment; Community Health Care Environment; Medical Community Environment; and Social Environment. These questions are summarized in Table V (below). All questions were analyzed by Kruskal-Wallis rank sum comparing all groups and then by pairwise comparisons using Wilcoxon rank sum tests. Likert scale questions relate to the practice that was left for the leavers and for the current practice for the stayers. Certain questions were not applicable to some respondents.

Practice Environment Questions

Rural Leavers differed significantly from *Rural Stayers* on two questions, one relating to stress where *Rural Leavers* were significantly more dissatisfied (p value= 0.027), and the other relating to the ability to get coverage where again *Rural Leavers* were more dissatisfied (p value=0.029). The question regarding CME time taken off was suggestive that there may be a difference between *Rural Leavers* and *Rural Stayers* (p value=0.087). *Urban Leavers* differed significantly from *Urban Stayers* on two questions related to intellectual fulfillment and professional fulfillment, *Urban leavers* were more dissatisfied (p value=0.044, p value=0.016) on both measures.

Economic Environment Questions

Rural Leavers differed significantly from *Rural Stayers* on two questions, the first relating to income with *Rural Leavers* being significantly less satisfied with their income (p value=0.002) and secondly their earning potential (p value=0.003). *Urban Leavers* differed significantly from *Urban Stayers* on only one question relating to the funding of their retirement account, where *Urban Leavers* were significantly less (p value=0.021).

Community Health Care Environment Questions

Rural Leavers did not significantly differ from *Rural Stayers* on any of these questions. The question relating to relationships with other physicians practiced with whom one practiced or shared call with was suggestive of a possible difference between *Rural Leavers* and *Rural Stayers* (p value=0.105). *Urban Leavers* differed from *Urban Stayers* on two questions, the first

relating to relationship with other physicians with whom they practiced or shared call with and the other relating to relationships with the hospital (s) in their community where *Urban Leavers* were significantly less satisfied (p values 0.008 and 0.014 respectively).

Medical Community Environment Questions

Rural Leavers did not significantly differ from *Rural Stayers* on any of these questions.

The question relating to teaching opportunities was suggestive of significance between *Rural Leavers* and *Rural Stayers* (p value=0.055). *Urban Leavers* differed from *Urban Stayers* in their assessment of teaching opportunities and ability to provide specialized care where the *Urban Leavers* were less satisfied than the *Urban Stayers* (p values 0.003 and 0.030 respectively) on these measures.

Social Environment Questions

Neither *Rural or Urban Leavers* were significantly different from *Rural Stayers* on any of these questions. Issues relating to recreational opportunities for the physician and their family and crime were suggestive of possible differences between *Urban Leavers* and *Urban Stayers* (p values 0.075 and 0.099 respectively).

TABLE V

Measures of Satisfaction/Dissatisfaction: Between Groups

	Rural Leavers	Rural Stayers	Urban Leavers	Urban Stayers	K-W (p value)
PRACTICE ENVIRONMENT					
a. Time Spent on Call	3.5 (US)	3	3	2	0.21
b. Work Load	3	3	3.5	3	0.36
c. Stress	4 (RS,US)	4	4	4	0.11
d. Administrative Duties	3	4	3	3	0.70
e. Ability to Recruit	3.5	3	3	3	0.23
f. Intellectual Fulfillment	3 (US)	2	3.5 (US)	2	0.07
g. Professional Fulfillment	2 (UL)	2	3.5 (US)	2	0.05
h. Personal Time Away	4 (US)	3	3	2	0.12
i. Vacation Time	3 (US)	3	3	2	0.19
j. CME Time	3 (US)	3	2.5	2	0.14
k. Ability to get Coverage	4 (RS,US)	2	2.5	1.5	0.005
ECONOMIC ENVIRONMENT					
a. Work Load	4	4	3	4	0.63
b. Income	4 (RS,US)	3 (UL)	4	3	0.003
c. Earning Potential	4 (RS,US)	3	3.5	3	0.007
d. Overhead Costs	4	4	4	3	0.31
e. Competition	3	2	3	3	0.46
f. Economic Conditions	3 (US)	3 (US)	2.5	2	0.018
g. Cost of Liability Ins.	3	3	3	3	0.81
h. Insurance Mix of Pts.	3	3	3	3	0.46
i. Funding of Retirement	4 (US)	3	3 (US)	2	0.027
COMMUNITY HEALTH CARE ENVIRONMENT					
a. Competitive "battles"	3 (US)	3 (US)	3.5	4	0.026
b. Economic Stab. of Hosp.	3	3	2.5	3	0.75
c. Legal/Liability Issues	3	3	3	3	0.71
d. Rel. with Physicians	2	2	3	2	0.27
e. Rel. with Pract. Part.	2 (US)	2 (UL)	2 (US)	1	0.026
f. Rel. with Hospital	2 (UL)	2	3 (US)	2	0.097
g. Rel. with Manager	2	1 (UL)	2	1	0.144
MEDICAL COMMUNITY ENVIRONMENT					
a. Access to CME	3 (UL,US)	2	2	2	0.008
b. Professional Associations	3 (UL)	3	2	2	0.072
c. Teaching Opportunities	3 (US)	3	3 (US)	2	0.001
d. Meeting Info. Needs	3	3	3	2	0.30
e. Access to Consultants	2 (US)	2 (US)	1.5	1	0.005
f. Access to Spec. Testing	2 (US)	2 (US)	1.5	1	0.004
g. Provide Spec. Therapy	2 (US)	2 (US)	2 (US)	1	0.006

() Values are Significantly Different by Wilcoxon rank sum at $p < 0.05$

Median value within each cell

TABLE V (Continued)

	Rural Leavers	Rural Stayers	Urban Leavers	Urban Stayers	K-W p value
SOCIAL ENVIRONMENT					
a. Community Support	2	2	3	2	0.68
b. Educ. Op. for Children	3 (US)	3 (US)	2	2	0.045
c. Educ. Op. for Spouse	3 (US)	3 (US)	3	2	0.016
d. Social Op. for Family	2 (US)	2 (US)	2	2	0.096
e. Cultural Op. for Family	2 (US)	3 (US)	2	1	0.005
f. Career Op. for Spouse	3 (UL, US)	3 (US)	2	2	0.004
g. Recreation Op. for Family	1	2 (US)	2	1	0.09
h. Distance Fam./Rel.	3	3	3	3	0.63
i. Climate	2	2	2.5	2	0.65
j. Crime	2 (US)	2 (US)	2	3	0.015
k. Personal Health	1	2	1	1	0.97
l. Health Spouse/Children	1	2	1	1	0.64
m. Relationship Spouse/S.O.	1	1	1	1	0.63

()Values are Significantly Different by Wilcox rank sum at $p < 0.05$

Median value within each cell

Comparison of Rural and Urban Likert Scale Data (Combined Groups)

Likert scale data for rural physicians were pooled and the data for urban physicians were pooled and compared by Wilcox rank sum testing. These comparisons are summarized in Table VI (below). Rural physicians were significantly different from urban physicians on 14 of the 47 questions, and had suggestive differences on 4 more questions. The physicians from the rural group were significantly less satisfied than their urban counterparts particularly relating to the availability of consultants and associates and access to therapies and testing as well as social opportunities for themselves and their families. In general, the rural physicians were significantly less satisfied than the urban physicians except for the questions related to competitive "battles" within the medical community and crime.

TABLE VI

Measures of Satisfaction/Dissatisfaction: Combined Groups

	Rural	Urban	Wilcox p value
PRACTICE ENVIRONMENT			
a. Time Spent on Call	3	2	0.094 ?
b. Work Load	3	3	0.911
c. Stress	4	4	0.388
d. Administrative Duties	3	3	0.477
e. Ability to Recruit	3	3	0.070 ?
f. Intellectual Fulfillment	3	2	0.484
g. Professional Fulfillment	2	2	0.087 ?
h. Personal Time Away	4	3	0.105
i. Vacation Time	3	2.5	0.053 ?
j. CME Time	3	2	0.120
k. Ability to get Coverage	3	2	0.017 *
ECONOMIC ENVIRONMENT			
a. Work Load	4	3	0.324
b. Income	4	3	0.443
c. Earning Potential	4	3	0.507
d. Overhead Costs	4	4	0.201
e. Competition	3	3	0.177
f. Economic Conditions	3	2	0.003 *
g. Cost of Liability Ins.	3	3	0.925
h. Insurance Mix of Pts.	3	3	0.132
i. Funding of Retirement	4	3	0.124
COMMUNITY HEALTH CARE ENVIRONMENT			
a. Competitive "battles"	3	4	0.004 *
b. Economic Stability of Hosp.	3	3	0.745
c. Legal/Liability Issues	3	3	0.759
d. Rel. with Physicians	2	2	0.459
e. Rel. with Pract. Partners	2	2	0.597
f. Relationship with Hospital	2	2	0.305
g. Relationship with Manager	1	2	0.828
MEDICAL COMMUNITY ENVIRONMENT			
a. Access to CME	3	2	0.002 *
b. Professional Associations	3	2	0.019 *
c. Teaching Opportunities	3	2	0.112
d. Meeting Info. Needs	3	2	0.189
e. Access to Consultants	2	1	0.001 *
f. Access to Spec. Testing	2	1	0.001 *
g. Ability to Provide Spec. Therapy	2	1	0.006 *

(*) Values are Significantly Different by Wilcox rank sum at $p < 0.05$

(?) Values by Wilcox rank sum $0.05 < p < 0.10$

Median values within each cell

TABLE VI (continued)

	Rural	Urban	Wilcox p value
SOCIAL ENVIRONMENT			
a. Community Support	2	2	0.693
b. Educ. Op. for Children	3	2	0.008 *
c. Educ. Op. for Spouse	3	2	0.002 *
d. Social Op. for Family	2	2	0.025 *
e. Cultural Op. for Family	3	2	0.001 *
f. Career Op. for Spouse	3	2	0.001 *
g. Recreation Op. for Family	1.5	1	0.333
h. Distance Fam./Rel.	3	3	0.414
i. Climate	2	2	0.396
j. Crime	2	3	0.009 *
k. Personal Health	1.5	1	0.776
l. Health Spouse/Children	1.5	1	0.677
m. Relationship Spouse/S.O.	1	1	0.960

(*)Values are Significantly Different by Wilcox rank sum test at $p < 0.05$

Median values within each cell

Reasons for Leaving

The reasons for leaving for the both groups of leavers are summarized in Table VII (below). Physician who left a rural practice listed financial issues and lack of available personal time/too much time spent on call as the most frequent reasons for leaving. The "financial" category including income, money, patient payments, and other financial issues. Other frequent responses were in the categories of "practice management/business trouble," "needed change," "isolation," and "relationships with physicians/partners." The urban physicians who left a practice indicated "needed change" as the most frequent reason for leaving. The "financial" category was second for the *Urban Leavers* followed by "time off/call."

TABLE VII
Reasons for Leaving

RURAL LEAVERS

Category	Rankings
Income/Money/Payment/Overhead/Financial	2321111221231112000
Time Off/Call	1212344144422
Practice Management/Business Trouble	1323332431
Needed Change	332343123
Isolation/Small Town/Community Support	4352443
Relationships with Physicians/Partners	2213221
Stress/Burnout/Overworked	115
Difficulty Recruiting	233
Undervalued/Dumped On	14
Medical Politics	43
Lack of Intellectual Stimulation	52
Wife's Education	2
New Corporation	2

URBAN LEAVERS

Category	Rankings
Income/Money/Payment/Overhead/Financial	45145245
Time Off/Call	2422322
Practice Management/Business Trouble	3
Needed Change	132123124134
Isolation/Small Town/Community Support	0
Relationships with Physicians/Partners	31
Stress/Burnout/Overworked	231
Difficulty Recruiting	0
Undervalued/Dumped On	0
Medical Politics	213
Lack of Intellectual Stimulation	3
Wife's Education	0
New Corporation	0
Lack of Quality of Care	111
Termination	1
Got Married	1
Conservative Community	3
Few Cultural Activities	4
Family	3
Location	5
Less Freedom	4

Inducements to Stay for Leavers

Possible inducements to stay for *Rural Leavers* and *Urban Leavers* are summarized in Table VIII (below). A high proportion of each of these groups indicated that they could have

been induced to stay. Types of inducements included financial relief and work relief with several options in each category. About one-third indicated they wanted both financial and work relief while about one-third wanted only financial relief and one-third wanted only work relief. Income guarantee was the most frequent option for both the *Rural* and *Urban Leavers* followed by office overhead relief and improved insurance reimbursement. The next most frequent was payment subsidy *Rural Leavers* indicated they would require an average increase in salary of 65% to stay (range 10% to 250%) and *Urban Leavers* indicated they would require an average increase in salary of 85% to stay (range 30% to 200%). The most frequent work relief option for both groups was weekend/night call relief.

TABLE VIII

Possible Inducements to Stay

	Rural Leavers	Urban Leavers
SUMMARY		
Possibly Induced to Stay	15/24 (62.5%)	7/12 (58.3%)
Financial and Work Relief	5	2
Financial Relief Only	5	4
Work Relief Only	5	1
FINANCIAL RELIEF		
a. Income Guarantee	8	5
b. Payment Subsidy	6	2
c. Office Overhead Relief	6	4
d. Tax Write-Off	3	2
e. Liability Insurance Subsidy	3	2
f. Improved Insurance Reimbursement	5	3
g. Loan Repayment	1	1
h. Others	0	Capitation Risk Limit
How Large an Increase in Salary % (Mean)	65%	85%
WORK RELIEF		
a. Recruitment into Community	3	0
b. Weekend/Night Call Relief	7	1
c. Locum Tenens	2	0
d. Recruitment into Practice	2	1
e. Others	OB Call Coverage	Less Paperwork

Plans to Leave for Stayers

Plans to leave for *Rural Stayers* and *Urban Stayers* are summarized in Table IX (below). Over one-half of the *Rural Stayers* indicated that they were considering leaving their practices and 9 out of 25 (36%) had sent out a resume, contacted a recruiter, or had interviewed. Only 2 of 23 (8.7%) of the *Urban Stayers* had indicated that they had sent out a resume, contacted a recruiter, or had interviewed. The majority of the 9 Rural Stayers who were actively looking for other practice opportunities indicated that they wanted financial and work relief as inducements in order to stay in their current practices. Income guarantee, payment subsidy, office overhead relief and tax write-offs were the most frequent financial relief choices. The most common work relief option was again weekend/night call relief followed by recruitment into the community, locum tenens and recruitment into practice.

TABLE IX

Plans to Leave

	Rural Stayers	Urban Stayers
SUMMARY		
Plans to Leave	13/25 (52%)	6/23 (26.1%)
Sent out CV or Contacted Recruiter	9/25 (36%)	2/23 (8.7%)
Possibly Induced to Stay (Of active lookers)	6/9 (67%)	2/2 (100%)
Financial and Work Relief	5	0
Financial Relief Only	1	2
Work Relief Only	0	0
FINANCIAL RELIEF		
a. Income Guarantee	3	1
b. Payment Subsidy	3	0
c. Office Overhead Relief	3	1
d. Tax Write-Off	3	0
e. Liability Insurance Subsidy	2	1
f. Improved Insurance Reimbursement	1	1
g. Loan Repayment	0	0
h. Others		
How Large an Increase in Salary % (Mean)	17.90%	20%

**Table IX
(continued)**

	Rural Stayers	Urban Stayers
WORK RELIEF		
a. Recruitment into Community	3	0
b. Weekend/Night Call Relief	5	0
c. Locum Tenens	2	0
d. Recruitment into Practice	2	0
e. Others	0	0

DISCUSSION

This study was undertaken to determine possible differences in income, medical practice characteristics, and perceived satisfaction or dissatisfaction with various aspects of medical practice among four groups of physicians. This study also evaluated stated reasons for leaving practice for physicians who had left a rural or an urban practice. It was postulated that inadequate income and too much time spent on call (or inadequate personal time available) were major reasons for rural physicians to leave practice. Indeed, these reasons for leaving are the most frequently given by physicians who left a rural practice. However, no statistically significant differences in income, measures of work load, or measures of personal time available were found between physicians who left a rural practice or those who remained. It is not clear if the lack of differences in these practice characteristics were not found due to inadequate sample size, or whether no differences truly exist. Rural practices are not homogeneous. There may be characteristics of some rural practices that are fundamentally different from other rural practices thus increasing the likelihood of attrition of these physicians, but these rural practice situations and characteristics were not able to be identified.

It was surprising to find that the physicians who had left a rural practice were only significantly different on four of 47 Likert scale questions on satisfaction from physicians who had remained in the same rural practice. Physicians who left were less satisfied with their ability to get coverage, their income, and their earning potential. If no objective differences in income or amount of available personal time exist between the physicians who left a rural practice and those who stayed in rural practice, then personal perception and tolerance become

important factors in attrition. It is not clear from this study whether physicians who left a rural practice believe that their income and amount of personal time available is different from other rural physicians, or if they believe that these factors are significantly different from urban physicians. If only perceived differences in income, time spent on call, and personal time available exist between physicians who practice in rural areas who leave and those who stay, then there are important implications for the initial recruitment process of physicians for rural practice, and for programs which keep physicians informed of their practice and income characteristics relative to other physicians. Physicians who are predicted to be less satisfied and/or who's tolerance is lower could possibly be identified prior to or during the process of practice selection. This would require the development, testing and validation of surveys and psychological tests which could identify these differences in tolerance during the practice selection process. This may be worth the effort if decreasing the turnover of physicians practicing in rural areas is a goal. Investigation of these concepts in the future will aid in the determination of the contribution of personal tolerance and perceived differences in income and other practice characteristics to the attrition of rural and urban physician.

The physicians in both rural and urban areas who left one practice for another had some changes in practice characteristics from the old to the new practices. There tended to be more full time providers, fewer nights on call, and fewer inpatients per day in the newer practices. These physicians also tended to take more CME days and more vacation days per year in the practices relocated to. They tended to see fewer Medicare, Medicaid, and no insurance patients but saw more managed care patients in the newer practices. The number of patients seen per

day and the number of scheduled work hours per week did not change from the old to the new practices. It appears that physicians who left either a rural or an urban practice sought new practices with more partners, less inpatient responsibility, and fewer nights on call. This implies that the amount of personal time available may be an important factor in the decision to leave for both physicians who practice in rural and urban areas. It is not clear whether relocation to a new practice had any independent effect on income. Income did increase from the earlier to the later incomes, but this occurred for those physicians who stayed as well as those who relocated. Perhaps similar income with less time on call, fewer inpatient responsibilities, and more vacation and CME days off would be inducement enough to relocate from rural practice, that is, same pay, less work.

The perceived factors which lead to changing practice locations for physicians practicing in urban areas are very different than those for physicians practicing in rural areas. Income and personal time available are not as important, while intellectual and professional fulfillment were more important for the urban group who changed practices. The effect of managed care, if any, on the attrition of physicians practicing in urban areas is not clear from this study. This information indicates that there are fundamental differences in perceived motivations to change practice locations between the physicians practicing in urban areas and physicians practicing in rural areas. This information indicates that programs to address urban physician retention would be significantly different than programs developed to improve rural physician retention. Retention of physicians in urban areas has not been well studied, but may be an increasingly important area of investigation as managed care and capitated medical care

increase causing lower incomes and decreasing satisfaction with urban practice.

This study has several limitations. The samples sizes for this study were small. This was due to the difficulty in obtaining current mailing addresses for the physicians who had changed practices and because the overall response rate was 40%. All physicians who left a rural practice and whom a current mailing address could be obtained were surveyed. This is a sample of convenience limiting the conclusions which can be drawn. Physicians who had practiced in the Portland, Oregon metropolitan area were underrepresented in this sample because of the inherent difficulty in identification of physicians in this area who had changed practice locations. These physicians could not be identified as leaving a practice unless they had moved out of state, making the current mailing address unavailable. Small samples make significant subgroup analysis impossible. Many differences may exist within various subsets of physicians in rural or urban practice. For example, income, practice characteristics, reasons for leaving, or satisfaction may differ between male and female physicians practicing in rural areas or between physicians from the smallest versus larger rural towns. These may be important differences which help predict physician behavior. There were no physicians whose specialty was obstetrics and gynecology in the rural physicians sampled while there were eight physicians in the urban samples. Comparison of the rural versus urban physicians is less reliable because of this difference. Future studies may elect to exclude OBGYN physicians from comparisons between these two groups. It is doubtful that oversampling OBGYN physicians in the rural samples would identify sufficient numbers of these physicians.

Many of the physicians practicing in rural areas who have remained in the same practice are actively contemplating leaving, but state they could possibly be induced to stay by financial incentives or work relief programs. Likewise, some physicians from rural areas who left also indicated that they possibly would have stayed with similar inducements. This is encouraging as programs to improve retention of rural physicians could be developed. However, it becomes difficult to determine how these programs should be applied. Equitable application of programs to support income or to provide work relief may be problematic if no real difference in income or time spent on call exists between the physicians who left a rural practice and those who stayed. The implication of this being that if no objective differences exist in income or time spent on all, it becomes difficult to develop policies and programs to address perceived inequities only. Programs to increase the income, personal time available, and satisfaction with practice for all physicians practicing in rural areas would be prohibitively costly and unnecessary for many of these physicians.

This exploratory study raises more questions than it answers. Important questions needing to be investigated include whether there are or there are not objective differences in income, time spent on call, personal time available, as well as other objective measures for physicians who leave a practice versus those who stay and for which subsets of these physicians. If objective differences exist, programs to address them could be developed and implemented. It would be misdirected policy to develop programs to address only perceived inequities. However, information and education of physicians as to where their incomes and practice characteristics are relative to other physicians might be helpful. Clearly, physicians

who practice in rural areas are less satisfied than those who practice in urban areas. Programs to address objective differences such as income or time spent on call could be developed for all physicians practicing in rural areas, but there may not be significant objective differences in income or time spent on call for the physicians from rural areas compared to physicians from urban areas. There may be some groups of physicians practicing in rural areas who are at more risk of leaving than others. For example, physicians in the towns with the smallest populations with the smallest medical communities are at higher risk of leaving. Rural areas and rural practices are not homogeneous. Identifying the physicians in rural practice at highest risk of leaving should be a priority for further research. Once these physicians are identified, a comprehensive evaluation of their practice characteristics and environmental circumstances could occur and programs to address factors identified with attrition could then be developed.

IMPLICATIONS FOR FUTURE RESEARCH

Rural physicians who changed practice locations indicate that financial issues such as inadequate income and personal time issues such as too much time spent on call are the most important reasons for moving to a new practice location. However, no objective evidence was found by this study to indicate significant differences between physicians who left rural practice and those who stayed in rural practice on most measures of income, practice characteristics, or satisfaction. Differences may exist, but this study did not have the power to demonstrate them. In general, physicians who practice in rural areas are less satisfied than physicians who practice in urban areas, and these differences are more evident than differences in satisfaction found between the physicians who left a practice and those who remained for each group individually. Physicians who left an urban practice are much more likely to list reasons on need for a change or professional satisfaction as primary reasons for leaving. Less emphasis is seen on financial and personal time issues, while there is more emphasis on need for a change, lack of fulfillment, and dissatisfaction with practice partners or hospitals. The rise of managed care was not an obvious contributor to the decision to leave an urban practice, but its effect on current and future physician behavior is largely unknown. There may be fundamental differences in the factors which lead to a physician leaving one practice for another for those physicians who practice in urban areas versus those who practice in rural areas. No policies or programs to aid in the retention of physicians who practice in rural areas can be recommended based on the results of this study. However, this study has provided useful insight and guidance for future study. Significant refinement of the survey instruments will be possible based on the

information obtained. Increased attention should be given to perceived differences in various factors such as income or time spent on call relative to differences in objective measures of these factors and how this perception correlates with attrition.

The persistent problem of inadequate physician supply in rural areas, with resultant problem of access to medical care for rural residents, remains despite current recruitment strategies. This problem is demonstrated by the fact that over one-half of physicians in rural practice who remained in the same practice location were contemplating leaving with two-thirds of those physicians actively seeking another practice opportunity. Future studies should seek to identify those physicians who practice in rural areas who are at highest risk of attrition, and attempt to identify differences in practice characteristics and measures of satisfaction which predict attrition. This may be accomplished by more complete sampling, or directed sampling of target groups. Larger studies with improved sampling should be conducted to allow for subgroup analysis within both the rural and urban groups. The study of the attrition of physicians who practice in urban areas may not have the same implications for access to medical care, but may provide important insight into the effects of managed care on turnover of physicians in urban areas and may provide information which leads to less turnover of these physicians thus improving continuity of care for patients. The information gained from this study is a useful to guide future study areas in the attrition of physicians from both rural and urban areas.

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APPENDIX A:
Survey Instruments

Physician Survey

Our information indicates that you have remained in the same medical practice between March of 1990 and the present time. If this information is not correct, please check here _____ and return the uncompleted survey .

If you have retired, please check here _____ and return the uncompleted survey.

I. Demographics

1. When were you born?
 - a. Month/ Day/ Year _____
2. What is your gender?
 - a. Male _____
 - b. Female _____

II. Identifying your town or city of practice:

1. Please identify the town or city of your practice.
 - a. Name of town or city _____
 - b. State _____
 - c. Zip code _____
2. When did you first move to and begin work in this practice?
 - a. Month _____
 - b. Year _____
3. How many miles by road is it to the *next* higher level of specialty medical care (the closest town with more medical services)? _____ miles (0 miles if you live in a city with tertiary care)
4. How many miles by road is it to the medical center where you refer patients for more specialized medical care (this may be the same number of miles as question number 3)? _____ miles

III. Characteristics of your practice:

1. Which of the following best characterizes your practice? Check only one.
 - a. Office-based practice _____
 - b. Hospital-based practice _____
 - c. Community or Migrant Health Center (Federally Funded) _____
 - d. HMO _____
 - e. Other type _____
2. What is your specialty in this practice? Check only one.
 - a. Family Practice _____
 - b. General Practice _____
 - c. Internal Medicine _____
 - d. Pediatrics _____
 - e. Obstetrics and Gynecology _____
 - f. Other specialty _____

3. **Besides yourself**, how many physicians, nurse practitioners, and physicians assistants work in your office or medical group?
 a. *full-time* providers? _____
 b. *part-time* providers? _____
4. How many hours per week do you work during your regularly scheduled hours?
 _____ hours/week
5. How many weekday evenings and weekend days are you on call per month (apart from scheduled clinic hours)
 _____ days or nights (maximum=31)
6. What percentage of the nights or weekend days on call must you travel back in to a facility to evaluate at least one patient (excluding regular patient rounds)?
 _____ %
7. How many patients do you see in this practice on an average full day in the office?
 _____ patients/day
8. Approximately what percentage of the patients in this practice:
 a. have Medicaid? _____ %
 b. have Medicare? _____ %
 c. have no insurance? _____ %
 d. are under some form of managed care (HMO, PPO, IPA, etc.)? _____ %
9. Do you admit and care for patients in a hospital?
 a. Yes _____
 b. No _____ (if no, go to question 10)
10. On an average day, how many inpatients do you care for?
 _____ patients/day
11. How many days per year do you take off away from your practice for CME?
 _____ days per year
12. How many days per year do you take off from practice to go on vacation?
 _____ days per year
13. What is your annual gross (pre-tax) income for your clinical work for the tax year of 1994?
 _____ dollars/year
14. What was your annual gross (pre-tax) income for your clinical work for the tax year of 1990?
 _____ dollars/year

IV. Practice Environment

Please indicate the extent to which the following issues created satisfaction or dissatisfaction with your practice:

	Satisfied		Neutral		Dissatisfied	
a. The amount of time spent on call	1	2	3	4	5	
b. Work load	1	2	3	4	5	
c. Stress	1	2	3	4	5	
d. Administrative duties	1	2	3	4	5	

	<u>Satisfied</u>		<u>Neutral</u>		<u>Dissatisfied</u>	
e. Ability to recruit other physicians	1	2	3	4	5	
f. Intellectual fulfillment	1	2	3	4	5	
g. Professional fulfillment	1	2	3	4	5	
h. Personal time away from work	1	2	3	4	5	
i. Vacation time	1	2	3	4	5	
j. CME time	1	2	3	4	5	
k. Ability to get coverage for your practice (partners, locums etc.)	1	2	3	4	5	

V. Economic Environment

Please indicate the extent to which the following issues created satisfaction or dissatisfaction with your practice:

	<u>Too Little</u>		<u>Just Right</u>		<u>Too Much</u>	
a. Work load	1	2	3	4	5	
	<u>Satisfied</u>		<u>Neutral</u>		<u>Dissatisfied</u>	
b. Income	1	2	3	4	5	
c. Earning potential	1	2	3	4	5	
d. Overhead costs for your practice	1	2	3	4	5	
e. Competition for patients	1	2	3	4	5	
f. Economic conditions of the community	1	2	3	4	5	
g. Cost of liability insurance	1	2	3	4	5	
h. Insurance mix of your patients	1	2	3	4	5	
i. Funding of your retirement account	1	2	3	4	5	

VI. Community Health Care Environment

Please indicate the extent to which the following issues created satisfaction or dissatisfaction with your practice:

	<u>Satisfied</u>		<u>Neutral</u>		<u>Dissatisfied</u>	
a. Competitive "battles" within the medical community	1	2	3	4	5	
b. Economic stability of the hospital (s)	1	2	3	4	5	
c. Legal/liability issues related to your practice	1	2	3	4	5	

	<u>Satisfied</u>		<u>Neutral</u>		<u>Dissatisfied</u>	
d. Relationships with other physicians in your community	1	2	3	4	5	
e. Relationships with other physicians that you practiced or shared call with	1	2	3	4	5	
f. Relationship with the hospital (s) in your community	1	2	3	4	5	
g. Relationship with the manager of your office or clinic	1	2	3	4	5	

VII. Medical Community Environment

Please indicate the extent to which the following issues created satisfaction or dissatisfaction with your practice:

	<u>Satisfied</u>		<u>Neutral</u>		<u>Dissatisfied</u>	
a. Access to continuing medical education	1	2	3	4	5	
b. Professional associations	1	2	3	4	5	
c. Teaching opportunities (medical students and residents)	1	2	3	4	5	
d. Meeting information needs for patient care	1	2	3	4	5	
e. Access to consultants and other specialty backup	1	2	3	4	5	
f. Ability to obtain specialized diagnostic testing	1	2	3	4	5	
g. Ability to provide specialized therapies	1	2	3	4	5	

VIII. Social Environment

Please indicate the extent to which the following issues created satisfaction or dissatisfaction with your practice:

	<u>Satisfied</u>		<u>Neutral</u>		<u>Dissatisfied</u>	
a. Community support	1	2	3	4	5	
b. Educational opportunities for your children	1	2	3	4	5	
c. Educational opportunities for your spouse	1	2	3	4	5	
d. Social opportunities for you and your family	1	2	3	4	5	
e. Cultural opportunities for you and your family	1	2	3	4	5	

	<u>Satisfied</u>		<u>Neutral</u>		<u>Dissatisfied</u>
f. Career or job opportunities for your spouse	1	2	3	4	5
g. Recreational opportunities for you and your family	1	2	3	4	5
h. Distance from other family or friends	1	2	3	4	5
i. Climate	1	2	3	4	5
j. Crime	1	2	3	4	5
k. Personal health	1	2	3	4	5
l. Health of your spouse or children	1	2	3	4	5
m. Your relationship with your spouse or significant other	1	2	3	4	5

IX. Plans to Leave:

1. Have you considered leaving your current practice?
 - a. Yes (go to the next question)
 - b. No (go to the end)

2. Have you sent out your curriculum vitae, interviewed, or contacted a recruiter?
 - a. Yes (go to the next question)
 - b. No (go to the end)

3. Would there be any interventions within reason that would induce you to remain in this practice?
 - a. Yes (go to next question)
 - b. No (go to question #7)

4. Would financial incentives such as income guarantees, tax breaks, overhead support, or improved reimbursement have induce you to stay?
 - a. Yes (go to next question)
 - b. No (go to question #7)

5. Which financial incentives? (Pick ones that would interest you)
 - a. Income guarantee
 - b. Payment subsidy (such as to care for the poor and underinsured)
 - c. Office overhead relief
 - d. Tax write-off
 - e. Liability insurance subsidy
 - f. Improved insurance reimbursements
 - g. Loan repayment
 - h. Others _____

6. How large would these financial incentives need to be ? Please answer as a percentage increase in your net practice income. _____
7. Would providing relief from work induce you to stay?
- a. Yes (go to next question)
 - b. No (go to #9)
8. Which type of work relief? Chose one or more.
- a. Recruiting other health care providers into your community?
 - b. Weekend and night on call relief?
 - c. Locum tenens coverage for vacations and CME trips?
 - d. Recruitment of health care provider (s) into your practice?
 - e. Others _____
9. Other comments. _____

Dear Doctor:

Thank you for your time and effort. Please place the survey in the coded addressed stamped envelope and drop it in the mail. Your efforts are sincerely appreciated.

Alan R. Ertle, MD

Physician Survey

Our information indicates that you left a medical practice between March of 1990 and now. If this information is not correct, please check here _____ and return the uncompleted survey .

If the reason for which you left this medical practice was to retire from medical practice, please check here _____ and return the uncompleted survey.

I. Demographics

1. When were you born?
 - a. Month/ Day/ Year _____
2. What is your gender?
 - a. Male _____
 - b. Female _____

II. Identifying your town or city of practice you left:

1. Please identify the town or city of practice that you left.
 - a. Name of town or city _____
 - b. State _____
 - c. Zip code _____
2. When did you first move to and begin work in this previous practice?
 - a. Month _____
 - b. Year _____
3. When did you leave your practice in this city or town?
 - a. Month _____
 - b. Year _____
4. How many miles by road was it to the *next* higher level of specialty medical care (the closest town with more medical services)? _____ miles (0 miles if you live in a city with tertiary care).
5. How many miles by road was it to the medical center where you referred patients for more specialized medical care (this may be the same number of miles as question number 4)? _____ miles

III. Characteristics of the practice which you left:

1. Which of the following best characterizes your previous practice? Check only one.
 - a. Office-based practice _____
 - b. Hospital-based practice _____
 - c. Community or Migrant Health Center (Federally Funded) _____
 - d. HMO _____
 - e. Other type _____

2. What was your specialty when you were in this practice? Check only one.
 - a. Family Practice _____
 - b. General Practice _____
 - c. Internal Medicine _____
 - d. Pediatrics _____
 - e. Obstetrics and Gynecology _____
 - f. Other specialty _____
3. **Besides yourself**, how many physicians, nurse practitioners, and physicians assistants worked in your office or medical group?
 - a. *full-time* providers? _____
 - b. *part-time* providers? _____
4. How many hours per week did you work during regularly scheduled hours?
_____ hours/week
5. How many weekday evenings and weekend days were you on call per month (apart from scheduled clinic hours)
_____ days or nights (maximum=31)
6. What percentage of the nights or weekend days on call did you travel back in to a facility to evaluate at least one patient (excluding regular patient rounds)?
_____ %
7. How many patients did you see in this practice on an average full day in the office?
_____ patients/day
8. Approximately what percentage of the patients in this practice:
 - a. had Medicaid? _____ %
 - b. had Medicare? _____ %
 - c. had no insurance? _____ %
 - d. were under some form of managed care (HMO, PPO, IPA, etc.)? _____ %
9. While in the practice you left, did you admit and care for patients in a hospital?
 - a. Yes _____
 - b. No _____ (if no, go to question 11.)
10. On an average day, how many inpatients did you care for in the practice you left?
_____ patients/day
11. How many days per year did you take off for CME in your previous practice?
_____ days per year
12. How many days per year did you take off for vacation in your previous practice?
_____ days per year
13. What was your annual gross (pre-tax) income for your clinical work per year for the last year in the practice you left?
_____ dollars/year

IV. Identifying the town or city of practice which you relocated to:

1. Where is your town or city of the practice which you relocated to?
 - a. Name of town or city _____
 - b. State _____
 - c. Zip code _____

2. When did you start work in the practice that you relocated to?
 - a. Month _____
 - b. Year _____
3. How many miles by road is it to the *next* higher level of specialty medical care (the closest town with more complete medical services)? _____ miles (0 miles if you live in a city with tertiary care)
4. How many miles by road is it to the medical center where you refer patients for more specialized medical care (this may be the same number of miles as question number 3)? _____ miles

V. Characteristics of the practice which you relocated to:

1. Which of the following best characterizes the practice you relocated to? Check only one.
 - a. Office-based practice _____
 - b. Hospital-based practice _____
 - c. Community or Migrant Health Center (Federally Funded) _____
 - d. HMO _____
 - e. Other type _____
2. What is your specialty in this practice? Check only one.
 - a. Family Practice _____
 - b. General Practice _____
 - c. Internal Medicine _____
 - d. Pediatrics _____
 - e. Obstetrics and Gynecology _____
 - f. Other specialty _____
3. **Besides yourself**, how many physicians, nurse practitioners, and physicians assistants work in your office or medical group in the practice you relocated to?
 - a. *full-time* providers? _____
 - b. *part-time* providers? _____
4. How many hours per week do you work during regularly scheduled hours?
_____ hours/week
5. How many weekday evenings and weekend days are you on call per month (apart from scheduled clinic hours)
_____ days or nights (maximum=31)
6. What percentage of the night or weekend days on call must you travel back in to a facility to evaluate at least one patient (excluding regular patient rounds)?
_____ %
7. How many patients do you see in practice on an average full day in the office?
_____ patients/day
8. Approximately what percentage of your patients:
 - a. have Medicaid? _____ %
 - b. have Medicare? _____ %
 - c. have no insurance? _____ %
 - d. are under some form of managed care (HMO, PPO, IPA, etc.)? _____ %

9. Do you admit and care for patients in a hospital in the practice you relocated to?
 a. Yes _____
 b. No _____ (if no, go to question 11.)
10. On an average day, how many inpatients do you care for?
 _____ patients/day
11. How many days per year do you take off for CME?
 _____ days per year
12. How many days per year do you take off from practice to go on vacation?
 _____ days per year
13. What is your annual gross (pre-tax) income for your clinical work for your last year in practice?
 _____ dollars/year

VI. Specific Situation:

What were the specific reasons and circumstances that led to your leaving this previous practice: _____

VII. Ranking of Factors:

Please list the top five factors in descending order that most influenced your decision to leave your practice.

1. _____
2. _____
3. _____
4. _____
5. _____

VIII. Practice Environment

Please indicate the extent to which the following issues created satisfaction or dissatisfaction with your practice *which you left*:

	<u>Satisfied</u>		<u>Neutral</u>		<u>Dissatisfied</u>	
a. The amount of time spent on call	1	2	3	4	5	
b. Work load	1	2	3	4	5	
c. Stress	1	2	3	4	5	
d. Administrative duties	1	2	3	4	5	
e. Ability to recruit other physicians	1	2	3	4	5	
f. Intellectual fulfillment	1	2	3	4	5	

	<u>Satisfied</u>		<u>Neutral</u>		<u>Dissatisfied</u>
g. Professional fulfillment	1	2	3	4	5
h. Personal time away from work	1	2	3	4	5
i. Vacation time	1	2	3	4	5
j. CME time	1	2	3	4	5
k. Ability to get coverage for your practice (partners, locums, etc.)	1	2	3	4	5

IX. Economic Environment

Please indicate the extent to which the following issues created satisfaction or dissatisfaction with your practice *which you left*:

	<u>Too Little</u>		<u>Just Right</u>		<u>Too Much</u>
a. Work load	1	2	3	4	5

	<u>Satisfied</u>		<u>Neutral</u>		<u>Dissatisfied</u>
b. Income	1	2	3	4	5
c. Earning potential	1	2	3	4	5
d. Overhead costs for your practice	1	2	3	4	5
e. Competition for patients	1	2	3	4	5
f. Economic conditions of the community	1	2	3	4	5
g. Cost of liability insurance	1	2	3	4	5
h. Insurance mix of your patients	1	2	3	4	5
i. Funding of your retirement account	1	2	3	4	5

X. Community Health Care Environment

Please indicate the extent to which the following issues created satisfaction or dissatisfaction with your practice *which you left*:

	<u>Satisfied</u>		<u>Neutral</u>		<u>Dissatisfied</u>
a. Competitive "battles" within the medical community	1	2	3	4	5
b. Economic stability of the hospital (s)	1	2	3	4	5
c. Legal/liability issues related to your practice	1	2	3	4	5

	<u>Satisfied</u>		<u>Neutral</u>		<u>Dissatisfied</u>	
d. Relationships with other physicians in your community	1	2	3	4	5	
e. Relationships with other physicians that you practiced or shared call with	1	2	3	4	5	
f. Relationship with the hospital (s) in your community	1	2	3	4	5	
g. Relationship with the manager of your office or clinic	1	2	3	4	5	

XI. Medical Community Environment

Please indicate the extent to which the following issues created satisfaction or dissatisfaction with your practice *which you left*:

	<u>Satisfied</u>		<u>Neutral</u>		<u>Dissatisfied</u>	
a. Access to continuing medical education	1	2	3	4	5	
b. Professional associations	1	2	3	4	5	
c. Teaching opportunities (medical students and residents)	1	2	3	4	5	
d. Meeting information needs for patient care	1	2	3	4	5	
e. Access to consultants and other specialty backup	1	2	3	4	5	
f. Ability to obtain specialized diagnostic testing	1	2	3	4	5	
g. Ability to provide specialized therapies	1	2	3	4	5	

XII. Social Environment

Please indicate the extent to which the following issues created satisfaction or dissatisfaction with your practice *which you left*:

	<u>Satisfied</u>		<u>Neutral</u>		<u>Dissatisfied</u>	
a. Community support	1	2	3	4	5	
b. Educational opportunities for your children	1	2	3	4	5	
c. Educational opportunities for your spouse	1	2	3	4	5	
d. Social opportunities for you and your family	1	2	3	4	5	
e. Cultural opportunities for you and your family	1	2	3	4	5	

	Satisfied		Neutral		Dissatisfied
f. Career or job opportunities for your spouse	1	2	3	4	5
g. Recreational opportunities for you and your family	1	2	3	4	5
h. Distance from other family or friends	1	2	3	4	5
i. Climate	1	2	3	4	5
j. Crime	1	2	3	4	5
k. Personal health	1	2	3	4	5
l. Health of your spouse or children	1	2	3	4	5
m. Your relationship with your spouse or significant other	1	2	3	4	5

XIII. Inducements to Stay:

1. Would there have been any interventions within reason that would have induced you to remain in the practice which you left ?
 - a. Yes (go to next question)
 - b. No (go to question #5)

2. Would financial incentives such as income guarantees, tax breaks, overhead support, or improved reimbursement have induced you to stay?
 - a. Yes (go to next question)
 - b. No (go to question #5)

3. Which financial incentives? (Pick ones that would interest you)
 - a. Income guarantee
 - b. Payment subsidy (such as to care for the poor and underinsured)
 - c. Office overhead relief
 - d. Tax write-off
 - e. Liability insurance subsidy
 - f. Improved insurance reimbursements
 - g. Loan repayment
 - h. Others _____

4. How large would these financial incentives need to be ? Please answer as a percentage increase in your net practice income. _____%

5. Would providing relief from work have induced you to stay?
 - a. Yes (go to next question)
 - b. No (go to #7)

6. Which type of work relief? Chose one or more.

- a. Recruiting other health care providers into your community?
- b. Weekend and night on call relief?
- c. Locum tenens coverage for vacations and CME trips?
- d. Recruitment of health care provider (s) into your practice?
- e. Others _____

7. Other comments: _____

Dear Doctor:

Thank you for your time and effort. Please place the survey in the coded addressed stamped envelope and drop it in the mail. Your efforts are sincerely appreciated.

Alan R. Ertle, MD