



The Health Care Industry in DeWitt County, Illinois

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DeWitt County Quick Facts

	DeWitt	Illinois	USA
Population	16,798	12,419,293	281,421,906
Population, percent change, 1990 to 2000	1.7%	8.6%	13.1%
Persons 65 years old and over, percent, 2000	15.9%	12.1%	12.4%
Persons under 18 years old, percent, 2000	24.6%	26.1%	25.7%
White persons, percent, 2000	97.8%	73.5%	75.1%
Black or African American persons, percent, 2000	0.5%	15.1%	12.3%
American Indian and Alaska Native persons, percent, 2000	0.2%	0.2%	0.9%
Asian persons, percent, 2000	0.3%	3.4%	3.6%
Persons reporting some other race, percent, 2000	0.5%	5.8%	5.5%
Persons reporting two or more races, percent, 2000	0.7%	1.9%	2.4%
High school graduates, persons 25 years and over, 1990 (as % of population)	49%	45%	42%
College graduates, persons 25 years and over, 1990 (as % of population)	8%	12%	11%
Homeownership rate, 2000	75%	67%	66%
Persons per square mile, 2000	42.2	223.4	79.6
Private nonfarm employment, percent change 1990-1999	-7.8%	15.0%	18.4%
Retail sales per capita	\$8,475	\$8,992	\$9,190

Major Employers

	Employment
Exelon (<i>Nuclear Power</i>)	800
Clinton School System	350
Wallace Computer (<i>printed forms</i>)	300
Dr. John Warner Hospital	179
County Government	100
DeWitt County Nursing Home	90
Action Technology (<i>Plastic Extrusion</i>)	80
Crestview Health Care Center	60
McElroy Metal Mill (<i>Metal Buildings</i>)	60
Miller Container Corp. (<i>Corrugated Carton</i>)	60
National Environ Corp (<i>Medical Waste</i>)	50

Executive Summary

This report examines the health care system in DeWitt County and how it contributes to the health and quality of life of the community. Additionally, our analysis of DeWitt's health care system, using input/output analysis, will display health care's contribution to the local economy and how the various components of this sector interact with and impact other local economic sectors.

Just as with the rest of our nation, DeWitt County has experienced a number of economic shocks in the past few years. Multiple prominent employers have either downsized or relocated and this has reduced the supply of local employment options. In spite of these economic shocks, examination of several economic indicators displays that DeWitt maintains a positive standing in terms of poverty status and income level. Through the recruitment of new industries and businesses, DeWitt economic leaders hope to encourage the growth of the local economy.

DeWitt's health care system will likely prove to be a key player in future development efforts of the county. The presence of a quality hospital and the health care system's ability to provide a full range of services will play a major role in the attraction and retention of future employers. In addition to the services it provides, the health care system acts as a major contributor to both income and employment. The health care system directly generates 611 jobs. However, when including secondary effects, estimates show that the health care sector produces 748 jobs. Examining the income directly generated by the health care sector demonstrates a similar scenario. Health care directly creates almost \$13 million of income, but including secondary effects, estimates indicate that health care generates over \$16.1 million of income. While health care does contribute greatly to the health of residents and the economy, detailed interviews with health care providers and economic leaders found evidence of several issues which, if ignored, could limit health care's potential impact upon the community.

A Portrait of DeWitt County

DeWitt County, Illinois (pop. 16,798) is located in central Illinois approximately 150 miles from both Chicago and St. Louis. Additionally, DeWitt finds itself within close proximity of Champaign, Decatur, Springfield, and Bloomington. In contrast to these cities, DeWitt would fall into the stereotype of a small, rural community. The DeWitt County population grew at a rate of 1.7% from 1990-2000 while, in comparison, the state of Illinois experienced a growth rate of 8.6% and the United States experienced a growth rate of 13.1% for the same period. DeWitt has a population per square mile of 42.2 people, but the majority of residents, 7,437, live in the city of Clinton. When including the greater Clinton area, this population measures approximately 10,000. A significant portion of DeWitt residents work outside of the county; therefore, the county carries the label of a "bedroom community."

DeWitt's Economy

DeWitt County currently faces a trend of sluggish economic growth. The county lacks a dominant or defining industry, and farming, which acts as one of the more influential industries, consists primarily of smaller, family operated farms. Some of the firms that once provided good paying jobs have either left the community or have downsized in recent years. For example, Revere (cookware) and Imperial China (pottery) both recently moved their operations to overseas locations. Further negative economic reverberations resulted from the sale of the nuclear power plant and the subsequent job losses that occurred as the facility changed hands. The tax implications associated with the sale of this facility have also impacted DeWitt residents.

Residents noted that some of the jobs available locally fail to offer a livable wage. This, coupled with the reduction of employment opportunities, results in many residents seeking employment outside of the county. Unfortunately, residents not only seek employment outside of DeWitt, but they also spend their wages and salaries outside of DeWitt.

With a limited amount of shopping locally available, residents often travel to Bloomington, Decatur, and Champaign for the purchase of consumer goods and entertainment. Several local grocery stores and the local Wal-Mart provide venues through which residents can make purchases, but purchases made at local stores consist primarily of smaller, “in-between” items. For major purchases, residents seek the variety and lower prices associated with the shopping malls and national chain stores located in surrounding communities.

Local officials have made efforts to attract businesses to DeWitt County, but little success has resulted from such efforts. In recent years, local officials unsuccessfully attempted to lure a youth prison, a maximum-security prison, and a pork plant to the community. However, no evidence suggests a common theme underlying DeWitt’s inability to attract new employment opportunities. Problems have ranged from a lack of community support to a lack of internal infrastructure. The following section will provide more detailed analysis

of DeWitt’s economy by comparing several economic indicators for DeWitt, the nation, Illinois, and several rural counties in surrounding states.

How Does the Economy of DeWitt County Compare?

DeWitt County is an average rural community. While the industries within Figures 1 and 2 represent a diverse industrial base, the farming sector, the third largest employer and the fifth largest sector in terms of output, plays a significant role in DeWitt’s economy. The farming sector appears significant in size when examined as an aggregated whole, but this sector consists primarily of smaller, family owned farms. Additional problems developed in recent years as several key employers either closed operations or moved operations to other locations, which further reduced already limited employment options. Consequently, updated estimates for Figure 1 and Figure 2 would most likely expose reductions in the overall

Figure 1: Top Ten Sectors (plus health care) in DeWitt County, Illinois by Output-- (IMPLAN, 1999)

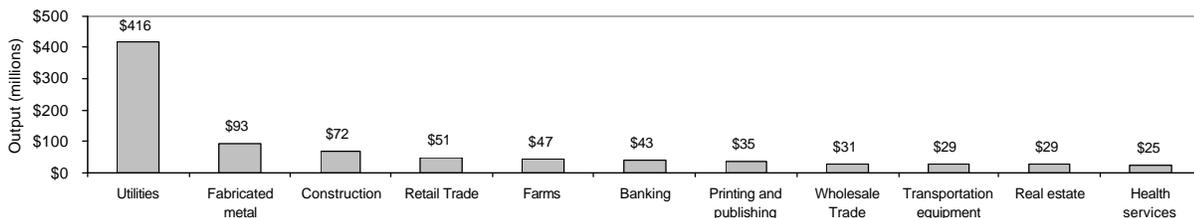


Figure 2: Top Ten Sectors in DeWitt County, Illinois by Employment-- (IMPLAN, 1999)

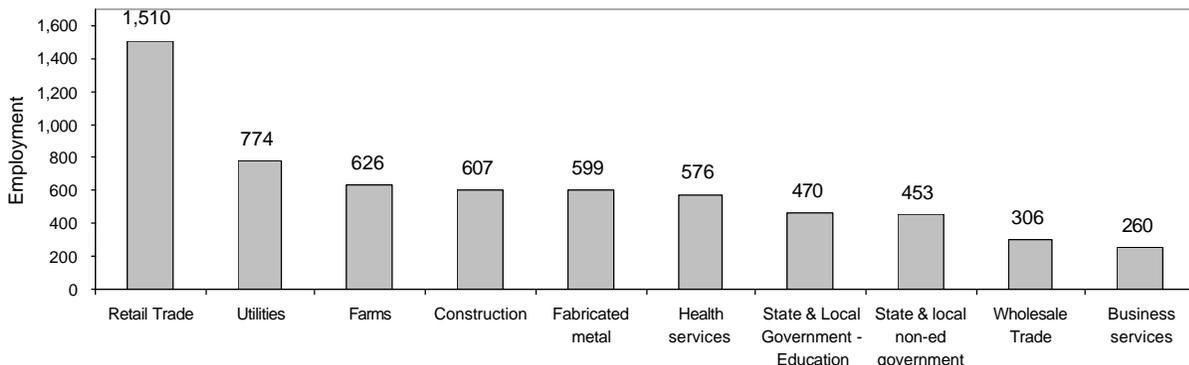


Table 1: % Working in County of Residence

Illinois	67.8
Rural Illinois	68.8
Nation	72.3
Rural Nation	74.7
DeWitt County, IL	67.2
Union County, KY	81.9
Blackford County, IN	62.1
Pike County, MO	79.6
Gladwin County, MI	61.5
Jackson County, WI	74.9
Harrison County, IA	60.7

*Area Resource File, Census of Population and Housing, 1990

size and influence of certain economic sectors. The reduction in employment opportunities resulting from this economic downturn forced many residents to seek employment outside of DeWitt.

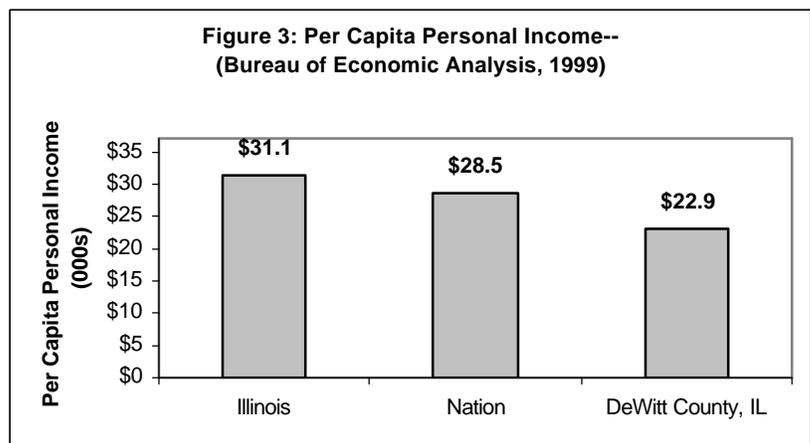
Table 1 displays data describing the commuting and work location choices of residents. This table displays that 67.2% of DeWitt residents work and live within the county. This figure compares less than favorably to state and national averages, as well as similar measures for counties in surrounding states¹. However, Table 1 contains 1990 data, and therefore, compilation of this data occurred before the recent closure of several companies and the accompanying loss of jobs. Therefore, DeWitt's figure of 67.2% could actually overstate the amount of residents that live and work in the county. Regardless, if 67.2% of residents work locally, then 32.8% work outside of the county. Thus, almost 1 out of every 3 residents seeks employment outside of DeWitt. While some DeWitt residents have commuting thrust upon them as a result of the limited employment options within the county, it would be incorrect to assume that this pattern of commuting results completely from necessity rather than individual preferences. Some DeWitt residents believe that the benefits of DeWitt's small town atmosphere and low cost of living outweigh the negatives associated with a daily commute.

An inability to keep residents within the community further exacerbates the added

problem of residents spending their wages and salaries outside of the community. The more frequently rural residents leave the community the more likely they will spend their wages and earnings outside of the community. Several community members noted that residents seek employment in surrounding communities simply because of a lack of local employment options. Additionally, residents noted that some local jobs fail to offer a livable wage, and therefore, residents must seek the higher wages that one can find in Champaign, Decatur, Bloomington, and Springfield. However, the economic welfare of the community extends beyond employment opportunities. Examination of several other indicators will help with understanding DeWitt County and life within this community.

Figure 3 displays DeWitt County's per capita personal income versus state and national averages. DeWitt County's figure of \$22,900 falls below similar measures for Illinois and the nation. In contrast, Figure 4 displays that DeWitt compares very favorably with other rural counties in surrounding states, as DeWitt's figure of \$22,900 exceeds similar measures for all comparison counties. In addition, the low cost of living associated with a small community such as DeWitt further enhances this figure, and therefore, DeWitt's per capita personal income of \$22,900 might actually represent even greater purchasing power than its nominal value would suggest. DeWitt County's measure of the percentage of persons in poverty, displayed in Figure 5 and Figure 6, provides further evidence of DeWitt's economic status.

Figure 5 compares DeWitt to both state and



national averages for the percentage of persons in poverty. DeWitt's figure of 10.4% falls below the figures of 11.3% and 13.3% for the respective measures of persons in poverty for Illinois and the nation. Figure 6, which compares DeWitt to other rural counties in surrounding states, displays further evidence of DeWitt's favorable measure of the percentage of persons in poverty. Only the Blackford County, Indiana figure of 10% outperforms DeWitt's figure of 10.4%.

In summary, the economic downturn experienced within DeWitt County decreased employment options, and therefore forced residents to seek employment outside of the county. However, despite a less than stable economic composition, DeWitt exhibits encouraging measures of poverty status and economic standing when compared with state and national averages, as well as with other rural counties in surrounding states.

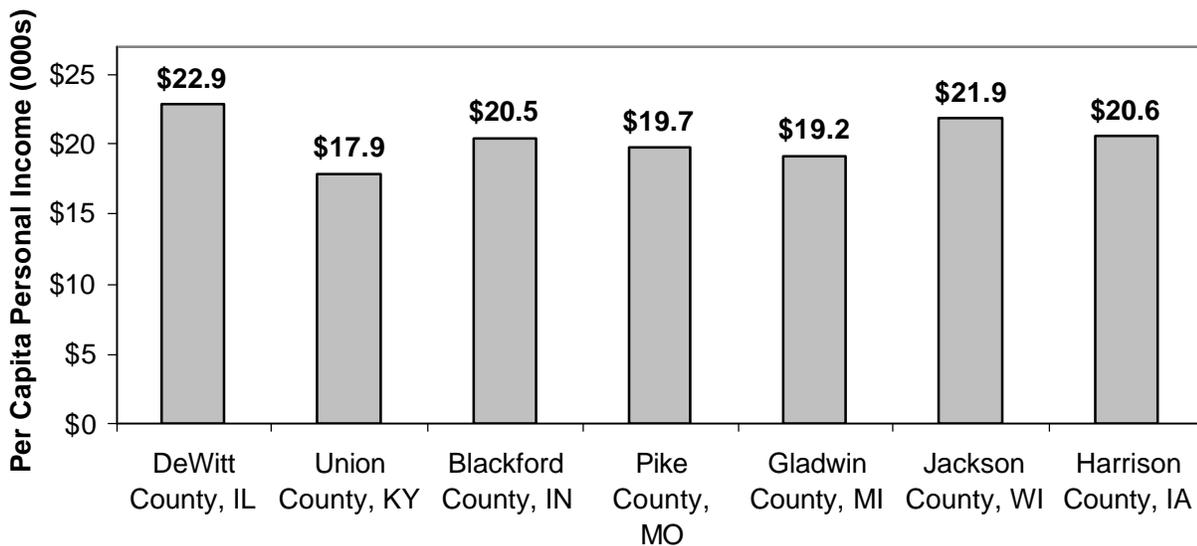
DeWitt Health Care Description

DeWitt County possesses a high quality health care system capable of meeting the medical needs of residents. The Dr. John Warner Hospital (DJWH), located in the city of Clinton, acts as the

anchor of this system and provides services to all residents ranging from the elderly to the uninsured. DJWH offers the following services: Acute care, 24 hour ambulance service staffed by certified EMTs, cardiac rehabilitation, diet and nutrition consulting, EKG testing, 24 hour physician staffed ER services, intensive care, lab services, outpatient clinic specialists, physical therapy, radiology-mammography, CT Scan, ultra sound, mobile MRI, respiratory therapy, same day surgery, sleep studies, speech therapy, and stress tests. Additionally, visiting physicians provide the following services through specialty care outpatient clinics at DJWH: audiology, cardiology, ear, nose and throat, gastroenterology, hematology and oncology, nephrology, neurology, neurosurgery, OB/GYN, ophthalmology, orthopedics, podiatry, pulmonology, surgery, and urology.

DJWH provides a majority of its services to elderly residents of DeWitt County and the hospital's geographic area of service consists primarily of the greater Clinton area. Those residents living in outlying areas of the county tend to seek care through larger providers in Champaign, Bloomington, Decatur, and Springfield. Additionally, DeWitt County possesses an abundant and competent supply of local physicians capable of meeting the community's demand for primary care services.

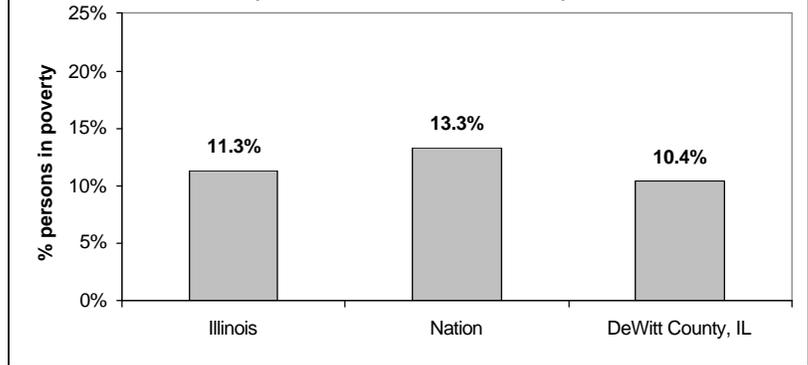
**Figure 4: Per Capita Personal Income--
(Bureau of Economic Analysis, 1999)**



Residents currently seek primary care services through the Rural Health Clinic at DJWH, a Decatur Memorial clinic (Clinton), and an OSF clinic (Clinton). Additionally, several independent physicians are located in the community and provide primary care services. A majority of the patients serviced by local physicians live within DeWitt County, but some patients do travel into DeWitt from surrounding counties. The economic standing and age range of the patients appear widely dispersed. However, one physician noted that the indigent, those without Medicaid, but still relatively poor, often lack access to care. In addition to services provided by the hospital and local physicians, residents can also seek care through the local health department.

The health department acts as a bi-county provider of services for DeWitt and Piatt counties. Both counties currently contain office locations, and the DeWitt county office is found in the city of Clinton. The health department offers a myriad of services including: immunization, family case management, environmental services, STD investigation and follow up, lead screening, TB tests, health education, wellness clinics, flu and pneumo-

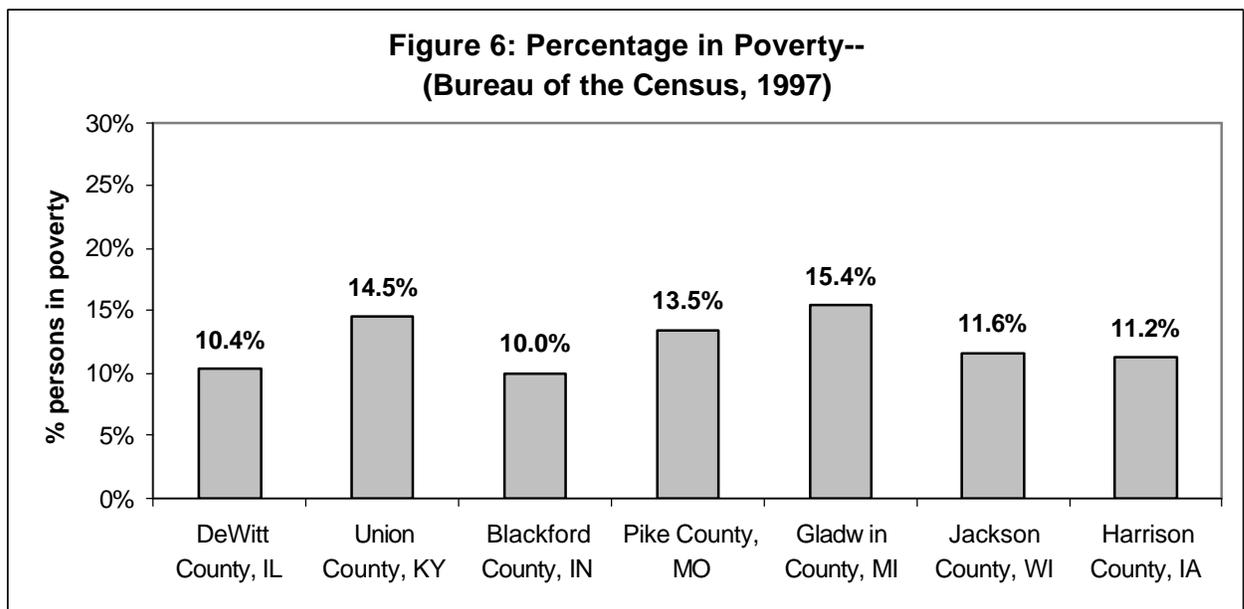
Figure 5: Percentage in Poverty--
(Bureau of the Census, 1997)



nia clinics, and cholesterol screenings. The majority of residents seeking care at the health department consist of children and expectant mothers. Most patients would classify as low income and the majority qualifies for Medicaid. While the health department services the younger population, nursing home services remain available for elderly residents in need of health care services.

Three nursing home facilities currently exist within the county. Clinton contains two facilities and Farmer City contains one facility. Through these facilities, residents can receive long-term care, respiratory care, and hospice care. The patient base consists of elderly patients, with a majority of these over the age of 70. Furthermore, elderly residents of DeWitt County can also seek

Figure 6: Percentage in Poverty--
(Bureau of the Census, 1997)



assistance through the DeWitt County Friendship Center.

The DeWitt County Friendship Center (Clinton) acts as a mechanism through which seniors can match their needs to existing services. The director of the Friendship Center cited transportation as the most often utilized service provided by the Friendship Center. The Friendship Center delivers residents to doctors and health care providers within a 65-mile radius. The customer base of the Friendship Center consists of men and women over the age of 65, with a majority of these men and women over the age of 80. The economic composition of the customer base consists of low and medium income individuals. In addition to the services described above, the Human Resource Center (Clinton) exists to meet the mental health needs of the community.

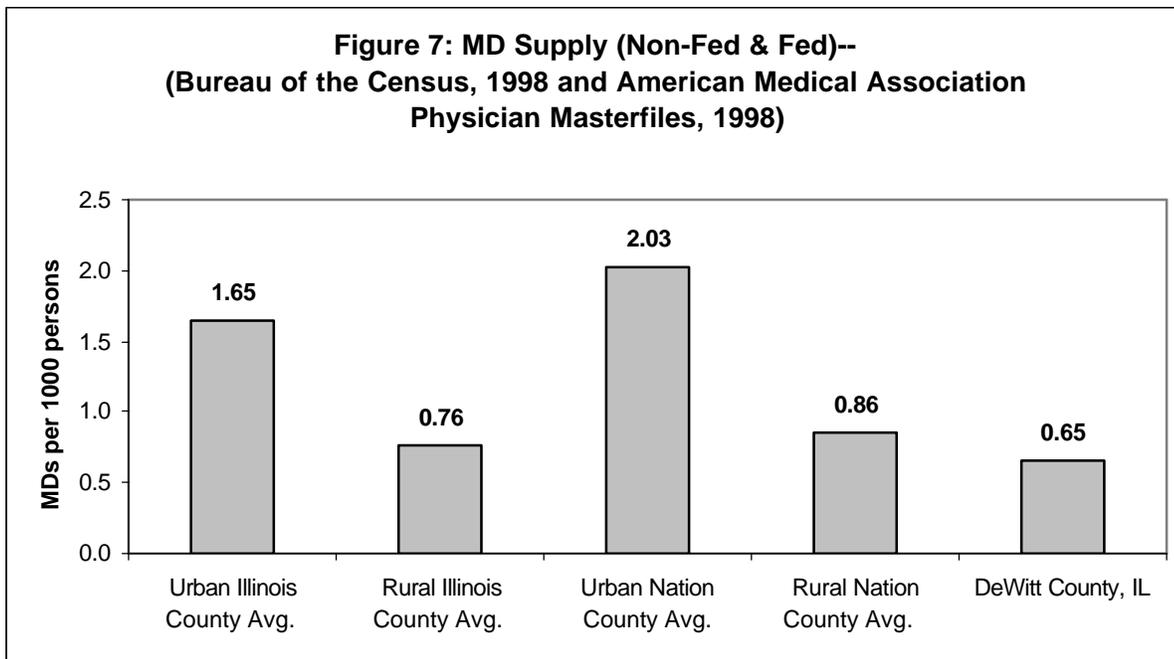
The Human Resource Center provides rehabilitation services for people with disabilities. Some of the services offered include: development disability rehabilitation, substance abuse treatment, child development therapy, living skills training, employment skills training, group therapy, and individual counseling. The patient base consists primarily of younger men and women, with the majority of patients consisting low income, public aid eligible residents of DeWitt County.

Furthermore, several dentists serve DeWitt

County and provide access to oral health care. However, it was noted that certain socioeconomic groups, such as low-income adults, lack good access to dental care. While DeWitt residents appear to have access to a full range of health services, the following section will attempt to provide further insights into DeWitt's health care system through the comparative examination of several leading health care indicators for DeWitt, the nation, the state of Illinois, and several rural counties in surrounding states.

How Does the DeWitt County Health Care System Compare?

One key measure of rural health is the supply of MDs. Figure 7 shows that DeWitt's ratio of MDs per 1,000 persons (.65) falls below similar state and national ratios. While Dewitt's supply of MDs appears comparable to rural counties, it appears to be lacking an adequate supply of MDs in comparison to urban communities. However, the significance of such urban versus rural comparisons remains questionable. As noted by Rosenblatt and Hart (1999), there exists a large supply of urban physicians, which may actually represent a surplus of physicians. Therefore, while comparisons such



*Area Resource File

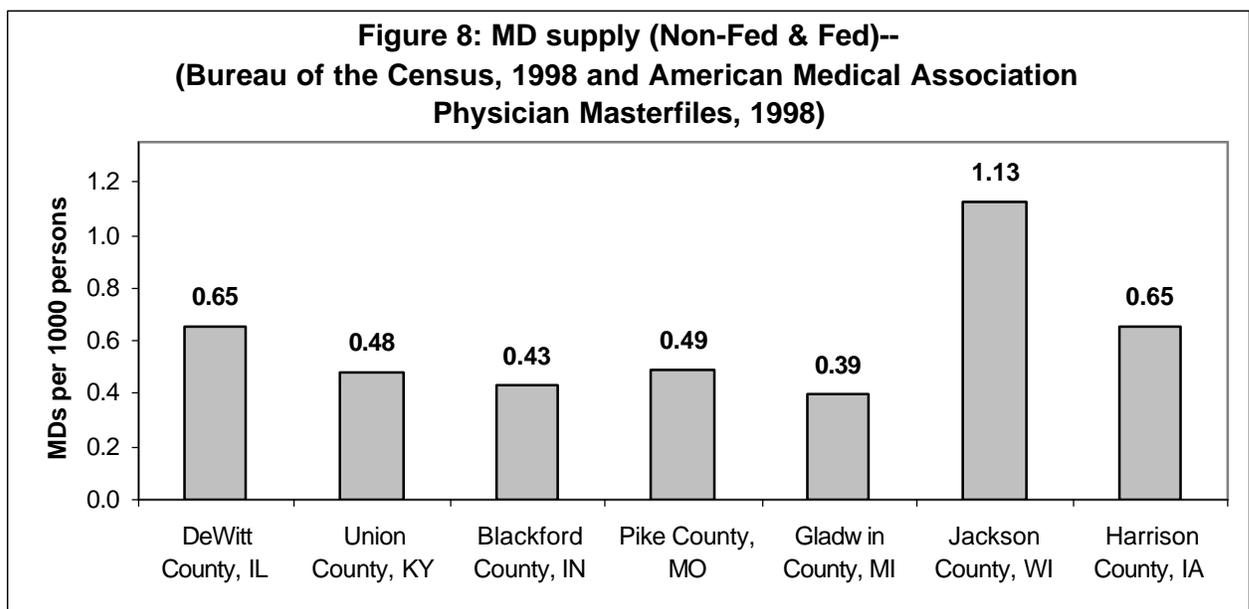
as Figure 7 display that rural areas contain fewer MDs, these rural communities may only contain fewer MDs in comparison to oversupplied urban communities. Such a comparison may not actually provide evidence of a physician shortage within rural communities, but further evidence of a physician oversupply within urban communities.

As a result, Figure 8, which compares DeWitt to other rural counties with similar geographic and population characteristics, provides a more accurate point of comparison with respect to DeWitt's supply of MDs. When examined in comparison to these counties, DeWitt appears to have a sufficient supply of MDs, and only Jackson County, Wisconsin has a ratio that outpaces DeWitt's measure of .65 MDs per 1000 persons. DeWitt's close proximity to Champaign, Decatur, Springfield, and Bloomington further nullifies any physician access issues that may exist. In addition to the supply of total MDs, another key health indicator is the supply of specialist physicians.

Examination of DeWitt's supply of specialist physicians displays that DeWitt has a limited amount specialty services available locally. DeWitt's ratio of 1.8 specialists per 10,000 persons was below similar ratios for Urban Illinois (5.2) as well as Urban America (6.2). On the other hand, DeWitt did compare favorably to similar ratios for rural Illinois (1.7) and rural America (1.8). However, examination of this indicator holds little value for a

small, rural county such as DeWitt. DeWitt, as well as other rural counties throughout the nation, lacks specialist physicians as a result of many of the economic issues associated with specialty care; DeWitt does not have the large population base nor the specialized equipment and facilities necessary for the economically viable delivery of specialty care. DeWitt's lack of specialty care does not seem problematic, as the hospital currently arranges for visiting specialists to provide services at the hospital on a weekly basis. In addition, because of DeWitt's close proximity to Champaign, Decatur, Bloomington, and Springfield, residents who need specialty care can receive transfer to larger providers that have the ability to administer specialty care. While access to MDs does not appear problematic for DeWitt, examination of the Medicare payments derived from MDs and other local providers offer a primary example of why the health care industry remains a vital component of the economy.

The establishment of export industries remains one of the primary goals of economic development. The importance of such industries derives from their ability to channel in dollars from outside the community. These exporting industries effectively capture demand from foreign regions. To some extent, Medicare payments, as well as insurance and Medicaid payments, have a similar effect. Because of the high proportion of elderly residents who often live within rural communities,

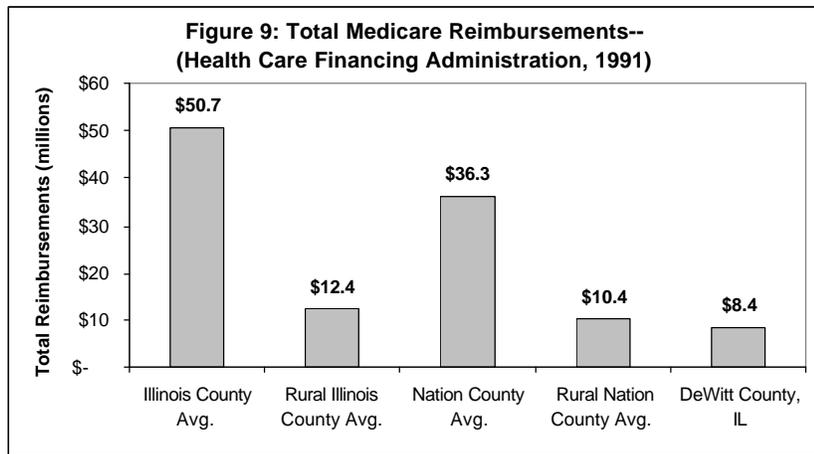


The Health Care Industry in DeWitt County, Illinois

and the higher demand for medical services associated with this demographic group, Medicare reimbursements have special significance for rural communities.

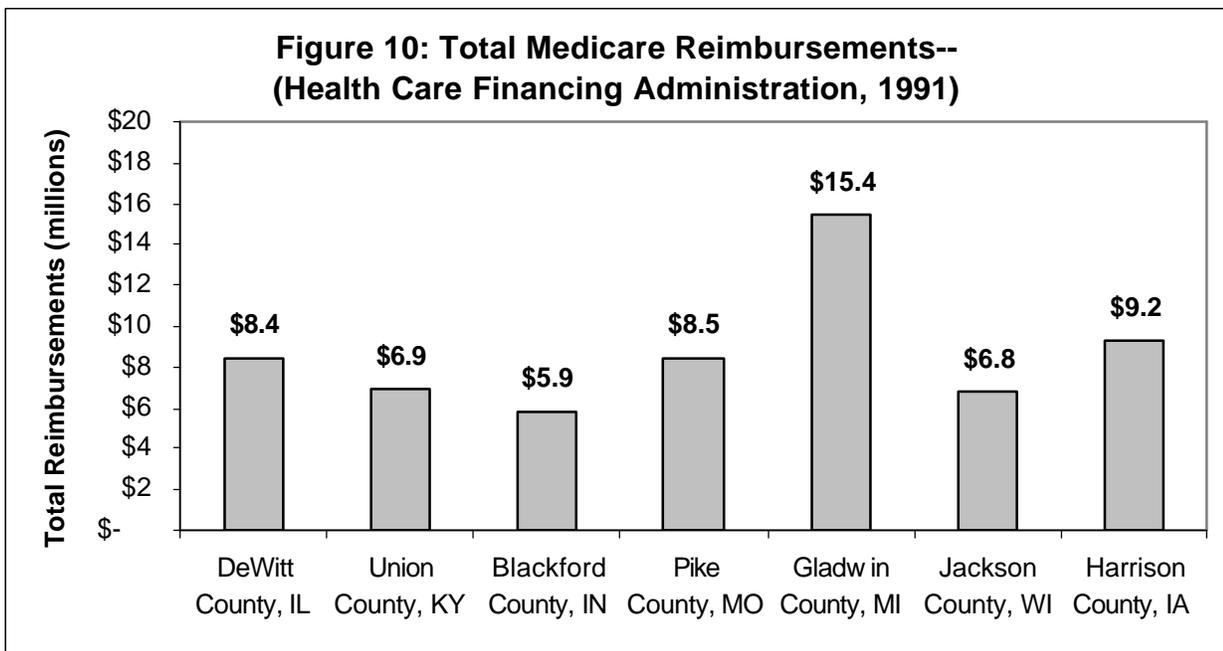
Local providers of health care services receive Medicare reimbursements from the Federal Government, and these providers successfully bring outside dollars into the community. Ideally, these dollars will be spent within the community and the effects of these reimbursements will ripple throughout the economy as this money is reused to make purchases in the region. Figures 9 and 10 display DeWitt County's Medicare reimbursements in comparison to state and national averages, and also to other rural counties in surrounding states.

Figure 9 displays that DeWitt's Medicare reimbursements fall below both state and national averages. In contrast, in comparison to other rural counties in surrounding states, as shown in Figure 10, DeWitt's Medicare reimbursements seem comparatively favorable. However, Figure 9 and Figure 10 contain data from 1991, which was before the existence of the Rural Health Clinic and DJWH's designation as a Critical Access Hospital



*Area Resource File

(CAH). Both facilities receive enhanced reimbursements as a result of their respective government designations, and therefore, it is likely to find current Medicare reimbursement comparisons more favorable. The hospital, for example, received additional Medicare reimbursements in excess of \$1 million upon receiving CAH status. However, nominal value comparisons of Medicare reimbursements have little worth. Rather than the comparison of actual values, the most important idea in these two graphs is that Medicare reimbursements result in \$8.4 million in revenues for county providers. Thus, health care providers, in effect, generate in excess of \$8 million in export revenues



*Area Resource File

for the community. Health care providers spend these revenues within the community in terms of salaries, wages, and various other forms of medical expenses necessary for the delivery of services.

The above analysis demonstrates that DeWitt County houses a significant health care system. Along with adequate access to physician services, DeWitt possesses a hospital, clinics, a health department, several nursing homes, dentists, and mental health services capable of meeting the needs of residents. Not only can this system meet the medical needs of residents, but it also provides a valuable contribution to the local economy by funneling outside dollars into the community.

The Role of Health Services in a Rural Community

In the past twenty years health care costs rose dramatically and forced millions of Americans to forgo services they needed. For example, in 1980 per capita health care expenditures were \$1,067, but by 1999, per capita health care expenditures had risen to \$4,358. During this period, health care expenditures increased at a decreasing rate. From 1980 to 1990, health care expenditures grew at an average annual rate of approximately 11%. From 1990-1999, health care expenditures grew at an average annual rate of approximately 6.4% (Cowan et al., 1999). Despite this declining growth rate, Kovner and Jonas (1999, pg. 56) noted that, "the rate of increase in health care costs has consistently far exceeded the rate of inflation in the general economy. Thus, health care expenses each year account for an increasing share of the nation's GDP." In 1980, health care costs represented 8.8% of GDP, but as of 1999, health care costs made up 13.0% of GDP (Cowan et al., 1999). This rapid rise in health care costs significantly impacted our entire nation, but this issue has had a much deeper impact upon rural communities throughout America.

For many communities, the rapid rise in health care costs results in either a loss or a reduc-

tion in services. Urban communities have felt the impact of the consolidation of and reduction of medical services, but, for the most part, the same services remain available even if at a reduced amount of locations. In contrast, a reduction in health services forces rural residents to travel greater distances to seek care, which increases the real and opportunity costs of seeking medical care, and therefore, increases the already high cost of health care services. Examination of the demographic and economic characteristics associated with rural communities displays that while rural communities find themselves at a much higher risk of losing services, they are also much more likely to need access to health care services.

Doeksen and Schott (1999) noted that, "in rural areas there are proportionately more elderly, more children living in poverty, unemployment is higher and incomes are lower" (pg. 3). The economic composition of the rural community can multiply the effects of these demographic characteristics, as rural communities contain a high proportion of small businesses and privately owned businesses. Due to the rising cost of insurance, these smaller employers find it difficult to provide insurance for their workers and themselves. The heavy dependence upon agriculture in rural communities also influences exposure to risk, as a re-emergence of the farm crisis has left many farmers, and the businesses linked to these farmers, on the verge of failure (Doeksen & Schott, 1999). These external pressures necessitate that these communities have adequate access to care.

Furthermore, better health care leads to better quality of life. Improved quality of life is important on the obvious and practical level, as improved health care leads to the improved health of residents. However, there remains an impressionistic element that warrants attention because the actual value of a health care system extends beyond the services offered and the frequency of utilization. Whether utilized or not, confidence and peace of mind is derived from the knowledge that there exists a quality and readily available health care system. Not only does the health care system enhance the value of the community through the services it offers, but also its mere presence adds a perceived value to the community which can equally enhance quality of life.

Health Care and the Rural Economy

In addition to the contributions made to quality of life and to the health of local residents, the existence of a quality health care system has ramifications for the local economy. First and foremost, health care provides a substantial contribution to employment and income. Additionally, as detailed by Cordes, Doeksen, and Shaffer (1996), a strong health care system contributes to the generation of investment funds, the attraction and retention of businesses, the attraction and retention of retirees, and the enhancement of the local leadership structure.

Health care's contributions to employment and income represent its most basic role in the local economy. The health care system often acts as one of the major employers in a rural community. In DeWitt County for example, the health care system directly generates 611 jobs, which represents 7% of total employment (IMPLAN, 1999). However, health care's contribution to the local economy does not stop at its direct contributions to employment and income. Each job and each dollar of income generated by the health care industry generates secondary rounds of spending which multiply the effects of the initial impact to the economy. When one considers secondary effects, the DeWitt County health care system generates a total of 748 jobs which represents 8.6% of total employment (IMPLAN, 1999). In order to comprehend this complex economic system, it is helpful to understand the interconnectedness of the economy.

The various industries that make up the local economy do not consist of independent and antagonistic firms, but rather these industries exist in a system of interdependence and interconnectedness. The various firms, as well as households, interact with one another, and therefore, this interdependence multiplies the direct impact of any one specific industry. To understand this, it is necessary to understand three different definitions: direct effects, indirect effects, and induced effects. Direct effects represent the changes in industries which have experienced a change in final demand; indirect effects consist of

the purchases made by secondary industries in response to the demands of the directly affected industries; induced effects correspond to changes in household spending as income changes due to changes in final demand (Olson & Lindall, 2000). Therefore, the direct contributions of the health care sector impacts other local economic sectors which multiplies the health care sector's direct impact. However, the size of the economic impact will vary depending on the amount of leakages that occur.

Leakages occur in two forms: local residents seeking services outside of the community and local industries making purchases outside of the community. Residents who seek health care from outside providers have a three-fold effect upon the local economy. First, local health care providers lose revenues associated with the patient's out-of-pocket costs for services. Second, local health care providers lose additional revenues associated with secondary payments (e.g. Medicare, Medicaid, and insurance). Third, residents who seek care outside of the local community do not relegate their purchases to health care. Residents often make additional purchases such as food, clothing, appliances, meals and various other consumer goods. Therefore, the retention of local residents should remain a primary concern for the local health care industry. Cordes et al. (1994, p.35) cited that, "Preventing a dollar leakage has an impact identical to that of selling a dollar's worth of service to someone who lives beyond the boundaries of the local economy." However, leakages also occur in the form of local industries purchasing inputs from outside of the local economy. As a result, when the health care industry purchases local labor and other local inputs, this increases the secondary effects associated with the delivery of health care services. Furthermore, the labor-intensive nature of health care delivery can have the effect of increasing the local supply of investment funds.

Because of the labor-intensive nature of health care delivery, wages and salaries constitute a large portion of the health care sector's operating expenses. Therefore, the need to meet payroll requirements demands that health care providers have access to a substantial sum of liquid assets. As a result, these funds remain available to local

businesses and individuals in the form of loans. In addition to contributing to the supply of investment funds, the presence of a local health care system can effect decisions made by industries to relocate to or remain in a community (Cordes et al., 1994).

The rising cost of health care has forced businesses to find site locations that can deliver health care services in a cost effective manner. A survey by Lyne (cited in Cordes et al., 1994, p.38) of corporate executives indicated that corporations display preference to site locations that can provide health services at a low cost. 17% of respondents claimed that health care costs acted as a tiebreaker between comparably favorable sites. Businesses also examine quality of life issues, as employees and management may resist locating to an area that does not offer adequate health care services. The health care system can also play a similar role in the attraction of retirees (Cordes et al., 1994).

In a survey by Toseland and Rasch (cited in Cordes et al., 1994, p.36) of 878 persons 55 and older, respondents cited safety, recreational facilities, dwelling units, and health care as the four best predictors of retirement location. A survey by Reginier and Gelwicks (cited in Cordes et al., 1994, p.36) found similar evidence, as 60% of survey respondents cited health services as a must have. As the nation as a whole ages and more men and women move into their retirement years, the attraction and retention of retirees can have a significant impact upon rural communities. Rural communities often possess many of the qualities that retirees desire: good climate, slow pace, and outdoor activities (Doeksen & Schott, 1999). Therefore, rural communities have a distinct advantage in attracting and retaining these older

men and women and the social security and transfer payments associated with this demographic group.

The retention of retirees can also impact the supply of local leaders, as many of these older men and women have excess free time which permits them the luxury of contributing their reserves of knowledge and experience to the community through local leadership positions (Cordes et al., 1994). However, the health care system's ability to attract retirees is not the only means through which it contributes to local leadership development. Frequently, health care providers and workers participate in the community through various local leadership roles. A study of Pennsylvania by Erickson, Gavin and Cordes (1984) found that almost one half of hospital administrators sought involvement in local development efforts. The following section, through the use of IMPLAN software, provides additional quantitative verification of the health care sector's economic impact.

Input/Output Analysis of the DeWitt County Health Care System

This study used IMPLAN software to perform input/output analysis on the economic data for DeWitt County. The exploration of this data yielded a picture that depicts the health care sector's economic impact in DeWitt County.

Table 2, using Type SAM employment multipliers, displays the interactive relationship that exists between the health care industry and the rest of the economy. This table displays the amount of jobs directly created by the health care sector as well as the additional jobs created as a result of the

Table 2: DeWitt County Health Care System Employment Multipliers (IMPLAN 1999)

Sector Name	Employment	Type SAM Multiplier	Total Employment
Pharmacies	35	1.09	38
Doctors and Dentists	93	1.36	126
Nursing and Protective Care	220	1.14	250
Hospitals	179	1.28	229
Other Medical and Health Services	84	1.25	105
TOTAL	611		748

indirect and induced effects associated with the direct contribution to employment. Health care directly generates 611 jobs. However, as a result of secondary effects, these 611 jobs create an additional 137 jobs, which results in a total of 748 jobs. The nursing and protective care sector has the greatest overall impact upon employment, as it directly generates 220 jobs, which leads to an additional 30 ($220 * .14$) jobs. This results in a total of 250 ($220 * 1.14$) jobs. However, examination of the nursing and protective care sector's multiplier of 1.14 displays that while this sector has the greatest overall impact upon employment, it does not have the greatest impact upon employment on a per job basis. Every one job created within the nursing and protective care sector creates an additional .14 jobs. While significant, this figure is less than the employment multiplier for the doctors and dentists sector, which measures 1.36. This implies that every job generated within this sector results in an additional .36 jobs. Thus, the 93 jobs in doctors and dentists' offices result in a total of 126 ($93 * 1.36$) jobs. The pharmacies sector has the lowest multiplier (1.09) and the lowest overall impact upon employment. Every job generated within a pharmacy leads to an additional .09 jobs. Therefore, the 35 jobs created by pharmacies results in a total of 38 ($35 * 1.09$) jobs for DeWitt County.

Table 3 displays the income multipliers for the DeWitt County health care system created by IMPLAN. The health care system in DeWitt County directly contributes \$12,984,000 to income, and as a result of secondary effects, generates an additional \$3,130,620, resulting in a total of \$16,114,620. The hospitals sector has the greatest overall impact upon income, as it directly generates

\$5,143,000. This direct contribution to income leads to the creation of an additional \$1,227,464 ($\$5,143,000 * .24$), which results in a total of \$6,370,464 ($\$5,143,000 * 1.24$). However, the hospitals sector will not have the greatest impact upon income on a per dollar basis. The hospitals sector's income multiplier of 1.24 implies that every dollar of income generated within this sector results in an additional \$.24 of income. In contrast, every dollar of income generated within the doctors and dentists sector results in an additional \$.29 of income. Thus, the \$2,435,000 of income directly created in the doctors and dentists sector results in a total of \$3,133,804 ($1.29 * \$2,435,000$). The pharmacies sector has the smallest impact upon income, as its multiplier of 1.20 implies that every dollar of income created within a pharmacy generates an additional \$.20. Therefore, the \$513,000 directly generated by pharmacies leads to a total of \$615,254 ($\$513,000 * 1.20$).

Table 4 illustrates the contribution that the health care system in DeWitt County makes to the local economy in terms of retail sales and tax collection. A ratio called the "local retail sales capture ratio" helps to obtain this impact. Taking the total retail sales and dividing this by total personal income derives this ratio. This figure estimates the proportion of income that residents devote to local retail sales. For instance, the figure in this DeWitt County study is roughly .37; therefore, it can be estimated that residents allocate \$.37 of every dollar towards local retail sales. In order to obtain the figures in Table 4, the local retail sales capture ratio is multiplied by total income for each respective sector, which is located in Table 3. For example, pharmacies generate a total of \$615,254 of income, which results in a retail sales estimate of

Table 3: DeWitt County Health Care System Income Multipliers (IMPLAN 1999)

Sector Name	Income	Type SAM	
		Multiplier	Total Income
Pharmacies	\$513,000	1.20	\$615,254
Doctors and Dentists	\$2,435,000	1.29	\$3,133,804
Nursing and Protective Care	\$3,141,000	1.21	\$3,794,765
Hospitals	\$5,143,000	1.24	\$6,370,464
Other Medical and Health Services	\$1,752,000	1.26	\$2,200,333
TOTAL	\$12,984,000		\$16,114,620

\$228,933 (.37 * \$615,254). The sum of the products of the retail sales capture ratio and the total income impact for each respective sector provides the total retail sales impact. This calculation illustrates the depth of the health care sector's impact. In addition to its impact upon employment and income, the health care sector attracts almost \$6,000,000 in annual retail payments. While this total retail sales figure is impressive, the \$59,962 of tax revenue produced for the county further punctuates the retail sales impact of the health care industry.

Conclusion

The DeWitt County health care system offers a wide range of services capable of meeting the medical needs of DeWitt residents. Not only does this system contribute to the health of residents, but the health care system also plays an equally important role in maintaining a healthy economy.

This analysis details the health care system's contributions to employment, income, and retail sales. However, DeWitt County derives further value from the health care system as a result of its ability to act as a means through which local officials can recruit new businesses and retain existing businesses. Respondents within the community noted that the health care system, and most specifically the access to a hospital, acted as a key determinant in decisions made by businesses when considering relocation to DeWitt. While recent efforts to attract new businesses have yet to prove successful, officials noted that without DeWitt's quality health care system, recruitment efforts would prove extremely difficult. However, detailed interviews with local health care providers and economic leaders revealed several issues, which, if addressed, would serve to strengthen the local health care system as well as the economy.

Interviews with community members showed that employer based health care plans often deter DeWitt residents from pursuing health care services at DJWH. This does not appear problematic for those that have jobs with local employers, but for

Table 4: DeWitt County Health Care System Retail Information (IMPLAN 1999)

Sector Name	Retail Sales	\$.01 Sales Tax
		Collection
Pharmacies	\$228,933	\$2,289
Doctors and Dentists	\$1,166,072	\$11,661
Nursing and Protective Care	\$1,412,012	\$14,120
Hospitals	\$2,370,417	\$23,704
Other Medical and Health Services	\$818,733	\$8,187
TOTAL	\$5,996,167	\$59,962

those employed outside of the county, this poses a challenge. Additionally, residents noted that PPO and HMO plans make utilizing DJWH an economically undesirable option. One resident noted that, "Insurance companies will pay more if you go to a preferred provider. Just like me, if I want to get the best benefits out of my policy I have to go clear up to BroMenn. They wouldn't pay near as much if I went to John Warner." Hospital management has noted that steps have been taken to increase DJWH's exposure to PPO and HMO plans. However, DJWH's ability to become an option within a non-local employer's health care plan poses a greater challenge. DJWH's small size yields little influence and bargaining power when attempting to negotiate with large firms. Therefore, the hospital should encourage DeWitt residents to lobby their employers for the right to access DJWH as part of their health care plans. Helping residents understand the economic impact of utilizing local health care services can provide them with added incentive to lobby their respective employers. While resident health care plans often funnel residents to non-local providers, negative perceptions associated with the hospital provide residents with an added incentive to bypass DJWH.

Testimony from community members revealed that residents often seek services from non-local providers due to perceptions of inadequate care at DJWH. Unfortunately, DJWH battles many of the perceptual issues facing small, rural hospitals. First, residents often equate breadth of services with quality of care. Second, residents often perceive health care at rural facilities as backwards and outdated. The "Band-Aid Station" label associated with DJWH signifies that both of these perceptions remain alive and well in the minds of DeWitt residents. However, these imbedded perceptions seem largely related to a lack of exposure to the hospital and a lack of awareness of

those services offered by the hospital. Residents with exposure to the hospital, both indirectly and directly, had only positive comments to say about the services at DJWH. For example, one resident stated that the care at DJWH was far greater than that which she/he received while a patient at larger hospitals in surrounding communities. Other community members made reference to specific stories and examples of how the hospital had saved the life of a friend or a family member. However, not everyone has had such experiences, and therefore, limited interaction with the hospital has resulted in limited knowledge of hospital services and negative perceptions regarding these services.

Through our interactions with community members, it appears that DeWitt residents remain uninformed with respect to the availability of services at DJWH. Many of the perceptual issues discussed above trace back to a lack of awareness of hospital services. Through the use of a newsletter and various other media outlets, the hospital has recently increased its marketing efforts. However, more creative and proactive marketing techniques, such as health care career fairs and health care screenings, could prove more effective at reaching the community. The following comment by one person, a health care professional, provides a telling example of the limited knowledge that residents have pertaining to the availability of hospital services: "There is a lot that we just didn't know....We deal with them every day. Imagine an individual that has never had a health problem at all." Not only does this comment give insight into communication problems with the community as a whole, but this person's comment exposes communication problems between the hospital and other local health care providers.

The relationship that a hospital maintains with other local health care providers plays a major role in a hospital's success. When local providers lack awareness of local hospital services this results in their clients bypassing the local hospital. One health care professional noted that because the hospital offered no surgical services, this provider had to send all of its clients outside of the community for surgeries. The transfer of patients was not due to the complexity or special nature of the required surgeries, but this provider remained unaware of any surgeries available at the hospital.

However, the hospital does offer surgical services. Another health care provider noted that the hospital lacks audiological services even though residents have access to audiological services through outpatient clinics at the hospital. Therefore, the hospital's marketing services must extend beyond residents and also focus attention on local health care providers. An inability to effectively communicate services with local providers hinders hospital-provider relationships and damages this important linkage. An additional problem concerned health care's relationship with economic development leaders.

DJWH acts as a major employer in the local economy. Additionally, it acts as the anchor of the health care system, which, as an aggregated whole, directly accounts for approximately 7% of total employment. However, health care and economic leaders seem unaware of health care's importance to the local economy and the role it could play in future development efforts. When asked if health care was viewed as an important aspect of the economic development planning process, one health care provider responded, "No, I don't think so. I think it's seen as a service that some people provide and that's that. You know, I don't think that interest in the hospital and health care providers as sources of income and for the development of the community are really actually considered." It appears that local health care and economic leaders do not see a strong connection between health care and economic development. Our interviews suggest that health care and economic development leaders view their two fields as two independent and isolated entities that do not necessarily mix. However, health care and economic leaders can greatly benefit from enhanced interaction. Health care officials can seek involvement in economic development boards or committees, provide continued investment in the health care infrastructure, and participate in job creation strategies by partnering with local educational institutions. Economic leaders can assist health care with data collection for grant writing purposes, provide advocacy and support for policy issues such as cuts in Medicaid spending, and act as a liaison between the hospital and employers as the hospital attempts to establish itself with more employer based health care plans. Implementing and sustain-

ing strategies that address the above issues will require commitment from hospital management and employees.

Regrettably, management cited that the hospital has not experienced consistent leadership over the years. At the time of this report, DJWH has undergone another change in management. Changing leadership poses problems for the organization on several levels, as staff must constantly adjust to different managerial styles, personalities, and strategies. Consequently, a lack of consistent leadership can result in a muddled strategic focus and an inability to effectively address problems within the hospital's operating environment.

Our studies with small, rural hospitals have displayed that each hospital faces challenges unique to its community and the greater environment in which it operates. Therefore, leaders who come from within the community and the organization will have a greater understanding of the unique challenges and circumstances facing the organization. Stensland and Milet (2002), while studying the profitability of small-town rural hospitals, conducted site visits at three profitable hospitals and three unprofitable hospitals. The authors discovered that the administrators at the three profitable hospitals had been employees, not necessarily in the role of administrator, for over thirty years. As a result, the administrators at the three profitable hospitals knew their communities and the issues facing the hospital very well. DJWH could seek to address some of its management issues by attempting to look within the organization for future leadership. Preferably, this individual will have an extended relationship with the community and the hospital. One that has roots within the community will have a greater sense of loyalty to the organization and a better understanding of the hospital's unique operating environment.

In summary, DeWitt County possesses a strong local health care system. In addition to its ability to meet the health care needs of local residents, this system acts as a major cog in the local economy. However, several issues, such as community perceptions of the local health care system, the role of health care in development efforts, a lack of awareness of locally available services, insurance problems, leadership issues, and PPO and HMO

complications, appear to exist, which hinder the health care system from maximizing its potential contributions to the health of residents and to the health of the local economy. Addressing these issues will further increase the contribution of the local health care sector to the DeWitt County economy and the quality of life of its residents.

Data Sources

- Area Resource File, [computer file] (2000). Rockville, MD: Bureau of Health Professions, Health Resources and Services Administration, Department of Health and Human Services [producer and distributor], 2000.
- Bureau of Economic Analysis. (1999). Regional Accounts Data, Local Area Personal Income. Retrieved April 28, 2002, from <www.bea.gov/beat/regional/reis/>. City of Clinton. (2001). Community Profile.
- Illinois IMPLAN data, 1999 [computer file]. Stillwater, MN: Minnesota IMPLAN Group [producer and distributor].
- Lindall, S.A., & Olson, D. C. (2002). IMPLAN Professional 2.0 [Computer program]. Stillwater, MN: Minnesota IMPLAN Group.
- U.S. Census Bureau. (2000). State and County Quick Facts. Retrieved April 28, 2002, from <quickfacts.census.gov/qfd/states/17000.html>.

Works Cited

- Cordes, S.M. (1996, March). Rural Health Care Services and the Rural Economy. Paper presented at the workshop "The Changing Rural Economy of the Midwest," Chicago, Illinois.
- Cordes, S., Doeksen, G.A., & Shaffer, R. (1994). Rural Economic Development and Health Services. In Beaulieu, Joyce, Berry, David (eds.), Organization of Rural Health Services, (pp. 27-55). Ann Arbor, MI: Health Administration Press.
- Cowan, C.A., Lazenby, H.C., Martin, A.B., McDonnell, P.A., Sensenig, A.L., Smith, E.C., Whittle, L.S., Zezza, M.A., Donham, C.S., Long, A.M., Stewart, M.W. (2001). National Health Expenditures, 1999. Health Care Financing Review, 22(4), 77-110. Washington: U.S. Government Printing Office.
- Doeksen, G. A., & Schott, V. (1999). The Importance of the Health Care Sector on the Economy of Atoka County, Oklahoma. Rural Health Association of Oklahoma, Inc.
- Erickson, R.A., Gavin, N.I., & Cordes, S.M. (1984). The Economic Impacts of Pennsylvania's Hospitals. College Park, PA: The Pennsylvania State University, Center for Research, College of Business Administration.
- Kovner, A.R., Jonas, S. (1999). Health Care Delivery in the United States. New York: Springer Publishing Company.

- Olson, D.C., & Lindall, S.C. (2000). IMPLAN Professional Software Version 2.0. Minnesota IMPLAN Group, Inc., 1725 Tower Drive West, Suite 140, Stillwater, MN 55082, <www.implan.com>.
- Rosenblatt, R.A., & Hart, G. L. (1999). Physicians and Rural America. In Ricketts (Ed.), Rural Health in the United States, (pp. 38-51). New York: Oxford University Press.
- Stensland, J., Milet, M. (2002). Variance in the Profitability of Small-Town Rural Hospitals. Bethesda, MD: Project HOPE, Walsh Center for Rural Health Analysis.

Notes

- ¹ Comparison counties were chosen based upon population, rural designation, and the presence of a local hospital.