2016 Edition

the economic Pulse of North Dakota

a HEALTH CARE impact study

NDHA
North Dakota Hospital Association
Est. 1934

Table of Contents

Description | Page(s)

Acknowledgements 3

List of Figures 4

Background Information 5

Conduct of Study 6

- Research Methodology 6
- Concepts Utilized 7
- Additional Data Sources 8
- Research Gaps and Limitations 8

Executive Summary 9

Introduction 12

Objectives 12

Findings 13

- Financial Impacts 13
- Employment Impacts 20
- Patient Care Impacts 23

Conclusion 24

Appendices

- Appendix A: Model and Data Used to Estimate Multipliers 25
- Appendix B: Hospital “Impact” Invitation Letter to Administrators / CEOs 29
- Appendix C: Hospital “Impact” Survey Questionnaire 31
- Appendix D: Participating Facilities 34

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The research team also acknowledges the healthcare administrators, financial officers and other executives who completed and returned survey questionnaires and other requested documents.

Funding for this study was provided by the North Dakota Hospital Foundation.

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Respectfully submitted,

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List of Figures

Description		Page(s)
Figure 1:	State Economic System	7
Figure 2:	Gross Revenue: Medicare, Medicaid & All Other Payers	13
Figure 3:	Deductions from Revenue	14
Figure 4:	Hospitals Generate Over $3.6 Billion Annually in Net Revenue	14
Figure 5:	Hospital Net Revenues Have Quadrupled Since 1997	15
Figure 6:	Six Largest Hospitals Account for 87% of Total Net Revenues	15
Figure 7:	Majority of Community Hospitals Report Positive Bottom Line	16
Figure 8:	Charity Care & Bad Debt Costs Reduced to $150 Annually	17
Figure 9:	The Vast Majority of Dollars Spent by Community Hospitals Remain in ND	17
Figure 10:	Hospitals Continue to Invest $275 Million in Capital Improvements in 2016-17	18
Figure 11:	Direct and Secondary Impact Exceeds $5.7 Billion Annually	19
Figure 12:	Hospital Employment Nears 20,000 FTEs	20
Figure 13:	Hospitals Generate Significant Direct & Secondary Employment Impacts	20
Figure 14:	Direct & Secondary Income Impacts Exceed $1.6 Billion Annually	21
Figure 15:	Majority of State's Largest Employers Are Healthcare Providers	21
Figure 16:	Healthcare and Social Assistance are the State's Largest Non-Governmental Employers	22
Figure 17:	Hospitals Provided More than 7 Million Total Patient Encounters	23

Background Information

In August 2016, Marketing & Advertising Business Unlimited, Inc. (dba Agency MABU), was commissioned by the North Dakota Hospital Association (NDHA) to conduct a research study to determine the contribution of hospitals and health systems to North Dakota's economy.

NDHA had conducted similar studies in 1997, 2002, 2006, 2008, 2010, 2012 and 2014. The survey instruments used as part of the prior studies (2002, 2006, 2008, 2010, 2012 and 2014) were comparable to the survey instrument used for the 2016 study.

Only slight variations in the survey instruments exist from one study to the next. For example, the 2002 study requested detailed information from hospitals relating to the number of dollars spent in North Dakota as compared to the number of dollars spent out-of-state. The 2006, 2008, 2010, 2012 and 2014 versions of the survey simply asked respondents to estimate the overall percentage of total dollars spent within the state as compared to the overall total dollars spent out-of-state.

Detailed breakouts of expenses were not requested in the most recent surveys. Both the 2012 and 2014 research studies quantified the economic contribution of the state's 40+ community hospitals. The results from the 2014 and 2016 surveys will be compared throughout this report in sections where the data sources are similar.

Conduct of Study

Research Methodology

In the fall of 2016, the North Dakota Hospital Association distributed survey questionnaires to administrators of community hospitals in North Dakota (excluding tribal hospitals, specialty hospitals, and one (1) state-run facility).

Since many clinics and outpatient facilities are owned and operated by North Dakota hospitals, the data gathered through the NDHA survey captures employment and economic information relating to doctors and other allied health professionals. Therefore, a separate survey was not distributed to non-hospital owned clinics in North Dakota. Such a survey may be developed for future studies that are designed to quantify the total economic impact of the heathcare industry in North Dakota.

An initial email invitation (Appendix B – NDHA email) was sent from NDHA to each hospital administrator on August 2, 2016, requesting that they complete the 2016 Pulse Impact questionnaire (Appendix C – Survey Questionnaire). The e-mail invitation explained the history and purpose of the Pulse survey and included a full copy of the 2014 Pulse Report in a PDF file format. The hospital administrators were provided with survey instructions and asked to complete and return the questionnaire by August 26, 2016. Several follow-up emails and phone calls were completed during the months of August and September as reminders to those who had yet to complete the survey.

Of the forty-two (42) community hospitals represented in the survey results, thirty-one (31) facilities (Appendix D: Participating Facilities) provided all requested information. This represents an 74% response rate. Most hospitals responded to the initial e-mail request for information. The follow-up e-mails and phone calls generated several additional responses. The data provided by the participating hospitals as part of the Pulse Survey represented financial, employment and utilization statistics from 2015-2016.

The eleven (11) facilities that did not fully participate in the 2016 survey (Appendix D: Partially-Participating Facilities) were factored into the findings by extrapolating their facilities' most recent financial and operational data from the following sources:

- Facility-specific IRS Tax Returns (Form 990)
- Facility-specific statistics provided as part of the 2014 NDHA Pulse Survey
- Aggregate data from the American Hospital Association (AHA) annual survey (2014)

Data sources were cross-referenced to confirm consistency of the findings from one source to the next. If current data was not provided by the facility, the data they submitted for the 2014 Pulse survey was used for the 2016 report. This conservative approach may cause the findings to be somewhat under-reported. Nevertheless, all forty-two facilities are represented in the 2016 findings.

Concepts Utilized

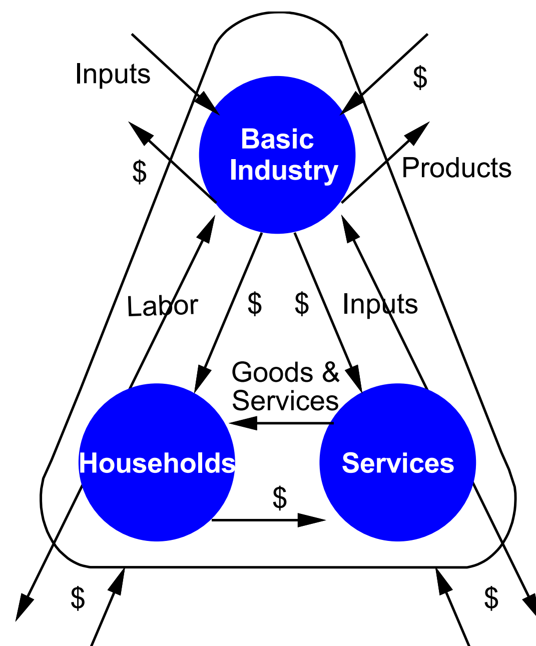
For any economy, a cornerstone involves businesses that sell some or all goods and services to buyers outside of the state. Figure 1 illustrates the major flows of goods, services, and dollars of any economy. The flow of products out of, and dollars into, a state are represented by the two arrows in the upper right portion of Figure 1.

To produce these goods and services for "export" outside the state, the basic industry purchases from outside of the states (upper left portion of Figure 1), labor from the residents or "households" of the state (left side of Figure 1), and inputs from service industries located within the state (right side of Figure 1). The flow of labor, goods, and services in the state is completed by households using their earnings to purchase goods and services from the state's service industries (bottom of Figure 1). Figure 1 illustrates the interrelationship between a change in any one segment of a state's economy, resulting in reverberations throughout the entire economic system of the state.

Consider, for instance, the closing of a hospital. The services sector will no longer pay employees and dollars going to households will stop. Likewise, the hospital will not purchase goods from other businesses and dollar flow to other businesses will stop. This decreases income in the "households" segment of the economy. Since earnings would decrease, households decrease their purchases of goods and services from businesses within the "services" segment of the economy. This, in turn, decreases these businesses' purchases of labor and inputs. Thus, the change in the economic base works its way throughout the entire state economy.

The total impact of a change in the economy consists of direct, indirect, and induced impacts. Direct impacts are the changes in the activities of the impacting industry, such as the closing of a hospital. The impacting business, such as the hospital, changes its purchases of inputs because of the direct impact. This produces an indirect impact in the business sectors. Both the direct and indirect impacts change the flow of dollars to the state's households. The households alter their consumption accordingly. The effect of this change in household consumption upon businesses in a state is referred to as an induced impact.

Figure 1:
State Economic System



A measure is needed that yields the effects created by an increase or decrease in economic activity. In economics, this measure is called the multiplier effect. Multipliers are used in this report. An employment multiplier is defined as:

"...the ratio between direct employment, or that employment used by the industry initially experiencing a change in final demand and the direct, indirect, and induced employment."

An employment multiplier of 3.0 indicates that if one job is created by a new industry, 2.0 jobs are created in other sectors (businesses and industries) due to business (indirect) and household (induced) spending.

Additional Data Sources

To generate a full report on the contributions of hospitals and health systems to North Dakota's economy, the research team secured additional financial and utilization data from the following sources:

- The American Hospital Association (AHA) Hospital Guide, 2016 Edition
- Job Service of North Dakota website (www.ndworkforceintelligence.com)
- North Dakota Tax Commissioner website (www.nd.gov/tax)
- US Department of Commerce website (www.commerce.nd.gov)
- US Census Bureau website (www.census.gov)

These websites were referenced to provide statistics relating to employment and economic impacts of community hospitals and health systems serving North Dakota.

Research Gaps and Limitations

The research findings contained within this report represent a reasonable and realistic estimate of the financial, employment, and patient service impacts of the heathcare industry on North Dakota's economy. The findings are, however, not a definitive or complete representation of the total impact of the heathcare industry due to the following factors:

- The total population surveyed was incomplete. Not all heathcare facilities were included as part of the research study. Although hospitals represent a large portion of the heathcare industry in North Dakota, other organizations such as independent physician offices, rural community health centers, private ambulatory surgery centers, tribal-based hospitals, and rehabilitation facilities were not included as part of the study.
- The potential for response error. Although the survey instrument was pre-tested for clarity and understanding, as well as its usage in prior Pulse surveys, there exists a margin of error where differing interpretations may have been made by the various respondents.
- The potential for data analysis error. Although one survey instrument was used to gather most information, additional data sources were also consulted to create projections and estimates for partially-participating facilities. These data sources contained information from several different time periods.

Despite these research gaps and limitations, the findings of this report represent a sound estimate of the significant impact that hospitals and health systems offer to the state of North Dakota and its residents.

Executive Summary

A total of forty-two (42) community hospitals offer North Dakota residents with a comprehensive array of health services. These heathcare providers contribute significantly to the overall stability and vitality of the State. Community hospitals provide positive impacts relation to financial, employment, and patient care indicators.

The research study which follows is titled "The Economic Pulse of North Dakota." It was conducted in 2016 to assess the contribution made by community hospitals to the economy of North Dakota.

The report's major findings reveal that heathcare ranks among the top economic industries in the State relative to several key economic indicators:

The report's major findings reveal that heathcare ranks among the top economic industries in the State relative to several key economic indicators:

$5.7
BILLION ECONOMIC IMPACT ANNUALLY

Heathcare ranks among the top industries in the state, with direct economic impacts of nearly $3.5 billion annually and indirect economic impacts of an additional $2.2 billion, thus bringing the combined economic impact of hospitals to over $5.7 billion annually. Furthermore, **75% of all dollars spent by community hospitals each year remain in North Dakota.**

14.2%
HEATHCARE & SOCIAL ASST.

According to Job Service North Dakota, **the healthcare and social assistance industry represents the State's largest non-governmental employers.** This industry employs one out of every seven (14.2%) of all workers in North Dakota. Additionally, five (5) of the state's top eight (8) non-governmental employers are hospitals and health systems.

7
MILLION PATIENT ENCOUNTERS

North Dakota's community hospitals provide more than 7 million patient encounters annually. An average resident of North Dakota is directly impacted by community hospitals about nine (9) times each year through inpatient or outpatient care and emergency room or clinic visits.

.48:$1
REINBURSTMENT TO COMMUNITY HOSPITALS

Community hospitals receive 48 cents in reimbursement for every dollar they bill to Medicare, Medicaid, Blue Cross Blue Shield, and other payers. Additionally, North Dakota community hospitals provided over $150 million in bad debt and charity care in 2016 for people who were unable to pay for services rendered.

1 of 3
REPORTED NEGATIVE BOTTOM LINE

One-Third of North Dakota Hospitals Report Negative Bottom Lines. One out of every three North Dakota hospitals reported an overall negative bottom line in 2016. Sixteen (16) of the forty-two (42) hospitals surveyed reported a negative operating margin (net return). Twenty-six (26) reported a positive operating margin.

Other key findings of this report include:

Gross Operating Revenue Exceeds $7 Billion & Net Revenues Total Over $3.6 Billion
North Dakota hospitals provided healthcare services totaling over $7.4 billion in gross revenue in 2016, as compared to $6.1 billion in 2014, a 21% increase.

- More than $3.9 billion was deducted from revenue primarily due to fixed reimbursement and contractual agreements with government and third-party payers.
- These deductions from revenue were 52% less than the actual amount of billed charges, meaning hospitals in North Dakota were paid 48 cents for every dollar billed.
- The total net operating revenues totaled more than $3.6 billion.

Medicaid Expansion Positively Impacts Community Hospitals
Expansion of the Medicaid program had a positive financial impact on community hospitals in North Dakota. An estimated $542 million in additional revenue will be generated between 2015-2017 as a result of this program. (Source: North Dakota Department of Human Services 2015-2017 Budget)

- Medicaid Expansion ensures 20,000 North Dakotans maintain health coverage, preserving healthcare access for our most vulnerable citizens.
- Medicaid Expansion keeps the cost of insurance low for the businesses that drive our economy
- Medicaid Expansion is critical to covering operating costs at our hospitals and clinics, the loss of which will result in staff cuts and closed facilities.

Six Largest Hospitals Account for Nearly 90% of Total Net Revenue
The overwhelming majority of the $3.6 billion, 87% or $3.2 billion, was generated by the six (6) largest hospitals in the state (Altru, Essentia, Sanford Health (accounts for both East and West locations), CHI St. Alexius, and Trinity Health).

Charity Care Decreased from $274 Million in 2014 to $150 Million in 2016
North Dakota hospitals reported a combined total of $150 million in charity care and bad debt (bills deemed uncollectable). This figure represents a decrease of 45% from the 2014 figure of $274 million. This decrease is primarily attributed to the positive effects of the Medicaid Expansion and the 340B Drug Programs.

Majority of Dollars Spent by Hospitals Remain in North Dakota
Three-quarters or 75% of all expenses incurred by community hospitals are spent in North Dakota. The remainder of expenses reported in the 2016 Pulse Survey went to sources out-of-state.

North Dakota Hospitals Continue to Invest in Facilities & Capital Improvements
Community hospitals across North Dakota reported more than $150 million was spent in 2016 on upgrading facilities and equipment and reported $123 million would be spent in the coming year.

Total Economic Output of Hospitals Exceeds $5.7 Billion
The direct expenditures of all hospitals in North Dakota is estimated at nearly $3.5 billion. Using the multiplier, a secondary impact of over $2.2 billion from this sector brings the total economic impact above $5.7 billion

Hospital Sector Employs Close to 20,000 Full-Time Equivalent Workers
By totaling all full-time and part-time/help-out staff together, community hospitals employ 24,766 individuals, which equates to 19,942 full-time equivalent (FTE) positions.

Total Personal Income Impact Exceeds $1.6 Billion
For each employment dollar created in the hospital sector, an additional $0.43 cents in personal income is created throughout the state due to business (indirect) and household (induced) spending.

Hospital Employee Salaries are 25% Higher than Statewide Average
Job Service North Dakota reports that the average 2016 annual wage for a hospital employee was $59,020. This figure is about 25% higher than the statewide worker average of $45,660/year.

The Economic Pulse of North Dakota

CONDUCTED ON BEHALF OF:
North Dakota Hospital Association
Bismarck, North Dakota

RESEARCH AND REPORTED BY:
Agency MABU
Bismarck, North Dakota

UTILIZING THE IMPLAN MODEL FROM:
Dr. Gerald A. Doeksen, Director
National Center for Rural Health Works
Oklahoma State University

Introduction

North Dakota hospitals and health systems represent the pulse of the state, both in terms of human impact and economic impact. Ready to serve and provide assistance 24/7, heathcare facilities offer quality care to all residents, regardless of their social or financial status. The influence of these organizations reaches far beyond the point of patient care.

Though truly quantifying all contributions of the heathcare industry is not possible, it is, however, important to show the positive impact of the State's heathcare facilities and caregivers and what role the industry plays in the total health and wellness of North Dakota at large.

Objectives

The purpose of this study is to estimate the contribution of community hospitals to the economy of North Dakota. Specific objectives include:

1. Estimate the economic impact of community hospitals
2. Estimate the employment impact of community hospitals
3. Estimate the patient care impact of community hospitals

Findings

The study documents the contributions of hospital to North Dakota's economy from three (3) distinct perspectives: financial, employment, and patient care impacts.

Financial Impacts

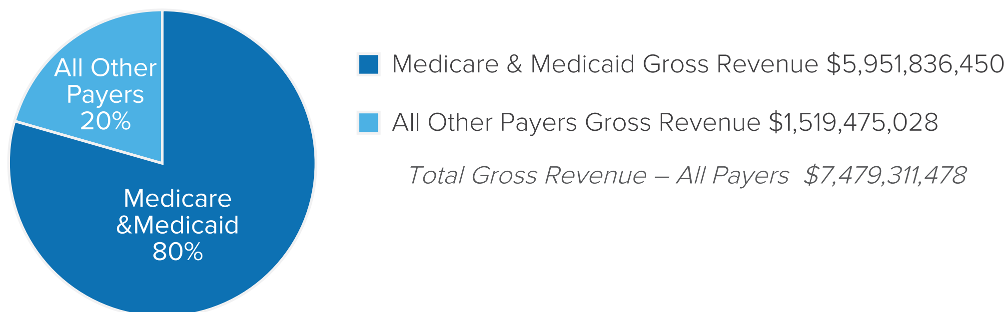
Financial impacts were determined using information provided through a survey questionnaire that was completed by hospital administrators and/or their designated representative.

The eleven (11) hospitals that did not fully participate in the 2016 survey were factored into the finding for this report by extrapolating their most recent financial and operational data from various sources including IRS Tax reports, the American Hospital Association's annual survey, and/or data submitted by each of these facilities as part of the 2012 or 2014 Pulse Surveys.

Total Gross Operating Revenue Exceeds $7 Billion
North Dakota hospitals and health systems provided healthcare services totaling over $7.4 billion in gross operating revenue in 2016, as compared to $6.1 billion in 2014 (a 21% increase). The gross revenue of $7.4 billion represents the combined amount that North Dakota hospitals billed to all patients, insurance companies, and other payers for services rendered in 2016.

Medicare and Medicaid account for over $5.9 billion of this total, which represents over well over half (79%) of the total gross revenue in 2016. All other payers (e.g. Blue Cross Blue Shield, Workforce Safety, etc.) account for the remainder of the revenue at 21%.

Figure 2:
Gross Revenue: Medicare, Medicaid & All Other Payers



Source: NDHA Survey 2016

Deductions from Revenue Approach $4 Billion

Like many industries, not all bills submitted by community hospitals to their various customers and payers (e.g. government, patients, insurance companies) are paid in full. The heathcare industry is hit especially hard by this phenomenon. Third party payers typically pay hospitals based on pre-established, fixed rates of reimbursement.

These reimbursement rates are considerably lower than the actual amount billed by hospitals to these payers. In fact, the deductions from revenue reported in the 2016 Pulse Survey totaled just over $3.9 billion, which is 52% less than actual billed charges. In other words, North Dakota community hospitals were paid forty-eight (48) cents on every dollar billed for services rendered.

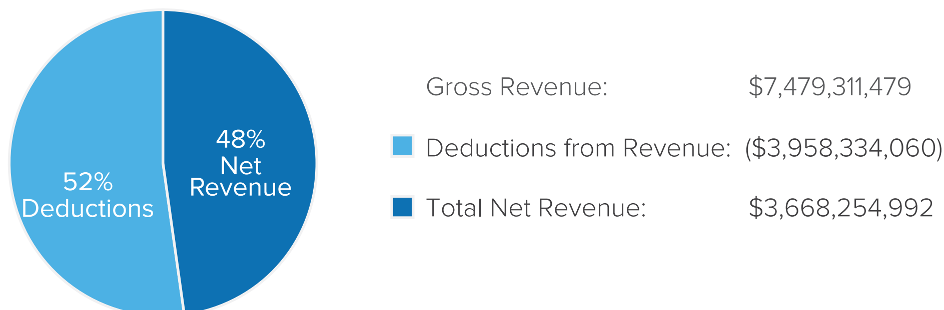
This reimbursement divide has only grown over the years. Hospitals in 2012 reported receiving fifty-four (54) cents to every dollar billed, and in 2014 that figure had decreased to fifty-one (51) cents for every dollar.

Figure 3:
Deductions from Revenue

Net Operating Revenue Totals Over $3.6 Billion

With gross revenues totaling over $7.4 billion and deductions totaling more than $3.9 billion, Figure 4 illustrates that the total net operating revenue generated by North Dakota community hospitals was recorded at roughly $3.6 billion.

Figure 4:
Hospitals Generate Over $3.6 Billion Annually in Net Revenue

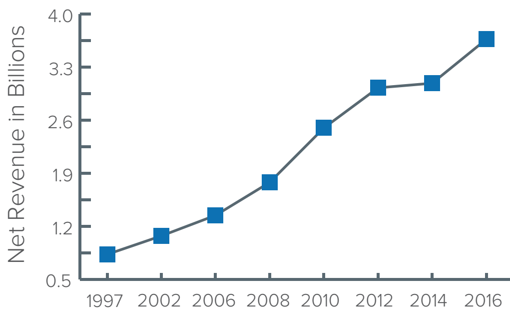


Over the past 19 years, total net revenues for community hospitals in North Dakota have grown steadily. Since 1997, the net revenue generated by community hospitals has grown by 271% - an average annual increase of 15.9%.

Total net revenue increased by about $500 million between the 2014 and 2016 Pulse Surveys. This growth represents a percentage change of about 16.3% and is an improvement upon the year-to-year 2% increase recorded in the 2014 Pulse Survey.

Figure 5:

Hospital Revenues Have Quadrupled Since 1997



Pulse Survey	Total Annual Net Revenues	% of Growth
1997 Survey	$832,000,000	N/A
2002 Survey	$1,076,000,000	29.3%
2006 Survey	$1,347,000,000	25.2%
2008 Survey	$1,782,000,000	32.3%
2010 Survey	$2,555,155,757	43.9%
2012 Survey	$3,029,439,049	18.6%
2014 Survey	$3,153,684,292	2.0%
2016 Survey	$3,668,254,992	16.3%

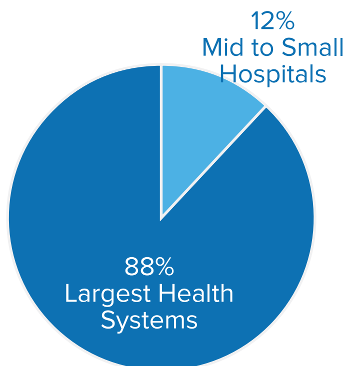
* Overall growth from 1997 to 2016 = 340%

Six Largest Hospitals Account for Nearly 90% of Total Net Revenue

The overwhelming majority of the $3.6 billion net revenue, about 88% or $3.2 billion, was generated by the six (6) largest hospitals in the state (Altru, Essentia, Sanford Health (accounts for both East and West locations), CHI St. Alexius, and Trinity Health). These organizations operate heathcare facilities located in the State's four major cities (Fargo, Grand Forks, Minot, and Bismarck). The remaining hospitals and health systems, which located in rural communities, account for the remaining 12% of total annual revenue.

Figure 6:

Six Largest Hospitals Account for 88% of Total Net Revenues



Six (6) Largest Hospitals	$3,200,195,027
Mid-to-Small Sized Health Systems (34 facilities)	$468,059,965

Total Net Revenues: $3,668,254,992

Source: NDHA Survey, 2016.

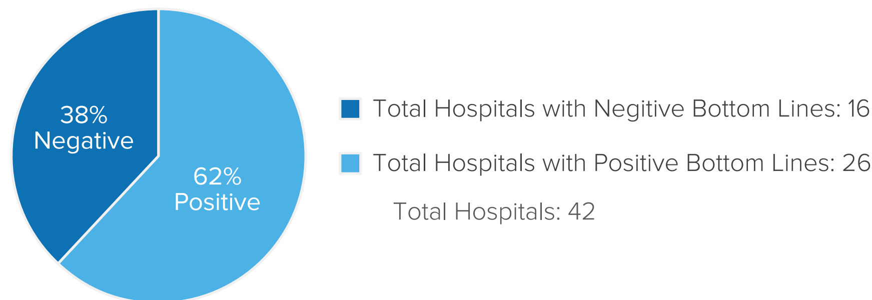
One-Third of Community Hospitals Report a Negative Operating Margin

On an aggregate basis, North Dakota hospitals reported an overall positive bottom line. However, sixteen (16) of the 42 hospitals surveyed in the 2016 Pulse Survey reported that they had a negative operating margin (net return). Twenty-six (26) hospitals reported a positive operating margin. This is an improvement over the twenty three hospitals (23), a majority of North Dakota health systems, that reported a negative operating margin in the 2014 Pulse Survey.

The difference in financial performance between the various hospitals throughout the State can be attributed to many factors, including, but not limited to, reimbursement from Medicare, Medicaid, and other third party payers, scope of services offered, market share, capital improvements, bad debt, and operational costs.

Negative net returns affected all types of hospitals regardless of size; however, rural hospitals have historically tended to be at greater risk of financial challenges. When net returns are inadequate, hospitals are forced to tap into their retained earnings (savings) and/or seek financial assistance to sustain their operations and facilities.

Figure 7:
One-Third of Community Hospitals Report Negative Operating Margins



Non-Operating Revenue Contributes to Hospital Viability

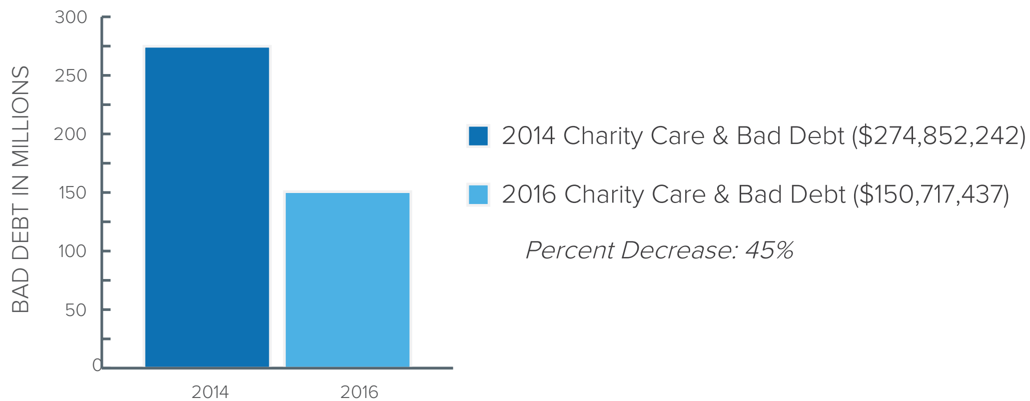
Recognizing that operating margins are often slim, and in certain cases non-existent, for community hospitals in North Dakota, there is a need for these organizations to generate additional income from non-operating sources (i.e. revenue not directly related to patient care services). Examples of such revenue include donated services, investment income, property sales, and rentals of office space. This non-operating income can enhance a hospital's overall financial viability.

Charity Care and Bad Debt

As socially-responsible organizations, community hospitals provide much needed service to patients, such as emergency and trauma care, regardless of an individual's financial standing or ability to pay. With this in mind, according to the 2016 Pulse Survey, North Dakota community hospitals provided over $150 million in bad debt and charity care on behalf of those who were unable to pay for services rendered. This number is a decrease from the findings of the 2014 Pulse Survey, in which hospitals reported providing $274 million in charity care.

Figure 8:

Charity Care & Bad Debt Exceeds $150 Million Annually



Majority of Dollars Spent Remain in North Dakota

Most expenses incurred by community hospitals are spent in North Dakota, according to the 2016 Pulse Report. On average, 75% of the dollars spent were reported to have remained in the state. The remaining 25% of dollars go to out-of-state sources for supplies, equipment, and other items needed to operate community hospitals. This percentage is consistent with prior Pulse Surveys, which have reported that roughly 75% of all expenditures are made in North Dakota.

Figure 9:

The Vast Majority of Dollars Spent by Community Hospitals Remain in ND

Medicaid Expansion Positively Impacts Community Hospitals

Expansion of the Medicaid program had a positive impact on patients and heathcare providers alike by providing eligible North Dakota residents with enhanced access to health insurance through the Sanford Health Plan. The financial impact on healthcare providers was estimated at $542 million in additional revenue between 2015-2017. (Source: North Dakota Department of Human Services 2015-2017 Budget)

Community Hospitals' Investments for Capital Improvements Exceed $275 Million

Community hospitals across North Dakota invested more than $150 million in 2016 on upgrading facilities and equipment. Planned investment in the coming year is also high, with about $123 million already reported by hospitals.

Figure 10:

Community Hospitals Invest $275 Million in Facility & Capital Improvements in 2016-17

Direct and Secondary Impacts

The widely-accept input-output model known as IMPLAN was used to estimate the direct, secondary, and total impacts of hospitals on North Dakota's economy. Dr. Gerald A. Doeksen, Director of the National Center for Rural Health Works and Regents Professor and Extension Economist with Oklahoma State University, was commissioned to derive multipliers from IMPLAN for the State of North Dakota for employment, income, and output.

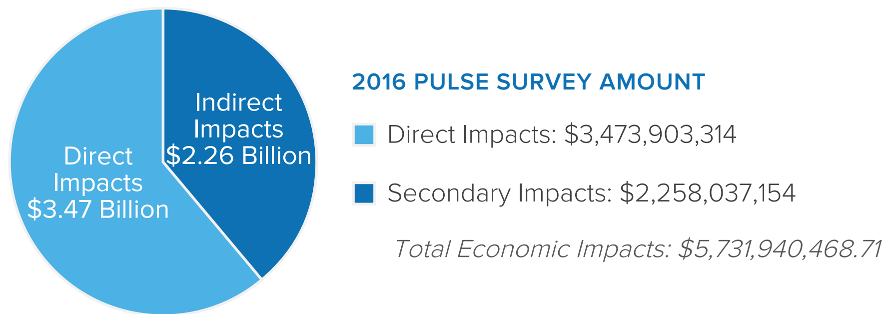
The impact in this report will be quantified as output, employment, and income resulting from hospitals in the state. Output is defined as the total expenditures of hospitals. Employment is defined as full-time equivalent (FTE) employees. Income is defined as personal income from salaries and benefits. Information on the model and data used in this report can be found in Appendix A.

Total Economic Output of Hospitals Exceeds $5.7 Billion

According to the IMPLAN model, the State output multiplier for the hospital sector is 1.65. This means that for each dollars of expenditures from the sector, an additional $0.65 in expenditures is generated in other businesses and industries throughout North Dakota. According to the 2016 Pulse Survey, the direct expenditures of all hospitals in North Dakota is estimated at $3.47 billion. Using the multiplier, a secondary impact of $2.26 billion from this sector brings the Total Economic Output of Hospitals in excess of $5.7 Billion.

Figure 11:

Direct and Secondary Impact Total Exceeds $5.7 Billion Annually



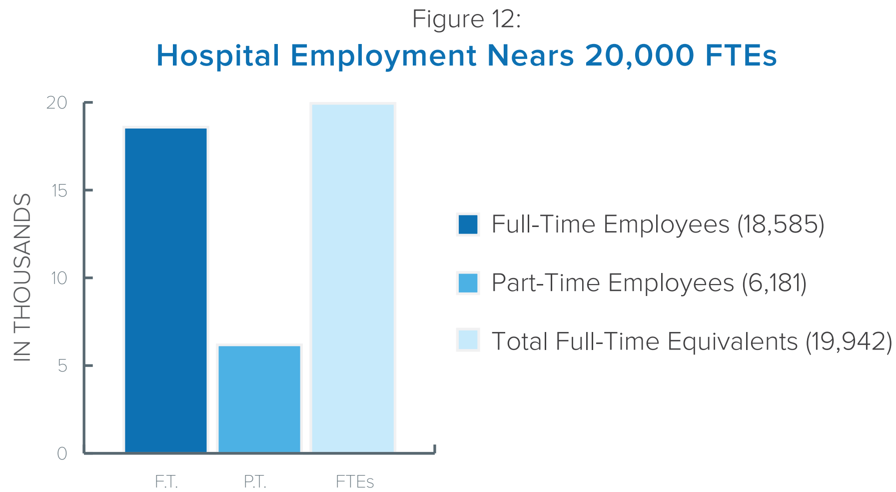
Employment Impacts

Hospital Sector Employs Close to 20,000 Full-Time Equivalent Workers

The 2016 Pulse Survey results indicate that community hospitals in North Dakota employ 18,585 full-time, including a total of 2,133 doctors, nurse practitioners, and physician assistants. The hospital sector also employs 6,181 part-time and help-out staff. By combining all full-time and part-time/help-out staff, community hospitals employ 24,766 individuals, which equates to 19,942 full-time equivalent (FTE) positions.

Figure 12:

Hospital Employment Nears 20,000 FTEs

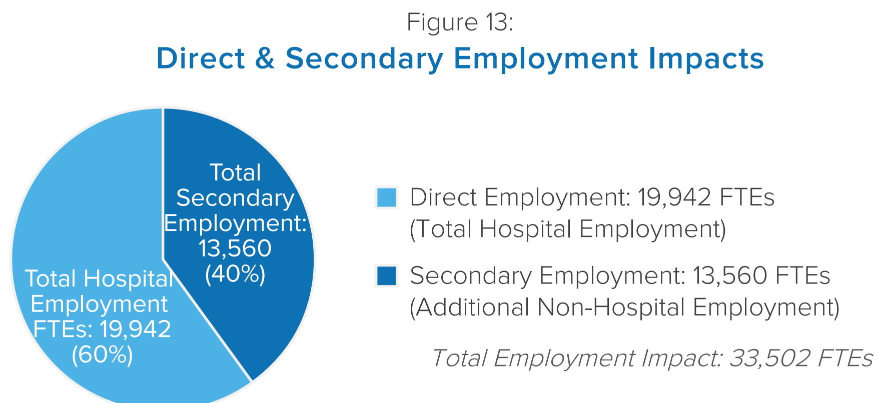


The state employment multiplier for the hospital sector is 1.68. This signifies that for each job created in this sector, 0.68 additional jobs are created throughout the state due to business (indirect) and household (induced) spending. For example, the total employment of all hospitals in the State of North Dakota is 19,942 FTEs. When the employment multiplier of 1.68 is applied, the product of 33,502 indicates the total employment impact of the hospital sector. (19,942 x 1.68 = 33,502)

Thus, as shown in Figure 13, the community hospital sector creates a secondary impact of 13,560 FTEs (equation). These jobs are created in other economic sectors from the expenditures of North Dakota hospitals and the spending of hospital employees.

Figure 13:

Direct & Secondary Employment Impacts



Total Personal Income Impact Exceeds $1.6 Billion

The state income multiplier for the hospital sector is 1.43. This means that for each employment dollar created in the hospital sector, an additional $0.43 cents in personal income is created throughout the state due to business (indirect) and household (induced) spending.

Job Service North Dakota found that in 2016 the average annual wage for a hospital sector employee was $59,020. When this figure is multiplied by the total employment in the hospital sector during the same period, the total personal income for the hospital sector equals $1,152,896,680

Applying the income multiplier ($1,152,896,680 x .43 = $495,745,572) results in a secondary income impact of roughly $496 million in additional salaries and benefits to non-hospital employees. Figure 14 illustrates the hospital sector's total personal income impact for the state, which equates to more than $1.6 billion.

Figure 14:

Direct & Secondary Income Impacts Exceed $1.6 Billion Annually

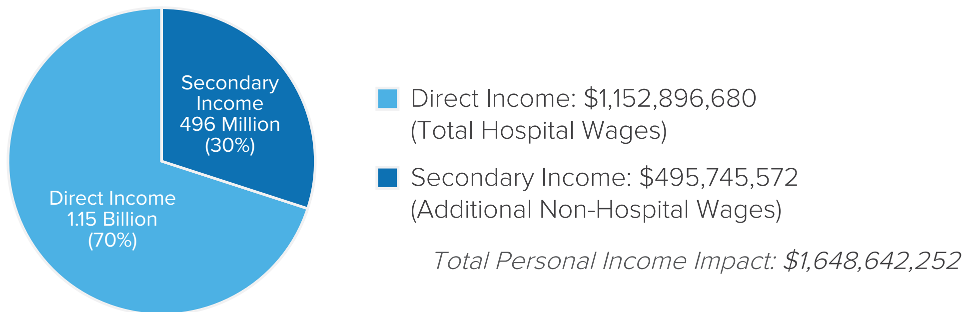


Figure 15

Majority of North Dakota's Largest Employers Are Healthcare Providers

Top five healthcare employers in North Dakota among the eight (8) largest employers	
Sanford Health	Fargo/Bismarck
Altru Health Systems	Grand Forks
Trinity Health	Minot
CHI St. Alexius Health	Bismarck
Essentia Health	Fargo

Source: Job Service North Dakota, Labor Market Information Center, 2015

Additional Employment Impacts

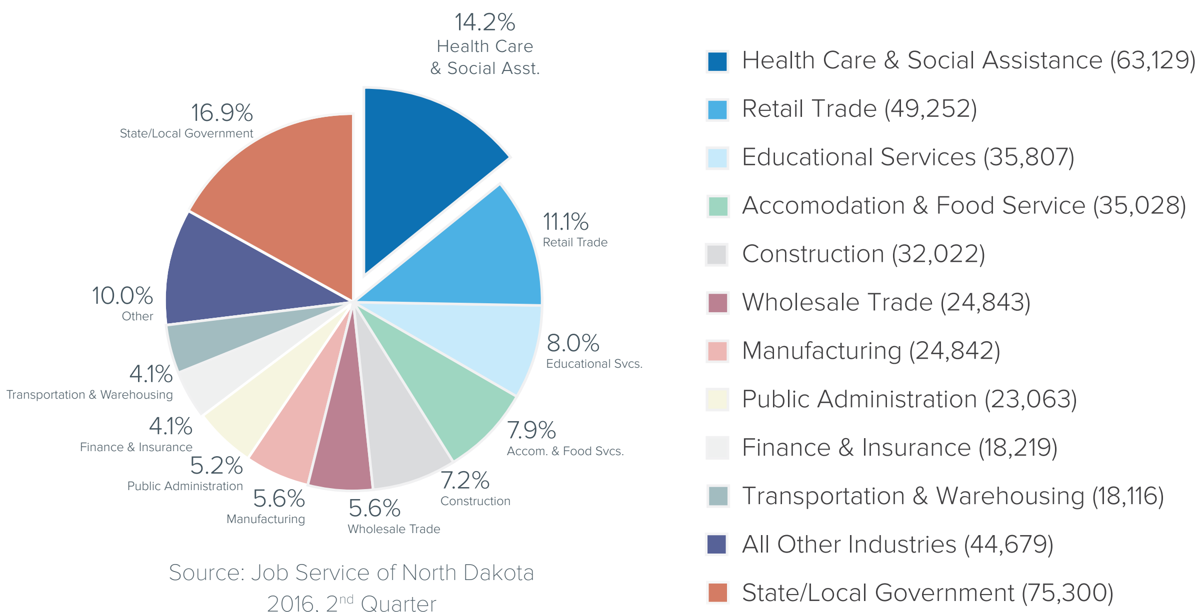
Job Service North Dakota reports that the average 2016 annual wage for a hospital employee was $59,020. This figure is about 25% higher than the statewide worker average of $45,660/year.

Furthermore, Job Service North Dakota reports that the average total level of employment for 2016 in North Dakota to be 445,300 workers. With an estimated 19,942 FTE positions filled in North Dakota hospitals, it can be said that about 4.3% of the State's working population are employed by community hospitals. In other words, one in every twenty-three North Dakota workers is an employee of a community hospital.

Combined, the educational & health service industries are the largest non-governmental employers in the state, representing 14.2% of the total employment in North Dakota.

Figure 16:

Health Care and Social Assistance – State's Largest Employing Industry



Total Employees: 445,300

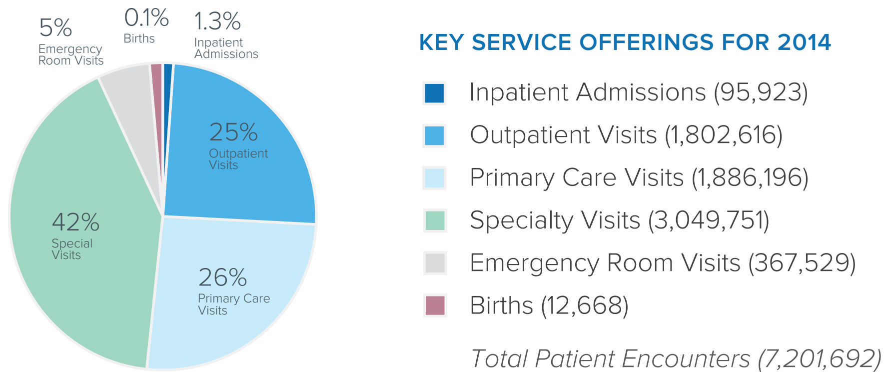
Hospitals Critical to Rural Areas

In rural areas, hospitals are often either the largest or second largest employer, behind school systems. Rural hospitals provide a source of high-tech jobs for young people who may have otherwise left communities heavily dependent upon agriculture. Rural hospitals also provide an anchor for other heathcare jobs, such as physicians and pharmacists, which may not be available in the absence of a community hospital.

Patient Care Impacts

As part of the 2016 Pulse Survey, hospital administrators were asked to provide utilization statistics pertaining to key service offerings. They estimated the number of total inpatient admissions, outpatient visits, emergency room visits, clinic visits and births for 2016.

Figure 17:
Hospitals Provided More than 7 Million Total Patient Encounters



Inpatient Admissions
A total of 95,923 inpatients were admitted to community hospitals in North Dakota, according to the 2016 Pulse Survey. This figure represents a 4.3% increase over the 2014 Pulse Survey number of inpatient admissions (91,950).

Outpatient Visits & Clinic Visits
A total of 1,802,616 outpatient visits were received at community hospitals in North Dakota, according to the 2016 Pulse Survey. A total of 4,932,956 clinic visits were conducted at community hospitals in 2016, which accounts for 1,886,196 primary care visits and 3,049,751 specialty visits.

Emergency Room Visits
A total of 367,529 emergency rooms visits were received at community hospitals in North Dakota, according to the 2016 Pulse Survey This represents an 8.7% increase from the 338,089 ER visits reported in the 2014 Pulse Survey.

Births
A total of 12,668 births were delivered at community hospitals in North Dakota, according to the 2016 Pulse Survey This represents an 8.3% increase over the 11,695 births reported in the 2014 Pulse Survey.

Conclusion

The significance of an industry that saves lives and cares for the well-being of every person is immeasurable. The metrics provided in this survey provide a better understanding of the substantial economic and employment impact that community hospitals have on North Dakota. In 2016 alone, community hospitals directly contributed nearly $3.5 billion into the state's economy.

Additionally, community hospitals in North Dakota continue as one of the state's largest employers. Community hospital employees make up about 4.3% of the state's total workforce. In other words, about one out of every twenty-three (23) individuals working in North Dakota is employed by a community hospital.

Community hospitals have a positive social impact on the state by providing quality heathcare services to people in need. In 2016, community hospitals affected almost every resident in the state – and provided over 7 million inpatient, outpatient, clinic and emergency room visits. By the numbers, each North Dakota resident had an average of 2.4 outpatient visits and 6.6 clinic visits with community hospitals in 2016.

The AHA report details the many other ways hospitals support the local population, which include offerings like community health services, subsidized payment for Medicaid patients, and covering procedures where patients cannot pay for services rendered. Charity case covered a total of $150 million, according to the 2016 Pulse Survey.

Community hospitals in North Dakota are an important cornerstone for the people and the areas they serve. In many ways, they act as important economic and social forces – bringing critical infrastructure, jobs, and prosperity while also bringing life-saving and health-enriching services.

Appendix A

Model and Data Used to Estimate Multipliers

Appendix A

Model and Data Used to Estimate Employment and Income Multipliers

A computer spreadsheet that uses state IMPLAN multipliers was developed to enable community development specialists to easily measure the secondary benefits of the health sector on a state, regional or county economy. The complete methodology, which includes an aggregate version, a disaggregate version, and a dynamic version, is presented in Measuring the Economic Importance of the Health Sector on a Local Economy: A Brief Literature Review and Procedures to Measure Local Impacts (Doeksen, et al., 1997). A brief review of input-output analysis and IMPLAN are presented here.

A Review of Input-Output Analysis

Input-output (I/O) (Miernyk, 1965) was designed to analyze the transactions among the industries in an economy. These models are largely based on the work of Wassily Leontief (1936). Detailed I/O analysis captures the indirect and induced interrelated circular behavior of the economy. For example, an increase in the demand for health services requires more equipment, more labor, and more supplies, which, in turn, requires more labor to produce the supplies, etc. By simultaneously accounting for structural interaction between sectors and industries, I/O analysis gives expression to the general economic equilibrium system. The analysis utilizes assumptions based on linear and fixed coefficients and limited substitutions among inputs and outputs. The analysis also assumes that average and marginal I/O coefficients are equal.

Nonetheless, the framework has been widely accepted and used. I/O analysis is useful when carefully executed and interpreted in defining the structure of a region, the interdependencies among industries, and forecasting economic outcomes.

The I/O model coefficients describe the structural interdependence of an economy. From the coefficients, various predictive devices can be computed, which can be useful in analyzing economic changes in a state, a region or a county. Multipliers indicate the relationship between some observed change in the economy and the total change in economic activity created throughout the economy.

MicroIMPLAN

MicroIMPLAN is a computer program developed by the United States Forest Service (Alward, et al., 1989) to construct I/O accounts and models. Typically, the complexity of I/O modeling has hindered practitioners from constructing models specific to a state requesting an analysis. Too often, inappropriate U.S. multipliers have been used to estimate local economic impacts. In contrast, IMPLAN can construct a model for any county, region, state, or zip code area in the United States by using available state, county, and zip code level data. Impact analysis can be performed once a regional I/O model is constructed.

Five different sets of multipliers are estimated by IMPLAN, corresponding to five measures of regional economic activity. These are: total industry output, personal income, total income, value added, and employment. Two types of multipliers are generated. Type I multipliers measure the impact in terms of direct and indirect effects. Direct impacts are the changes in the activities of the focus industry or firm, such as the closing of a hospital. The focus business changes its purchases of inputs as a result of the direct impacts. This produces indirect impacts in other business sectors. However, the total impact of a change in

the economy consists of direct, indirect, and induced changes. Both the direct and indirect impacts change the flow of dollars to the state, region, or county's households. Subsequently, the households alter their consumption accordingly. The effect of the changes in household consumption on businesses in a state is referred to as an induced effect. To measure the total impact, a multiplier is used. The multiplier compares direct, indirect, and induced effects with the direct effects generated by a change in final demand (the sum of direct, indirect, and induced divided by direct).

Minnesota IMPLAN Group, Inc. (MIG)

Dr. Wilbur Maki at the University of Minnesota utilized the input/output model and database work from the U. S. Forest Service's Land Management Planning Unit in Fort Collins to further develop the methodology and to expand the data sources. Scott Lindall and Doug Olson joined the University of Minnesota in 1984 and worked with Maki and the model.

As an outgrowth of their work with the University of Minnesota, Lindall and Olson entered into a technology transfer agreement with the University of Minnesota that allowed them to form MIG. At first, MIG focused on database development and provided data that could be used in the Forest Service version of the software. In 1995, MIG took on the task of writing a new version of the IMPLAN software from scratch. This new version extended the previous Forest Service version by creating an entirely new modeling system that included creating Social Accounting Matrices (SAMs) – an extension of input-output accounts, and resulting SAM multipliers. Version 2 of the new IMPLAN software became available in May of 1999. For more information about Minnesota IMPLAN Group, Inc., please contact Scott Lindall or Doug Olson by phone at 651-439-4421 or by email at info@implan.com or review their website at www.implan.com.

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Alward, G., Sivertz, E., Olson, D., Wagnor, J., Serf, D., and Lindall, S. Micro IMPLAN Software Manual. Stillwater, MN, University of Minnesota Press. 1989.

Doeksen, Gerald A., Johnson, Tom, and Willoughby, Chuck. Measuring the Economic Importance of the Health Sector on a Local Economy: A Brief Literature Review and Procedures to Measure Local Impacts. Southern Rural Development Center. SRDC Pub. No. 202. 1997.

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Appendix B

Hospital “Impact” Invitation Letter to Administrators / CEOs

Appendix B

Hospital "Impact" Invitation to Participate in the 2016 Survey

DATE: Tuesday, August 2, 2016
TO: North Dakota Hospital Administrators and CEOs
FROM: Tim Blasl
SUBJECT: NDHA Economic Pulse Questionnaire
IMPORTANCE: High

Good Afternoon:

I'm writing to request assistance from your hospital in completing the attached survey to document the significant impact that North Dakota hospitals and health systems have on the State's economy. In the past, this study has been referred to as "The Economic Pulse of North Dakota." The study was originally completed in 1997, and has been updated every 2 years since that time.

The information you submit on behalf of your facility will be gathered and analyzed in a similar fashion as previous studies. Please complete the attached document (use either the Word or PDF file format) and return to NHDA by Friday, August 26th. Please utilize the latest fiscal year-end information. For example, the hospitals that have a June 30th year end should use 6/30/2016 information.

The information you provide should be related to hospital and hospital-owned clinic operations only. The study is focused solely on the impact of hospitals and hospital integrated systems; therefore, please refrain from reporting any information relating to long term care.

Please forward to your key finance employees to complete. All individual hospital submitted data will be kept confidential. Once "The Economic Pulse" report is completed, all providers will receive a copy. Lastly, this tool will be used for our upcoming legislative session. If you have questions about the survey please contact me.

I encourage you complete the survey so we can tell our story.

Tim Blasl, Vice President
North Dakota Hospital Association
1622 E Interstate Ave | Bismarck, ND 58503
(701) 224-9732

Appendix C

Hospital “Impact” Survey Questionnaire

Appendix C:

Hospital "Impact" Survey Questionnaire

NORTH DAKOTA HOSPITALS & HEALTH SYSTEMS
2016 ECONOMIC IMPACT SURVEY

Using your most recent year-end figures, please complete the following questionnaire to the fullest extent possible for your combined operations (inpatient, outpatient and physician services). However, do not include statistics relating to long term care services. Thank you.

The following statistics are for the fiscal year ending:____________________

Gross Operating Revenue:

Medicare:____
Medicaid: ____
Commercial:____
Medicaid Expansion: ____
Workforce Safety:____
Others:____

*Total Gross Operating Revenue:*_______________________________

Other Operating Revenue:____

Deductions from Revenue:

Medicare:____
Medicaid: ____
Commercial:____
Medicaid Expansion: ____
Workforce Safety:____
Bad Debt/Charity Care: ____
Others:____

Total Contractual Deductions from Revenue: ____________________

Total Net Operating Revenue: ____

Total Operating Expenses:____

Operating Margin (Net Revenue – Operating Expenses):_________________

Non-Operating Revenue:____

Net Income/Loss (Operating Margin + Non-Operating Revenue):__________

Other Financial Data:

Estimated % of Total Expenditures Retained in ND:______________________

Capital Expenditure Data:

Total capital expenditure for the most recent fiscal year: _______________

Total anticipated dollar amount of any building or expansion project you have undertaken this past year or anticipate initiating within the next 12 months: _________________________

Inpatient, Outpatient and ER Utilization:

Total Inpatient Admissions:____

Total Outpatient Visits: ____

Total Emergency Room Visits:____

Total Clinic Visits (Hospital Owned)**:**

Primary Care Visits: ____

Specialty/Other Visits: ____

Total Clinic Visits: ____

Total Births: ___________________________________

Total Full-Time Employees: _____________________

How many of these individuals are primary care physicians? ____________

How many of these individuals are mid-level practitioners? _____________

How many of these individuals are Specialty/Other physicians? __________

Total Physicians and Mid-levels?______________________________________

Total Part-Time Employees: ____

Total Full-Time Equivalents (FTEs): ____________________________________

340B Information:

340B Revenue: ____

340B Expenses:____

340B Net Revenue: ____

Facility Name: ____

Name/Title of Individual Completing the Survey: ____

Please complete this survey and return to **NDHA by Friday, August 26, 2016**, via email to Tim Blasl at tblasl@ndha.org or via FAX at 701-224-9529. Thank you.

Appendix D

Participating Facilities

Appendix D

Participating Facilities

Fully-Participating Facilities – (31)

Bismarck: CHI St. Alexius Health

Bismarck: Sanford Medical Center

Bottineau: St. Andrew's Health Center

Bowman: Southwest Healthcare Services

Cando: Towner County Medical Center

Carrington: CHI St. Alexius Health Carrington Medical Center

Cooperstown: Cooperstown Medical Center

Devils Lake: CHI St. Alexius Health Devils Lake Hospital

Dickinson: CHI St. Alexius Health Dickinson Medical Center

Elgin: Jacobson Memorial Hospital Care Center

Fargo: Essentia Health

Fargo: Sanford Medical Center

Garrison: CHI St. Alexius Health Garrison Memorial Hospital

Grafton: Unity Medical Center

Grand Forks: Altru Health System

Harvey: St. Aloisius Medical Center

Hazen: Sakakawea Medical Center

Hillsboro: Sanford Hillsboro Medical Center

Cavalier: Pembina County Memorial Hospital

Linton: Linton Hospital

Lisbon: CHI Lisbon Health

Mayville: Sanford Mayville Medical Center

Northwood: Northwood Deaconess Health Center

Oakes: CHI Oakes Hospital

Park River: First Care Health Center

Rolla: Presentation Medical Center

Tioga: Tioga Medical Center

Valley City: CHI Mercy Health

Watofrd City: McKenzie County Healthcare Systems

Williston: CHI St. Alexius Health Williston Medical Center

Wishek: Wishek Hospital

Partially-Participating Facilities – (11)

Ashley: Ashley Medical Center

Crosby: St. Luke's Medical Center

Hettinger: West River Regional Medical Center

Jamestown: Jamestown Regional Medical Center

Kenmare: Trinity Kenmare Medical Center

Langdon: Cavalier County Memorial Hospital

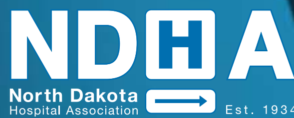
McVille: Nelson County Health Systems

Minot: Trinity Health

Rugby: Heart of Americal Medical Center

Stanley: Mountrail County Medical Center

Turtle Lake: CHI St. Alexius Health Community Memorial Hospital



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