

# The Economic Impact of the University of Nebraska Medical Center & The Nebraska Medical Center





# The Economic Impact of the University of Nebraska Medical Center & The Nebraska Medical Center

*On the Omaha Metro Area and the State of Nebraska  
Based on Fiscal Year 2005*

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# EXECUTIVE SUMMARY

The University of Nebraska Medical Center (UNMC) and the Nebraska Medical Center (Hospital) increase the economic strength and vitality of Nebraska while making the state a better place to live, work and do business. UNMC and the Hospital are on a trajectory to becoming a world-class academic health sciences center. Already, UNMC and the Hospital are recognized leaders in medical research, educating future health-care professionals, and providing the latest and finest patient care. UNMC is the only public academic health science center in Nebraska and one of four University of Nebraska campuses. The Hospital is the primary teaching hospital for UNMC and was formed in 1997 by the merger of Clarkson Hospital and University Hospital.

This economic impact study provides one way of quantifying the importance of these institutional achievements to Nebraska. The intent of this study is to report the quantifiable and non-quantifiable economic impacts of UNMC and the Hospital on both the six-county Omaha metro area and the state of Nebraska. The economic impacts of UNMC and the Hospital are based on local purchasing patterns in fiscal year 2005 and are calculated within the framework of four major spending categories: business operations, construction, student spending, and visitor spending. The economic impacts are presented in 2005 dollars and describe the “typical” annual impact. RIMS II multipliers from the U.S. Department of Commerce, Bureau of Economic Analysis were applied to estimate the multiplicative impacts of spending associated with UNMC and the Hospital. Thus, the total impact figures reflect the sum of direct and local expenditures as well as the indirect impacts of spending associated with UNMC and the Hospital.

***The total economic impact of UNMC and the Hospital to Nebraska is \$1.5 billion annually. UNMC and the Hospital support 17,100 jobs throughout the state.***

<b>Total Economic Impact on Nebraska</b>			
(\$ in millions)			
<b>Local Spending</b>	<b>Direct Impact</b>	<b>Indirect Impact</b>	<b>Total Impact</b>
<u>Business Operations</u>	\$628	\$689	\$1,317
Research Activities	\$61	\$59	\$120
<u>Student Spending</u>	\$46	\$40	\$86
<u>Visitor Spending</u>	\$5	\$4	\$9
<u>Construction</u>	\$45	\$52	\$97
<b>Total Impact of Local Spending</b>			
Local Spending	\$724	\$785	\$1,509
Payroll	\$486	\$331	\$817
Employment	9,500	7,600	17,100

**Job Creation:** UNMC and the Hospital employ a combined workforce of 9,000 of which about 8,300 employees are also residents of Nebraska. Together, UNMC and the Hospital would represent the third largest employer in the state, assuming both UNMC and the Hospital were private entities. The combined annual payroll of UNMC and the Hospital, including benefits, exceeded \$486 million in 2005.

***UNMC and Hospital employees earn higher than average wages in Nebraska.***

UNMC - \$50,700  
 Hospital - \$38,900  
 UNMC medical researchers - \$60,000  
 Nebraska - \$31,600

Student spending, visitor spending and construction activities associated with UNMC and the Hospital create another 1,200 jobs across the state. In total, UNMC and the Hospital are directly responsible for the creation of 9,500 jobs in Nebraska. Indirectly, UNMC and the Hospital create another 7,600 jobs, bringing the total employment impact to 17,100 jobs.

# EXECUTIVE SUMMARY

**Business Operations, Student and Visitor Spending, and Construction Activity:** UNMC and the Hospital purchase \$363 million in goods and services annually of which Nebraska businesses supply almost half of all purchases. Analyzing expenditures for goods and services outside of the state of Nebraska reveal opportunities for UNMC and the Hospital to collaborate with local businesses and government to spur the creation of greater local spending. Students and patient visitors who come to either UNMC or the Hospital from outside of Nebraska generate \$95 million in annual economic activity for Nebraska from lodging, retail, and other expenditures. State-of-the-art construction activity at UNMC and the Hospital generates an estimated \$97 million in annual economic activity in Nebraska.

**Research Enterprise:** The research enterprise is a rapidly growing component of UNMC and the Hospital's business operations. In 2005, UNMC attracted \$72.5 million in external research funding. Overall, research activities at UNMC and the Hospital generate an annual economic impact of \$120 million for Nebraska, which is included in the \$1.5 billion total impact. Research-related activities at UNMC support a total of 1,500 positions across the state.

**Improving Public Health and Increasing Nebraska's Wealth:** The impact to the economy, which this study has measured, is one benefit. The other benefit is the quality of life that UNMC and the Hospital help make possible as a result of the positive relationship between improving public health and increasing wealth in the community. The state and each and every resident of Nebraska are the ultimate beneficiaries of UNMC and the Hospital's advancements.

- ◆ More than half of the physicians with active practices in Nebraska and 68% of physicians in rural Nebraska are UNMC graduates.
- ◆ UNMC and the Hospital attracted \$325 million in "new money" to the state of Nebraska in 2005. One-third of the total spending associated with UNMC and the Hospital is made possible by new revenue to the state.
- ◆ UNMC disclosed 41 inventions and filed 12 U.S. patents in 2005. UNeMed is encouraging the commercialization of UNMC-spawned research through 11 start-up companies. State-of-the-art facilities like the \$77 million Durham Research Center and soon-to-be-completed Michael F. Sorrell Center for Health Science Education building provide the optimum environment for cutting-edge medical research.

UNMC and the Hospital are significant contributors to wealth creation in Nebraska through employment creation, increasing the livability of rural communities, providing quality higher education, encouraging research commercialization, and attracting new money into the state. Educational institutions are critical to propelling economic development in today's economy.

It is impossible to put a dollar value on the impact these more intrinsic characteristics have on the state, but it is not hard to see that Nebraskans embrace the accomplishments and furthered success of these two institutions.

# I: INTRODUCTION

The University of Nebraska Medical Center (UNMC) is the only public academic health science center in Nebraska and one of four University of Nebraska campuses. In addition to UNMC, the University of Nebraska system includes the University of Nebraska-Lincoln (main campus), the University of Nebraska-Kearney and the University of Nebraska-Omaha.

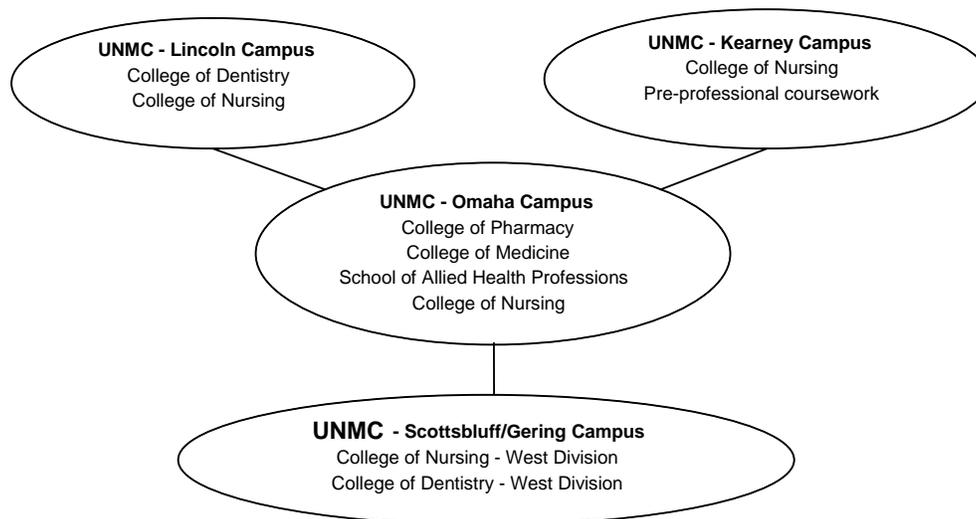
UNMC takes a similar network approach to education with its four campus locations: Omaha (main campus), Lincoln, Kearney and Scottsbluff/Gering. The Omaha campus is home to the College of Pharmacy, College of Medicine, School of Allied Health Professions and the College of Nursing. The College of Dentistry is housed at the Lincoln campus which also houses the Lincoln division of the College of Nursing. At the UNMC campus in Kearney, students can attend the College of Nursing and receive a bachelor's degree or complete other pre-professional coursework for future study at UNMC. The Scottsbluff/Gering campus offers study in the College of Nursing and College of Dentistry Dental Hygiene program though distance learning. In total, about 3,000 students attend UNMC across the four Nebraska locations.

In addition to serving as the communications hub for health care across the state, UNMC has established itself as one of the nation's leading centers in cancer,

transplantation, bioterrorism preparedness, neurodegenerative diseases, genetics, biomedical technology, ophthalmology and arthritis. UNMC offers top-ranked medical programs to Nebraska residents. The most recent *U.S. News & World Report* rankings placed UNMC's College of Medicine's primary care program 11<sup>th</sup> out of approximately 140 medical schools. Furthermore, the College of Medicine's rural health medicine program ranked ninth out of approximately 125 schools on the 2007 list.



UNMC works in collaboration with The Nebraska Medical Center (Hospital), the primary teaching hospital for UNMC. The 689-bed compound located at UNMC's Omaha campus was formed in 1997 with the merger of Clarkson Hospital and University Hospital. The Hospital is a multi-disciplinary leader in health care and treats patients from across the



# I: INTRODUCTION

state, country and world. Over the years, the Hospital has developed an international reputation for organ and bone marrow transplantation services along with national and regional recognition for its oncology, neurology and cardiology programs. In 2005, the Hospital treated 401,800 patients of which 71.4% were residents of the Omaha metro area and 79.2% were residents of Nebraska. About 20.8% of the Hospital's patients in 2005 resided outside the state of Nebraska.

The Hospital is equipped with state-of-the-art facilities and technology, providing superior patient care. In 2005, the Hospital was awarded the service excellence designation by J.D. Power & Associates and was also named a Hospital of Distinction, J.D. Power & Associate's highest healthcare honor. According to J.D. Power & Associates, the Hospital is among the top 20% of the nation's hospitals based on five key factors: dignity and respect; speed and efficiency; comfort; information and communication; and emotional support. The Hospital is also the only Nebraska hospital to earn the 2005/2006 Consumer Choice Award. The award is based on a survey of 200,000 households by the National Research Corporation that covers 180 U.S. markets.

The University Medical Associates (UMA) is the physicians group for UNMC and the Hospital and offers services in 50 practice areas.<sup>1</sup> UMA faculty are appointed to UNMC's colleges by the University of Nebraska Board of Regents and serve as both professors at UNMC and physicians at the Hospital.

UNMC and the Hospital are operating in growing economies, according to employment statistics for the Omaha metro area and state of Nebraska. Total employment grew 1.5% at both the state and metro level in 2005 with the state reporting its strongest

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<sup>1</sup> The economic impacts of UMA activities are included in the economic impacts of UNMC and the Hospital throughout this study.

annual employment growth rate since 2000.<sup>2</sup> Omaha metro employment represents about half of total employment statewide. The state of Nebraska is home to almost 1.76 million residents of which approximately 41% or 728,300 residents live in the six-county Omaha metro area.<sup>3</sup> The Omaha metro area is the major economic driver for the state in terms of employment, business activity and population.

## Intent of the Study

The intent of this study is to report the quantifiable and non-quantifiable economic impacts of UNMC and the Hospital on both the Omaha metro area and the state of Nebraska. This study defines the Omaha metro area as a six-county region: Cass, Dodge, Douglas, Sarpy, Saunders and Washington counties.<sup>4</sup> In general, the spending estimates used in this report are based on the 2005 fiscal year and are used to describe the "typical" annual impact of UNMC and the Hospital. The information in this report is presented in 2005 dollars. Please note that economic impact figures may not add exactly due to rounding.

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<sup>2</sup> Employment growth was calculated for the five-county Omaha Metropolitan Statistical Area (MSA) as opposed to the six-county Omaha metro region used throughout the report. Current Employment Statistics from the U.S. Bureau of Labor Statistics are only released at a MSA level and not at an individual county level. The employment statistics are reported for Cass, Douglas, Sarpy, Saunders and Washington counties in Nebraska.

<sup>3,4</sup> The Omaha-Council Bluffs, NE-IA Metropolitan Statistical Area (MSA), as defined by the U.S. Office of Management and Budget (OMB), differs from the six-county definition used throughout this report. The OMB region includes three Iowa counties and does not include Dodge County in Nebraska. The six-county Omaha metro region used throughout this report was designed to examine the economic impacts solely within the Nebraska consortium of the Omaha metropolitan area and consists of Cass, Dodge, Douglas, Sarpy, Saunders and Washington counties in Nebraska.

# I: INTRODUCTION

## How do we measure economic impact?

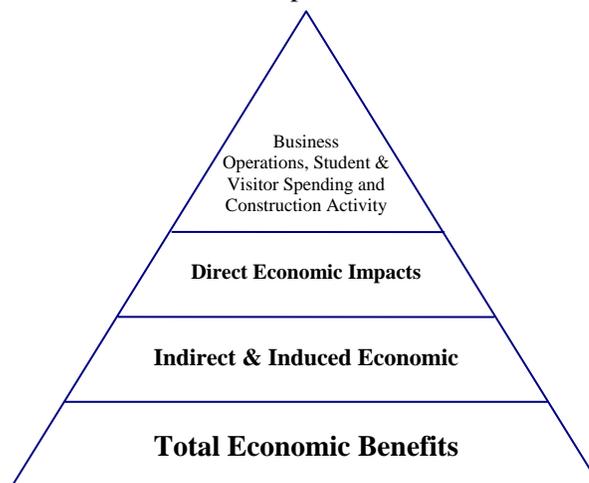
### Demand-Side Impacts

Economic impact analysis is the analytical approach used to assess the measurable direct and indirect benefits resulting from a project over a specific time period. Only those benefits that can be measured or quantified are included. Intangible benefits, such as enhancement of community or diversification of the job base, are not included. These quantifiable economic impacts are discussed in terms of demand-side impacts or those impacts that are generated from the purchases that UNMC and the Hospital, their employees, students and visitors make locally.

The demand-side impacts are calculated within the framework of four impact categories: on-going business operations, student spending, visitor spending and construction activity. The spending patterns associated with the four impact categories have multiplicative impacts on the community. Therefore, multiplier analysis is used to trace the impacts on businesses, organizations and individuals affected by the direct spending as the impacts work their way through the economy. Multiplier analysis recognizes the interdependence of various sectors of the economy as activities in one sector spill over into other sectors, stimulating business activity.

The multiplicative impacts are discussed in terms of “indirect” and “induced” economic impacts. When either UNMC or the Hospital purchases supplies from a local vendor, that local vendor in turn provides payroll to its employees and makes purchases from other vendors. These other vendors in turn provide payroll to their employees, and so on, providing the indirect impact of UNMC and the Hospital. On a separate but similar spending track, when an employee of UNMC or the Hospital spends their paycheck at local businesses, these local businesses provide payroll to their employees, make purchases from other vendors, and so on, creating the induced impact of UNMC and the Hospital. In other words, the initial dollar spent by UNMC or the Hospital on either purchases or payroll is circulated

throughout the economy a number of times. The number of times that the initial dollar is circulated throughout the economy may be estimated through the use of economic multipliers.



The indirect and induced jobs and income flows generated by the direct spending patterns are estimated using the RIMS (Regional Input-Output Modeling System) II multipliers developed by the U.S. Department of Commerce, Bureau of Economic Analysis. RIMS II multipliers are based on an accounting framework (Input-Output table) that details the industrial distribution of inputs purchased and outputs sold for each industry at a regional level. This analysis uses two sets of RIMS II multipliers that are both industry specific and specific to either the six-county Omaha metro area or the state of Nebraska. The impacts on the Omaha metro area and state of Nebraska are presented separately with Omaha impacts reported in Section II and the Nebraska impacts in Section III.

### Supply-Side Impacts

This report also discusses the supply-side impacts that are based on the resources and services UNMC and the Hospital offer to the local community and state. Supply-side impacts can be more difficult to quantify. For example, we know UNMC positively impacts the Omaha metro area and Nebraska by being one of the few academic medical centers in the

# I: INTRODUCTION

nation to have a state public health laboratory on-campus and through its extensive public outreach programs but we cannot comprehensively quantify the impacts in dollars. Because the supply-side impacts are equally as important as the demand-side impacts, this report highlights the numerous and significant impact of UNMC and the Hospital on the Omaha metro area and state of Nebraska that are either impossible or more difficult to quantify.

## II: OMAHA METRO AREA IMPACTS

UNMC and the Hospital significantly impact the Omaha metro economy through their on-going business operations, student spending, visitor spending and construction projects. *Together, UNMC and the Hospital have a direct economic impact of \$678.2 million, including \$448.9 million in payroll to 8,818 direct Omaha metro employees.*

These spending patterns also have multiplicative impacts on the Omaha metro economy. Based on the RIMS II multipliers for all relative industries, *UNMC and the Hospital generate an annual economic impact of \$1.41 billion on the Omaha metro economy, including \$759.1 million in payroll for 8,818 direct workers and 7,363 indirect employees that are supported by UNMC and the Hospital's activities.*

The following sub-sections detail how the total economic impact figures are developed using four impact categories: business operations, student spending, visitor spending and construction projects.

### Business Operations

The daily business operations of UNMC and the Hospital have an economic impact on the Omaha metro area. In addition to serving community roles through their educational, research and health care missions, both entities also impact the community through their spending patterns and payroll. *Together, UNMC and the Hospital have a direct impact of \$591.3 million, including \$422.3 million in payroll to 7,753 Omaha metro employees.*

### Direct Economic Impact

The direct impact of the business operations of both UNMC and the Hospital include local purchases and local employee spending and are estimated as follows:

#### Local Purchases

UNMC and Hospital spending provides local economic benefits in the form of sales revenue for

local businesses. Together, the two entities spent \$363.0 million on operating expenses in 2005. *An estimated 46.6% of the \$363.0 million in purchases or \$169.1 million are made locally, translating into sales revenue for Omaha metro businesses.*

◆ **UNMC:** UNMC purchases various materials and services for its daily operations, including supplies, furniture, fixtures & equipment, services, travel and utilities. An estimated 60.3% of the \$134.6 million in total expenditures is purchased from local businesses. *UNMC's local purchases generated \$81.2 million in sales revenue to Omaha metro businesses in 2005.*

▲ UNMC is on track to becoming a world-class health sciences center and research institute with almost one-fifth of UNMC's total operating costs, including salaries and wages, specifically devoted to research. Non-payroll, research-related expenditures are estimated at \$23.9 million of which approximately 63.0% of purchases are made from Omaha metro suppliers or vendors. Research-related operations are estimated to generate \$15.0 million in sales revenue to Omaha metro businesses, which is included in the \$81.2 million direct impact of business operations.<sup>5</sup>

◆ **Hospital:** The Hospital also purchases materials and services for its daily operations including supplies, furniture, fixtures & equipment, services, travel and utilities. Total expenditures are estimated at about \$228.4 million annually. About 38.5% of total purchases are made from Omaha metro suppliers and vendors. *These purchases are estimated to generate \$87.9 million in sales revenue to Omaha metro businesses.*

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<sup>5</sup> The direct impact of research-related expenditures are included in the total direct impact of business operations and are not additive.

# II: OMAHA METRO AREA IMPACTS

## Employees

Together, UNMC and the Hospital are the second largest employer in the Omaha metro area with a combined workforce of about 9,000 workers (7,630 full-time equivalent) workers.

Organization	Employment
Offutt Air Force Base	11,500
<b>UNMC and Nebraska Medical Center</b>	<b>9,000</b>
Alegent Health	8,400
First National Bank	7,500
Omaha Public Schools	7,100
Methodist Health System	6,200
First Data Corporation	5,800
Union Pacific Corporation	4,500
Mutual of Omaha Insurance Company	4,300
West Corporation	4,000

*Sources: Greater Omaha Chamber of Commerce; University of Nebraska Medical Center; Development Research Partners.*

About 85% of the combined workforce or about 7,700 workers reside in the Omaha metro area. Two-thirds of UNMC and Hospital employees reside in Douglas County. Approximately 15.2% of workers reside outside of the Omaha metro area with 8.6% commuting from outside of Nebraska. Total payroll for UNMC and Hospital employees that reside in the Omaha metro area is estimated at a combined \$422.3 million.

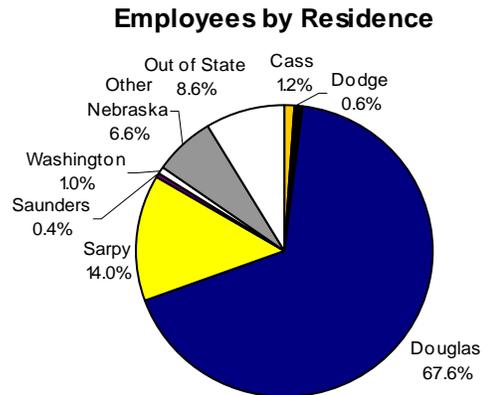
- ◆ **UNMC:** UNMC employs more than 4,200 faculty and staff (3,630 full-time equivalent) of which about 81.2% are Omaha metro residents. The average annual salary, not including benefits, for UNMC employees is \$50,700 which is significantly higher than the all-industry average annual wage for the Omaha metro area of \$36,700.<sup>6</sup> *Employees that reside in the Omaha metro area receive an annual payroll of \$165.1 million.*<sup>7</sup>

<sup>6</sup> Average annual wage for the six-county Omaha metro is from the 2005 Quarterly Census of Employment and Wage data.

<sup>7</sup> This analysis considers the impact of 614 physicians that are employed by UNMC to be Hospital employees in order to more

- ▲ Research-related operations at UNMC account for an estimated 663 Omaha metro employees that earn an estimated \$60,000 annually. In total, Omaha metro research employees at UNMC receive \$40.1 million in payroll each year, which is included in the \$165.1 million payroll figure for all business operations at UNMC.

- ◆ **Hospital:** The Hospital employs an additional 4,780 workers (4,000 FTE) of which 88.1% are Omaha metro residents. The majority of out-of-metro employees reside in neighboring Council Bluffs, IA. The average annual salary, not including benefits, for Hospital employees is \$38,900, which exceeds the all-industry average annual wage for the Omaha metro of \$36,700. *Employees that reside in the Omaha metro area receive an annual payroll of \$257.1 million.*



*Sources: University of Nebraska Medical Center; Nebraska Medical Center.*

## Multiplier Analysis

On-going business operations and employee spending patterns have multiplicative impacts on the Omaha metro economy, which are described

accurately gauge their associated impacts. The purchasing patterns of the physicians more closely reflect those of the Hospital than of typical university employees. Thus, UNMC's direct employment in Omaha has been reduced to 3,001 employees for the multiplier analysis.

## II: OMAHA METRO AREA IMPACTS

in terms of local spending, earnings and employment impacts. Based on the RIMS II multipliers for the college & university, hospital, and scientific research & development services industries, *business operations result in a total economic impact of \$1.24 billion, including \$709.0 million in payroll for 7,753 direct workers and 6,508 indirect employees supported by on-going business operations.*

- ◆ **Local Spending:** Based on the RIMS II multipliers for the college & university, hospital, and scientific research & development services industries, the total impact of the business operations of UNMC and the Hospital is \$1.24 billion. This figure includes the direct local spending and payroll of \$591.3 million plus an additional \$648.6 million in sales generated at the businesses located throughout the Omaha metro area and subsequent payroll. Research activities alone account for \$108.0 million of the \$1.24 billion total economic impact.
- ◆ **Earnings:** The \$1.24 billion impact includes the creation of payroll totaling \$709.0 million. This payroll figure includes the direct earnings of \$422.3 million paid by UNMC and the Hospital to workers residing in the Omaha metro area plus \$286.7 million in earnings paid to the additional employees throughout the Omaha metro area that are supported by the existence of UNMC and the Hospital.
- ◆ **Employment:** The employment impact of UNMC and the Hospital is the creation of a total of 14,261 jobs in the Omaha metro area. This employment figure includes 7,753 direct faculty and staff positions and the creation of an additional 6,508 positions in supporting businesses throughout the Omaha metro area.<sup>8</sup> The 580 direct research-related jobs at UNMC, which are included in the previous totals, result in the creation of 566 indirect jobs so that the

<sup>8</sup> Multiplier analysis for employment is based on the total employment number for both UNMC and the Hospital as opposed to full-time equivalency employment.

research-related activities at UNMC support a total of 1,146 positions in the Omaha metro area on an annual basis.

	Direct Impact	Multiplier	Indirect & Induced Impact	Total Impact
<b>UNMC</b>				
Local Spending	\$246.3	2.1130	\$274.2	\$520.5
Payroll	\$165.1	1.6328	\$104.5	\$269.6
Employment*	3,001	1.6065	1,820	4,820
<b>Hospital</b>				
Local Spending	\$345.0	2.0854	\$374.5	\$719.5
Payroll	\$257.1	1.7087	\$182.2	\$439.3
Employment*	4,752	1.9865	4,688	9,440
<b>Total</b>				
Local Spending	\$591.3		\$648.6	\$1,239.9
Payroll	\$422.3		\$286.7	\$709.0
Employment	7,753		6,508	14,261

### Student Spending (UNMC only)

Nearly 4,000 people applied for admission to UNMC for the 2005-2006 academic year. Total applications increased 3.9% from 2004 to 2005 and 11.5% from 2003 to 2004. Total enrollment of the freshman class increased to 1,025 students in 2005. Also on the rise is the percentage of accepted students that enroll in UNMC. Between 2002 and 2004, this share has hovered around 84% and 85%. In 2005, the percentage of accepted students that enrolled increased to 87%.

More than 3,000 students currently attend UNMC's four campuses, a 3.4% increase over 2004 total enrollment. The Omaha campus serves as the primary UNMC campus and accounts for more than three-quarters of the total student body. All of the 3,000 students attend one of the four campuses with the exception of about 100 distance-learning students that are enrolled in a graduate nursing program. Distance-learning students are required to travel to campus twice a semester for testing purposes. About 86% of UNMC students are Nebraska residents and two-thirds of the student body is female. The average age of UNMC students

## II: OMAHA METRO AREA IMPACTS

is about 29 years old. The majority of UNMC students or 54% are enrolled in the Professional program. Undergraduate students account for 28% of the student body with graduate students representing the remaining 18%.

UNMC students incur living expenses as residents of the Omaha metro area and make local purchases that generate sales revenue for local businesses. The daily spending patterns of UNMC students have a significant economic impact on the Omaha metro economy. The economic impacts are primarily driven by retail sales activity and housing expenditures. *The direct economic impact of student spending on the Omaha metro area is \$37.0 million per year, including \$27.8 million in retail expenditures and \$9.2 million in housing expenditures.*

### Direct Economic Impact

The direct impact of the UNMC students, including retail and housing expenditures, are estimated as follows:

#### *Retail Sales*

UNMC students incur living expenses as part of the education process and student spending creates sales revenue for local businesses. Based on a conservative estimate provided by UNMC, each of the 2,317 students attending the Omaha campus spend about \$1,000 each month of the year on non-housing expenditures. Due to the high percentage of resident students, it is assumed that students retain their residency in the state during the summer months when school is not in session. As a result, *students spend a total of \$27.8 million on retail purchases at Omaha metro businesses each year.*

#### *Housing Expenditures*

On-campus housing provides residences for 60 students during the school year at the Omaha campus while the remaining 2,257 students reside in off-campus housing. Average monthly rents in the Omaha metro area range from \$575 to \$625. Based on a conservative estimate of \$500 for monthly rent

and assuming that one-third of the off-campus students do not make rental payments because they live at home with their parents, *off-campus students spend \$9.2 million on housing each year which, in turn, provides revenue to property owners.*

### Multiplier Analysis

UNMC student spending patterns have multiplicative impacts on the Omaha metro economy, which are described in terms of local spending, earnings and employment impacts. Based on the RIMS II multipliers for the retail and real estate industries, *student spending results in a total economic impact of \$69.1 million per year, including \$18.8 million in payroll for 521 direct workers and 328 indirect employees that are supported by student spending.*

- ◆ **Local Spending:** Based on the RIMS II multipliers for the retail and real estate industries, the annual impact of student spending is \$69.1 million. This figure includes the direct local student spending of \$37.0 million plus an additional \$32.2 million in sales generated in the businesses throughout the Omaha metro area.
- ◆ **Earnings:** The \$69.1 million impact includes the creation of payroll totaling \$18.8 million. This payroll figure includes direct earnings of \$9.7 million paid to employees of businesses directly impacted by the student spending plus \$9.1 million in earnings paid to the additional employees throughout the Omaha metro area that are supported by the student spending.
- ◆ **Employment:** Student spending results in the creation of a total of 849 jobs. This employment figure includes 521 direct positions and the creation of an additional 328 positions in supporting businesses throughout the Omaha metro area.

## II: OMAHA METRO AREA IMPACTS

Impact of Student Spending on the Omaha Metro Area* (in \$millions)				
	Direct Impact	Multiplier	Indirect & Induced Impact	Total Impact
<b>Retail Sales</b>				
Local Spending	\$27.8	1.9714	\$27.0	\$54.8
Payroll	\$8.9	1.8694	\$7.7	\$16.6
Employment	471	1.5820	274	745
<b>Housing</b>				
Local Spending	\$9.2	1.5625	\$5.2	\$14.3
Payroll	\$0.9	2.5609	\$1.4	\$2.3
Employment	49	2.0883	54	103
<b>Total</b>				
Local Spending	\$37.0		\$32.2	\$69.1
Payroll	\$9.7		\$9.1	\$18.8
Employment	521		328	849

\*Impact is calculated for UNMC students only.

### Visitor Spending

UNMC and the Hospital attract visitors to the Omaha metro area for a variety of reasons, including school- and alumni-related activities, student tours and to visit Hospital patients. Visitors impact the Omaha metro economy through their expenditures on food, retail items and entertainment (non-lodging impacts) as well as for lodging at local hotels (lodging impacts). *The direct economic impact of visitor spending on the Omaha metro area is \$4.6 million per year, including \$1.5 million in payroll expenditures for 90 direct employees.*

#### Direct Economic Impact

The direct impact of the UNMC and Hospital visitors, including non-lodging and lodging expenditures, is estimated as follows:

#### Non-Lodging

- ◆ **UNMC:** UNMC attracts visitors for its Board of Counselors meetings, alumni events, student tours and other special events. Of the 3,400 school-related visitors per year, 40% reside outside of the Omaha metro area. A significant portion of non-lodging impacts such as meals at alumni and Board of Counselor events are provided by UNMC; however, visitors also make

other incidental purchases. Based on the \$53 per diem allowance set by the U.S. General Services Administration for the Omaha metro area and the *Consumer Expenditure Survey* for the Midwest region, it is estimated that UNMC visitors generate \$68,900 per year in non-lodging sales revenue to Omaha metro businesses, including \$22,000 in payroll to one employee.

- ◆ **Hospital:** The Hospital treated 401,800 patients in 2005 of which 71.4% of the patients were from the Omaha metro area. More than 130,300 in-patient days were required for treatment in 2005. Forty-one percent of total in-patient days or 53,776 patients were patients from outside of the Omaha metro area. Assuming that each patient from outside of the Omaha metro area was accompanied by one visitor, 53,776 patient visitors spent time in the Omaha metro area in 2005. This analysis scales back incidental expenditures because certain visitors are within one-day drive from the Hospital and may choose to bring a lunch or purchase other incidentals prior to making the day trip to the Hospital. Based on the \$53 non-lodging per diem for Omaha metro visitors, *patient visitors generated \$2.1 million in non-lodging sales revenue to Omaha metro businesses, including \$674,400 to 36 employees.*

#### Lodging

- ◆ **UNMC:** The majority of UNMC visitor events are day events that draw visitors from surrounding areas. Only a select number of events attract visitors that require overnight lodging like alumni events, Board of Counselor meetings, prospective student campus tours and special guests such as speakers. Campus tours result in the greatest number of associated overnight stays in the Omaha metro area. Based on data provided by UNMC, the estimated 400 school-related visitors that required overnight lodging in the Omaha metro area translates into a total of 400 hotel room nights per year assuming 1.0 visitor per hotel room. At an average hotel room rate of between \$90 and \$150 per night,

## II: OMAHA METRO AREA IMPACTS

depending on the associated activity, *school-related visitors generate \$42,300 per year in sales revenue for Omaha metro lodging businesses, including \$14,500 in payroll to one employee.*

- ◆ **Hospital:** The Hospital treated 401,800 patients in 2005 of which 71.4% of the patients were Omaha metro residents. The 401,800 patients resulted in more than 130,300 in-patient days in 2005. Patients residing from outside the Omaha metro area accounted for an estimated 41.3% of the total in-patient days in 2005 or, 53,776 in-patient days. The average Hospital stay of patients residing outside of the Omaha metro area is seven days. This analysis assumes that each non-resident, in-patient is accompanied by a visitor also from outside of the Omaha metro area whose stay matches the length of the patient's stay but also accounts for out-of-metro visitors that are still within one day's drive time from the Omaha metro area. This analysis also reduces the number of rooms required by the number of on-site lodging rooms occupied and assumes that a significant portion of visitors do not require hotel or motel lodging because they choose to stay with friends or family. Based on these assumptions and the average hotel room rate of \$90 per night according to the Greater Omaha Convention & Visitors Bureau, *patient visitors generate \$2.4 million in lodging revenue for Omaha metro businesses, including \$806,300 in payroll to 52 employees.*

### Multiplier Analysis

UNMC and Hospital visitor spending patterns have multiplicative impacts on the Omaha metro economy which are described in terms of local spending, earnings and employment impacts. Based on the RIMS multipliers for the retail sales and lodging & amusement industries, visitor spending *results in a total economic impact of \$8.8 million per year, including \$2.7 million in payroll for 90 direct workers and 43*

*indirect employees that are supported by visitor spending.*

- ◆ **Local Spending:** Based on the sales multipliers for the retail sales and lodging & amusement industries, the annual impact of visitor spending is \$8.8 million. This sales figure includes the direct local visitor spending of \$4.6 million plus an additional \$4.2 million in sales generated in the businesses located throughout the Omaha metro area.
- ◆ **Earnings:** The \$8.8 million in sales includes the creation of payroll totaling \$2.7 million. This payroll figure includes direct earnings of \$1.5 million paid to employees of businesses directly impacted by the visitor spending plus \$1.2 million in earnings paid to the additional employees throughout the Omaha metro area that are supported by visitor spending.
- ◆ **Employment:** Visitor spending results in the creation of a total of 133 jobs. This employment figure includes 90 direct positions and the creation of an additional 43 positions in supporting businesses throughout the Omaha metro area.

	Direct Impact	Multiplier	Indirect & Induced Impact	Total Impact
<b>Non-Lodging</b>				
Local Spending	\$2.2	1.9714	\$2.1	\$4.3
Payroll	\$0.7	1.8694	\$0.6	\$1.3
Employment	37	1.5820	22	59
<b>Lodging</b>				
Local Spending	\$2.4	1.8665	\$2.1	\$4.5
Payroll	\$0.8	1.6874	\$0.6	\$1.4
Employment	53	1.3911	21	74
<b>Total</b>				
Local Spending	\$4.6		\$4.2	\$8.8
Payroll	\$1.5		\$1.2	\$2.7
Employment	90		43	133

## II: OMAHA METRO AREA IMPACTS

### Construction Activity

UNMC has spent an average of \$24.8 million annually on construction projects between 2000 and 2005 to provide top-quality research and educational environments for their staff and students. The most recently completed project is the \$77 million, 289,000-square-foot Durham Research Center that was built between 2001 and 2003. The privately-funded building houses 116 research laboratories, an auditorium and classrooms.

Looking ahead, construction commenced in early April 2006 on the \$52.7 million Michael F. Sorrell Center for Health Science Education building that is expected to be completed in the fall of 2008. The Sorrell Center building will enhance the medical education program with state-of-the-art educational tools in addition to housing the UNMC College of Medicine. The 134,183-square-foot building is being funded entirely by private donations. The \$74 million UNMC Research Center of Excellence II is also scheduled for completion in 2008. The facility will encompass 242,000 square feet of research space, including 98 laboratory modules that will be staffed by a projected 263 employees.

Construction activity is also high at the Hospital. The Hospital has spent an average of \$22.9 million annually on construction projects between 2000 and 2005. Recent projects over the past five years include the Hixson-Lied Center for Clinical Excellence, the largest emergency department in the Midwest. Construction of the \$57.3 million facility stretched from November 2002 to October 2005. The 165,000-square-foot building features 27 state-of-the-art operating rooms and a Newborn Intensive Care Unit.

Construction activity generates tax revenue for the local area, payroll for construction workers, and sales for construction goods and services vendors. *The direct economic impact of construction activity on the Omaha metro area is \$45.3 million per year, including \$15.3 million in payroll expenditures for 454 direct Omaha metro employees.*

### Direct Economic Impact

The direct impact of the UNMC and Hospital construction activity is estimated as follows:

- ◆ **UNMC:** An estimated 95% of UNMC's capital project expenditures are made from Omaha metro suppliers or vendors. Based on average construction expenditures between 2000 and 2005, construction activity has an annual direct economic impact on the Omaha metro economy of an estimated \$23.6 million. The \$23.6 million impact includes \$8.0 million in payroll to 236 local employees.
- ◆ **Hospital:** About 95% of the Hospital capital project expenditures are made from Omaha metro suppliers or vendors. Based on average construction expenditures between 2000 and 2005, construction activity has an annual direct economic impact on the Omaha metro economy of an estimated \$21.8 million. The \$21.8 million impact includes \$7.4 million in payroll to 218 local employees.

### Multiplier Analysis

Construction activity has multiplicative impacts throughout the Omaha metro economy which are described in terms of local spending, earnings and employment.

- ◆ **Local Spending:** Based on the construction industry multiplier, the total impact of construction activity on the Omaha metro economy is estimated at \$92.1 million. This figure includes the direct impact of \$45.3 million plus an additional \$46.8 million in sales generated in the businesses located throughout the Omaha metro area.
- ◆ **Earnings:** The \$92.1 million impact includes the creation of payroll totaling \$28.6 million. This payroll figure includes direct earnings of \$15.3 million paid to employees of businesses directly impacted by the construction activity plus \$13.2 million in earnings paid to the additional

## II: OMAHA METRO AREA IMPACTS

employees throughout the Omaha metro area that are supported by construction activity.

- ◆ **Employment:** Construction activity results in the creation of a total of 938 jobs. This employment figure includes 454 direct positions and the creation of an additional 484 positions in supporting businesses throughout the Omaha metro area.

	Direct Impact	Multiplier	Indirect & Induced Impact	Total Impact
<b>Construction</b>				
Local Spending	\$45.3	2.0329	\$46.8	\$92.1
Payroll	\$15.3	1.8631	\$13.2	\$28.6
Employment	454	2.0650	484	938

### Summary of Total Economic Impact on Omaha Metro

The direct impact of UNMC and the Hospital on the Omaha metro is \$678.2 million per year, including \$448.9 million in payroll expenditures to 8,818 Omaha metro employees.

The business operations, student spending, visitor spending and construction activities associated with both UNMC and the Hospital have multiplicative impacts throughout the Omaha metro economy which are described in terms of local spending, earnings and employment.

- ◆ **Local Spending:** The combined economic impact of UNMC and Hospital operations, the spending of its employees, students and visitors and construction is \$1.41 billion. This figure includes the direct impact of \$678.2 million plus an additional \$731.8 million in sales generated in the businesses located throughout the Omaha metro area.
- ◆ **Earnings:** The \$1.41 billion impact includes the creation of payroll totaling \$759.1 million. This payroll figure includes direct earnings of \$448.9 million paid to UNMC and Hospital employees

and the employees of businesses directly impacted by the spending of UNMC and the Hospital students and visitors. In addition, \$310.2 million in earnings is paid to additional employees throughout the Omaha metro that are supported by spending patterns associated with UNMC or the Hospital.

- ◆ **Employment:** There are 8,181 direct employment positions at UNMC, the Hospital and other businesses directly impacted by UNMC and the Hospital. In addition, 7,362 positions are indirectly supported by UNMC and the Hospital throughout the Omaha metro area. A total of 16,179 jobs are supported by activities related to UNMC and the Hospital.

	Direct Impact	Indirect & Induced Impact	Total Impact
<b>Local Spending</b>			
<u>Business Operations (including Research Activities)</u>			
Local Spending	\$591.3	\$648.6	\$1,239.9
Payroll	\$422.3	\$286.7	\$709.0
Employment	7,753	6,508	14,261
<u>Research Activities</u>			
Local Spending	\$55.1	\$52.8	\$108.0
Payroll	\$40.1	\$24.6	\$64.7
Employment	663	647	1,309
<u>Student Spending</u>			
Local Spending	\$37.0	\$32.2	\$69.1
Payroll	\$9.7	\$9.1	\$18.8
Employment	521	328	849
<u>Visitor Spending</u>			
Local Spending	\$4.6	\$4.2	\$8.8
Payroll	\$1.5	\$1.2	\$2.7
Employment	90	43	133
<u>Construction</u>			
Local Spending	\$45.3	\$46.8	\$92.1
Payroll	\$15.3	\$13.2	\$28.6
Employment	454	484	938
<b>Total Impact of Local Spending</b>			
Local Spending	\$678.2	\$731.8	\$1,410.0
Payroll	\$448.9	\$310.2	\$759.1
Employment	8,818	7,362	16,179

# III: NEBRASKA IMPACTS

This section describes the impact of UNMC and the Hospital on the state of Nebraska. The analysis is similar to the Omaha metro analysis with the exception that the focus is now on spending throughout the state instead of spending throughout the six-county Omaha metro area. Also, the state analysis uses multipliers that are specific to the state economy.

UNMC and the Hospital significantly impact the Nebraska economy through their on-going business operations, student spending, visitor spending and construction projects. *Together, UNMC and the Hospital have a direct impact of \$724.4 million, including \$486.0 million in payroll to 9,518 direct Nebraska employees.*

These spending patterns also have multiplicative impacts on the Nebraska economy. Based on the RIMS II multipliers for all relative industries, *UNMC and the Hospital generate a total economic impact of \$1.51 billion on the state of Nebraska, including \$817.2 million in payroll for 9,518 direct workers and 7,624 indirect employees that are supported by UNMC and the Hospital's activities.*

The following sub-sections detail how the total economic impact figures are developed using four impact categories: business operations, student spending, visitor spending and construction projects.

## Business Operations

The daily operations of UNMC and the Hospital have an economic impact on the state of Nebraska. In addition to serving a community role through their educational, research and health care missions, both entities also impact the community through their spending patterns and payroll. *Together, UNMC and the Hospital have a direct impact of \$628.3 million, including \$456.0 million in payroll to 8,285 Nebraska employees.*

## Direct Economic Impact

The direct impact of on-going business operations at UNMC and the Hospital, including local purchases and local employee spending, are estimated as follows:

### *Local Purchases*

UNMC and the Hospital spending provides local economic benefits in the form of sales revenue for Nebraska businesses. Together, the two entities spent \$363.0 million on operating expenses in 2005. *An estimated 47.5% of the \$363.0 million in purchases or \$172.2 million are made locally, translating into sales revenue for Nebraska businesses.*

◆ **UNMC:** UNMC purchases various materials and services for its daily operations, including supplies, furniture, fixtures & equipment, services, travel and utilities. These expenditures are estimated at about \$134.6 million annually, with 61.3% of the materials and services purchased from Nebraska businesses. *These purchases are estimated to generated \$82.5 million in sales revenue to State of Nebraska businesses in 2005.*

▲ UNMC is on track to becoming a world-class health sciences center and research institute with almost one-fifth of UNMC's total operating costs, including salaries and wages, specifically devoted to research. Non-payroll research-related expenditures are estimated at \$23.9 million of which approximately 63.0% of purchases are made from Nebraska suppliers or vendors. Research-related operations are estimated to generate \$15.0 million in sales revenue to Nebraska businesses, which is included in the \$82.5 million direct impact of business operations.<sup>9</sup>

<sup>9</sup> The direct impact of research-related expenditures are included in the total direct impact of business operations and are not additive.

# III: NEBRASKA IMPACTS

◆ **Hospital:** The Hospital also purchases materials and services for its daily operations including supplies, furniture, fixtures & equipment, services, travel and utilities. Total expenditures are estimated to average \$228.4 million per year. About 39.3% of total purchases are made from Nebraska suppliers and vendors. *These purchases are estimated to generate \$89.7 million in sales revenue to Nebraska businesses.*

## Employees

Together, UNMC and the Hospital are the fourth largest employer in the State of Nebraska with a combined workforce of approximately 9,000 workers (7,630 full-time equivalent).

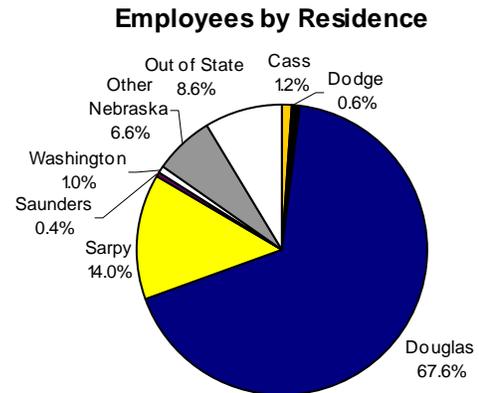
Major Employers in the Nebraska, 2006*	
Organization	Employment
Offutt Air Force Base	11,500
Tyson Foods, Inc.	11,000
Wal-Mart Stores Inc.	9,755
<b>UNMC and Nebraska Medical Center</b>	<b>9,000</b>
Alegent Health	8,400
First National Bank	7,500
Union Pacific Corporation	7,200
University of NE (Lincoln, Omaha, Kearney)	7,100
Omaha Public Schools	7,100
Methodist Health System	6,200

\*Excluding generic federal and state employers.  
Sources: Nebraska Department of Economic Development; Greater Omaha Chamber of Commerce; University of Nebraska Medical Center; Development Research Partners.

About 91.4% of the workforce or almost 8,300 workers reside in the state. The majority of out-of-state employees reside in neighboring Iowa or Kansas. Total payroll for UNMC and Hospital employees that are also Nebraska residents equals a combined \$456.0 million.

◆ **UNMC:** UNMC employs about 4,200 faculty and staff (3,630 full-time equivalent) of which about 93.5% are Nebraska residents. The average annual salary, not including benefits, for UNMC employees is \$50,700, which is greater than the average annual wage in Nebraska of \$31,600 for

all industries.<sup>10</sup> *Employees that reside in Nebraska receive an annual payroll of \$195.7 million.*<sup>11</sup>



Sources: University of Nebraska Medical Center; Nebraska Medical Center.

▲ Research-related operations at UNMC account for an estimated 773 Nebraska employees that earn an estimated \$60,000 annually. In total, Nebraska research employees at UNMC receive \$46.2 million in payroll each year, which is included in the \$195.7 million payroll figure for all UNMC business operations.

◆ **Hospital:** The Hospital employs an additional 4,780 workers (4,000 full-time equivalent) of which 89.5% are Nebraska residents. The average annual salary, not including benefits, for Hospital employees is \$38,900, which is greater than the average wage in Nebraska of \$31,600 for all industries.<sup>11</sup> *Employees that reside in the State of Nebraska receive a total annual payroll of \$260.3 million.*

<sup>10</sup> The average annual wage in Nebraska for all industries is from the 2005 Quarterly Census of Employment and Wage data.

<sup>11</sup> This analysis considers the impact of 614 physicians that are employed by UNMC to be Hospital employees in order to more accurately gauge their associated impacts. The purchasing patterns of the physicians more closely reflect those of the Hospital than of typical university employees.

Sources: Nebraska Department of Economic Development, University of Nebraska Medical Center and Development Research Partners.

# III: NEBRASKA IMPACTS

## Multiplier Analysis

On-going business operations and employee spending patterns have multiplicative impacts on the Nebraska economy. Based on the RIMS II multipliers for the college & university, hospital, and scientific research & development services industries, *business operations result in a total economic impact of \$1.32 billion, including \$759.9 million in payroll for 8,285 direct workers and 6,650 indirect employees that are supported by on-going business operations.*

- ◆ **Local Spending:** Based on the RIMS II multipliers for the college & university, hospital, and scientific research & development services industries, the total impact of business operations at UNMC and the Hospital is \$1.32 billion. This figure also includes the direct local spending and payroll of \$628.3 million plus an additional \$688.6 million generated at businesses located throughout the state and subsequent payroll. Research activities alone account for \$120.3 million of the \$1.32 billion total economic impact.
- ◆ **Earnings:** The \$1.32 billion impact includes the creation of payroll totaling \$759.9 million. This payroll figure includes the direct earnings of \$456.0 million paid by UNMC and the Hospital to those workers residing in the state plus \$303.9 million in earnings paid to the additional employees throughout the state that are supported by the existence of UNMC and the Hospital.
- ◆ **Employment:** The employment impact of UNMC and the Hospital is the creation of a total of 14,935 jobs. This employment figure includes 8,285 direct faculty and staff positions and the creation of an additional 6,650 positions in supporting businesses throughout the state.<sup>12</sup> The 652 direct research-related jobs at UNMC result in the creation 626 indirect jobs, which are

included in the previous totals, so that research-related activities at UNMC support a total of 1,279 positions across the state on an annual basis.

Business Operations Impact on Nebraska (in \$millions)				
	Direct Impact	Multiplier	Indirect & Induced Impact	Total Impact
<b>UNMC</b>				
Local Spending	\$278.2	2.0854	\$302.0	\$580.3
Payroll	\$195.7	1.6163	\$120.6	\$316.3
Employment	3,457	1.5815	2,010	5,467
<b>Hospital</b>				
Local Spending	\$350.0	2.1046	\$386.6	\$736.7
Payroll	\$260.3	1.7043	\$183.3	\$443.6
Employment	4,828	1.9611	4,640	9,467
<b>Total</b>				
Local Spending	\$628.3	1.8120	\$688.6	\$1,316.9
Payroll	\$456.0	1.6230	\$303.9	\$759.9
Employment	8,285	1.4490	6,650	14,935

## Student Spending (UNMC only)

Nearly 4,000 people applied for admission to UNMC for the 2005-2006 academic year. Total applications increased 3.9% from 2004 to 2005 and 11.5% from 2003 to 2004. Applications from rural Nebraska increased 11.3% in 2005 to 472 applications of which more than half were accepted into UNMC. Total enrollment for the freshman class increased to 1,025 students in 2005. Also on the rise is the percentage of accepted students that enroll in UNMC. Between 2002 and 2004, this share has hovered around 84% and 85%. In 2005, the percentage of accepted students that enrolled increased to 87%. Finally, about 47% of UNMC admissions in 2005 were Nebraska residents and 13% were rural Nebraska admissions.

More than 3,000 students currently attend one of UNMC's four campuses, a 3.4% increase over 2004 enrollment. About three-quarters of the UNMC student body attends the Omaha campus. The Lincoln campus accounts for about 15% of the student body, leaving about 8% of the student body distributed between the Kearney and

<sup>12</sup> Multiplier analysis for employment is based on the total employment number for both UNMC and the Hospital as opposed to full-time equivalency employment.

# III: NEBRASKA IMPACTS

Scottsbluff/Gering campuses. All of the 3,000 students attend one of the four campuses with the exception of about 100 distance-learning students that are enrolled in a graduate nursing program. Distance-learning students are required to travel to campus twice a semester for testing purposes. About 86% of UNMC students or 2,500 students are Nebraska residents. Approximately two-thirds of the student body is female students and the average age of UNMC students is about 29 years old. The majority of UNMC students or 54% are enrolled in the Professional program. Undergraduate students represent 28% of the student body with graduate students accounting for the remaining 18%.

UNMC students incur living expenses as residents of Nebraska and make local purchases that generate sales revenue for local businesses. The daily spending patterns of UNMC students have a significant economic impact on the state's economy. The economic impacts are primarily driven by retail sales activity and housing expenditures. *The direct economic impact of student spending on Nebraska is \$46.2 million per year, including \$34.8 million in retail expenditures and \$11.4 million in housing expenditures.*

## Direct Economic Impact

The direct impact of the UNMC students, including local retail purchases and housing expenditures, are estimated as follows:

### *Retail Sales*

UNMC students incur living expenses as part of the education process and student spending creates sales revenue for local businesses. Based on a conservative estimate provided by UNMC regarding student spending patterns, UNMC students attending one of the four Nebraska campuses spend about \$1,000 each month of the year on non-housing expenditures. Due to the high percentage of resident students, it is assumed that students retain their residency in the state during the summer months when school is not in session. As a result, *students spend nearly \$34.8 million per year on retail*

*purchases, including \$11.4 million in associated payroll to 607 retail employees.*

### Housing Expenditures

On-campus housing provides residences for about 100 UNMC students during the school year primarily at the Omaha and Kearney campuses. The remaining 2,900 students reside off-campus, not including the 100 distance-learning students. Average monthly rents range from less than \$500 to \$625 across the state. Based on a conservative estimate of \$500 for monthly rent and assuming that one-third of the off-campus students do not make rental payments because they live at home with their parents, *off-campus students generate \$11.4 million in housing/rental payments each year, which, in turn, provides revenue to property owners.*

## Multiplier Analysis

UNMC student spending patterns have multiplicative impacts on the Nebraska economy which are described in terms of local spending, earnings and employment impacts. Based on the RIMS II multipliers for the retail and real estate industries, student spending *result in a total economic impact of \$86.2 million per year, including \$24.1 million in payroll for 670 direct workers and 410 indirect employees that are supported by student spending.*

- ◆ **Local Spending:** Based on the RIMS II multipliers for the retail and real estate industries, the total impact of student spending is \$86.2 million. This figure includes the direct local student spending of \$46.2 million plus an additional \$40.0 million in sales generated in the businesses located throughout Nebraska.
- ◆ **Earnings:** The \$86.2 million impact includes the creation of payroll totaling \$24.1 million. This payroll figure includes direct earnings of \$12.5 million paid to employees of businesses directly impacted by the student spending plus \$11.5 million in earnings paid to the additional employees throughout the state that are supported by student spending.

# III: NEBRASKA IMPACTS

- ◆ **Employment:** Student spending results in the creation of a total of 1,079 jobs. This employment figure includes 670 direct positions and the creation of an additional 410 positions in supporting businesses throughout Nebraska.

	Direct Impact	Multiplier	Indirect & Induced Impact	Total Impact
<b>Retail Sales</b>				
Local Spending	\$34.8	1.9776	\$34.0	\$68.9
Payroll	\$11.4	1.8686	\$9.9	\$21.3
Employment	607	1.5725	348	955
<b>Housing</b>				
Local Spending	\$11.4	1.5185	\$5.9	\$17.3
Payroll	\$1.1	2.4427	\$1.6	\$2.7
Employment	63	1.9938	62	125
<b>Total</b>				
Local Spending	\$46.2		\$40.0	\$86.2
Payroll	\$12.5		\$11.5	\$24.1
Employment	670		410	1,079

\*Impact is calculated for UNMC students only.

## Visitor Spending

UNMC and the Hospital attract visitors to the State of Nebraska for a variety of reasons including school- and alumni-related activities, student tours and to visit Hospital patients. Visitors impact the state economy through their expenditures on food, retail items and entertainment (non-lodging impacts) as well as for hotel lodging (lodging impacts). *The direct economic impact of visitor spending on the state of Nebraska is \$4.6 million per year, including \$1.6 million in payroll expenditures for 92 employees.*

## Direct Economic Impact

The direct impact of the UNMC and Hospital visitors, including non-lodging and lodging expenditures, is estimated below. The visitor impact for the state of Nebraska is based upon the same expenditure patterns used in the Omaha metro area impact analysis because all visitor-related spending occurs in the Omaha metro area for both UNMC and

the Hospital; however, the Nebraska impact analysis uses slightly different multipliers that are specific to the statewide economy.

## Non-Lodging

- ◆ **UNMC:** UNMC attracts visitors for its Board of Counselors meetings, alumni events, student tours and other special events. Of the 3,400 school-related visitors per year, about 16% reside outside of the state. A significant portion of non-lodging impacts such as meals at alumni and Board of Counselor events are provided by UNMC; however, visitors also make other incidental purchases. Based on the 2005 per diem allowance of \$53 for the Omaha metro area set by the U.S. General Services Administration and the *Consumer Expenditure Survey* for the Midwest region, it is estimated that UNMC visitors generate \$68,900 per year in non-lodging sales revenue to Nebraska businesses, including \$22,600 in payroll to one employee.<sup>13</sup>

- ◆ **Hospital:** The Hospital treated 401,800 patients in 2005 of which 79.2% of the patients were Nebraska residents. More than 130,300 in-patient days were required for treatment in 2005. Forty-one percent of total in-patient days or 53,776 patients were patients from outside of the Omaha metro area. The Nebraska economy largely impacted by resident patients that must travel to the Omaha metro area for treatment. This analysis estimates the economic impact of the Hospital visitors on the state of Nebraska based on the 53,776 out-of-metro patients that were treated in 2005 because impacts to the metro area are also impacts to the state. Assuming that each patient from outside of the Omaha metro area was accompanied by one visitor, 53,776 patient visitors spent time in the Omaha metro area in 2005. Based on the \$53 non-lodging allowance

<sup>13</sup> The 2005 per diem allowance for the Omaha metro is used to estimate the impact on the state of Nebraska because the majority of UNMC events that attract visitors are located in the Omaha metro. Also, the U.S. General Services Administration does not publish a state level per diem rate for Nebraska.

# III: NEBRASKA IMPACTS

for Omaha metro visitors, *patient visitors generated \$2.1 million in non-lodging sales revenue to Omaha metro businesses, including \$693,800 to 37 employees.*

## Lodging

- ◆ **UNMC:** The majority of UNMC visitor events are day events that draw visitors from surrounding areas. Only a select number of events attract visitors that require overnight lodging like alumni events, Board of Counselor meetings, campus tours for prospective student and special guests such as speakers. Campus tours result in the greatest number of associated overnight stays. Based on data provided by UNMC, the estimated 400 school-related visitors that required overnight lodging in Nebraska translates into a total of 400 hotel room nights per year, assuming 1.0 visitor per hotel room. At an average hotel room rate of between \$90 and \$150 per night, depending on the associated activity, *school-related visitors generate \$42,300 per year in sales revenue for Nebraska lodging businesses, including \$14,800 in payroll to one employee.*
- ◆ **Hospital:** The Hospital treated 401,800 patients in 2005 which resulted in more than 130,300 in-patient days. Patients residing from outside the Omaha metro area accounted for an estimated 41.3% of the total in-patient days in 2005 or, 53,776 in-patient days. The average Hospital stay of patients residing outside of the Omaha metro area is seven days. This analysis assumes that each non-resident in-patient is accompanied by a visitor also from outside of the Omaha metro area whose stay matches the length of the patient's stay but also accounts for out-of-metro visitors that are still within one day's drive time from the Hospital. This analysis also reduces the number of rooms required by the number of on-site lodging rooms occupied and assumes that a significant portion of visitors do not require hotel or motel lodging because they choose to stay with friends or family. Based on these assumptions and the average hotel room rate of

\$90 per night, according to the Greater Omaha Convention & Visitors Bureau, *patient visitors generate \$2.4 million in lodging revenue for Nebraska businesses, including \$820,300 in payroll to 53 employees.*

## Multiplier Analysis

UNMC and Hospital visitor spending patterns have multiplicative impacts on the Nebraska economy, which are described in terms of local spending, earnings and employment impacts. Based on the RIMS II multipliers for the retail sales and lodging & amusement industries, visitor spending *results in a total economic impact of \$8.8 million per year, including \$2.7 million in payroll for 92 direct workers and 43 indirect employees that are supported by visitor spending.*

- ◆ **Local Spending:** Based on the RIMS II multipliers for the retail sales and lodging & amusement industries, the annual impact of visitor spending on the state of Nebraska is \$8.8 million. This figure includes the direct local visitor spending of \$4.6 million plus an additional \$4.2 million generated in the businesses located throughout the state of Nebraska.
- ◆ **Earnings:** The \$8.8 million in sales includes the creation of payroll totaling \$2.7 million. This payroll figure includes direct earnings of \$1.6 million paid to employees of businesses directly impacted by the visitor spending plus \$1.2 million in earnings paid to the additional employees throughout the state that are supported by visitor spending.
- ◆ **Employment:** Visitor spending results in the creation of a total of 135 jobs. This employment figure includes 92 direct positions and the creation of an additional 43 positions in supporting businesses throughout the state of Nebraska.

# III: NEBRASKA IMPACTS

Impact of Visitor Spending on Nebraska (in \$millions)				
	Direct Impact	Multiplier	Indirect & Induced Impact	Total Impact
<b>Non-Lodging</b>				
Local Spending	\$2.2	1.9776	\$2.1	\$4.3
Payroll	\$0.7	1.8686	\$0.6	\$1.3
Employment	38	1.5725	22	60
<b>Lodging</b>				
Local Spending	\$2.4	1.8676	\$2.1	\$4.5
Payroll	\$0.8	1.6878	\$0.6	\$1.4
Employment	54	1.3872	21	75
<b>Total</b>				
Local Spending	\$4.6		\$4.2	\$8.8
Payroll	\$1.6		\$1.2	\$2.7
Employment	92		43	135

## Construction Activity

UNMC has spent an average of \$24.8 million annually on construction projects between 2000 and 2005 to provide top-quality research and educational environments for their staff and students. The most recently completed project is the \$77 million, 289,000-square-foot Durham Research Center that was built between 2001 and 2003. The privately-funded building houses 116 research laboratories, an auditorium and classrooms.

Looking ahead, construction commenced in early April 2006 on the \$52.7 million Michael F. Sorrell Center for Health Science Education building that is expected to be completed in the fall of 2008. The Sorrell Center building will enhance the medical education program with state-of-the-art educational tools in addition to housing the UNMC College of Medicine. The 134,183-square-foot building is being funded entirely by private donations. The \$74 million UNMC Research Center of Excellence II is also scheduled for completion in 2008. The facility will encompass 242,000 square feet of research space, including 98 laboratory modules that will be staffed by a projected 263 employees.

Construction activity is also high at the Hospital. The Hospital has spent an average of \$22.9 million annually on construction projects between 2000 and

2005. Recent projects include the Hixson-Lied Center for Clinical Excellence, the largest emergency department in the Midwest. Construction of the \$57.3 million facility stretched from November 2002 to October 2005. The 165,000-square-foot building features 27 state-of-the-art operating rooms and a Newborn Intensive Care Unit.

Construction activity generates tax revenue for the local area, payroll for construction workers, and sales for construction goods and services vendors. *The direct economic impact of construction activity on Nebraska is \$45.3 million per year, including \$15.9 million in payroll expenditures for 471 direct Nebraska employees.*

## Direct Economic Impact

- ◆ **UNMC:** An estimated 95% of UNMC's capital project expenditures are made from Nebraska suppliers or vendors. Based on average construction expenditures between 2000 and 2005, construction activity has an annual direct economic impact on Nebraska of an estimated \$23.6 million. The total impact includes \$8.3 million in payroll to 245 Nebraska employees.
- ◆ **Hospital:** An estimated 95% of the Hospital capital project expenditures are made from Nebraska suppliers or vendors. Based on average construction expenditures between 2000 and 2005, construction activity has an annual direct economic impact on the Nebraska of \$21.8 million. The \$21.8 million impact includes \$7.6 million in payroll to 226 Nebraska employees.

## Multiplier Analysis

Construction activity has multiplicative impacts throughout the Nebraska economy.

- ◆ **Local Spending:** Based on the RIMS II construction industry multiplier, the total impact of construction activity on the Nebraska economy is estimated at \$97.1 million. This figure includes the direct impact of \$45.3 million plus an additional \$51.8 million generated in the businesses located throughout the state.

# III: NEBRASKA IMPACTS

- ◆ **Earnings:** The \$97.1 million impact includes the creation of payroll totaling \$30.4 million. This payroll figure includes direct earnings of \$15.9 million paid to employees of businesses directly impacted by the construction activity plus \$14.5 million in earnings paid to the additional employees throughout Nebraska that are supported by construction activity.
- ◆ **Employment:** Construction activity results in the creation of a total of 992 jobs. This employment figure includes 471 direct positions and the creation of an additional 521 positions in supporting businesses throughout the state.

	Direct Impact	Multiplier	Indirect & Induced Impact	Total Impact
<b>Construction</b>				
Local Spending	\$45.3	2.1429	\$51.8	\$97.1
Payroll	\$15.9	1.9099	\$14.5	\$30.4
Employment	471	2.1050	521	992

## Summary of Total Economic Impact on Nebraska

The direct impact of UNMC and the Hospital is \$724.4 million per year, including \$486.0 million in payroll expenditures to 9,518 Nebraska employees.

The business operations, student spending, visitor spending and construction activities associated with both UNMC and the Hospital have multiplicative impacts throughout Nebraska which are described in terms of local spending, earnings and employment.

- ◆ **Local Spending:** The combined economic impact of UNMC and Hospital operations and construction and the spending of its employees, students and visitors on the state of Nebraska is \$1.51 billion. This figure includes the direct impact of \$724.4 million plus an additional \$784.6 million in sales generated in the businesses located throughout the state.

- ◆ **Earnings:** The \$1.51 billion impact includes the creation of payroll totaling \$817.2 million. This payroll figure includes direct earnings of \$486.0 million paid to UNMC and Hospital employees and the employees of businesses directly impacted by the spending of UNMC and the Hospital students and visitors. In addition, \$331.2 million in earnings is paid to additional employees in Nebraska that are supported by UNMC or the Hospital's spending patterns.
- ◆ **Employment:** There are 9,518 direct positions at UNMC, the Hospital and other businesses directly impacted by UNMC and the Hospital. In addition, 7,624 positions are indirectly supported by UNMC and the Hospital throughout the state. In total, UNMC and the Hospital support a total of 17,124 jobs in the state.

	Direct Impact	Indirect & Induced Impact	Total Impact
<b>Local Spending</b>			
<u>Business Operations</u>			
Local Spending	\$628.3	\$688.6	\$1,316.9
Payroll	\$456.0	\$303.9	\$759.9
Employment	8,285	6,650	14,935
<u>Research Activities</u>			
Local Spending	\$61.2	\$59.1	\$120.3
Payroll	\$46.2	\$28.2	\$74.4
Employment	773	743	1,516
<u>Student Spending</u>			
Local Spending	\$46.2	\$40.0	\$86.2
Payroll	\$12.5	\$11.5	\$24.1
Employment	670	410	1,079
<u>Visitor Spending</u>			
Local Spending	\$4.6	\$4.2	\$8.8
Payroll	\$1.6	\$1.2	\$2.7
Employment	92	43	135
<u>Construction</u>			
Local Spending	\$45.3	\$51.8	\$97.1
Payroll	\$15.9	\$14.5	\$30.4
Employment	471	521	992
<b>Total Impact of Local Spending</b>			
Local Spending	\$724.4	\$784.6	\$1,509.0
Payroll	\$486.0	\$331.2	\$817.2
Employment	9,518	7,624	17,142

## IV: IMPROVING PUBLIC HEALTH & INCREASING THE WEALTH

Certain economic benefits of both the University of Nebraska Medical Center (UNMC) and the Nebraska Medical Center (Hospital) are more difficult to quantify in monetary terms than the demand-side benefits; however, these “supply-side” benefits are equally important to the local economy as the demand-side benefits. The supply-side impacts of UNMC and the Hospital are based on the many resources UNMC and the Hospital offer or “supply” to the Omaha metro area and state of Nebraska.

The supply-side benefits significantly improve public health and increase the wealth of the Omaha metro area and Nebraska communities. This section highlights the numerous benefits UNMC and the Hospital provide to the state of Nebraska from a public-good standpoint as well as an economic development perspective. It should be noted that a positive relationship exists between improving public health and increasing the wealth in a community. Research has been published on both sides of the causality debate, however this study makes no attempt to examine causality. Instead, this study acknowledges that improving public health and increasing wealth are not mutually exclusive but work in concert to increase a community’s standard of living.

### Improving Public Health

UNMC and the Hospital collaborate to provide top-notch health care to Nebraska residents. Together, UNMC and the Hospital bridge the gap between the practical and academic aspects of health care. The Hospital actually administers health care while UNMC works to advance health care through medical research and by educating first-rate medical professionals.

The health of Nebraska residents is a vital factor in their quality of life as well as the economic health of the state and Omaha metro area. A healthy population translates into a more productive workforce and also allows individuals to participate in the workforce for a longer period of time. Not

only does award-winning health care help to return patients back to the workforce earlier but also allows family members or other care-givers to return to the workforce sooner than usual. Furthermore, a healthy population is likely to incur lower medical costs. According to the Rand Organization, “mounting research indicates that a healthy population can abet economic growth and lessen poverty, contrary to the long-standing belief that causation runs only from wealth to health.” UNMC and the Hospital cultivate a happier and healthier population by educating top-quality medical professionals and providing top-quality health care.

While the intent of this section is not to report on UNMC’s and the Hospital’s health care services, the link between a healthy population and the economic development of a community warrants a brief overview of their numerous health care services and achievements. Beyond the numerous clinical research and medical breakthroughs realized by UNMC and the Hospital, both entities have received national, regional and local recognition for their many achievements. The following lists, that are by no means exhaustive, highlight recent achievements of the Hospital and UNMC.

### The Hospital’s Achievements in Health Care

The 689-bed, not-for-profit Hospital is the primary teaching hospital for UNMC and was formed in 1997 with the merger of Clarkson Hospital and University Hospital. The Hospital has developed an international reputation for organ and bone marrow transplantation services along with national and regional reputations for its oncology, neurology and cardiology programs. The Hospital is a multi-disciplinary leader in health care and treats patients from across the state, country and world.

- ◆ In 2005, the Hospital was awarded the service excellence designation by J.D. Power & Associates and was also named a Hospital of Distinction, J.D. Power & Associate’s highest healthcare honor. According to J.D. Power & Associates, the Hospital is among the top 20% of the nation’s hospitals based on five key factors:

## IV: IMPROVING PUBLIC HEALTH & INCREASING THE WEALTH

dignity and respect; speed and efficiency; comfort; information and communication; and emotional support.

- ◆ The Hospital is the only Nebraska hospital to earn the 2005/2006 Consumer Choice Award, according to a survey of 200,000 households by the National Research Corporation that spans 180 U.S. markets. The award recognizes hospitals that project the highest levels of quality and image. The 2005/2006 award marks the third time in four years that the Hospital has been a recipient and the first time the Hospital has been the sole Nebraska recipient.
- ◆ The echocardiogram labs at the Hospital are nationally certified by the Intersocietal Commission for the Accreditation of Echocardiography Laboratories (ICAEL). The Hospital is one of two hospitals in the Omaha metro area to receive the accreditation and has held the voluntary accreditation since 1999.
- ◆ The Hospital is Nebraska's first and only nationally certified stroke center. The Hospital received the "Gold Seal of Approval" in 2005 from the Joint Commission on Accreditation of Healthcare Organizations (JCAHO).
- ◆ The largest emergency room department in the Midwest is located at the Hospital. The \$57.3 million Hixson-Lied Center for Clinical Excellence, which opened in October 2005, holds 27 state-of-the-art operating rooms, the latest radiology technology and a Newborn Intensive Care Unit.
- ◆ Approximately \$12.7 million in charity-care services and supplies were performed in 2005 at the Hospital and \$12.8 million in 2004.
- ◆ The Hospital serves as the trauma center for the state of Nebraska on Tuesday, Wednesday and Friday of each week and is one of only two certified trauma centers in Nebraska and western Iowa.
- ◆ The Hospital has earned the reputation as a world-class leader in multi-organ transplantation and consequently attracts patients from around the world. Organ transplantations are performed for liver, kidney, pancreas, small bowel, heart, and blood & marrow stem cell. The Nebraska Medical Center Organ Transplant Program has treated patients from all 50 states and 17 foreign countries. Since the transplant program was re-instated in 2005 after being inactive for six years, the Hospital has already performed six heart transplants. All six patients are making promising recoveries.
- ◆ The Lied Transplant Center, which opened in 1999 as a partnership between UNMC and the Hospital, is a unique environment that encourages interaction and collaboration among health-care professionals and researchers, providing patients with optimal care. The Lied Transplant Center takes a "cooperative care" approach with its patients which is aimed at easing the transition between the Hospital and home.
- ◆ The Eppley Cancer Center is another example of collaboration between clinical research and health care that results in optimal patient care. The Eppley Cancer Center is a National Cancer Institute designated center and one of the founding members of the National Comprehensive Cancer Network.
- ◆ The Hospital is home to a Comprehensive Epilepsy Center that serves the state of Nebraska and the surrounding region.
- ◆ Since 1968, the Hospital's Newborn Intensive Care Unit (NICU) has been providing families with specialized care to premature and high-risk newborns.
- ◆ The Nebraska Regional Poison Center (NRPC) is housed at the Hospital. UNMC and the Hospital are two of the center's three major sources of funding. The NRPC is the designated poison center for Nebraska, Wyoming, American Samoa, and Federated States of Micronesia. Established in 1957, the NRPC is one of the oldest poison centers in the nation.

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### UNMC's Achievements in Health Care

UNMC has established itself as one of the nation's leading centers in cancer, transplantation, bioterrorism preparedness, neurodegenerative diseases, genetics, biomedical technology, ophthalmology and arthritis. The research and teaching facility maximizes its opportunities by working collaboratively with the Hospital. UNMC and the Hospital recognize the many benefits of integration between research, education and health care. Together, both entities provide the state of Nebraska with education, health care, research and outreach.

- ◆ The 2007 *U.S. News & World Report* rankings placed UNMC's College of Medicine's primary care program 11<sup>th</sup> out of approximately 140 medical schools, an improvement from 17<sup>th</sup> place in the year prior. The College of Medicine's rural health medicine program ranked ninth out of approximately 125 schools, up from 10<sup>th</sup> in the year prior.
- ◆ The highly-qualified and acclaimed staff at UNMC and the Hospital is the primary factor in the organizations' continued success. In 2005, 182 UNMC physicians were named among the Best Doctors in America, a leading resource for people seeking expert medical attention or guidance in the U.S. The Best Doctors in America list contains expert doctors that are considered to be in the top 3% to 5% of the nation's specialists.
- ◆ UNMC and the Hospital work together to educate top-quality medical professionals. The average GPA of the freshman class of first-year dental students at UNMC's College of Dentistry in Lincoln, NE was the highest among peer institutions. In fact, the latest first-place ranking marks the ninth year out of 13 years that the College has held the top position. Over the past 13 years, UNMC's College of Dentistry has traded the top ranking with Harvard's dental college.
- ◆ About 42% of the 108 senior medical students that received residency assignments across the nation will stay in Nebraska and about 39% will complete their residency assignments through UNMC and the Hospital.
- ◆ UNMC employs the only board-certified lipidologist in the state of Nebraska who is also one of only 150 certified lipidologists in the nation. Lipidologists specialize in the diagnosis and treatment of cholesterol disorders known as dyslipidemia.
- ◆ UNMC will lead a 10-state alliance that will provide mutual aid in the event of an act of bioterrorism or other public health emergency. The Mid-America Alliance would be the first large-scale, regionally-coordinated public health agreement of its kind and includes Iowa, Kansas, Missouri, North Dakota, South Dakota, Colorado, Wyoming, Utah and Montana.
- ◆ For more than 20 years, UNMC's Consumer Health Information Resource Service has provided free medical research to Nebraska residents that combines the expertise of knowledgeable medical librarians with current consumer health information.
- ◆ According to the U.S. Centers for Disease Control and Prevention, UNMC developed "...one of the best (alert) systems we've seen" that allows the state to alert its health-care workers within a matter of minutes in the event of a health-care crisis. The detailed database of health-care workers, known as the Health Professions Tracking Center, also allows the state's rural communities to maximize their federal funding for underserved areas due to accurate and up-to-date information and serves as a model for other states.
- ◆ UNMC is one of the few academic medical centers in the nation to have a state public health laboratory on-campus. The Nebraska Public Health Laboratory was one of the four founding members of the National Laboratory System (NLS) which is an initiative of the Center for

## IV: IMPROVING PUBLIC HEALTH & INCREASING THE WEALTH

Disease Control's Public Health and Program Practice Office/Division of Laboratory Science that works to bridge the gap between the public and private sectors.

- ◆ UNMC, in collaboration with the Nebraska Area Health Education Centers (AHECs), awarded 28 small Nebraska communities a total of \$45,500 in grant funding to improve community health and promote careers in health care to Nebraska's youth. The 2006 grant funding marks the eighth year the two organizations have combined forces.
- ◆ UNMC's Mini-Medical School is a free, three-week program designed to educate Nebraska residents about issues surrounding significant developments in health research and patient care. The semi-annual program is broadcast to 17 locations across the state. The Mini-Medical School program has been educating Nebraskans for over ten years.
- ◆ UNMC offers continuing education courses through the Nebraska Statewide Telehealth Network, a statewide interactive video and data network that connects hospitals, public health departments, public health laboratories and other entities. UNMC is one of eight "hubs" and contributed to the Network development.
- ◆ UNMC continues to dedicate its entire distribution from the 2001 Tobacco Settlement Biomedical Research Initiative (LB692) to biomedical research. Nebraska is one of only four states to invest its entire settlement in health care and biomedical research. Each year, Nebraska's four biomedical research institutions, including UNMC, receive about \$12 million in tobacco funding. The tobacco money is leveraged into health research funding through the recruitment of top researchers, the attainment of high technology such as the BIAcore 3000 instrument and by providing minority health research grants to study health-related issues specific to minorities.

### **Increasing the Wealth**

Economic development can generally be described as the "creation of wealth" in a community. Wealth creation can be derived from company expansion or company recruitment through the addition of jobs, rising wages and increased business investment. UNMC and the Hospital are significant contributors to wealth creation in the Omaha metro area and state of Nebraska in terms of employment, increasing the livability of rural communities, providing higher education, encouraging research commercialization and attracting "new money" to the state. Through these channels, UNMC and the Hospital increase the economic strength of the state while making Nebraska a more attractive place to live, work and do business.

Educational institutions play a key role in present-day economic development because technology, innovation and knowledge have replaced capital and energy as the primary production factors in today's economic landscape. "Few institutions have more to offer in propelling economic development on both a national and local basis than our nation's colleges and universities," according to Richard Rosan of the Urban Land Institute. For these reasons, the proliferation of UNMC and the Hospital's economic development contributions are of great importance to the Omaha metro area and Nebraska economies.

### **Generating Jobs**

UNMC and the Hospital are major employers in both the Omaha metro area and state of Nebraska. The combined workforce of about 9,000 workers represents the second largest employer in the Omaha metro area and the fourth largest employer in the state.<sup>14</sup>

UNMC is integral in supplying medical professionals to the Nebraska health care industry by providing top-quality education to Nebraska residents that also choose to live and work in the

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<sup>14</sup> Excluding generic federal and state employers.

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state following graduation. About 52% of practicing physicians with active primary practices in Nebraska received their education at UNMC. About 64% of nurse practitioners, 71% of physician assistants, 67% of dentists and 61% of pharmacists with active primary practices in Nebraska received their education at UNMC.<sup>15</sup> Of these five occupations, UNMC graduates represent 60% of the total number of these jobs in Nebraska.<sup>16</sup> Furthermore, UNMC located 108 first-year residents in 2005 of which 44% were located in the state of Nebraska.

### *The National Market*

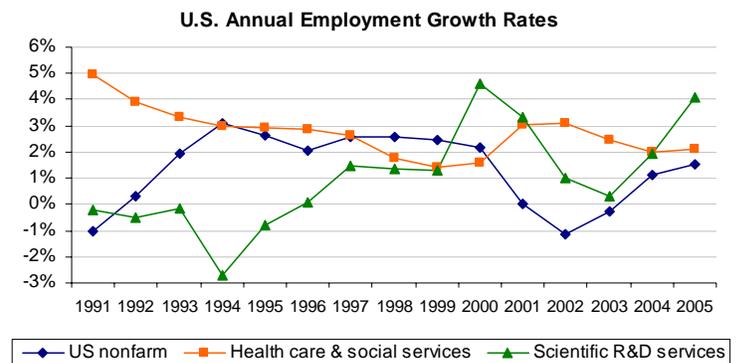
The U.S. health care industry is becoming increasingly important to the national economy as the baby-boom population enters the retirement stage of life. UNMC, the Hospital and their graduates are well-positioned to excel in this growing industry. Health care employment in the U.S. has grown at a faster rate than total employment for the past five years and will likely continue to do so in order to keep up with demand. Currently, health care employment represents 9.2% of total U.S. employment, compared to 4.3% of the total employment base in 1970. Furthermore, a recent study from the Centers for Medicare and Medicaid Services projects that total health care spending will rise from 16.2% of gross domestic product in 2005 to 20% by 2015 (*USA Today*).

National employment levels in the scientific research and development services category are also growing at a faster than average rate. In 2005, employment in this industry grew 4.1% compared to 1.5% growth for all industries. Scientific research and development services employment represents 0.4% of total U.S. employment.

<sup>15</sup> Excludes medical practitioners with unknown educational institutions.

<sup>16</sup> Percentage of the workforce statistics do not include actively practicing persons with unknown educational institutions. Person with unknown educational institutions account for between 0% and 6% of the total, depending on the occupation.

Bioscience companies are economic development targets for communities across the country due to their use of a highly-skilled and highly-paid workforce, potential payoff of successful companies and the attraction of venture capital dollars. The U.S. biopharmaceutical industry employed 406,700 people in 2003 according to the Milken Institute, nearly doubling in size over the past 20 years. According to the MoneyTree survey by PricewaterhouseCoopers, Thomson Venture Economics and the National Venture Capital Association, the Life Sciences sector (Biotechnology and Medical Devices industries, together) accounted for 28% of all venture capital investments in 2005. Further, Ernst & Young estimates that the revenues of the world's publicly-traded biotech companies grew 18% in 2005.



Bioscience industries, including healthcare delivery, biotechnology and medical device companies, exhibit strong synergies with other key Nebraska industries, particularly agriculture, energy and software development. The biosciences industry utilizes expertise from biology, agriculture, medical sciences, animal sciences, public health, organic chemistry, engineering, and computer science, among other fields. Bioscience involves a collection of industries with a wide variety of applications ranging from life-saving drugs to cleaner bio-engineered fuels, from new medical imaging devices to healthier foods, from mapping the human genome to safeguarding against bioterrorism. These synergies can foster employment growth and

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entrepreneurial energy throughout a number of industries in Nebraska.

### *The International Market*

UNMC recognizes that it is indeed “a small world” and actively involves itself in world health care through several channels as a result.

UNMC trains foreign health care providers through onsite review programs in Afghanistan and nursing education partnerships with universities in Jordan, India and China, for example. Both programs have realized increased popularity and success partly due to technology that allows for online, international education. UNMC’s graduates in foreign countries not only serve as the healthcare workforce but also work simultaneously to advance health care in less-developed countries. In addition to providing a health care workforce, UNMC extends its research arm to the international market. Recently, the Eppley Cancer Center Exchange Program was visited by two faculty and student groups from Shanghai University in China.

UNMC is well-positioned to successfully expand its international reach especially since science is an international language. By opening up the international market through educational programs, research programs or other contracts, UNMC is not only importing foreign revenue to the state but also building a foreign network on which other Omaha metro area and Nebraska businesses can capitalize.

### Enhancing Rural Nebraska Livability

UNMC plays a major role in rural economic development in both a direct and indirect sense. Rural economic development is a priority for the state because economic development abets the diversification of a community’s economic base which, in turn, creates an economy that is more resistant to economic downturns. Nebraska’s economic history is rooted in agriculture and settlement but the many occupations of today allow rural communities to count agriculture as only one element of their economy.

Directly, UNMC provides professional education to rural Nebraska students –many of whom return to their rural communities to provide health care. The health care workforce typically earns higher wages than the average worker across all industries, resulting in “increased wealth” for the community. Medical professionals typically earn higher incomes than the average income earned in rural America which translates into increased expenditures to rural businesses. Higher than average wages are significant to rural communities considering rural wages tend to be lower than wages and salaries earned in metropolitan areas. Rural regions across the U.S. reported an average wage of \$24,648 in 2001, 32% below the average wage of \$36,376 reported in metropolitan regions.<sup>17</sup> Furthermore, the median family income for families in rural America was \$41,012 in 2001 compared to \$54,657 in metropolitan areas, a difference of \$13,645 (2001 dollars). Per capita income for residents in metropolitan areas reached \$32,077 in 2001 compared to \$23,338 in micropolitan areas and only \$21,005 in non-core areas. (2001 dollars).<sup>18</sup>

Indirectly, UNMC supplies rural areas with medical professionals, making rural areas more attractive places to live and work because of the access to healthcare. Rural areas can be viewed as less attractive places to live and work because health care tends to be more difficult to access. Although nearly one-fourth of Americans live in rural areas, only 10% of physicians practice medicine in rural areas.<sup>19</sup> About 30% of Nebraska’s population lives in rural areas.<sup>20</sup> Residents, workers and businesses are more apt to locate in a rural community if they are able to

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<sup>17</sup> Harvard Business School: Institute for Strategy and Competitiveness, “Competitiveness in Rural U.S. Regions: Learning and Research Agenda,” February 2004. Michael Porter

<sup>18</sup> U.S. Department of Agriculture Economic Research Service ([www.ers.usda.gov](http://www.ers.usda.gov)).

<sup>19</sup> National Rural Health Association, “What’s different about rural health care?,” 2004. ([www.nrharural.org](http://www.nrharural.org))

<sup>20</sup> U.S. Census Bureau, 2000.

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access health care locally as opposed to traveling to a metropolitan area such as Omaha or Lincoln.

UNMC's efforts to extend its reach beyond the Nebraska metro areas are all the more important given non-metro economic growth. Non-metro employment in Nebraska has grown at a slightly faster rate than the state and Lincoln metro area over the past five years and non-metro employment represents one-third of Nebraska's total employment base.

### Non-Metro vs. Metro Employment Growth Total Nonfarm Employment (thousands)

	Nebraska	Lincoln	Omaha	Non-Metro
2000	914.0	164.3	444.6	305.1
2005	935.8	169.4	451.9	314.5

### Nonfarm Annual Employment Growth Rates

	Nebraska	Lincoln	Omaha	Non-Metro
2000	1.8%	1.0%	2.2%	1.9%
2005	1.5%	1.1%	1.5%	1.6%
Average Annual	0.5%	0.6%	0.3%	0.6%

Source: U.S. Bureau of Labor Statistics.

Students from rural Nebraska accounted for one-fourth of UNMC's entering students in 2005. Typically, a large share of these students return to rural communities to practice medicine. In fact, UNMC graduates account for a significant amount of rural health care practitioners in rural Nebraska: 68% of physicians; 66% of pharmacists; 86% of dentists; 68% of physician assistants; and 53% of nurse practitioners, according to data through February 2006.<sup>21</sup> Without UNMC graduates, rural communities across the state would lack health care practitioners.

UNMC demonstrates its commitment to rural economic development through the Rural Health Education Network (RHEN). The intent of the Rural Health Education Network (RHEN) is to provide a health care workforce for the state of Nebraska. RHEN focuses on four practice areas: pre-health profession awareness and training; pre-health

professional programs; health profession training and continuing education. Current outreach activities include the distribution of informational materials, career days, community grants, workshops for undergraduate college students, medical community service program and science teachers retreats to keep Nebraska's teachers on the cutting edge. Through RHEN, UNMC was awarded federal funding to establish five Area Health Education Centers (AHECs) in Nebraska. The five AHECs provide recruitment, retention and community health needs to Nebraska's rural health care workforce. Four of the five centers are located in rural communities.

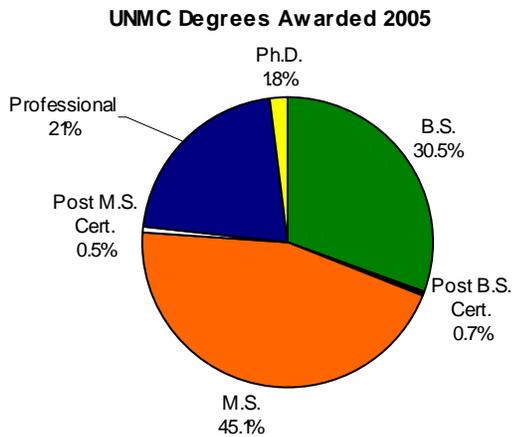
In addition, the Rural Health Opportunities Program (RHOP) encourages rural residents to pursue careers in health care through a cooperative venture of UNMC, Chadron State College (CSC), and Wayne State College (WSC). Students are able to choose from nine programs ranging from pharmacy to medicine to dentistry. Since its establishment in 1989, the program has graduated 247 students and enrolled a total of 455 students through January 2006. More than half of RHOP graduates choose to return to rural Nebraska to practice with another 31% returning to rural areas outside of Nebraska. In other words, only 15% of RHOP graduates choose to locate in non-rural areas.

### Increasing the Knowledge Base

UNMC and the Hospital generate a knowledge-based workforce that is a valuable resource to the Omaha metro area and Nebraska economies. In 2005, UNMC awarded 1,519 degrees to its graduates, a 9.3% increase in total degrees awarded from the prior academic year. Almost half of the degrees awarded in 2005 were Master of Science (M.S.) degrees. Bachelor of Science (B.S.) degrees constituted about 30.5% of total degrees awarded, followed by Professional degrees which represented 21.4% of the total. Doctorate degrees, Post B.S. Certificates and Post M.S. Certificates account for a smaller share of total degrees awarded.

<sup>21</sup> Rural counties are those with a total population less than 25,000 residents. Data limited to primary practice site locations.

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Source: University of Nebraska Medical Center.

UNMC graduates perform better on licensure, certification and board exams than the national average. Based on 2004 data, the average UNMC score exceeds the average U.S. score on all Allied Health exam areas, all College of Dentistry exam areas, College of Medicine MD Part 2, and the College of Pharmacy exam. While the College of Nursing exam does not publish mean scores, the fail percentage of UNMC students is lower than the national average. UNMC MD Part 1 results were better than average between 1999 and 2003 but slipped below average in 2004. The MD Part 1 average score improved from 2004 to 2005 and is currently on par with the national average.<sup>22</sup>

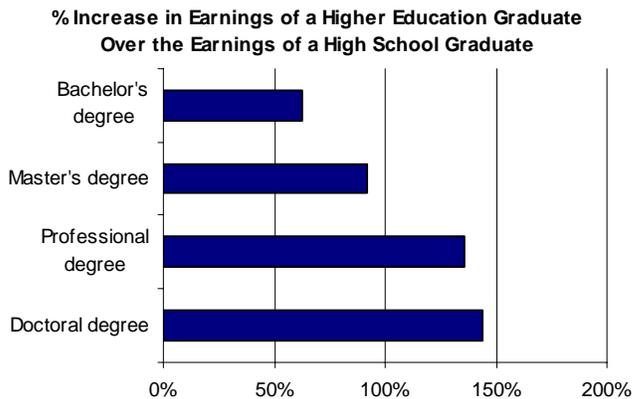
The American Board of Medical Specialties reported 99% to 100% pass rates for UNMC residency programs in the following practice areas: Family Practice (Omaha, Lincoln and rural); Neurosurgery, OB/GYN, Orthopedics, Otolaryngology, Pathology,

<sup>22</sup> Allied Health exam areas include Clinical Perfusion, Cytotechnology, Medical Nutrition, Medical Technology, Physician Assistant, Physical Therapy, Diagnostic Medical Sonography, Nuclear Medicine, Radiation Therapy and Radiology. College of Dentistry exam areas include DDS Part 1, DDS Part 2 and Dental Hygiene. College of Medicine exam areas are MD Part 1 and MD Part 2. The College of Nursing and College of Pharmacy have only one exam area. Scores for 2005 are preliminary and subject to change.

Pediatrics and Urology. The reporting periods for these specialties vary from one to eight years.

A worker's lifetime earning potential is largely influenced by higher education. Workers with higher levels of education typically earn higher wages in their lifetime than workers with lower levels of education. Data from the U.S. Bureau of Labor Statistics shows that the wages earned by a graduate with a professional degree are 135.9% higher than the wages earned by a worker whose highest degree attained was a high school diploma.

From a slightly different perspective, UNMC and



Source: U.S. Bureau of Labor Statistics; 2003 data.

the Hospital pay higher than average wages in the Omaha metro area and state of Nebraska. UNMC employees earn an average annual wage of \$50,700 compared to the average for all industries in the Omaha metro area of \$36,700 and \$31,600 at the state level. Hospital employees earn an average annual wage of \$38,900, again exceeding the average annual wage across all industries at both the metro and state levels.<sup>23</sup> Higher wages for Nebraska workers result in increased tax revenue for the state of Nebraska through income tax, sales tax and property tax.

<sup>23</sup> Average annual wage for the six-county Omaha metro and state of Nebraska is from the 2005 Quarterly Census of Employment and Wage data.

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Nebraska residents outperform the nation in educational attainment in terms of high school graduates. However, the percent of Nebraska's population that has obtained a bachelor's degree or higher is slightly below the national average. An estimated 26.6% of Nebraska's population has obtained a bachelor's degree or higher, up from 24.8% in 2002. Nebraska currently ranks 23<sup>rd</sup> in educational attainment of a bachelor's degree or higher and 30<sup>th</sup> in educational attainment of an advanced degree. UNMC and the Hospital contribute to the improving performance by providing higher education not only in the Omaha metro area but also throughout the state.

Degree Earned	Nebraska	US
High school graduate (incl. equivalency)	<b>31.1%</b>	29.5%
Some college, no degree	<b>23.1%</b>	20.3%
Associate degree	<b>8.6%</b>	7.1%
Bachelor's degree	<b>18.3%</b>	17.2%
Graduate or professional degree	8.3%	<b>9.9%</b>
Percent high school graduate or higher	<b>89.4%</b>	83.9%
Percent bachelor's degree or higher	26.6%	<b>27.0%</b>

*Source: U.S. Census Bureau, American Community Survey 2004.*

### Research & Development Hub

UNMC is a driver in the advancement of medical research and development not only in the state of Nebraska but throughout the nation.

- ◆ UNMC has attracted international interest and acclaim for surgical innovation with in vivo laparoscopic surgical robots that allow for minimally invasive surgery and closer images. The technology was developed at UNMC's Department of Mechanical Engineering by students, physicians and faculty. Nebraska Surgical Solutions, a start-up company, is working to move the robots from prototype to production. The Society of American Gastrointestinal and Endoscopic Surgeons named the technology among the "best of the best."
- ◆ UNMC was one of 13 clinical sites to participate in a study that found that a combination of antidepressant and cognitive-behavioral therapy (CBT) treatment is the most favorable way to treat teens suffering from major depressive disorder (MDD). UNMC was the largest clinical site in the study coordinated by Duke University Medical Center and enrolled about 20% of the study's participants.
- ◆ UNMC scientists contributed to the development of an anti-malarial drug candidate that is undergoing clinical trials in the United Kingdom.
- ◆ UNMC scientists, in collaboration with Columbia University in New York, discovered a new vaccine approach that successfully prevents the death of brain cells in a mouse model of Parkinson's disease. The development was called a "significant conceptual advance for Parkinson's disease therapy."

Beyond the obvious health benefits of medical research and development, innovation and technology development are the key to economic development in today's knowledge-based economy. Through the attraction of dedicated funding for research initiatives and the creation of necessary infrastructure to support and facilitate the commercialization of technology developed in-house, UNMC is an economic engine in the research and development realm.

UNMC provides support to the growing biotech industry by providing highly-educated professionals as well as technical expertise and an environment that breeds innovation. While it is difficult to measure the exact impact of a research hub, it is known that the presence of research facilities and highly-skilled labor attracts increased business activity.

"The bioscience sector stands out from other technology sectors in the close relationship that exists between the research and industry enterprise. Major new products and innovations in the biosciences are frequently related to basic research

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discoveries while in other technology sectors the links are less direct. On average, biotechnology companies spend over 50 percent of their revenues on R&D, while pharmaceutical companies spend more than 20 percent. Across all industries, Standard and Poor's Compustat database estimates that industry R&D represents approximately four percent of sales. As a result, bioscience companies seek close interactions with academic researchers. Major university and non-profit research institutions are not only the key to basic research discoveries that can generate product leads for bioscience companies, but more importantly create an environment in which bioscience companies can flourish."<sup>24</sup>

Research activity at UNMC is escalating according to multiple technology transfer indicators. In 2005, UNMC disclosed 41 inventions, filed 12 U.S. patent applications and executed six licenses. All indicators, including gross income received from technology transfer efforts, are up from 2001.

### Research Funding

Research is a priority at UNMC. UNMC set a goal in 1998 to become a world-class health sciences center and to rank among the leading research institutes. UNMC also set goals to double research funding by FY 2003-2004 and triple research funding by FY 2008-2009. Indeed, UNMC increased its annual research awards by 120% from the 1999-2000 fiscal year to the 2003-2004 fiscal year. Total research awards continued to climb in the 2004-2005 fiscal year, reaching a record \$72.5 million. UNMC projects research awards will increase about 10% in 2005-2006 to \$80.0 million.

<sup>24</sup> Battelle Memorial Institute, "Colorado's Place in the Sun: A Bioscience Future: An Action Plan to Grow Colorado's Bioscience Cluster," April 2003.

Fiscal Year	Research Awards	Percent Change
1998-1999	\$30,930,623	
1999-2000	\$40,051,252	29.5%
2000-2001	\$41,328,292	3.2%
2001-2002	\$50,775,191	22.9%
2002-2003	\$55,896,392	10.1%
2003-2004	\$68,068,921	21.8%
2004-2005	\$72,522,293	6.5%
2005-2006*	\$80,000,000	10.3%
1998-2005		134.5%
1998-2006		158.6%

\*projected.  
Source: University of Nebraska Medical Center.

More than 70% of total research funding came from federal sources in FY 2004-2005. The state of Nebraska contributed 8.3% and industry, foundations and other sources accounted for the remaining donations.

Funding Source	FY 2004-2005	Percent of Total
Federal	\$51,195,285	70.6%
State	\$6,026,859	8.3%
Industry	\$8,431,732	11.6%
Foundations & Other	\$6,868,417	9.5%
Total	\$72,522,293	100.0%

Source: University of Nebraska Medical Center.

Support for UNMC research comes primarily from outside the state and represents "new money" to the state. If UNMC were unable to successfully compete for the research funding, the federal and private dollars would go elsewhere, either to institutions or businesses in other states. Every dollar that comes into UNMC for biomedical science research generates additional dollars in the economy. Expenditures for scientific and support personnel, goods and services has a multiplier effect as employees purchase goods and services and as businesses are created to fill the needs of the research institutions. Research activity alone accounts for \$108.0 million of the \$1.4 billion total economic impact on the Omaha metro area and

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\$120.0 million of the \$1.5 billion total economic impact on the state of Nebraska.

The National Institutes of Health (NIH) is a major federal funding source for UNMC research.

- ◆ UNMC's medical school ranked 78<sup>th</sup> in NIH awards to medical schools in FY 2004 (latest data available) with \$34.0 million in total awards. Research-specific awards account for \$32.5 million of the total \$34.0 million. The Internal Medicine department received about one-third of total NIH funding or \$11.1 million. The Genetics, Pathology, Pediatrics and Physiology departments rounded out the top five departments for NIH funding. Of the 126 medical colleges in the U.S., the NIH distributed funds to 123 colleges.
- ◆ The College of Dentistry ranked 24<sup>th</sup> in awards to dental colleges in FY 2004 with \$3.6 million in award funding, a 5.3% increase over FY 2003. Of the 56 dental colleges in the U.S., the NIH distributed funds to 45 colleges.
- ◆ The College of Nursing ranked 25<sup>th</sup> in funding to nursing colleges with \$1.8 million in awards. Preliminary data for FY 2005 reveals a 46.9% increase in total awards to \$2.6 million.
- ◆ The College of Pharmacy ranked 35<sup>th</sup> for FY 2004 NIH funding, up from 42<sup>nd</sup> in FY 2003. Total FY 2004 funding reached \$1.9 million. According to the American Association of Colleges of Pharmacy, UNMC's funding increased to \$2.2 million in FY 2005. The 14.6% increase would move the College's national ranking up from 35<sup>th</sup> to 30<sup>th</sup>.
- ◆ NIH funding for Domestic Higher Education, which is the aggregate of the Colleges of Dentistry, Medicine, Nursing and Pharmacy and represents total UNMC funding from the NIH, totaled \$41.3 million FY 2004. Overall, UNMC ranked 90<sup>th</sup> in Domestic Higher Education funding, the highest ranked Nebraska institution. Nebraska ranked 37<sup>th</sup> in total NIH funding during FY 2004 with \$74.1 million in total awards.

UNMC was awarded more than half or 55.8% of total NIH funding in Nebraska during FY 2004.

State funding to UNMC includes Nebraska Tobacco Settlement Biomedical Research Development Funds. Nebraska is one of only four states to invest its entire settlement in health care and biomedical research. Each year, Nebraska's four biomedical research institutions, including UNMC, receive about \$12 million in tobacco funding. The tobacco money is leveraged into health research funding through the recruitment of top researchers, the attainment of high technology such as the BIAcore 3000 instrument and by providing minority health research grants to study health-related issues specific to minorities.

### *Research Commercialization*

UNMC takes a multi-faceted approach to creating the necessary support infrastructure to facilitate the commercialization of UNMC research. Several organizations within UNMC and associated with UNMC work together to promote innovation through the commercialization stage including the Intellectual Property Office, the Science & Technology Advisory Committee, the Technology Advancement Group, Sponsored Programs Administration, Committee for Proceed Distributions and UNeMed Corporation.

Since 1994, the number of sublicense agreements and evaluated invention disclosures has trended upward, indicating consistent growth.

UNeMed Corporation is an independent technology management company that was established in 1992 as a for-profit subsidiary of UNMC. UNeMed is devoted to commercializing UNMC research and functions as the interface between UNMC and the marketplace. UNeMed works through four capacities to facilitate the commercialization of intellectual property: research license or option agreements; sponsored research and development collaborations; joint ventures; and new company formation. In addition, UNeMed provides management services, marketing, and financial expertise to operate successful joint ventures between UNMC and

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strategic partners. UNeMed holds an equity position in all UNMC-based start-up companies.

Eleven start-up companies currently associated with UNMC/UNeMed are operating in a range of stages of development. Three manufacture and sell a product that generates revenue. Together, these three companies account for 100 Omaha metro employees. Two companies (Immunoplex and Hesed) were acquired by large pharmaceuticals after they developed the technology. The acquisitions resulted in significant revenue for UNeMed. Four of the companies are in the initial stages of technology development and one company received \$5.0 million in venture capital funding to advance their technology. Not only do these companies generate revenue and employ workers or have the potential to do so, UNMC/UNeMed technology is adding to the delivery of quality health care in the private sector.

Below are brief profiles of UNMC/UNeMed start-up companies:

- ◆ Eleos, Inc. is an Omaha-based company that is developing the first cancer therapeutic designed to sensitize cancer cells to the killing effects of standard treatments, while protecting normal cells from the toxic side-effects such treatments often cause. Phase II clinical trials of the EL625 drug for leukemia patients are on-going in several U.S. cities. ([www.eleosinc.com](http://www.eleosinc.com))
- ◆ HKS Medical Information Systems, Inc. develops state-of-the-art software products that improve the quality of patient care and workflow management as well as provide operational efficiencies for the healthcare industry. The Omaha-based company's premier product, OTTR (Organ Transplant Tracking Record), was a break-through patient tracking application and electronic health record (EHR) developed specifically for solid organ transplant centers. HKS has also developed applications for other specialty programs like Stem Cell Transplantation. Currently, HKS has contracts with transplant centers in the United States, Canada, and Australia and supports over 150 different transplant programs in the specialty areas of kidney, liver, heart, pancreas, islet, bowel, and lung. *Inc. Magazine* named HKS one of the 500 fastest growing private companies in 2003. ([www.hksys.com](http://www.hksys.com))
- ◆ Prommune, Inc. was established in 2002 to develop vaccines for drug addictions, chemical toxins and infectious pathogens in support of improving the health of humans and animals. The Omaha-based company partnered with a consortium of feed lot owners, cattle ranchers and veterinarians in 2003 to form Prommune Animal Health, a company focused on creating vaccines for veterinary medicine applications. Both companies use a unique and patented technology known as MIRADS (Molecular Immune Response Activator and Delivery System) which was developed at UNMC to create vaccines. ([www.prommune.net](http://www.prommune.net))
- ◆ ProNutrient Technologies, Inc. is a nutraceuticals company that discovers, develops and commercializes innovative products for human and animal application using patented Cre-Ester technology that was developed at UNMC. PNT was founded in 1998 by UNMC faculty and is based in Omaha, NE. ([www.gopnt.com](http://www.gopnt.com))
- ◆ TriMed Research, Inc. is a joint venture between UNMC, UNeMed and Tridelta Development Ltd. of Ireland. TriMed uses a patented milk-based peptide technology known as MAA to develop therapeutics for gastrointestinal disorders. The company's breakthrough discovery of the mammary gland protein has the potential to prevent life-threatening diseases of premature infants, reduce infectious diarrhea among herd animals and possible bovine mastitis, reduce the debilitating side-effects of cancer treatments and prevent "travelers' diarrhea." The company received \$5.0 million in venture capital funding for further development. ([www.trimedres.com](http://www.trimedres.com))
- ◆ Ximerex, Inc. seeks to address the severe shortage of human organ donors with xenotransplants, organ transplants from animals

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to humans. The Blaire, NE-based enterprise engrafts human cells into fetal pigs and uses proprietary and patented technology to grow the foreign cells. Eventually, Ximerex will provide the humanized pig organs and cells for transplantation. So far, the principle idea has been proved with successful transplantation of pig hearts into sheep and pig tissues into non-human primates. ([www.ximerex.com](http://www.ximerex.com))

- ◆ PublicHealth, LLC specializes in the design, development and commercialization of software applications that securely track and transfer public health information. The start-up company was established in 2003.
- ◆ Integrated Academic Systems, LLC was founded by UNMC's Internal Medicine to design and develop informational management software. IAS holds the exclusive right to commercialize the Academic Department Information System (ADIS) relational database, a web-based multi-purpose informational management system.
- ◆ Other start-up companies in the early stages of development are CK Technologies, OligoTrips, Inc. and I3Bio, LLC.

UNeMed extends its commitment to economic development through partnerships with existing Nebraska businesses. For example, UNeMed partnered with Innovative Laboratory Systems, Inc. of Ashland, NE in 2004. ILS is UNeMed's newest industry partner and was granted the exclusive right to commercialize UNMC's interest in a modular laboratory wall system known as a FAB Wall. The FAB Wall system, which allows for re-design of laboratory bench space that is non-disruptive to research activities, was implemented throughout the Durham Research Center at the UNMC campus. ([www.innovlab.com](http://www.innovlab.com)) UNeMed's other industry partners include: AVI BioPharma, Inc; Boston Scientific Corp.; ImaRx Therapeutics, Inc.; PharMingen, Inc.; and Philips Medical Systems.

UNeMed also works closely with the Technology Advancement Group (TAG), Nebraska Research Initiative Core Service provider for UNMC. TAG

essentially reduces risk and adds market value to UNMC technologies in support of successful commercialization. TAG's evaluation and assistance in development can be instrumental in moving the technologies from concept to the marketplace.

### *The Importance of a Presence*

UNMC and UNeMed recognize the need to establish an international presence, thus actively participate in the research marketplace. A team of 25 UNMC scientists, the University of Nebraska-Lincoln, policy makers, university leaders and economic development officials attended the BIO 2006 Annual International Convention in Chicago in early April. Event attendance neared 19,500 people from 62 countries, up from 18,000 people from 56 countries.

### *Cutting Edge Technology and Facilities*

The \$77 million Durham Research Center was added to the UNMC campus in 2003, giving UNMC's scientists, technicians and students access to cutting-edge technology. The privately-funded, 289,000-square-foot building houses 116 research laboratories in addition to an auditorium and several classrooms.

Looking ahead, construction commenced in early April 2006 on the \$52.7 million Michael F. Sorrell Center for Health Science Education building. The Sorrell Center building will enhance the medical education program with state-of-the-art educational tools in addition to housing the UNMC College of Medicine. The 134,183-square-foot, state-of-the-art building is being funded entirely by private donations and is expected to be completed in the fall of 2008. The \$74.0 million UNMC Research Center of Excellence II is also scheduled for completion in 2008. The facility will encompass 242,000 square feet of research space, including 98 laboratory modules that will be staffed by a projected 263 employees.

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### The Attraction of “New Money”

UNMC and the Hospital attract out-of-state dollars to Nebraska primarily through research and grant funding, non-resident hospital patient revenues and out-of-state student tuition. Associated visitor spending with non-resident students at UNMC and non-resident patient visitors to the Hospital also represent new money to the state.

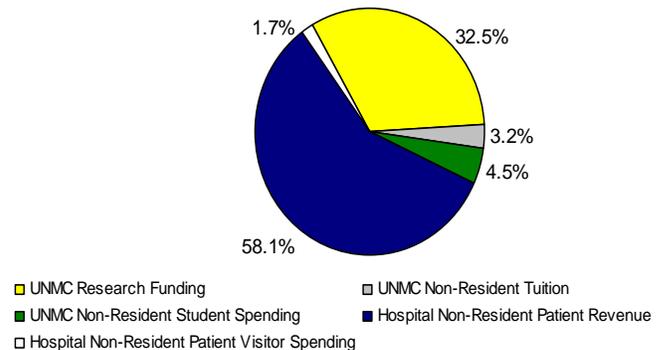
UNMC attracted \$79.4 million in research awards, contracts and gifts from out-of-state sources in 2005 plus \$9.5 million in out-of-state tuition from approximately 500 students. In total, out-of-state revenue accounted for 26.0% of the UNMC’s total revenues in 2005. Out-of-state students at UNMC represent 16.8% of the total student body at UNMC or about 500 students.

The Hospital discharged 401,800 patients during fiscal year 2005 of which about 20.8% of the total discharges or 83,696 patients were non-Nebraska residents. Non-residents that required in-patient care accounted for 26.7% of total in-patient discharges.

The Hospital received \$452.6 million in patient revenue from sources other than the State of Nebraska last year. The State contributed 7.6% of total net patient revenue, federal sources contributed 32.0%, other states contributed 1.8% and all other payers, including private payers and insurance companies, contributed the remaining 58.6%.

UNMC and the Hospital received \$324.9 million in new money during fiscal year 2005. After factoring out retail leakage estimates to capture only spending within the state of Nebraska and assuming that revenues equal expenses, the new money represents an estimated 21.4% of the total \$1.51 billion economic impact of UNMC and the Hospital on the state of Nebraska. Arguably, the \$320.7 million in spending supported by the new money would not have been added to the state economy if not for UNMC or the Hospital.

Source of the "New Money" Economic Impact



Source: University of Nebraska Medical Center and the Nebraska

# APPENDIX: SUMMARY CHARTS

<b>Omaha Metro Area Economic Impact</b>					
<b>(\$ millions)</b>					
	<b>Gross Impact</b>	<b>Percent of Local Spending</b>	<b>Direct Impact (Local Spending FY 05)</b>	<b>Indirect &amp; Induced Impacts</b>	<b>Total Impact</b>
<b><u>Business Operations*</u></b>					
UNMC Spending	\$346.3	71.1%	\$246.3	\$274.2	\$520.5
Business Spending (Non-Payroll)	\$134.6	60.3%	\$81.2	\$169.7	\$250.9
Payroll	\$211.7	78.0%	\$165.1	\$104.5	\$269.6
Employment	3,622	82.8%	3,001	1,820	4,820
Hospital Spending	\$512.5	67.3%	\$345.0	\$374.5	\$719.5
Business Spending (Non-Payroll)	\$228.4	38.5%	\$87.9	\$192.2	\$280.1
Payroll	\$284.1	90.5%	\$257.1	\$182.2	\$439.3
Employment	5,394	88.1%	4,752	4,688	9,440
<b>Total Spending</b>	<b>\$858.9</b>	<b>68.9%</b>	<b>\$591.3</b>	<b>\$648.6</b>	<b>\$1,239.9</b>
Business Spending (Non-Payroll)	\$363.0	46.6%	\$169.1	\$361.9	\$531.0
Payroll	\$495.9	85.2%	\$422.3	\$286.7	\$709.0
Employment	9,016	86.0%	7,753	6,508	14,261
<b><u>Student Spending</u></b>					
Total Spending	\$37.0	100.0%	\$37.0	\$32.2	\$69.1
Payroll	\$9.7	100.0%	\$9.7	\$9.1	\$18.8
Employment	521	100.0%	521	328	849
<b><u>Visitor Spending</u></b>					
UNMC Visitor Spending	\$0.1	100.0%	\$0.1	\$0.1	\$0.2
Payroll	\$0.04	100.0%	\$0.04	\$0.03	\$0.07
Employment	2	100.0%	2	1	3
Hospital Visitor Spending	\$4.5	100.0%	\$4.5	\$4.1	\$8.6
Payroll	\$1.5	100.0%	\$1.5	\$1.1	\$2.6
Employment	88	100.0%	88	41	130
<b>Total Spending</b>	<b>\$4.6</b>	<b>100.0%</b>	<b>\$4.6</b>	<b>\$4.2</b>	<b>\$8.8</b>
Payroll	\$1.5	100.0%	\$1.5	\$1.2	\$2.7
Employment	90	100.0%	90	43	133
<b><u>Construction Activity</u></b>					
UNMC Spending	\$24.8	95.0%	\$23.6	\$24.3	\$47.9
Payroll	\$8.4	95.0%	\$8.0	\$6.9	\$14.8
Employment	248	95.0%	236	251	487
Hospital Spending	\$22.9	95.0%	\$21.8	\$22.5	\$44.2
Payroll	\$7.7	95.0%	\$7.4	\$6.4	\$13.7
Employment	229	95.0%	218	232	450
<b>Total Spending</b>	<b>\$47.7</b>	<b>95.0%</b>	<b>\$45.3</b>	<b>\$46.8</b>	<b>\$92.1</b>
Payroll	\$16.1	95.0%	\$15.3	\$13.2	\$28.6
Employment	478	95.0%	454	484	938
<b><u>Total Activity</u></b>					
UNMC	\$408.2	75.2%	\$307.0	\$330.8	\$637.8
Payroll	\$229.9	79.6%	\$182.9	\$120.5	\$303.4
Employment	4,393	85.6%	3,759	2,400	6,160
Hospital	\$539.9	68.8%	\$371.2	\$401.0	\$772.2
Payroll	\$293.4	90.7%	\$266.0	\$189.7	\$455.7
Employment	5,712	88.6%	5,058	4,962	10,020
<b>Combined Impact</b>	<b>\$948.1</b>	<b>71.5%</b>	<b>\$678.2</b>	<b>\$731.8</b>	<b>\$1,410.0</b>
Payroll	\$523.3	85.8%	\$448.9	\$310.2	\$759.1
Employment	10,105	87.3%	8,818	7,362	16,179

\*Business expenditures for UNMC and the Hospital are disaggregated between non-payroll and payroll expenditures. Includes the transfer of 614 physicians employed by UNMC to the Hospital because the nature of the physicians spending patterns more closely reflect those of the Hospital.

# APPENDIX: SUMMARY CHARTS

<b>Nebraska Economic Impacts</b>					
<b>(\$ millions)</b>					
	<b>Gross Impact</b>	<b>Percent of Local Spending</b>	<b>Direct Impact (Local Spending FY 05)</b>	<b>Indirect &amp; Induced Impacts</b>	<b>Total Impact</b>
<b>Business Operations*</b>					
UNMC Spending	\$346.3	80.3%	\$278.2	\$302.0	\$580.3
Business Spending (Non-Payroll)	\$134.6	61.3%	\$82.5	\$181.4	\$263.9
Payroll	\$211.7	92.4%	\$195.7	\$120.6	\$316.3
Employment	3,622	95.4%	3,457	2,010	5,467
Hospital Spending	\$512.5	68.3%	\$350.0	\$386.6	\$736.7
Business Spending (Non-Payroll)	\$228.4	39.3%	\$89.7	\$203.3	\$293.0
Payroll	\$284.1	91.6%	\$260.3	\$183.3	\$443.6
Employment	5,394	89.5%	4,828	4,640	9,467
<b>Total Spending</b>	<b>\$858.9</b>	<b>73.2%</b>	<b>\$628.3</b>	<b>\$688.6</b>	<b>\$1,316.9</b>
Business Spending (Non-Payroll)	\$363.0	47.4%	\$172.2	\$384.7	\$557.0
Payroll	\$495.9	92.0%	\$456.0	\$303.9	\$759.9
Employment	9,016	91.9%	8,285	6,650	14,935
<b>Student Spending</b>					
Total Spending	\$46.2	100.0%	\$46.2	\$40.0	\$86.2
Payroll	\$12.5	100.0%	\$12.5	\$11.5	\$24.1
Employment	670	100.0%	670	410	1,079
<b>Visitor Spending</b>					
UNMC Visitor Spending	\$0.1	100.0%	\$0.1	\$0.1	\$0.2
Payroll	\$0.04	100.0%	\$0.04	\$0.03	\$0.07
Employment	2	100.0%	2	1	3
Hospital Visitor Spending	\$4.5	100.0%	\$4.5	\$4.1	\$8.6
Payroll	\$1.5	100.0%	\$1.5	\$1.2	\$2.7
Employment	90	100.0%	90	42	132
<b>Total Spending</b>	<b>\$4.6</b>	<b>100.0%</b>	<b>\$4.6</b>	<b>\$4.2</b>	<b>\$8.8</b>
Payroll	\$1.6	100.0%	\$1.6	\$1.2	\$2.7
Employment	92	100.0%	92	43	135
<b>Construction Activity</b>					
UNMC Spending	\$24.8	95.0%	\$23.6	\$26.9	\$50.5
Payroll	\$8.7	95.0%	\$8.3	\$7.5	\$15.8
Employment	258	95.0%	245	271	516
Hospital Spending	\$22.9	95.0%	\$21.8	\$24.9	\$46.6
Payroll	\$8.0	95.0%	\$7.6	\$7.0	\$14.6
Employment	238	95.0%	226	250	476
<b>Total Spending</b>	<b>\$47.7</b>	<b>95.0%</b>	<b>\$45.3</b>	<b>\$51.8</b>	<b>\$97.1</b>
Payroll	\$16.8	95.0%	\$15.9	\$14.5	\$30.4
Employment	496	95.0%	471	521	992
<b>Total Activity</b>					
UNMC	\$408.2	85.3%	\$348.2	\$369.0	\$717.2
Payroll	\$229.9	94.2%	\$216.6	\$139.7	\$356.3
Employment	4,393	99.6%	4,374	2,692	7,066
Hospital	\$539.9	69.7%	\$376.2	\$415.6	\$791.9
Payroll	\$293.4	91.8%	\$269.5	\$191.5	\$460.9
Employment	5,712	90.1%	5,144	4,932	10,076
<b>Combined Impact</b>	<b>\$948.1</b>	<b>76.4%</b>	<b>\$724.4</b>	<b>\$784.6</b>	<b>\$1,509.0</b>
Payroll	\$523.3	92.9%	\$486.0	\$331.2	\$817.2
Employment	10,105	94.2%	9,518	7,624	17,142

\*Business expenditures for UNMC and the Hospital are disaggregated between non-payroll and payroll expenditures. Includes the transfer of 614 physicians employed by UNMC to the Hospital because the nature of the physicians spending patterns more closely reflect those of the Hospital.

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