



UNIVERSITY OF MINNESOTA | EXTENSION



# Economic Contribution of the Hennepin County Medical Center System

A REPORT OF THE ECONOMIC IMPACT ANALYSIS PROGRAM

Authored by Brigid Tuck and Neil Linscheid



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Hennepin Health Foundation

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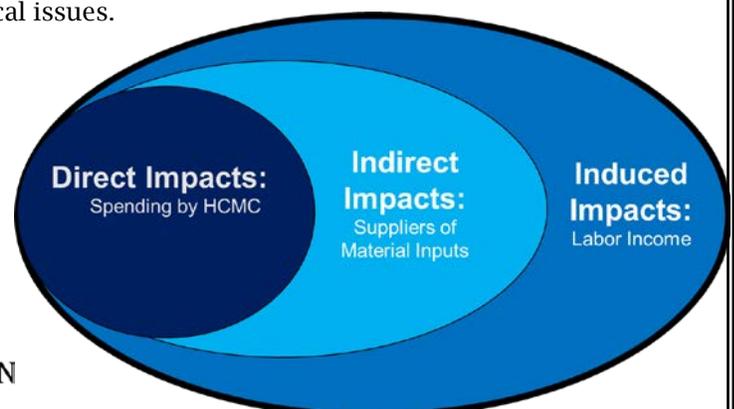
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## Economic Contribution of the Hennepin County Medical Center System: Summary

The following is a summary of the results of a recent University of Minnesota Extension study. The study was conducted in partnership with Hennepin Health Foundation.

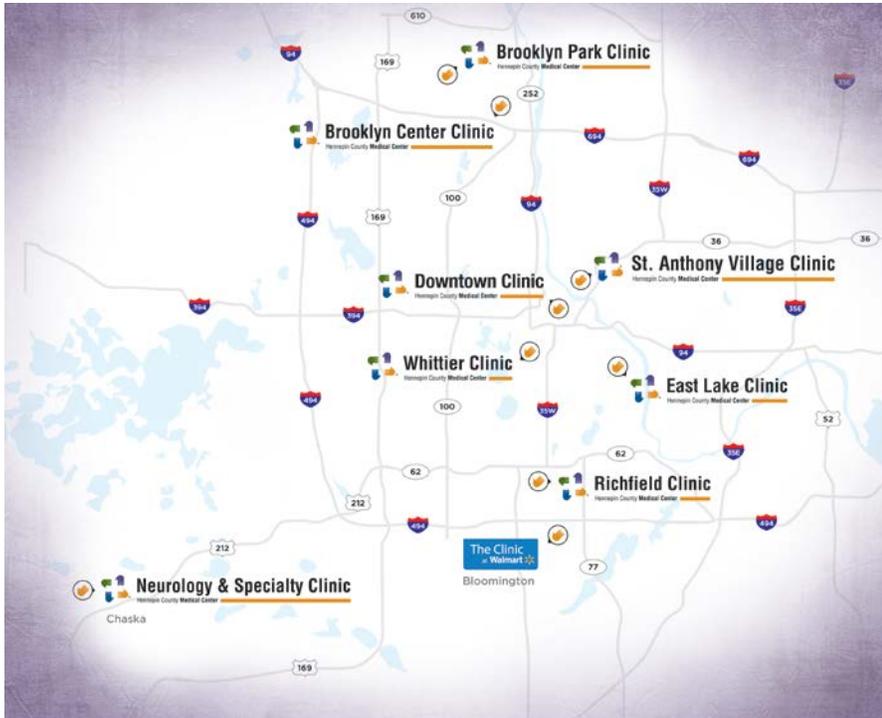
- **Background:** The Hennepin County Medical Center (HCMC) system provides critical health care services in Minnesota. The centerpiece is Hennepin County Medical Center (HCMC). The system also includes neighborhood, primary care, and specialty clinics. HCMC is a Level 1 Adult and Pediatric Trauma Center, a teaching hospital, and a safety net hospital. The system also operates the regional Poison Center in Minnesota and South and North Dakota and is the Regional Hospital Resource Center for the seven-county Metro Area Compact on Emergency Preparedness.
- **Direct Spending and Employment:** The HCMC system directly employed 6,803 individuals in 2012. The health system spent \$619.6 million to provide patient care throughout the HCMC system. The majority of those expenditures (\$394.5 million) went to employees as wages, salaries, and benefits. The HCMC system also purchased goods and services from local vendors.
- **Economic Impact in Minnesota:** In 2012, the HCMC system contributed an estimated \$936.6 million in economic activity to the Minnesota economy. The HCMC system supported employment for 10,300 Minnesotans. These jobs paid \$546.3 million in labor income.
- **Economic Impact in Hennepin County:** Of the counties in Minnesota, Hennepin County benefited the most from the presence of the HCMC system. The HCMC system was responsible for an estimated \$434.1 million of Hennepin County's economic activity in 2012. The system supported 4,990 jobs which paid \$289.8 million in labor income. The high level of labor income contributed to relatively high impacts in industries that provide goods and services to households, such as eating and drinking places, health care providers, and retail stores.
- **Economic Impact in Twin Cities Metro:** The eleven-county Twin Cities metropolitan region, home to several medical device manufacturers, also benefited from the HCMC system. In 2012, the HCMC system generated an estimated \$913.9 million in economic activity in the eleven-county region. This included \$544.8 million in labor income and 9,900 jobs. The impacts in the metro region are similar to those for the state of Minnesota as much of the activity is in the metro area.
- **Importance of Volunteers:** The HCMC system provides benefits to the county, region, and state beyond economic impacts. In 2012, the HCMC system engaged over 300 volunteers. They provided 32,300 hours of service to the HCMC system with a value of more than \$715,000.
- **Research at HCMC:** In 2012, the HCMC system received, through its subsidiary Minneapolis Medical Research Foundation (MMRF), \$32.2 million in research revenue. This revenue provides funding to explore critical medical and clinical issues.



## BACKGROUND OF THE STUDY

Nestled in downtown Minneapolis, the Hennepin County Medical Center (HCMC) serves a critical role in providing health care to Minnesotans. Publicly-owned by Hennepin County, HCMC is the centerpiece of Hennepin Healthcare System, which also includes 8 neighborhood clinics (shown on map 1), 9 downtown primary care clinics, and 51 specialty clinics. Hennepin County Medical Center is a Level 1 Adult and Pediatric Trauma Center with multiple nationally-recognized programs and specialties. Three specialties – diabetes and endocrinology, kidney disease, pulmonology – were cited as “high performing” by US News & World Report in its 2012 America’s Best Hospitals publication.

**Map 1: Hennepin County Medical Center Neighborhood Clinics**



HCMC system serves as the Regional Hospital Resource Center for the seven-county Metro Area Compact on Emergency Preparedness.

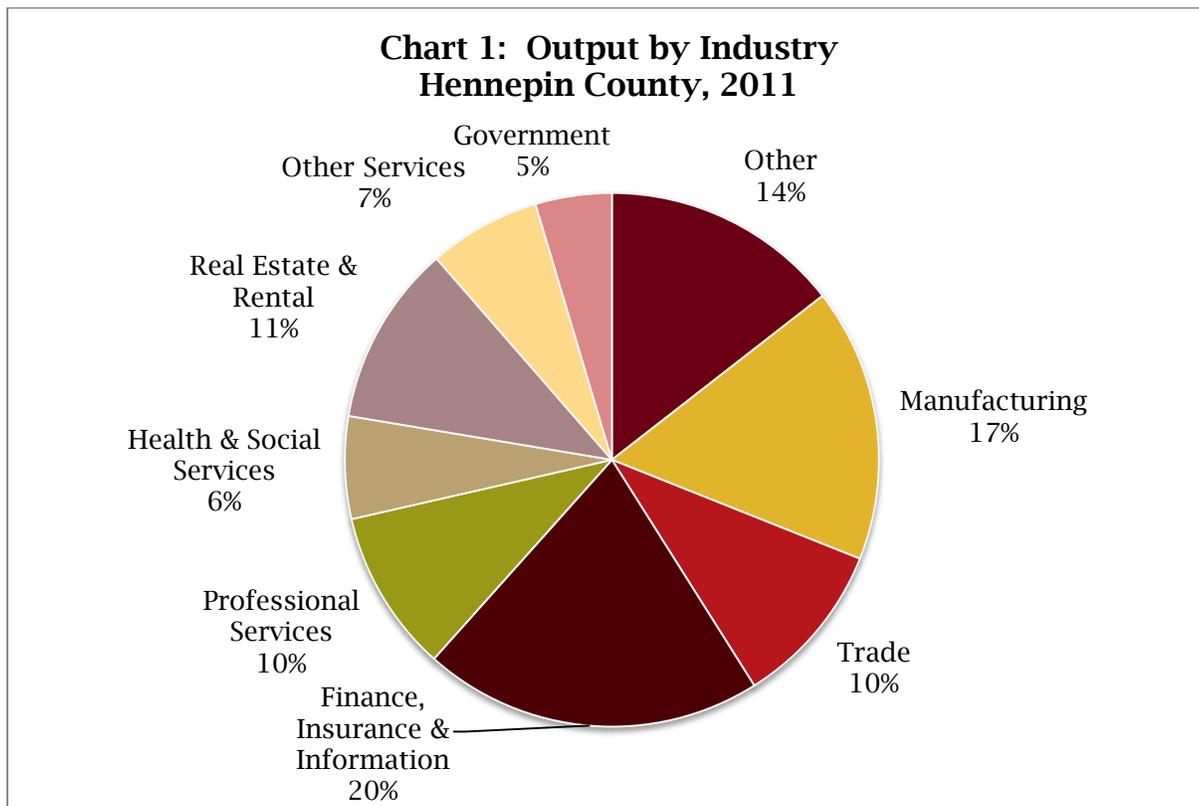
In 2012, the HCMC system had 462 operating beds; provided 121,822 patient days and 496,416 clinic visits; and had an average daily census of 333 patients.

Operating in support of the HCMC system, the Hennepin Health Foundation is a 501(c)(3) non-profit organization with a mission that “inspires generosity by connecting Hennepin Healthcare System solutions to community health challenges.” Hennepin Health Foundation would like to better understand the economic contribution of the HCMC system on the surrounding community and region. To achieve this goal, the foundation contracted with University of Minnesota Extension to conduct an economic contribution study. The study has two deliverables, including a written report and a facilitated presentation of the results.

## PROFILE OF THE STUDY AREA ECONOMY

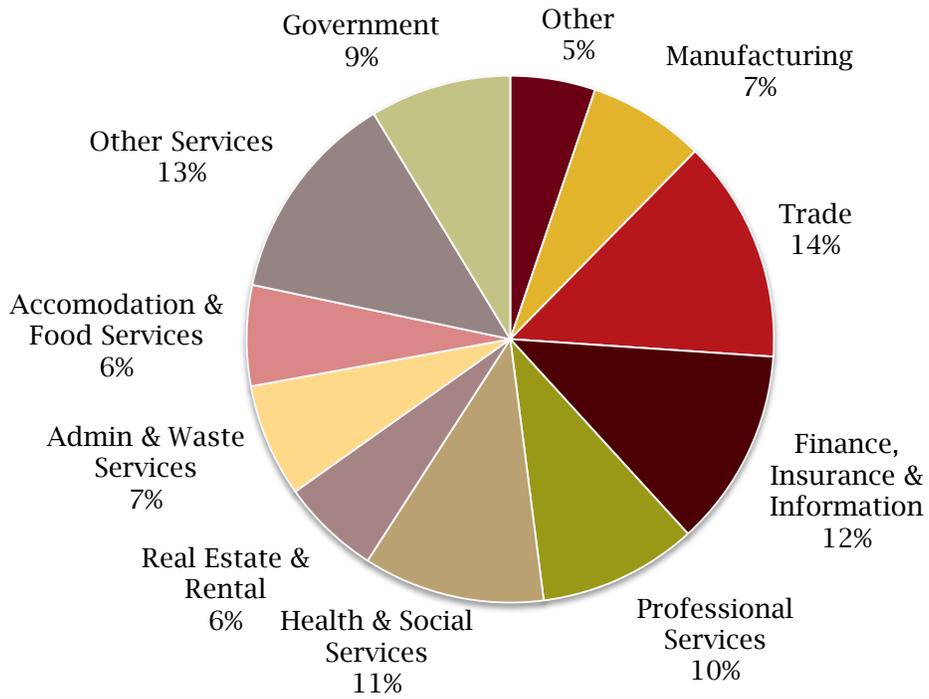
The Hennepin County Medical Center (HCMC) system is publicly-owned by Hennepin County. The primary focus of this study is to examine the economic contribution of the HCMC system to the economy of Hennepin County. Since the hospital provides essential services to residents of the Twin Cities metropolitan area and to the people of Minnesota, this study will also consider the economic contribution to those regions.

In 2011, industries in Hennepin County generated \$174 billion in output or sales. Twenty percent of those sales were from the finance, insurance, and information industries (chart 1). Seventeen percent of sales were from the manufacturing industry. Government, which is where the HCMC system is classified due to its public ownership, produced 5 percent of total output in the county. The HCMC system, in turn, accounts for 9 percent of total government output in the county.



There were just over 1 million jobs in Hennepin County in 2011. The distribution of jobs by industry is shown in chart 2. This chart reveals the highest percentage of jobs is in the trade and other service industries. In the database used for this analysis, one job is one job, regardless if the job is full-time, part-time, or seasonal. Service and trade industries often rely more on part-time positions than other industries, therefore this result is not unexpected. The HCMC system provides 8 percent of the employment in the government industry sector.

**Chart 2: Employment by Industry  
Hennepin County, 2011**



## ECONOMIC CONTRIBUTION

### Direct Effect

The direct effect of the HCMC system is driven by expenditures for day-to-day operations. The hospital, clinics, and other operational units make local expenditures for goods and services in order to care for patients. The system also employs thousands of Minnesotans. These local expenditures and payments for labor create the direct effect of the HCMC system.

In order to quantify the direct effect of the HCMC system, the system provided to University of Minnesota Extension their operating expenditures for 2012, including total salaries, wages, and benefits paid. The dollar amounts are cash basis, not accrual basis. Extension used the data provided to calculate expenditures in three study areas - Hennepin County, the eleven-county Twin Cities metropolitan area, and the state of Minnesota.

In 2012, the HCMC system spent \$207.9 million on the goods and services needed to provide patient care (table 1). The HCMC system purchased \$41.5 million of goods and services from vendors and providers in Hennepin County. In Minnesota, the system purchased \$66.9 million in goods and services. Locally purchased supplies include diverse items, such as medical devices, medical equipment, electricity, rent, laundry services, and maintenance. Direct expenditures for supplies in Hennepin County also included \$15.0 million of capital improvements, primarily for remodeling and building renovations.

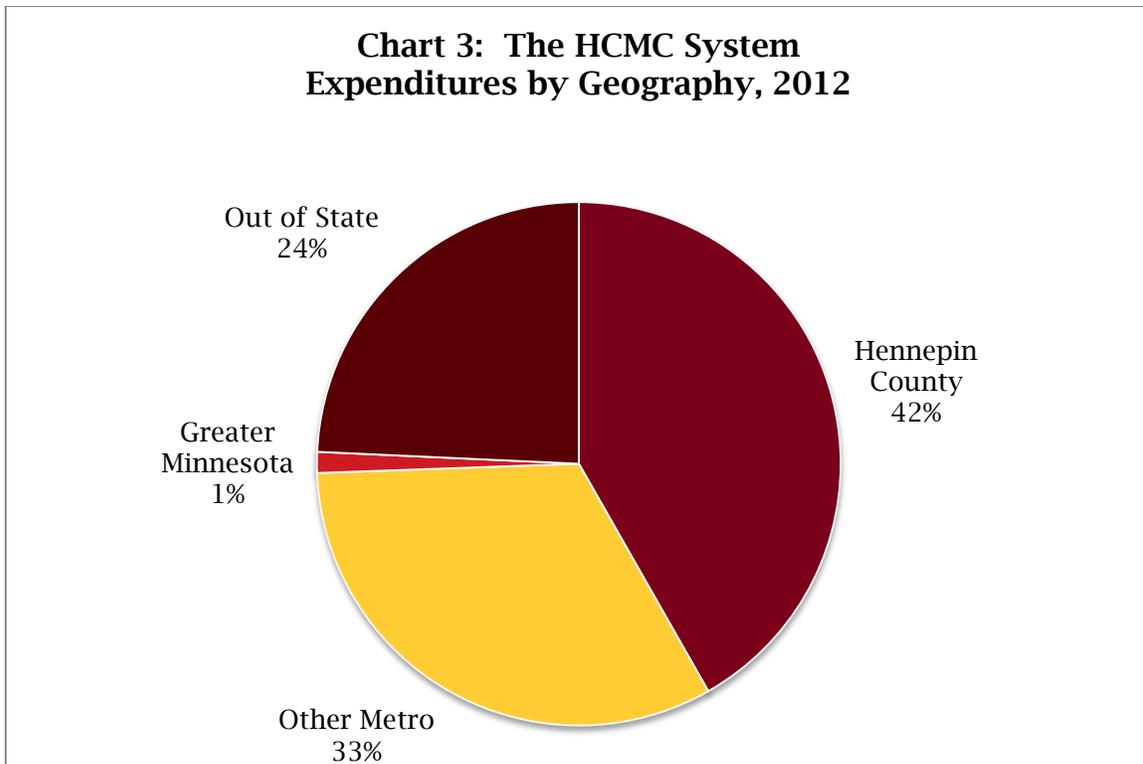
The HCMC system spent \$394.5 million on employee salaries, wages, and benefits in 2012. Over half of the salaries and wages were paid to residents of Hennepin County. In all of Minnesota, the HCMC system directly provided \$385.1 million of labor income. The difference between “total” expenditures and “Minnesota” expenditures is dollars spent outside the state.

	<b>Hennepin County</b>	<b>Eleven-County Region</b>	<b>Minnesota</b>	<b>Total</b>
Supplies and Services	\$41.5	\$64.8	\$66.9	\$207.9
Salaries, Wages, and Benefits	\$217.2	\$379.2	\$385.1	\$394.5
Taxes (Sales and MN Care)	\$0.093	\$17.2	\$17.2	\$17.2
Total Expenditures	\$ 258.8	\$ 461.2	\$ 469.2	\$ 619.6
University of Minnesota Extension				

The HCMC system paid \$17.2 million in sales and health care taxes in 2012. The largest share of the taxes paid was for the Minnesota Care Tax and the Minnesota DHS Surcharge. The Minnesota Care Tax is a state tax levied on healthcare providers whose health-related occupation is regulated by the state and who provide diagnostic, therapeutic, prescription drug, or medical services to a patient or consumer. The tax assists in funding the Minnesota Care program, a jointly funded federal-state program administered by the Minnesota Department of Human Services which provides subsidized

health coverage for eligible Minnesotans. The Minnesota DHS Medical Care Surcharge is a surcharge that raises revenue from a bed tax on Medical Assistance (MA) licensed nursing facilities; a percentage tax on MA revenue paid to MA enrolled inpatient and outpatient hospitals and to MA enrolled prepaid health plans; and other revenues. Taxes related to employees (FICA and Medicare, for example) are included in the salaries, wages, and benefits totals.

In total, the HCMC system expended \$619.6 million in 2012. Of these expenditures, over three-fourths were within the eleven-county Twin Cities metropolitan area (chart 3). The system spent \$258.8 million to vendors located in Hennepin County in 2012. Since health care supplies can be highly specialized, it is not surprising that nearly one-quarter of expenditures were paid to businesses outside of Minnesota.



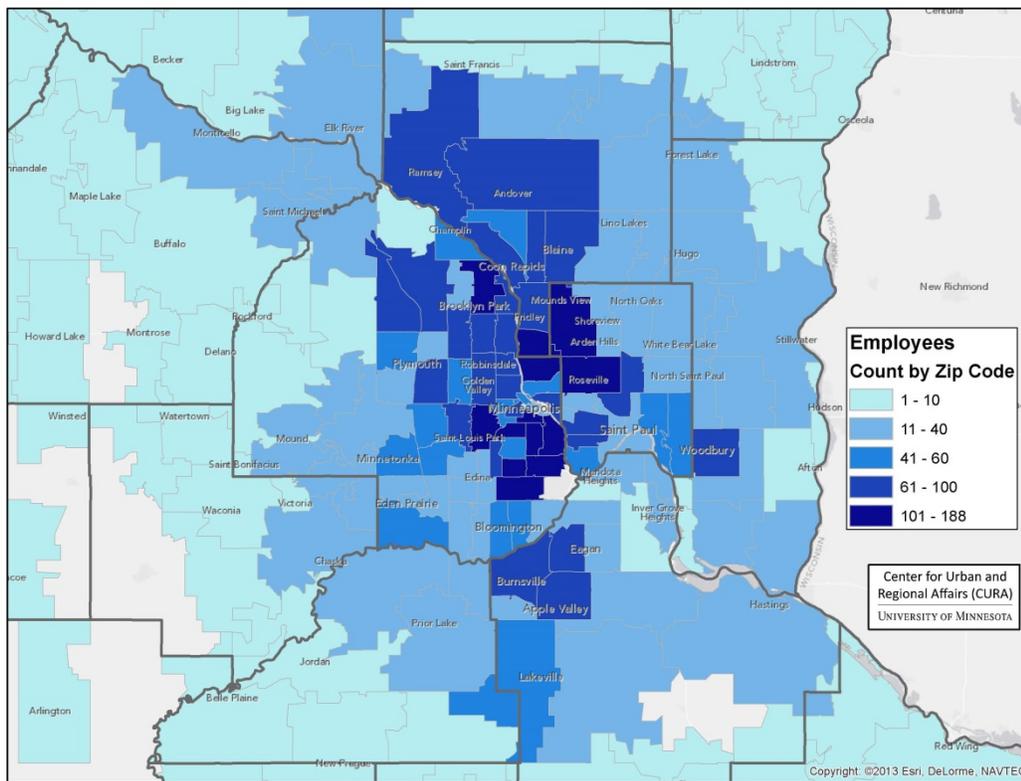
In 2012, the HCMC system employed 6,800 individuals (table 2). Of the HCMC system employees, 54 percent (3,655) resided in Hennepin County. The majority (95 percent) resided in the eleven-county Twin Cities region. Employment by geography is illustrated in map 2.

**Table 2: Employment at Hennepin County Medical Center, 2012**

	Hennepin County	Eleven-County Region	Minnesota	Total
Total	3,655	6,484	6,614	6,803

As detailed earlier, there are 1 million people employed in Hennepin County. The HCMC system accounts for approximately 1 percent of the total employment. In this study, jobs are measured by the number of people working, regardless if the employment is part-time, full-time, or seasonal.

**Map 2: HCMC System Employees' County of Residence**



**Indirect and Induced Effects**

Now that the estimated direct effects are quantified, the data can be entered into an input-output model. Input-output models trace the flow of dollars throughout a local economy and can estimate the indirect and induced, or ripple, effects of an economic activity.

Indirect effects are those associated with a change in economic activity due to spending for goods and services directly tied to the industry. In this case, these are the changes in the local economy occurring because the HCMC system needs to purchase supplies (medical supplies and medical equipment, for example) and related services (training and building maintenance, for example). These are business-to-business effects.

Induced effects are those associated with a change in economic activity due to spending by the employees of businesses (labor) and by households. Primarily, in this study, these are economic changes related to spending by HCMC system employees, including medical residents. It also includes household spending related to indirect effects. These are business-to-consumer effects.

**Total Effect**

When the HCMC system makes purchases in the study area, a ripple effect of spending begins, stimulating additional economic activity. In 2012, the HCMC system, through these ripples, contributed an estimated \$434.1 million dollars in economic activity to Hennepin County (table 3). The hospital's presence in Hennepin County supported nearly 5,000 jobs. These employees received

\$289.8 million in wages, salaries and benefits. Since wages and salaries comprise the majority of the HCMC system's spending in Hennepin County, it is not surprising the majority of impact is created through consumer-to-business transactions (induced effect in table 3). Total output in Hennepin County is \$174 billion. Therefore, the HCMC system contributes approximately 0.2 percent of total output.

**Table 3: Total Economic Impact of the HCMC System on Hennepin County, 2012**

	<b>Output (Millions)</b>	<b>Employment</b>	<b>Labor Income (Millions)</b>
Direct	\$258.7	3,665	\$217.2
Indirect	\$63.9	491	\$30.0
Induced	\$111.5	830	\$42.6
Total	\$ 434.1	4,986	\$ 289.8

University of Minnesota Extension

In 2012, the HCMC system contributed \$913.9 million in economic activity to the economy of the eleven-county Twin Cities metropolitan area. Of this, \$544.8 million was as payments to labor. The system supported nearly 10,000 jobs in the metropolitan area (table 4).

**Table 4: Total Economic Impact of the HCMC System on the Eleven-County Metro, 2012**

	<b>Output (Millions)</b>	<b>Employment</b>	<b>Labor Income (Millions)</b>
Direct	\$461.2	6,484	\$379.2
Indirect	\$119.3	952	\$51.6
Induced	\$333.4	2,446	\$114.0
Total	\$ 913.9	9,882	\$ 544.8

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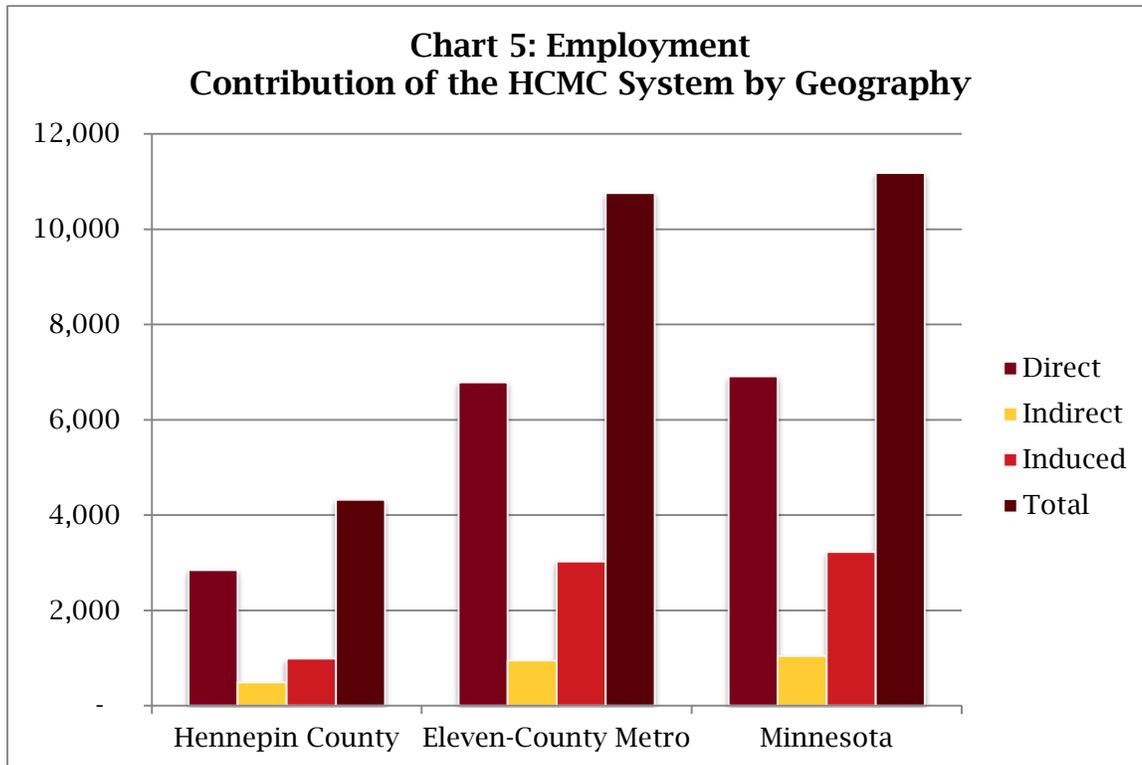
In 2012, the HCMC system generated \$936.6 million in economic activity in the state of Minnesota (table 5). Wages and salaries comprised the majority of this economic activity. The system supported more than 10,000 employees in Minnesota. Those workers earned \$546.3 million in compensation. The majority of expenditures by the HCMC system in Minnesota are within the metro region. Therefore, the difference in economic contribution of the HCMC system between the Twin Cities and in Minnesota is not large.

**Table 5: Total Economic Impact of the HCMC System on Minnesota, 2012**

	<b>Output (Millions)</b>	<b>Employment</b>	<b>Labor Income (Millions)</b>
Direct	\$469.2	6,614	\$385.1
Indirect	\$121.9	1,041	\$50.1
Induced	\$345.5	2,612	\$111.1
Total	\$ 936.6	10,267	\$ 546.3

University of Minnesota Extension

Chart 5 illustrates the impact of the HCMC system on employment by each of the regions under study. As the region includes more counties, direct impact increases. There are additional employees that live in the expanded regions, along with additional vendors that provide goods and services to the HCMC system. In each region, induced impacts outweigh indirect impacts. This is due to the high level of spending on employee wages, salaries and benefits by the HCMC system. Health care delivery relies heavily on the people who provide the care – doctors, nurses, aides, technicians, and residents. The HCMC system makes significant purchases for goods and services in the hospital and clinic setting, but in many cases, the supplies needed are not manufactured in Minnesota, thus reducing the impact. Minnesota is home to several large medical device companies, which contributes to a higher impact than would otherwise be expected.



## TOP INDUSTRIES IMPACTED

The HCMC system supported 4,990 jobs in Hennepin County in 2012. Of those jobs 3,655 were directly created by the system. The additional jobs are in industries that provide goods and services to the system and its employees. Table 6 shows the industries with the highest number of employees impacted by the HCMC system's employment of personnel and purchasing activities. As discussed, induced impacts (consumer-to-business) comprise the majority of the additional economic activity generated. As the HCMC system provides compensation to its employees, these employees in turn purchase goods and services in their communities. Therefore, it is not surprising to see industries that support consumers in the list. Further, in the model, one job is one job. Certain industries, such as food services and drinking places, tend to have higher rates of part-time employment than others and therefore show higher employment numbers.

Health care is one of a household's largest expenditures. The HCMC system's employees will be consuming healthcare resources throughout their communities. As consumers spend their income, health care purchases consume a share of that income. Table 6 reflects this as private hospital jobs, nursing and residential care, and offices of doctors and dentists make the list of estimated employment impacts. Publicly-owned hospitals are categorized in the government industry.

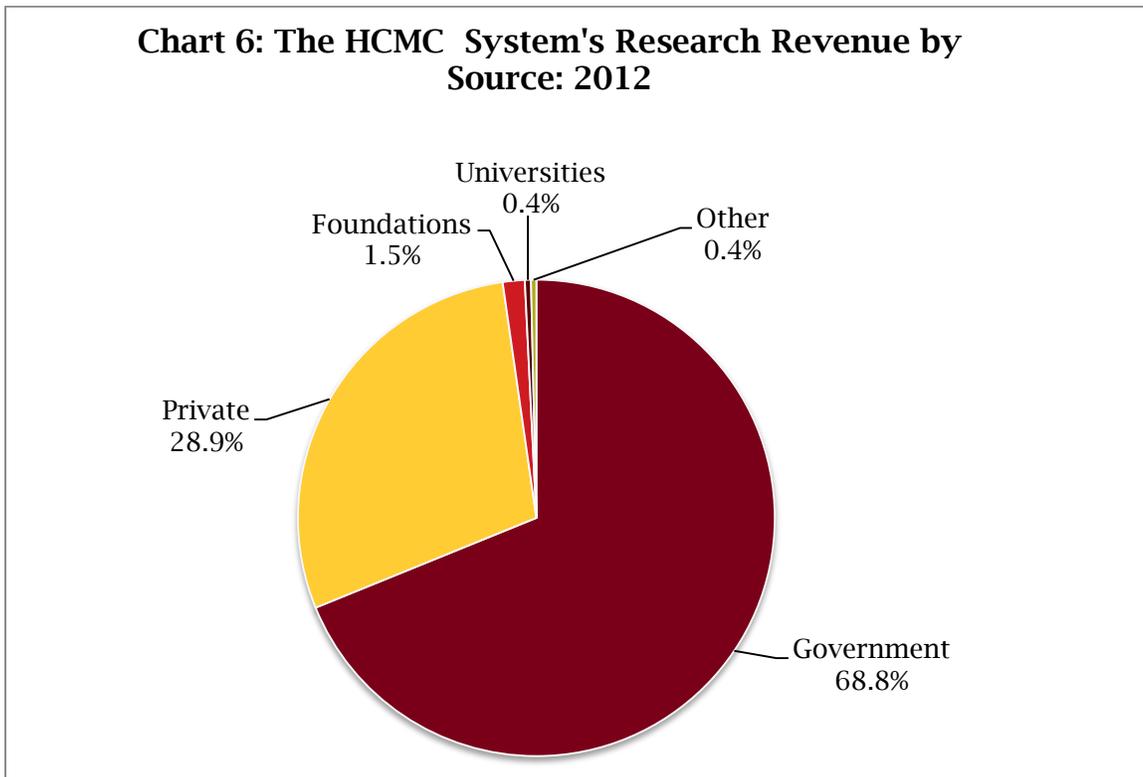
In Hennepin County, the ripple effects are highest in the food services and drinking places industry, the employment services industry, and the real estate industry.

	<b>Employment</b>
Food services and drinking places	171
Employment services	121
Real estate establishments	81
Construction of non-residential health care structures	75
Private hospitals	62
Offices of doctors and dentists	56
Wholesale trade	50
Nursing and residential care	43
Retail stores - general	41
Retail stores - food and beverage	36
University of Minnesota Extension	

## RESEARCH DOLLARS

The HCMC system receives, through its subsidiary Minneapolis Medical Research Foundation, funding from several sources for medical research. In 2012, the HCMC system received \$32.2 million in research revenue. The majority of that revenue was from government sources (chart 6). Private funding comprised 29 percent of research dollars.

The expenditure by the HCMC system of research dollars is included in the \$619.6 million of direct expenditures as quantified earlier in this report. This chart highlights where the research revenues that support a portion of those expenditures are derived. Further, it illustrates how both private sector and public sector dollars can work together to fund research.



## VOLUNTEERS

Volunteers play a critical role in the functioning of the HCMC system. In 2012, more than 300 volunteers provided 32,300 hours of service to the HCMC system. On average, each volunteer spent more than 100 hours in service. These volunteers (assuming an average wage of \$22.14 an hour) provided the HCMC system with \$715,122 worth of services. The value of volunteers is not included in the economic contribution calculated in this study. Therefore, it is worth noting the value they provide to the organization and to patients.

The HCMC system organizes an overall Volunteer Program and an Emergency Department Volunteer Program, called ED PEER. The ED PEER Program is designed as a progressive approach to improve the relationship between caregivers and patients. The ED PEER Program allows individual volunteers

to use their skills, experience and training to assist the HCMC Emergency Department in a variety of assignments and projects that are of importance to patients. In the face of growing demands for service, the assistance of ED PEER members is becoming a vital component of the patient experience. Volunteers in the HCMC system also assist in family waiting rooms, wayfinding across campus, special projects for departments, and a host of other activities.

## SUMMARY

The HCMC system, based in Hennepin County, provides critical health care services to residents of Minnesota. These services include operating a Level 1 Adult and Pediatric Trauma Center, housing the Poison Control Center, teaching and training health care professionals, and being a safety-net for low-income, underinsured, and underserved patients.

The HCMC system directly employed 6,803 individuals in 2012. The health system spent \$619.6 million to provide patient care. The majority of those expenditures (\$394.5 million) went to employees as wages, salaries, and benefits. The remaining funds were spent to purchase the supplies (both goods and services) necessary for operations. Supplies purchased locally range from medical equipment and supplies to advertising to utilities to renovations and remodeling. The HCMC system supports a diverse set of industries in the county and state.

As purchases are directly made by the HCMC system in the local economy, a ripple effect is generated as the suppliers to the HCMC system and its employees increase their sales and employment. In 2012, the HCMC system, through those ripples, contributed \$936.6 million in economic activity to the Minnesota economy. The HCMC system supported employment for 10,300 Minnesotans. These jobs paid \$546.3 million in labor income.

Of the counties in Minnesota, Hennepin County benefited the most from the presence of the HCMC system. The HCMC system was responsible for \$434.1 million of Hennepin County's economic activity in 2012 or about 0.2 percent of total output in the county. The system supported 4,990 jobs which paid \$289.8 million in labor income. The high level of labor income contributed to relatively high impacts in industries that provide goods and services to households, such as eating and drinking places, health care providers, and retail stores.

The eleven-county Twin Cities metropolitan region, home to several medical device manufacturers, also benefited from the HCMC system. In 2012, the HCMC system generated \$913.9 million in economic activity to the eleven-county region. This included \$544.8 million in labor income and 9,900 jobs.

The HCMC system provides benefits to the county, region, and state beyond economic impacts. The system brings critical research dollars to the state in order to address critical medical issues. The system also benefits from its role in the community, drawing on local volunteers to help patients.

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*The HCMC system, through its expenditures, contributes an estimated \$936.6 million in economic activity and supports jobs for 10,300 Minnesotans.*

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## APPENDIX 1: METHODOLOGY

Special models, called input-output models, exist to conduct economic impact analysis. There are several input-output models available. IMPLAN (Impact Analysis for PLANning, Minnesota IMPLAN Group)<sup>1</sup> is one such model. Many economists use IMPLAN for economic contribution analysis because it can measure output and employment impacts, is available on a county-by-county basis, and is flexible for the user. IMPLAN has some limitations and qualifications, but it is one of the best tools available to economists for input-output modeling. Understanding the IMPLAN tool, its capabilities, and its limitations will help ensure the best results from the model.

One of the most critical aspects of understanding economic impact analysis is the distinction between the “local” and “non-local” economy. The local economy is identified as part of the model-building process. Either the group requesting the study or the analyst defines the local area. Typically, the study area (the local economy) is a county or a group of counties that share economic linkages. In this study, the study area is the entire State of Minnesota.

A few definitions are essential in order to properly read the results of an IMPLAN analysis. The terms and their definitions are provided below.

### Output

Output is measured in dollars and is equivalent to total sales. The output measure can include significant “double counting.” Think of corn, for example. The value of the corn is counted when it is sold to the mill, again when it is sold to the dairy farmer, again as part of the price of fluid milk, and yet again when it is sold as cheese. The value of the corn is built into the price of each of these items and then the sales of each of these items are added up to get total sales (or output).

### Employment

Employment includes full- and part-time workers and is measured in annual average jobs, not full-time equivalents (FTE’s). IMPLAN includes total wage and salaried employees, as well as the self-employed, in employment estimates. Because employment is measured in jobs and not in dollar values, it tends to be a very stable metric.

### Labor Income

Labor income measures the value added to the product by the labor component. So in the corn example, when the corn is sold to the mill, a certain percentage of the sale goes to the farmer for his/her labor. Then when the mill sells the corn as feed to dairy farmers, it includes some markup for its labor costs in the price. When dairy farmers sell the milk to the cheese manufacturer, they include a value for their labor. These individual value increments for labor can be measured, which amounts to labor income. Labor income does *not* include double counting.

### Direct Impact

Direct impact is equivalent to the initial activity in the economy. In this study, it is spending by the HCMC system on operating expenses – supplies to the hospital and salaries, wages and benefits.

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<sup>1</sup> IMPLAN Version 3.0 was used in this analysis. The trade flows model with SAM multipliers was implemented.

## Indirect Impact

The indirect impact is the summation of changes in the local economy that occur due to **spending for inputs** (goods and services) by the industry or industries directly impacted. For instance, if employment in a manufacturing plant increases by 100 jobs, this implies a corresponding increase in output by the plant. As the plant increases output, it must also purchase more inputs, such as electricity, steel, and equipment. As the plant increases purchases of these items, its suppliers must also increase production, and so forth. As these ripples move through the economy, they can be captured and measured. Ripples related to the purchase of goods and services are indirect impacts. In this study, indirect impacts are those associated with spending by the hospital system for operating items and for capital outlays.

## Induced Impact

The induced impact is the summation of changes in the local economy that occur due to **spending by labor**. For instance, if employment in a manufacturing plant increases by 100 jobs, the new employees will have more money to spend to purchase housing, buy groceries, and go out to dinner. As they spend their new income, more activity occurs in the local economy. Induced impacts also include spending by labor generated by indirect impacts. So if the hospital system purchases services from a local tax preparer, spending of the tax preparer's wages would also create induced impacts. Primarily, in this study, the induced impacts are those economic changes related to spending by hospital employees.

## Total Impact

The total impact is the summation of the direct, indirect, and induced impacts.

## Input-Output, Supply and Demand, and Size of Market

Care must be taken when using regional input-output models to ensure they are being used in the appropriate type of analysis. If input-output models are used to examine the impact or the contribution of an industry that is so large that its expansion or contraction results in such major shifts in supply and demand that prices of inputs and labor change, input-output can overstate the impacts or contributions. While the HCMC system is a major component of the Minnesota economy, it is not likely that its existence has an impact on national prices. Hence, the model should estimate the contributions reliably.