Working Paper

August 2003 #74

An Analysis of Medicare's Incentive Payment Program for Physicians in Health Professional Shortage Areas

by

Leighton Chan, M.D., M.P.H.
Gary Hart, Ph.D.
Thomas C. Ricketts, III, Ph.D.
Shelli K. Beaver, M.S.

WWAMI RURAL HEALTH RESEARCH CENTER

UW University of Washington

School of Medicine

Department of Family Medicine

About the Center

The WWAMI Rural Health Research Center (RHRC) is one of six centers supported by the Federal Office of Rural Health Policy (FORHP), a component of the Health Resources and Services Administration (HRSA) of the Public Health Service. The major focus of the WWAMI RHRC is to perform policy-oriented research on issues related to rural health care. Specific interests of the Center include the training and supply of rural health care providers and the content and outcomes of the care they provide; the availability and quality of care for rural women and children, including obstetric and perinatal care; and access to high-quality care for vulnerable and minority rural populations.

The WWAMI Rural Health Research Center is based in the Department of Family Medicine at the University of Washington School of Medicine, and has close working relationships with the WWAMI Center for Health Workforce Studies, Programs for Healthy Communities (PHC), and the other health science schools at the University, as well as with other major universities in the five WWAMI states: Washington, Wyoming, Alaska, Montana, and Idaho. The University of Washington has over 30 years of experience as part of a decentralized educational research and service consortium involving the WWAMI states, and the activities of the Rural Health Research Center are particularly focused on the needs and challenges in these states. The WWAMI RHRC also works closely with the associated Area Health Education Centers.

The Rural Health Working Paper Series is a means of distributing pre-publication articles and other working papers to colleagues in the field. Your comments on these papers are welcome, and should be addressed directly to the authors. Questions about the WWAMI Rural Health Research Center should be addressed to:

L. Gary Hart, PhD, Principal Investigator and Director
Roger A. Rosenblatt, MD, MPH, Co-Investigator
Denise Lishner, MSW, Associate Director/Editor
WWAMI Rural Health Research Center
Department of Family Medicine
School of Medicine
University of Washington
Box 354982
Seattle, WA 98195-4982
E-mail: wwamirhrc@fammed.washington.edu
WWW: http://www.fammed.washington.edu/wwamirhrc/

The WWAMI Rural Health Research Center is supported by the Federal Office of Rural Health Policy, Health Resources and Services Administration, Public Health Service (grant #U1CRH00035-03, $871,500, 100%).

About the Authors

Leighton Chan, MD, MPH, is an Assistant Professor in the Department of Rehabilitation Medicine, University of Washington School of Medicine.

Gary Hart, PhD, is Director of the WWAMI Rural Health Research Center and Professor in the Department of Family Medicine, University of Washington School of Medicine.

Thomas C. Ricketts, III, PhD, is with the North Carolina Rural Health Research Program, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

Shelli K. Beaver, MS, is with the Division of Clinical Standards and Quality, Centers for Medicare & Medicaid Services, Region 10, Seattle.

An Analysis of Medicare's Incentive Payment Program for Physicians in Health Professional Shortage Areas

Leighton Chan, M.D., M.P.H.
Gary Hart, Ph.D.
Thomas C. Ricketts III, Ph.D.
Shelli K. Beaver, M.S.

August 2003

This study was supported through the WWAMI Rural Health Research Center with funding from the Federal Office of Rural Health Policy, Health Resources and Services Administration, Public Health Service, (Grant #5U1CRH00035-02). Additional funding was provided by the Centers for Medicare and Medicaid Services. We gratefully acknowledge the assistance of Meredith Fordyce, William Kreuter, Linda Ruiz, Vince Schuler, Keith Mueller, Pat Taylor, and Christine Rubadue.

Abstract

Context: Medicare's Incentive Payment (MIP) program provides a 10 percent bonus payment to providers who treat Medicare patients in rural and urban areas where there is a federally designated shortage of generalist physicians.

Objective: This paper examines the experience of five states (Alaska, Idaho, North Carolina, South Carolina, and Washington) with the MIP program. We determined the program's expenditures, utilization, and which types of physicians received payments.

Design: The study involved a retrospective cohort design, utilizing complete 1998 Medicare Part B data. Physician specialty was determined through American Medical Association Masterfile data. The business ZIP code of the physician defined the location of the physician/patient encounter. Rural status was determined by linking this ZIP code to its Rural-Urban Commuting Area Code (RUCA).

Results: There were 2,220,841 patients and 39,780 providers in the study cohort, including 9,885 (24.9%) generalists, 21,292 (53.5%) medical and surgical specialists, and 8,603 (21.6%) non-physician providers. Over $4 million in bonus payments were made to providers in the Health Professional Service Area (HPSA) sites, with a median overall payment of $173. Specialists and urban providers received 58 percent and 14 percent of the bonus reimbursements respectively. Nearly a third of the potential bonus payments ($2 million) were not distributed because the providers did not claim them. Over $2.8 million in bonus claims were distributed to providers who likely did not work in approved HPSA sites.

Conclusions: The MIP bonus payments given to providers are small. Many providers who should have claimed the bonus did not, and many providers who likely did not qualify for the bonus claimed and received it. For the program to be improved, consideration should be given to focusing and enlarging the bonus payments to specific providers, rather than rewarding all providers equally. In addition, policy makers should consider a system that prospectively determines provider eligibility.

Introduction

Medicare's Incentive Payment (MIP) program for physicians began in 1987 with the aim of encouraging primary care physicians to work in underserved rural areas and to improve access to care for Medicare beneficiaries. This program paid a 5 percent bonus on Medicare payments to primary care physicians who treated patients in underserved areas.(1) In 1991, Congress expanded the program, increasing the bonus to 10 percent and adding all medical and surgical specialists. In addition, those who worked in underserved urban areas were also made eligible.(2) Since the late 1990s, Medicare has spent about $100 million per year on this program, including $77 million in 1998.(3)

The bonus payments are available only for specific services. Inpatient and outpatient care, as well as most procedures, are eligible, but portions of other bills are not. In addition, some non-physicians, such as podiatrists, chiropractors and oral surgeons can claim the bonus, while others, such as nurse practitioners, cannot. Bonus payments are not made to practitioners who see Medicare patients enrolled in HMOs.

To receive the bonus, the physician-patient encounter must occur in an area defined as a geographic Health Professional Shortage Area (HPSA). Payments are not made for work performed in Population or Facility HPSAs. A geographic HPSA can be proposed by a community organization and/or state government. The request is then forwarded to the Health Resource Services Administration (HRSA) for federal approval. Geographic HPSAs require distinct areas that have a population to physician ratio of greater than 3,000-3,500:1. In 1998, there were over 1,800 geographically designated HPSA sites nationwide.(4) Quarterly updated HPSA information is given to Medicare Carriers, insurance companies that process and pay claims from physicians for services rendered to Medicare beneficiaries. The Carriers are responsible for disseminating the HPSA information to providers and for using these data for auditing the program.(5)

The HPSA bonus is not an automatic payment. To claim the bonus, physicians must add a specific modifier to each bill submitted. At the end of each fiscal quarter, Medicare Carriers send reimbursements to all physicians who requested the bonus payments.(5)

This paper examines the experience of five states with the MIP program: Alaska, Idaho, South Carolina, North Carolina, and Washington. These states were chosen because they have large rural populations and areas that might be eligible for payments, and because detailed geographic information regarding their HPSA locations was available to us. We were interested in knowing about the MIP

reimbursement amounts for the five states, whether there was broad utilization of the program and which types of physicians were receiving the payments.

Methods

We employed a retrospective cohort design, collecting complete 1998 Medicare Part B data for the five study states. These data include all final and reconciled billing information for Medicare inpatients and outpatients aged 65 and older who were seen in the fee-for-service arena during the study year. This includes patients who were seen during1998 but whose billing may have occurred in 1999. In addition, we also obtained information directly from the Carriers regarding the amount of MIP payments in each state.

Medicare's Part B files consist of a series of line items, with each line representing a discrete service for which a payment claim was made to Medicare for an individual patient. Each billing line has information regarding the physician providing the care, the ZIP code of the location of that physician, the type of service performed, the amount of reimbursement paid by Medicare for the service, whether or not a MIP bonus payment was requested (inclusion of a QU (urban) or QB (rural) modifier), as well as other demographic information about the patient.

We estimated MIP incentive payment amounts by calculating 10 percent of the total payments made for each claim that contained a QU or QB modifier regardless of whether the encounter occurred in a geographic HPSA site. We felt that this was accurate because the Carriers do not audit payments until after they have been sent out. Since MIP payments are only made for the professional component of the physician fee schedule, payments for technical components of certain claims, such as diagnostic or therapeutic radiology, pathology services, and other diagnostic tests that involve a physician's interpretation, were excluded from this calculation. Our estimate of total MIP payments was very close to the estimate calculated by the Carriers. While our total dollar figure was 7.8 percent less than the Carriers', this was probably because we excluding providers who did not match in the American Medical Association (AMA) database, but were nonetheless paid by Medicare.

We determined physician specialty by using data from the 2000 AMA Masterfile, which has information on residency experience and board certification, and from Medicare. For physicians, Medicare's Unique Physician Identification Number (UPIN) was used to match data from the AMA Masterfile in a process described previously.(6) For the purposes of this study, generalists were considered those whose primary AMA specialty was general internal medicine, general

practice, family practice, general surgery, obstetrics and gynecology, and general pediatrics. Other physician providers were categorized into two groups: medical and surgical specialists (See Table 1 for specialty detail). For non-physician providers, including podiatrists, optometrists, chiropractors, osteopaths, and oral surgeons, we used their self-reported Medicare specialty.

We used the Zone Improvement Plan (ZIP) code of the physician to define where a provider/patient encounter took place. This information is contained on each billing line and represents the ZIP code of the provider's practice setting at the time he/she saw the patient. If the provider worked at more than one site, then the ZIP codes reflected this. This information is maintained and updated by Medicare's Carriers. A separate billing ZIP code (location of where reimbursement checks are sent) is also available but was not used. More detailed information, including the actual street address of the provider, is collected by Medicare Carriers. However, these data are not keyed into the national data collection system and were not available to us.

We obtained detailed information on geographic HPSAs from the Division of Shortage Designation, Bureau of Primary Health Care, HRSA and confirmed these data with state health officials in all five states. HPSA designations are requested by community organizations or state governments in a process that requires federal approval. New sites are created on an ongoing basis, but once they are approved, they are supposed to be federally reassessed every three years. However, in recent years the reviews have been delayed. The review can result in an extension of a designation or its removal. Carriers receive quarterly reports of HPSA locations to be used for auditing.

For the purposes of this study, we used the HPSA boundaries that were designated as of November 1st, 1998 because of availability of data on or near that date. Geographic HPSA boundaries are most often defined based on Census tract, county and minor civil division boundaries. These boundaries do not often line up with ZIP code boundaries. For each of the five states, we painstakingly compared these boundaries with the use of detailed maps, census tract and ZIP code population data, and in consultation with state officials responsible for HPSA designation. In some cases involving minor civil divisions we had to make our best estimate based on maps, town population, and road networks. Because ZIP codes often straddle HPSA boundaries, we divided the claims into three categories, those where the physician ZIP code was entirely in a HPSA, those where the ZIP code was entirely outside a HPSA site, and crossover ZIP codes that straddle HPSA/Non-HPSA boundaries. These crossover ZIP codes were further described by obtaining detailed census data which allowed us to determine the percent of those over age 64 in the ZIP code that were living in the HPSA portion.

Rural status was determined by linking the physician ZIP code to its Rural-Urban Commuting Area Code (RUCA).[7] This rural-urban taxonomy was selected because it is a more precise subcounty alternative to county-based alternatives such as the Office of Management and Budget's "Metropolitan Areas." In addition, RUCAs are now being used in a wide range of applications including eligibility for federal rural-based programs (e.g., Critical Access Hospitals, Rural Outreach Grants).

RUCAs use Census Bureau information to differentiate areas based on their city/town size and functional relationships (i.e. work commuting patterns) to larger cities and towns. The 30 RUCA designations were aggregated into four categories: Urban (RUCA = 1.0, 1.1, 2.0, 2.1, 2.2, 3.0, 4.1, 5.1, 7.1, 8.1, 10.1), Large Rural City (in or associated with a large rural city of 10,000 to 50,000, RUCA = 4.0, 5.0, 6.0), Small Rural Town (in or associated with a rural town of 2,500 to 10,000, RUCA = 7.0, 7.2, 7.3, 7.4, 8.0, 8.2, 8.3, 8.4, 9.0, 9.1, 9.2), and Isolated Smaller Rural Town (in or associated with a rural town of fewer than 2,500, RUCA = 10.0, 10.2, 10.3, 10.4, 10.5). Non-city/town areas were aggregated with the city/town where they had a strong commuting relationship.

Descriptive analyses of the data were performed using graphical displays and summaries of the data, such as means and standard deviations.

Results

There were 2,220,841 patients and 39,780 providers in the cohort. Of the providers, 9,885 (24.9%) were generalists, 21,292 (53.5%) were medical and surgical specialists, and 8,603 (21.6%) were non-physician providers. Over 7 percent of the patient encounters occurred in ZIP codes that were entirely within HPSA sites, 80.4 percent of patients were seen in ZIP codes that were entirely outside HPSA sites, and 12.5 percent of patients were seen in crossover ZIP codes.

Table 1 shows the MIP payments by rural/urban location, physician specialty status, and by state for those providers whose ZIP codes where entirely within a HPSA and therefore were eligible for the MIP bonus. In addition, it reports the amount of lost MIP revenue; that is, the reimbursement these providers could have billed for but did not. Of the over $4 million paid out in MIP bonuses, only 14 percent went to providers in urban areas. Over half of the bonus payments went to medical and surgical specialists. Nearly a third of the time, physicians did not request the bonus payment for an eligible visit. This amounted to nearly $2 million

in unclaimed MIP payments. These missed opportunities were higher among generalists, in urban areas, and in Alaska and Idaho.

Table 2 shows the median MIP payments to physicians in ZIP codes entirely within a HPSA site. Overall, the median annual payment to physicians was $173, with the 75th percentile receiving $1,448. Specialists received more than generalists, and those in small and isolated small rural areas received more than those in more populated areas. The median payment in Washington was nearly eight times that in North Carolina.

If all the providers who worked in HPSA areas received the bonus for eligible services, regardless of whether or not they billed for it, median MIP payments would rise by over $800 per physician and by nearly $3,000 for physicians at the 75th percentile. Specialists, both urban and rural would increase their median reimbursement to nearly $2,000. In addition, those in large rural areas, and those in North and South Carolina would receive large increases in bonus dollars.

Table 3 shows the cost of the MIP program using a variety of payment options. The total amount of actual bonus payments in the five study states in ZIP codes that were entirely in a HPSA site was just over $4.1 million. This figure would have increased to over $6 million if the reimbursements were automatic, that is, if every eligible provider in these HPSA ZIP codes were paid the bonus (see Figure 1). However, if the bonus payments were only made to rural generalists, the total payments would be $1.92 million. These figures do not take into account the changes in the program's cost that would occur in non-HPSA ZIP codes or "crossover" ZIP codes under automatic reimbursement. If the HPSA requirement were removed and payments were made to all generalists in small and isolated rural areas (based on RUCA status), they would amount to $5.77 million.

Table 4 shows the experience of providers whose ZIP codes are entirely in non-HPSA sites. In total, $1.37 billion was paid to providers in these sites and 2.1 percent of bills requested the HPSA bonus. Thus, $2.88 million in bonus payments were paid out to providers who probably were not eligible.

Of the $146.8 million total payments made in crossover ZIP codes, 72 percent were in urban areas, 18 percent were in large rural, 8 percent were in small rural, and 2 percent were in isolated small rural areas. A total of $514,000 in HPSA payments were made in these crossover ZIP codes, mostly in South Carolina ($253,000) and North Carolina ($220,000).

Discussion

Our results reveal that there were missed opportunities in the MIP program. While over $4 million was paid out to physicians in the program in the five study states, providers working in HPSA sites failed to claim the bonus nearly one third of the time, foregoing an additional $2 million in incentive payments. Conversely, the program paid almost $3 million to providers who were probably not working in approved geographic HPSA sites.

Our results are consistent with several other reports [3,4,8,9,10] that have analyzed the HPSA program. In 1999, the Government Accounting Office (GAO) issued a report suggesting that the HPSA program was not "an effective mechanism for improving Medicare beneficiaries' ability to obtain health care" as the average payment to providers was quite small. Furthermore, most of the HPSA payments went to specialists, for whom shortages were not determined. A more recent RAND report focused on the regional variation of the MIP's impact and found that while the percent of bonus payments going to primary care providers had decreased over time, the percent of payments for primary care services actually increased.

Our study extends these results, as we used a more accurate definition of physician specialty. Prior studies were unable to fully differentiate those providers who practiced internal medicine from other medical specialists. Using AMA data, we were able to be more accurate when analyzing this variable. In addition, by determining geographic HPSA sites in detail and comparing them to physician practice locations, we are able to make statements about the appropriateness of claims unavailable to others.

Within the HPSA areas, about 14 percent of the bonus payments went to providers in urban areas. However, these providers were the least efficient when it came to requesting the bonus. If all providers were given the bonus in these areas, regardless of whether they requested it, urban areas would have received 18 percent of the total payments. This differs significantly from earlier reports suggesting that more than half of the MIP payments went to providers in urban areas.[4] These findings likely represent the influence of several factors. Rather than relying on physician self-report, or the home address of the patient to locate the physician-patient encounter, we used the provider location from the billing data. In addition, we used a different, more accurate categorization of rural/urban status. Finally, while we included five states in our detailed analysis, a higher percentage of urban payments might be made in states not included in our study. Indeed, when examining the population over age 64, 63 percent of those in the study states lived in an urban area, compared to 75 percent of those in the rest of the country.

Using our definition of generalist provider, we found that generalists received 36 percent of the total MIP payments. If the payments were made automatically and all appropriate providers were given the bonus regardless of whether they requested it, the distribution of funds between provider types would not change significantly: generalists would still receive only 37 percent the payments.

There are likely several reasons for our findings. Although the MIP program pays out nearly $100 million/year, it is a relatively small Medicare program and may not receive the attention it warrants either by the Medicare Carriers that monitor it, or the physicians that might benefit from it. This is compounded by the fact that the regulations behind HPSA designations are complex; defining geographic HPSA boundaries in difficult, even for committed experts.

Policy Implications

Our findings have several policy implications. First of all, the median MIP bonus payment to a provider in a HPSA site was $173, although 25 percent received more than $1,400. This relatively small sum is unlikely to be a strong incentive for a provider to move to or stay in an underserved area. However, there may be ways to increase the median payment substantially, without violating an assumption of overall budget neutrality. Table 3 provides a framework for policy development in this area. For instance, if the payments were restricted to only generalists in rural areas, their bonus could be doubled—to 20 percent—and the total bonus payments would still decrease from $4.2 to $1.9 million.

The high number of missed opportunities by providers who did not bill for the bonus when they could have, as well as claim payments that appear to be erroneous, suggest that a new design for the system should be considered. Given the complexity and changing nature of HPSA designations, depending on physician initiated payment does not seem prudent. One alternative would be to make the payment "automatic." In this way, all those working in a geographic HPSA would receive payments regardless of whether they requested it on each bill.

Making the program automatic will not be easy. Medicare's billing data were not designed to geographically locate the patient/provider encounter with complete accuracy. However, one possibility could be to determine, prospectively, eligible providers by having them apply on a regular basis. Claims submitted by providers who see patients in multiple sites could be distinguished by separate, site-specific provider numbers (these "PIN numbers" already exist). The drawback of this

system is that the responsibility remains on the providers to apply for the bonus, and some providers are still likely to be overlooked.

Another option would be to use the same provider ZIP code we used in our analysis to determine the location of service. This would work well for those ZIP codes that are entirely in or outside of a HPSA area. However, this method would be problematic in the crossover ZIP codes (where only part of the ZIP code is in the HPSA site). Overall, there were $147 million in total billings in the crossover ZIP codes in our study, but only $500,000 in bonus payments, suggested only a limited number of eligible physicians. If one were generous and assumed that all the billings warranted a HPSA bonus (this is unlikely given the limited amount that was actually requested), $14.7 million would have to be paid out in the five study states, nearly twice the current total MIP payments for the five study states. Alternatively, the Carriers, perhaps in collaboration with the state Primary Care Officers involved in HPSA designation, could prospectively certify qualified physicians in crossover ZIP codes on a yearly basis.

Another option would be to use current Census data and determine the percent of patients in a particular crossover ZIP code that live within the HPSA portion of that ZIP code. This is relatively easy to do. We performed this in our study states and then categorized the crossover ZIP codes based on this percentage. We found that 70 percent of the total payments ($105 million) went to providers who worked in crossover ZIP codes where less than 25 percent of the population lived in a geographic HPSA site. In addition, we found that potential MIP payments in the crossover ZIP codes would be $2.5 million if only those providers who worked in ZIP codes where the majority (>/= 50%) of the population lived in the HPSA portion were paid the bonus, and $475,000 if only those in ZIP codes where at least 75 percent of the population was in the geographic HPSA portion. The advantage of this system is that it requires much less administrative time and energy to update the system and to keep it running. The drawback is that it will create a new set of winner and losers. It is likely that this system may pay some providers who are not working in a HPSA site and it may not pay others who are.

A more drastic alternative would be to eliminate the geographic HPSA eligibility requirement altogether and use a geographic criterion that is more stable and targeted. For instance, bonus payments could be paid for services rendered in all small and isolated small rural areas based on RUCA status alone, irregardless of HPSA status (see bottom of Table 3). In this scenario, if only generalists were given the bonus payment, the total amount of bonus payments would be only slightly more that the current spending in HPSA only ZIP codes, but less than if the current program were made "automatic."

There are several limitations to our study. First of all, this was a study of five states and the experience of other areas of the country may be different. In addition, our data are several years old and may not reflect current trends. However, program expenditures have been fairly stable over the past few years and there have been no recent administrative changes to suggest that the results of analyses of more current data would yield different results. We relied on the provider business ZIP code in the billing data as an indicator of the site where patients were seen. To our knowledge, no one has performed a validation study of this variable, however, it is considered the most accurate source of practice location when compared with other AMA and UPIN Registry data.[6,11] Finally, because of the availability of data, and the ambiguity about the timing of certain changes, we based our analyses on the HPSA locations as of November 1, 1998. However, the Medicare Part B data employed in this study are for services rendered throughout the entire year. This may have resulted in misclassification regarding bonus payment eligibility and payment. Examination of the information available to us indicates that, during the study year, approximately five percent or fewer of the geographic HPSAs changed designation status. Thus, while there may be some misclassification, we believe that is not substantial and certainly not of a magnitude which might influence the nature of our results.

Despite these limitations, our study provides one of the most detailed examination of the MIP program to date. We found that many providers who should have claimed the bonus did not, and that many providers who may not have qualified for the bonus claimed and received it. For the program to be improved, consideration should be given to focusing and enlarging the bonus payments to specific providers, rather than rewarding all providers equally. In addition, policy maker should consider implementing a system that prospectively determines the provider eligibility.

References

1. Public Law 100-203, sec 4043, 101 Stat, 1330, 1330-85 (42 U.S.C. 13951 (m)).

2. Public Law 101-239, sec. 6102 (c) (1), 103 Stat. 2106, 2184.

3. Farley, DO, LR Shugarman, P Taylor, M Inkelas, JS Ashwood, F Zeng, KM Harris. Trends in Special Medicare Payments and Services Utilization for Rural Areas in the 1990s. RAND, Santa Monica, CA. January, 2002, Report No. MR-1595-CMS.

4. Physician Shortage Areas: Medicare Incentive payments Not an Effective Approach to Improve Access. GAO Publication No. (HEHS)-99-36. Washington, DC: Government Printing Office, 1999.

5. Medicare Multi-Carrier System Specification. HPSA Claims Processing. Spec#: S192000, February, 2002.

6. Baldwin, LM, Adamache, W, Klabundle, C, Kenward, K, Dahlman, C, Warren, JL. Linking Physician Characteristics and Medicare Claims Data: Issues in Data Availability, Quality, and Measurement. Medical Care 2002 40 (8): 82-95 Suppl.

7. Morrill, R, Cromartie, J, Hart, GL. Metropolitan, Urban, and Rural Commuting Area: Toward a Better Depiction of the U.S. Settlement System. Urban Geography 1999 20:727-48.

8. Design Flaws in the Medicare Incentive Payment Program. DHHS Publication No. (OIG) OEI-01093-00051. Washington, DC: Government Printing Office, 1994.

9. Medicare Incentive Payments in Health Professional Shortage Areas: Do they Promote Access to Primary Care? DHHS Publication No. (OIG) OEI-01093-00050. Washington, DC: Government Printing Office, 1994.

10. Health Care Shortage Areas: Designations Not a Useful Tool for Directing Resources to the Under-Served. GAO Publication No. (HEHS)-95-200. Washington, DC: Government Printing Office, 1995.

11. Unique Physician Identification Number (UPIN) Validation Studies. Report No. 4: Understanding the Properties of the UPIN for Claims Based Research. Health Economics Research, Waltham MA, 1994.

TABLE 1
100% HPSA ZIP codes

	Actual Payments	%	Total Potential Payments	%	Lost HPSA Revenue	% of Total Payments Lost
Urban	$ 572,287	14%	$ 1,112,844	18%	$ 540,557	49%
Large Rural	$ 1,169,447	28%	$ 1,337,988	22%	$ 168,542	13%
Small Rural	$ 1,879,709	45%	$ 2,746,426	45%	$ 866,717	32%
Isolated Small Rural	$ 540,620	13%	$ 925,999	15%	$ 385,379	42%
Generalists	$ 1,515,496	36%	$ 2,294,915	37%	$ 779,419	34%
Specialists	$ 2,418,542	58%	$ 3,377,107	55%	$ 958,565	28%
Non-MD	$ 228,025	5%	$ 451,236	7%	$ 223,210	49%
AK	$ 2,097	0.05%	$ 9,441	0.15%	$ 7,344	78%
ID	$ 76,201	2%	$ 147,197	2%	$ 70,997	48%
NC	$ 3,007,763	72%	$ 4,135,457	68%	$ 1,127,695	27%
SC	$ 877,734	21%	$ 1,521,762	25%	$ 644,028	42%
WA	$ 198,268	5%	$ 309,400	5%	$ 111,132	36%
Total	$ 4,162,063		$ 6,123,257		$ 1,961,196	32%

TABLE 2
Figures represent bonus amounts

100% HPSA ZIP codes	Amount Paid Median	Amount Paid 75%tile	Potential Amount if Auto Median	Potential Amount if Auto 75%ile
Urban Gen	$ 185	$ 1,823	$ 734	$ 2,279
Urban Spec	$ 286	$ 2,180	$ 2,472	$ 6,905
Urban Non-MD	$ 18	$ 185	$ 218	$ 670
Rural Gen	$ 216	$ 1,972	$ 1,439	$ 4,240
Rural Spec	$ 231	$ 1,252	$ 2,020	$ 7,379
Rural Non-MD	$ 36	$ 242	$ 337	$ 1,024
Alaska	$ 115	$ 710	$ 375	$ 1,752
Idaho	$ 82	$ 423	$ 732	$ 3,420
North Carolina	$ 57	$ 497	$ 1,302	$ 5,573
South Carolina	$ 348	$ 2,078	$ 1,520	$ 6,555
Washington	$ 434	$ 2,703	$ 734	$ 3,017
Urban	$ 182	$ 1,641	$ 969	$ 4,308
Large Rural	$ 91	$ 593	$ 1,140	$ 5,097
Small Rural	$ 194	$ 1,279	$ 723	$ 3,569
Isolated Small Rural	$ 375	$ 1,972	$ 502	$ 2,438
All	$ 173	$ 1,448	$ 991	$ 4,394

TABLE 3

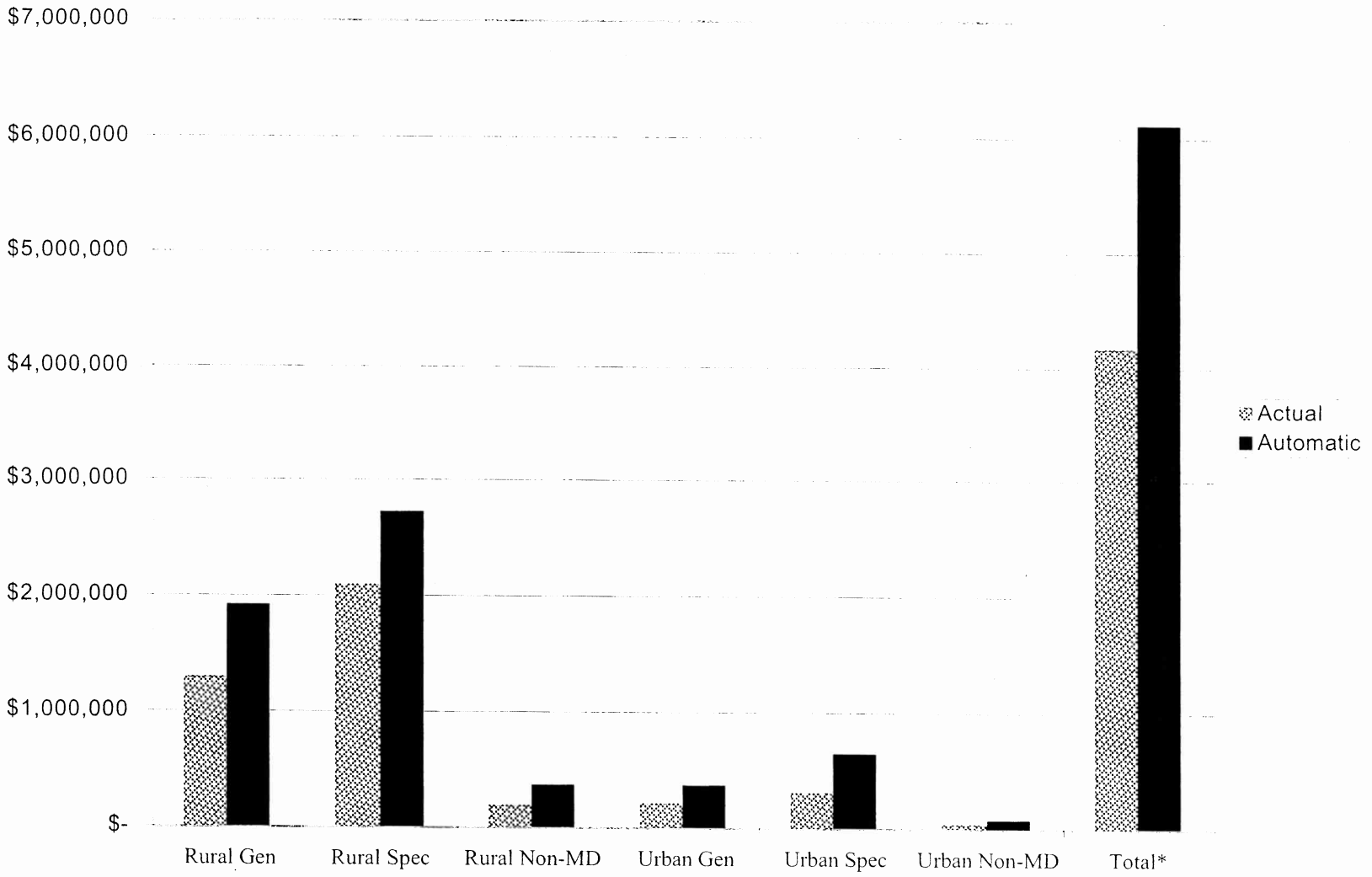
100% HPSA ZIP codes only	Rural Gen	Rural Spec	Rural Non-MD	Urban Gen	Urban Spec	Urban Non-MD	Total*
Actual	$ 1,295,099.00	$ 2,101,911.00	$ 192,766.00	$ 220,397.00	$ 316,631.00	$ 35,259.00	$ 4,162,063.00
Automatic	$ 1,919,610.00	$ 2,724,362.00	$ 366,442.00	$ 375,305.00	$ 652,745.00	$ 84,794.00	$ 6,123,258.00
Auto Large, Small and Isolated Rural only	$ 1,919,610.00	$ 2,734,362.00	$ 366,442.00				$ 5,020,414.00
Auto Gen only	$ 1,919,610.00			$ 375,305.00			$ 2,294,915.00
Auto Large, Small, Isolated Rural Gen only	$ 1,919,610.00						$ 1,919,610.00
Auto only Small Rural & Isolated Small Rural	$ 1,644,071.00	$ 1,718,677.00	$ 309,677.00				$ 3,672,425.00
Auro Gen only Small Rural & Isolated Small Rural	$ 1,644,071.00						$ 1,644,071.00
All ZIP Codes							
Auto only Small Rural & Isolated Small Rural	$ 5,772,288.00	$ 8,573,346.00	$ 1,082,084.00				$ 15,427,718.00
Auto Gen only Small Rural & Isolated Small Rural	$ 5,772,288.00						$ 5,772,288.00

• These figures do not take into account the $2,884,630 that could be recouped in non-HPSA sites in an automatic system. Nor do they account for the dollars that would have to be spent in the cross over ZIP codes: current total payments $146.8 million, HPSA bonus payments = $513,911.00.

• Medical specialists were those with a primary AMA specialty of allergy & immunology, aerospace medicine, anesthesia, cardiology, vascular medicine, psychiatry, dermatology, radiology, emergency medicine, sports medicine, gastroenterology, public health/prevention, hyperbaric medicine, adolescent medicine, critical care medicine, endocrinology, geriatrics, hematology/oncology, infectious disease, nephrology, pulmonary critical care, rheumatology, genetics, neurology, occupational medicine, pain medicine, physical medicine and rehabilitation, pathology, and radiation oncology. Surgical specialists were those with a primary AMA specialty of colorectal surgery, cardiothorasic surgery, hand surgery, orthopedics, otolaryngology, transplant surgery, vascular surgery, neurosurgery, ophthalmology, plastic surgery, and urology.

TABLE 4 100% Non-HPSA ZIP Codes		Incorrect Bonus Payments
AK	$	14,079
ID	$	93,766
NC	$	517,397
SC	$	1,325,413
WA	$	933,975
Total	$	2,884,630

Figure 1: HPSA Payments in 1998 (AK, ID, NC, SC, WA)



Previous WWAMI Center for Health Workforce Studies and Rural Health Research Center Working Papers

The WWAMI Rural Health Research Center was established in 1988. The WWAMI Center for Health Workforce Studies was established in 1998.

1. Hart, L. Gary; Rosenblatt, Roger A.; and Amundson, Bruce A. Is There a Role for the Small Rural Hospital? January 1989.
2. Hart, L. Gary; Rosenblatt, Roger A.; and Amundson, Bruce A. Rural Hospital Utilization: Who Stays and Who Goes? March 1989.
3. Amundson, Bruce A. and Hughes, Robert D. Are Dollars Really the Issue for the Survival of Rural Health Services? June 1989.
4. Nesbitt, Thomas S.; Rosenblatt, Roger A.; Connell, Frederick A.; and Hart, L. Gary. Access to Obstetrical Care in Rural Areas: Effect on Birth Outcomes. July 1989.
5. Schleuning, Dianne; Rice, George; and Rosenblatt, Roger A. Addressing Barriers to Rural Perinatal Care: A Case Study of the Access to Maternity Care Committee in Washington State. October 1989.
6. Rosenblatt, Roger A.; Whelan, Amanda; and Hart, L. Gary. Rural Obstetrical Access in Washington State: Have We Attained Equilibrium? January 1990.
7. Rosenblatt, Roger A; Weitkamp, Gretchen; Lloyd, Michael; Schafer, Bruce; Winterscheid, Loren C.; Vaughn, J. Daniel; and Hart, L. Gary. Are Rural Family Physicians Less Likely to Stop Practicing Obstetrics Than Their Urban Counterparts: The Impact of Malpractice Claims. April 1990.
8. Rosenblatt, Roger A.; Whelan, Amanda; Hart, L. Gary, Long, Constance; Baldwin, Laura-Mae; and Bovbjerg, Randall R. Tort Reform and the Obstetric Access Crisis: The Case of the WAMI States. June 1990.
9. Hart, L. Gary; Pirani, Michael; and Rosenblatt, Roger A. Causes and Consequences of Rural Small Hospital Closures from the Perspectives of Mayors. September 1990.
10. Welch, H. Gilbert; Larson, Eric H.; Hart, L. Gary; and Rosenblatt, Roger A. Readmission Following Surgery in Washington State Rural Hospitals. January 1991.
11. Amundson, Bruce A.; Hagopian, Amy; and Robertson, Deborah G. Implementing a Community-Based Approach to Strengthening Rural Health Services: The Community Health Services Development Model. February 1991.
12. Hoare, Geoffrey; Katz, Aaron; Porter, Alice; Dannenbaum, Alex; and Baldwin, Harry. Rural Health Care Linkages in the Northwest. April 1991.
13. Whitcomb, Michael E.; Cullen, Thomas J.; Hart, L. Gary; Lishner, Denise M.; and Rosenblatt, Roger A. Impact of Federal Funding for Primary Care Medical Education on Medical Student Specialty Choices and Practice Locations (1976-1985). April 1991.
14. Larson, Eric H.; Hart, L. Gary; and Rosenblatt, Roger A. Is Rural Residence Associated with Poor Birth Outcome? June 1991.
15. Williamson, Harold A.; Rosenblatt, Roger A.; Hart, L. Gary. Physician Staffing of Small Rural Hospital Emergency Departments: Rapid Change and Escalating Cost. September 1991.
16. Hart, L. Gary; Pirani, Michael J.; Rosenblatt, Roger A. Rural Hospital Closure and Local Physician Supply: A National Study. December 1991.
17. Larson, Eric H.; Hart, L. Gary; Hummel, Jeffrey. Rural Physician Assistants: Results from a Survey of Graduates of MEDEX Northwest. May 1992.
18. Hart, L. Gary; Robertson, Deborah G.; Lishner, Denise M; Rosenblatt, Roger A. Part 1: CEO Turnover in Rural WAMI Hospitals. Part 2: Rural Versus Urban CEOs: A Brief Report on Education and Career Location Patterns. August 1992.
19. Williamson, Harold; Hart, L. Gary; Pirani, Michael J.; Rosenblatt, Roger A. Rural Hospital Surgical Volume: Cutting Edge Service or Operating on the Margin? January 1993.
20. Rosenblatt, Roger A.; Saunders, Greg; Tressler, Carolyn; Larson, Eric H.; Nesbitt, Thomas S.; Hart, L. Gary. Do Rural Hospitals Have Less Obstetric Technology than their Urban Counterparts? A Statewide Study. March 1993.
21. Williamson, Harold A.; Hart, L. Gary; Pirani, Michael J.; Rosenblatt, Roger A. Market Shares for Rural Inpatient Surgical Services: Where Does the Buck Stop? April 1993.
22. Geyman, John P.; Hart, L. Gary. Primary Care at a Crossroads: Progress, Problems and Policy Options. May 1993.

23. Nesbitt, Thomas S.; Larson, Eric H.; Rosenblatt, Roger A.; Hart, L. Gary. Local Access to Obstetric Care in Rural Areas: Effect on Prenatal Care, Birth Outcomes, and Costs. August 1993.

24. Grossman, David; Hart, L. Gary; Rivara, Frederick P.; Rosenblatt, Roger A.; Maier, Ronald V. From Roadside to Bedside: The Regionalization of Motor Vehicle Trauma Care in a Remote Rural County. October 1993.

25. Baldwin, Laura-Mae; Hart, L. Gary; West, Peter A.; Norris, Tom E.; Gore, Edmond. Two Decades of Experience in the University of Washington Family Medicine Residency Network: Practice Differences Between Graduates in Rural and Urban Locations. November 1993.

26. Statewide Office of Rural Health and Washington Rural Health Association. Implementing Health Care Reform: Setting a Course for Rural Washington. Summary of a Workshop, November 9-10, 1993, Seattle, Washington. January 1994.

27. Williamson, Harold A.; West, Peter A.; Hagopian, Amy. Scope of Rural Medical Services: A Workbook for Hospital Trustees. March 1994.

28. Cullen, Thomas J.; Hart, L. Gary; Whitcomb, Michael E.; Lishner, Denise M.; Rosenblatt, Roger A. The National Health Service Corps: Rural Physician Service and Retention. September 1994.

29. Neighbor, William E.; Baldwin, Laura-Mae; West, Peter A.; Bezy, Judith M.; Hart, L. Gary. Experience of Rural Hospitals with the National Practitioner Data Bank. October 1994.

30. Rosenblatt, Roger A.; Mattis, Rick; Hart, L. Gary. Access to Legal Abortions in Rural America: A Study of Rural Physicians in Idaho. November 1994.

31. West, Peter A.; Norris, Thomas E.; Gore, Edmond J.; Baldwin, Laura-Mae; Hart, L. Gary. The Geographic and Temporal Patterns of Residency-Trained Family Physicians: University of Washington Family Practice Residency Network. February 1995.

32. Hart, L. Gary; Dobie, Sharon A.; Baldwin, Laura-Mae; Pirani, Michael J.; Fordyce, Meredith; Rosenblatt, Roger A. Rural and Urban Differences in Physician Resource Use for Low-Risk Obstetrics. March 1995.

33. Rosenblatt, Roger A.; Saunders, Greg; Shreffler, Jean; Pirani, Michael J.; Larson, Eric H.; Hart, L. Gary. Beyond Retention: National Health Service Corps Participation and Subsequent Practice Locations of a Cohort of Rural Family Physicians. April 1995.

34. Dobie, Sharon; Hart, L. Gary; Fordyce, Meredith; Andrilla, Holly; Rosenblatt, Roger A. Content of Obstetric Care for Rural, Medicaid, and Minority Women. June 1995.

35. Melzer, Sanford M.; Grossman, David C.; Hart, L. Gary; Rosenblatt, Roger A. Hospital Services for Rural Children in Washington State: Where Do They Go for Care and Who Takes Care of Them? October 1995.

36. Larson, Eric H.; Hart, L. Gary; Rosenblatt, Roger A. Is Rural Residence a Risk Factor for Poor Birth Outcome? A National Study. December 1995.

37. Norris, Thomas E.; Reese, Jennifer W.; Rosenblatt, Roger A. Are Rural Family Physicians Comfortable Performing Cesarean Sections? March 1996.

38. Lishner, Denise M.; Richardson, Mary; Levine, Phyllis, Patrick Donald. Access to Primary Health Care Among Persons with Disabilities in Rural Areas: A Summary of the Literature. April 1996.

39. Dunbar, Peter J.; Mayer, Jonathan D.; Fordyce, Meredith A.; Lishner, Denise M.; Hagopian, Amy; Spanton, Ken; Hart, L. Gary. A Profile of Anesthesia Provision in Rural Washington and Montana. May 1996.

40. Perrin, Edward B.; Hart, L. Gary;, Goldberg, Bruce; Grossman, David; Skillman, Susan M.; Paul, Britt. Patient Outcomes and Medical Effectiveness Research in Rural Areas for Racial/Ethnic Populations: Issues and Recommendations. July 1996.

41. Perrin, Edward B.; Hart, L. Gary; Skillman, Susan M.; Paul, Britt; Hanken, Mary Alice; Hummel, Jeffrey. Health Information Systems and Their Role in Rural Health Services: Issues and Policy Recommendations. August 1996.

42. Saver, Barry; Casey, Susan; House, Peter; Lishner, Denise; Hart, Gary. Antitrust and Action Immunity in Rural Washington State. Part I: User's Guide to Antitrust and Rural Health Care Environments. Part II: Antitrust Issues in Rural Washington State. January 1997.

43. Dyck, Sarah; Hagopian, Amy; House, Peter J.; Hart, L. Gary. Northwest Rural Hospital Governing Boards. November 1997.

44. Doescher, Mark P.; Ellsbury, Kathleen E.; Hart, L. Gary. The Distribution of Rural Female Generalist Physicians in the United States. February 1998.

45. Wright, George E.; Andrilla, C. Holly A. How Many Physicians Can a Rural Community Support? A Practice Income Potential Model for Washington State. April 2001.

46. Saver, Barry G.; Bowman, Robert; Crittenden, Robert A.; Maudlin, Robert K.; Hart, L. Gary. Barriers to Residency Training of Physicians in Rural Areas. April 1998.

47. Larson, Eric H.; Hart, L. Gary; Goodwin, Mary-Katherine; Geller, Jack; Andrilla, Catherine. Dimensions of Retention: A National Study of the Locational Histories of Physician Assistants. April 1998.

48. Baldwin, Laura-Mae; Rosenblatt, Roger A.; Schneeweiss, Ronald; Lishner, Denise M.; Hart, L. Gary. Rural and Urban Physicians: Does the Content of their Practices Differ? May 1998.

49. Geyman, John P.; Hart, L. Gary; Norris, Thomas E.; Coombs, John B.; Lishner, Denise M. Physician Education and Rural Location: A Critical Review. February 1999.

50. Hart, L. Gary; Morrill, Richard; Cromartie, John. A Guide to the Use of Rural and Urban Commuting Areas (RUCAs) in Health Care Analyses. (forthcoming)

51. Hart, L. Gary; Rosenblatt, Roger A.; Lishner, Denise M.; Friedman, Harvey; Baldwin, Laura-Mae. Where Do Elderly Rural Residents Obtain their Physician Care? A Study of Medicare Patients in Washington State. (forthcoming)

52. Ellsbury, Kathleen E.; Doescher, Mark P.; Hart, L. Gary. The Production of Rural Female Generalists by U.S. Medical Schools. January 1999.

53. Lishner, Denise M.; Rosenblatt, Roger A.; Baldwin, Laura-Mae; Hart, L. Gary. Emergency Department Use by the Rural Elderly. November 1998.

54. Baldwin, Laura-Mae; Grossman, David C.; Casey, Susan; Hollow, Walter; Sugarman, Jonathan R.; Freeman, William L.; Hart, L. Gary. Perinatal and Infant Health Among Rural and Urban American Indians/Alaska Natives. June 1999.

55. Larson, Eric H.; Hart, L. Gary; Muus, Kyle; Geller, Jack. Content of Physician Assistant Practice: Results from a National Survey. May 1999.

56. Richardson, Mary; Casey, Susan; Rosenblatt, Roger A. Local Health Districts and the Public Health Workforce: A Case Study of Wyoming and Idaho. November 1999.

57. Larson, Eric H.; Hart, L. Gary; Ballweg, Ruth. National Estimates of Physician Assistant Productivity. January 2000.

58. Hart, L. Gary; Norris, Thomas E.; Lishner, Denise M. Attitudes of Family Physicians in Washington State Toward Physician-Assisted Suicide. February 2002.

59. Rosenblatt, Roger A.; Baldwin, Laura-Mae; Chan, Leighton; Fordyce, Meredith A.; Hirsch, Irl B.; Palmer, Jerry P.; Wright, George E.; Hart, L. Gary. The Quality of Care Received by Diabetic Patients in Washington State: A Rural-Urban Comparison. March 2000.

60. Wright, George E.; Paschane, David M.; Baldwin, Laura-Mae; Domoto, Peter; Cantrell, Diana; Hart, L. Gary. Distribution of the Dental Workforce in Washington State: Patterns and Consequences. March 2001.

61. Rosenblatt, Roger A.; Casey, Susan; Richardson, Mary. Rural-Urban Differences in the Public Health Workforce: Findings from Local Health Departments in Three Rural Western States. January 2001.

62. Ellsbury, Kathleen E.; Baldwin, Laura-Mae; Johnson, Karin; Runyan, Sue; Hart, L. Gary. Gender-Related Factors in the Recruitment of Generalist Physicians to the Rural Northwest. February 2001.

63. Norris, Thomas E.; Hart, L. Gary; Larson, Eric H.; Tarczy-Hornoch, Peter; Masuda, David; Fuller, Sherrilynne; House, Peter J.; Dyck, Sarah M. Low-Bandwidth, Low-Cost Telemedicine Consultations Between Rural Family Physicians and Academic Medical Center Specialists: A Multifaceted Satisfaction Study. February 2001.

64. Larson, Eric H.; Palazzo, Lorella; Berkowitz, Bobbie; Pirani, Michael J.; Hart, L. Gary. The Contribution of Nurse Practitioners and Physician Assistants to Generalist Care in Underserved Areas of Washington State. June 2001.

65. Rosenblatt, Roger A.; Rosenblatt, Fernne Schnitzer. The Role and Function of Small Isolated Public Health Departments: A Case Study in Three Western States. June 2001.

66. Thompson, Matthew J.; Skillman, Susan M.; Johnson, Karin; Schneeweiss, Ronald; Ellsbury, Kathleen; Hart, L. Gary. Assessing Physicians' Continuing Medical Education Needs in the U.S.-Associated Pacific Jurisdictions. September 2001.

67. Hart, L. Gary. The Evaluation Questionnaires of Office for the Advancement of Telehealth Grantees. September 2001.

68. Skillman, Susan M.; Hutson, Troy; Andrilla, C. Holly A.; Berkowitz, Bobbie; Hart, L. Gary. How Are Washington State Hospitals Affected by the Nursing Shortage? Results of a 2001 Survey. May 2002.

69. Rosenblatt, Roger A.; Schneeweiss, Ronald; Hart, L. Gary; Casey, Susan; Andrilla, C. Holly A.; Chen, Frederick M. Family Medicine Residency Training in Rural Areas: How Much Is Taking Place, and Is It Enough to Prepare a Future Generation of Rural Family Physicians? March 2002.

70. Palazzo, Lorella; Hart, L. Gary; Skillman, Susan M. The Impact of the Changing Scope of Practice of NPs, CNMs, and PAs on the Supply of Practitioners and Access to Care: Oregon Case Study. March 2002.

71. House, Peter J. The Direct-Care Paraprofessional Workforce Providing Long-Term Care Services in the United States: Wyoming Case Study. March 2002.

72. Baldwin, Laura-Mae; Beaver, Shelli K.; Hart, L. Gary; MacLehose, Richard F; Every, Nathan; Chan, Leighton. Quality of Care for Acute Myocardial Infarction in Rural and Urban U.S. Hospitals. June 2002.

73. Patterson, Davis G.; Skillman, Susan M. Health Professions Education in Washington State: 1996-2000 Program Completion Statistics. October 2002.