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### A Comparative Study of Governing Board Composition and Financial Performance Measures in New Hampshire Hospitals

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A Comparative Study of  
Governing Board Composition  
and Financial Performance  
Measures in New Hampshire  
Hospitals

Heather Brooks  
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Honors Thesis  
Advisor: Catherine Plante

## **Introduction**

Governance in hospitals has evolved greatly since the 1980's. During the 1980's, hospitals saw a dramatic decrease in patient revenue because of the expansion of programs such as Medicare. Changes to the Medicare system included reimbursement amounts to be set prospectively. When the dollar amount of services rendered exceeded the preset reimbursement amount, which occurred frequently, hospitals lost valuable revenue. These changes caused hospitals to reevaluate their organizational structure in order to stay efficient and profitable. With the implementation of these program changes came more pressure on the board of directors to serve as a link to the community in order to obtain the resources necessary to keep the hospital running smoothly (Molinari, 358-359).

Program changes along with the 1970's legislation requiring the governing board of directors to be held accountable, legally, for the quality of services provided by it's staff caused the methods of governance in a hospital to change significantly. As the responsibilities of boards began to shift, covering a lot more internal hospital affairs, the number of inside members present on hospital boards began to increase. The presence of chief executive officers on the board of directors became a standard, when previously it was rare to see the CEO in attendance at board of directors meetings. Today, one can see the effects of this legislation when examining the composition of a hospital board of directors (Molinari, 359).

The implementation of Sarbanes-Oxley in 2002 caused many companies to look at their methods of governance with a more meticulous eye. Although not for profit companies, including hospitals, were not required to make any compositional

changes to their board of directors, many took the opportunity to look at their methods of governance and determine if they were effectively working towards the company's objectives. Before SOX was implemented, small dependent boards were becoming more and more prominent. SOX reversed this trend, creating a pressure for larger and more independent boards (Linck, 313). Sarbanes-Oxley also induced many research studies to be conducted on the topic of effective governance in corporations and non-profits.

Although most experts would consider there to be a lack of literature on the governance of hospitals, there have been previous studies conducted on what size, composition, and structure of a board is the most effective based on many different factors that determine a successful hospital.

This paper will discuss the results found from a study linking the financial performance of a New Hampshire hospital to four different factors: the percentage of inside members, medical professionals, female members on the board of directors, and the geographic location, whether the hospital is located in an urban or rural setting. This study is being conducted to further the research done on effective governance and to specialize in the geographical region of New Hampshire. The study focused on twenty-six New Hampshire hospitals. In order to determine financial performance several different measures were used including operating net income, the dollar amount of charity care provided, and CEO base composition.

Before explaining the statistics and conclusion of the study conducted this paper will give a summary of information found from similar studies and research explaining how boards of directors in hospitals are composed. It will also examine if

there is consistency between the results found from this study and what was determined from previous studies. This will provide some insight on whether or not governance in hospitals is evolving in order to reach maximum financial performance.

## **Background**

Previously there was thought to be two different types of board functions. There was a managerialism theory and an agency theory (Molinari, 361). It was thought that boards only existed to serve one of two functions, to act as a managerial agent and oversee hospital operations, or to serve as strictly outside shareholders. Managerialism theory believes a board should consist of inside members who are involved with daily hospital operations, because they have the most insight into what the hospital needs to functions and how to make it the most profitable. Agency theory believes having members of the hospital's management on the board leads to a conflict of interest. The study conducted by Carol Molinari and associates, found that in fact no agency problem existed and non- medical professionals were not needed to keep the motives and decisions of the hospital's management team honest (Molinari, 375). In fact the study found that when comparing hospitals with insider participation versus hospitals without insider participation, hospitals without active participation from the CEO and other members of the medical team had significantly worse hospital operating margins; return on total assets; bad debt; and net plant, property, and equipment ratios. In the short run it was found that hospitals that incorporated employees of the hospital

on their board of directors had higher profitability and liquidity ratios. The inside member ratio is something the study conducted to determine if active participation from inside members still leads to higher profitability and financial performance (Molinari, 370).

Today, more and more scholars are breaking up healthcare boards into two different models, philanthropic and corporate. Each model has a very different set of ideals and composition. The philanthropic model is viewed as a large board with a small number of insider members, including little participation from members of the management team of a hospital. The philanthropic board model focuses on community involvement and the preservation of the ideals of the hospital. The corporate model is a small board size composed of a high percentage of inside members whose focus is on strategic decision-making and growth. It has been determined that corporate model boards are much more responsive to change because of their small streamlined structure (Alexander, 737).

Jeffrey Alexander, and associates, conducted a follow up experiment to study the effects of each board structure on the financial performance of the hospital. In order to conduct this study Alexander looked at five different performance factors, including market share, adjusted admissions, occupancy, cash flows and efficiency. In order to determine operational efficiency a ratio between total expenses and the number of hospital beds was obtained. After the survey was conducted it was concluded that the corporate board model consistently reflected a larger market share, greater operational efficiency, and higher adjusted admissions. There was no

statistical relationship between the amount of cash flow and the occupancy of a hospital and the structure of their board (Alexander, 739).

Another study conducted found that the mission and the avenues of funding of the hospital determined the type of individuals on the board of directors. Pfeffer stated “He found.... the percentage of persons from financial organizations on the board was related to the capital structure and financial position of the organization” (Pfeffer, 350). If a hospital is primarily funded from private donations, there will be a variety of important community members present on the board of directors. Influential community members are present on the board to make sure the community in which the hospital serves is well represented. Religious figures may be present on boards of hospitals with religious affiliation. This study did not look at the composition of a hospital board in relationship to it’s financial performance but it did give an explanation as to why members are selected to be part of a board of directors of a hospital.

A study was conducted researching how the independence of hospital board members can affect financial performance looking at participation rates of independent members. It looks at participation rates of independent board members who are compensated and those who are not to determine if compensating board members is effective. The study concluded that no significant impact of performance was achieved when independent board members were compensated but hospital profit was seen to be higher when there was a monetary incentive for attending meetings (Culica, 864).

## Question

My study begins with a primary question:

Do boards of directors composed of inside members lead to higher financial performance in New Hampshire hospitals?

From prior research on a national level I hypothesize that my study will result in a positive relationship between the number of inside board members and the financial performance of a hospital because of the importance of the information they are able to provide.

A sub-question is:

Is there a positive relationship between the number of medical professionals present on the board of directors and their financial performance in New Hampshire hospitals?

Based on the importance of the insight medical professionals can provide on the daily operations of a hospital I hypothesize there will be a positive relationship between the presence of medical professionals and the financial performance of a hospital. Medical professionals provide valuable information when difficult medical decisions must be made concerning hospital operations. A high ratio of medical professionals does a better job representing all doctors and nurses employed by the hospital. I believe that representation from individuals who have a degree in a medical field will help determine the best operational decisions for the hospital and help lead the hospitals to higher financial performance.

Another sub-question my data will determine to answer is:



Is there a positive relationship between the number of female members on a board of directors and their financial performance in New Hampshire hospitals?

I hypothesize that boards with an even break down of male and female members, a female to male ratio of around 50%, will have the highest financial performance.

Although I found no previous research on the effects of gender composition of a board of directors on financial performance of a hospital, I found that on corporate boards women tended to serve on boards of high performing firms (Adams 220). I hypothesized that an even break down would be best because of the array of opinions present. An even gender ratio would provide the best representation on the board of directors.

My last sub-question is:

Which geographical setting, urban or rural, leads to higher financial performance in New Hampshire hospitals?

Based on the resources available and the occupancy rates I hypothesize urban New Hampshire hospitals to have higher financial performance. More people, and potential patients, reside in urban New Hampshire than in rural New Hampshire giving urban hospitals higher revenues than rural hospitals. Because urban hospitals must be prepared to serve a greater population they are equipped with better technology and are able to serve patients more effectively. A larger patient base and more advanced technology is why I hypothesized urban hospitals to have higher financial performance.

## **Sample**

In order to determine the type of relationship that exists I will use the tax form 990 that all tax-exempt entities must file with the IRS. This form discloses pertinent board information, including the members of the board and their titles, voting members, independent voting members and the compensation paid to board members by the organization. This information is readily available to the public through organizations such as GuideStar. I looked at the three most recent years of data for each of the twenty-six New Hampshire hospitals.

Also from the form 990, I was able to gather financial data on each hospital in order to determine their financial performance for the past three years. On the form 990 the amount of charity care provided and the CEO base composition is provided. In order to determine operating net income I subtracted total program revenue from total program service expenses. Program revenue and expenses were chosen to determine operating net income because I did not want to include revenue a hospital received from investments and outside interests. Income from strictly hospital operations was determined as the most important indicator of financial performance. The base composition for each chief executive officer was chosen because that is a guaranteed amount, and is not contingent on the hospitals performance or the performance of the CEO. Charity care is the dollar amount of services rendered for free or at a reduced rate for low-income patients. It is recorded and reported on the form 990 by each hospital.

There are twenty-four hospitals in New Hampshire. Twenty-two of the twenty-four hospitals are non-profit hospitals. Portsmouth Regional Hospital and

Parkland Medical Center are for-profit and their financial data was not available online. These two hospitals were not included in the study because the information needed was not available. Lakes Region General hospital's 990 data was not available as well, so it was excluded from the study as well. In order to stay consistent and make sure I had the most accurate results, I only used form 990s when collecting my data. This information is pledged to be accurate so I chose not include financial data that was not obtained through the tax form 990. In total twenty-one hospitals were used to conduct this study. Of the twenty-one hospitals nine hospitals are located in an urban setting and twelve hospitals are located in a rural setting.

Although three years of data was collected, it was decided that using the 2010 990s, filed using 2009 data, would be used to run the analysis because it was most complete. Some hospitals had yet to file their 2011 990's so using the most recent data would have lead to a smaller sample. It was decided having a bigger sample with slightly less recent data was more useful in determining the relationship between board composition and financial performance because the factors used to determine financial performance and the members of the board of directors do not vary too much from year to year.

### **Data**

Below is the breakdown of data collected for each hospital for each of the four areas of board composition studied:

<b>Hospital</b>	<b>Inside Members</b>	<b>Charity Care</b>	<b>CEO Base Compensation</b>	<b>Operating Net Income</b>
Alice Peck Day Memorial Hospital	14.29%	\$734,688	\$235,767	\$4,870,709
Androscoggin Valley Hospital	31.25%	\$1,882,934	\$509,493	\$6,008,786
Catholic Medical Center	15.00%	\$8,120,695	\$582,248	\$4,870,709
Cheshire Medical Center	10.00%	\$2,641,221	\$321,768	\$13,288,706
Concord Hospital	23.81%	\$14,321,498	\$514,044	\$53,777,230
Cottage Hospital	0.00%	\$2,300,881	\$162,490	\$5,691,756
Elliot Hospital	20.00%	\$7,008,754	\$408,259	\$45,193,590
Exeter Hospital	23.08%	\$3,878,471	\$456,384	\$43,813,708
Frisbie Memorial Hospital	6.67%	\$3,204,105	\$338,806	\$10,351,585
Huggins Hospital	25.00%	\$4,311,081	\$217,024	\$4,177,190
Littleton Regional Hospital	25.00%	\$4,311,081	\$257,146	\$5,691,756
Memorial Hospital	16.67%	\$1,863,553	\$82,500	\$9,246,085
Monadnock Community Hospital	18.75%	\$1,872,207	\$231,008	\$5,437,431
New London Hospital	21.05%	\$1,068,321	\$273,012	\$9,908,088
Southern NH Medical Center	7.14%	\$6,564,426	\$469,182	\$35,163,753
Speare Memorial Hospital	7.69%	\$3,788,006	\$216,909	\$4,055,646
St. Joseph Hospital	20.00%	\$2,408,457	\$206,835	\$60,258,529
Upper Connecticut Valley Hospital	8.33%	\$470,266	\$140,359	\$2,656,107
Valley Regional Hospital	9.52%	\$3,455,420	\$244,781	\$6,678,837
Weeks Medical Center Hospital	0.00%	\$3,421,573	\$213,000	\$7,070,731
Wentworth Douglas Hospital	20.00%	\$6,953,658	\$406,373	\$50,090,669

<b>Hospital</b>	<b>Medical Professionals</b>	<b>Charity Care</b>	<b>CEO Base Compensation</b>	<b>Operating Net Income</b>
Alice Peck Day Memorial Hospital	20.00%	\$734,688	\$235,767	\$4,870,709
Androscoggin Valley Hospital	5.56%	\$1,882,934	\$509,493	\$6,008,786
Catholic Medical Center	21.74%	\$8,120,695	\$582,248	\$4,870,709
Cheshire Medical Center	18.18%	\$2,641,221	\$321,768	\$13,288,706
Concord Hospital	27.27%	\$14,321,498	\$514,044	\$53,777,230
Cottage Hospital	17.65%	\$2,300,881	\$162,490	\$5,691,756
Elliot Hospital	18.52%	\$7,008,754	\$408,259	\$45,193,590
Exeter Hospital	11.76%	\$3,878,471	\$456,384	\$43,813,708
Frisbie Memorial Hospital	17.65%	\$3,204,105	\$338,806	\$10,351,585
Huggins Hospital	24.00%	\$4,311,081	\$217,024	\$4,177,190
Littleton Regional Hospital	15.79%	\$4,311,081	\$257,146	\$5,691,756
Memorial Hospital	6.67%	\$1,863,553	\$82,500	\$9,246,085
Monadnock Community Hospital	21.05%	\$1,872,207	\$231,008	\$5,437,431
New London Hospital	22.73%	\$1,068,321	\$273,012	\$9,908,088
Southern NH Medical Center	18.75%	\$6,564,426	\$469,182	\$35,163,753
Speare Memorial Hospital	0.00%	\$3,788,006	\$216,909	\$4,055,646
St. Joseph Hospital	25.00%	\$2,408,457	\$206,835	\$60,258,529
Upper Connecticut Valley Hospital	15.38%	\$470,266	\$140,359	\$2,656,107
Valley Regional Hospital	24.00%	\$3,455,420	\$244,781	\$6,678,837
Weeks Medical Center Hospital	11.11%	\$3,421,573	\$213,000	\$7,070,731
Wentworth Douglas Hospital	20.00%	\$6,953,658	\$406,373	\$50,090,669

<b>Hospital</b>	<b>Female Ratio</b>	<b>Charity Care</b>	<b>CEO Base Compensation</b>	<b>Operating Net Income</b>
Alice Peck Day Memorial Hospital	40.00%	\$734,688	\$235,767	\$4,870,709
Androscoggin Valley Hospital	22.22%	\$1,882,934	\$509,493	\$6,008,786
Catholic Medical Center	26.09%	\$8,120,695	\$582,248	\$4,870,709
Cheshire Medical Center	22.73%	\$2,641,221	\$321,768	\$13,288,706
Concord Hospital	22.73%	\$14,321,498	\$514,044	\$53,777,230
Cottage Hospital	41.18%	\$2,300,881	\$162,490	\$5,691,756
Elliot Hospital	29.63%	\$7,008,754	\$408,259	\$45,193,590
Exeter Hospital	23.53%	\$3,878,471	\$456,384	\$43,813,708
Frisbie Memorial Hospital	17.65%	\$3,204,105	\$338,806	\$10,351,585
Huggins Hospital	16.00%	\$4,311,081	\$217,024	\$4,177,190
Littleton Regional Hospital	21.05%	\$4,311,081	\$257,146	\$5,691,756
Memorial Hospital	33.33%	\$1,863,553	\$82,500	\$9,246,085
Monadnock Community Hospital	31.58%	\$1,872,207	\$231,008	\$5,437,431
New London Hospital	36.36%	\$1,068,321	\$273,012	\$9,908,088
Southern NH Medical Center	25.00%	\$6,564,426	\$469,182	\$35,163,753
Speare Memorial Hospital	26.67%	\$3,788,006	\$216,909	\$4,055,646
St. Joseph Hospital	31.25%	\$2,408,457	\$206,835	\$60,258,529
Upper Connecticut Valley Hospital	23.08%	\$470,266	\$140,359	\$2,656,107
Valley Regional Hospital	36.00%	\$3,455,420	\$244,781	\$6,678,837
Weeks Medical Center Hospital	44.44%	\$3,421,573	\$213,000	\$7,070,731
Wentworth Douglas Hospital	26.67%	\$6,953,658	\$406,373	\$50,090,669

<b>Hospital</b>	<b>Urban/Rural</b>	<b>Charity Care</b>	<b>CEO Base Compensation</b>	<b>Operating Net Income</b>
Alice Peck Day Memorial Hospital	Rural	\$734,688	\$235,767	\$4,870,709
Androscoggin Valley Hospital	Rural	\$1,882,934	\$509,493	\$6,008,786
Catholic Medical Center	Urban	\$8,120,695	\$582,248	\$4,870,709
Cheshire Medical Center	Urban	\$2,641,221	\$321,768	\$13,288,706
Concord Hospital	Urban	\$14,321,498	\$514,044	\$53,777,230
Cottage Hospital	Rural	\$2,300,881	\$162,490	\$5,691,756
Elliot Hospital	Urban	\$7,008,754	\$408,259	\$45,193,590
Exeter Hospital	Urban	\$3,878,471	\$456,384	\$43,813,708
Frisbie Memorial Hospital	Urban	\$3,204,105	\$338,806	\$10,351,585
Huggins Hospital	Rural	\$4,311,081	\$217,024	\$4,177,190
Littleton Regional Hospital	Rural	\$4,311,081	\$257,146	\$5,691,756
Memorial Hospital	Rural	\$1,863,553	\$82,500	\$9,246,085
Monadnock Community Hospital	Rural	\$1,872,207	\$231,008	\$5,437,431
New London Hospital	Rural	\$1,068,321	\$273,012	\$9,908,088
Southern NH Medical Center	Urban	\$6,564,426	\$469,182	\$35,163,753
Speare Memorial Hospital	Rural	\$3,788,006	\$216,909	\$4,055,646
St. Joseph Hospital	Urban	\$2,408,457	\$206,835	\$60,258,529
Upper Connecticut Valley Hospital	Rural	\$470,266	\$140,359	\$2,656,107
Valley Regional Hospital	Rural	\$3,455,420	\$244,781	\$6,678,837
Weeks Medical Center Hospital	Rural	\$3,421,573	\$213,000	\$7,070,731
Wentworth Douglas Hospital	Urban	\$6,953,658	\$406,373	\$50,090,669

## **Statistics**

A difference of means test assuming unequal variances was run in order to determine if a relationship exists between the financial performance measures and the four different factors; inside member ratio, medical professionals ratio, gender, and geographical setting. The mean of each factor was compared to the mean of the three financial performance measures, CEO base compensation, operating net income, and charity care provided, to determine if a relationship exists. A two-tailed p value of less than .1 indicates there is some sort of relationship between the two variables being tested. A two-tailed p value of greater than .1 indicates there is no relationship.

The first test run was to determine if there was a link between the inside member ratio and financial performance. The inside members ratio was determined by dividing the total number of inside members, or members who work for the hospital, on the board of directors by the total number of members on the board of directors. The number of inside members on the board of directors was provided on the tax form 990 that was used to collect the data. This ratio was computed for all twenty-one sample hospitals. Sample hospitals were then separated into two groups, hospitals with high inside member ratios, and hospitals with low inside member ratios. Once the two groups were determined, a difference of means test was run using all three financial performance measures to determine the relationship.

There was no relationship found between the inside member ratio and the amount of charity care or the base compensation of the chief executive officer



because the p-values were too high with charity care and CEO compensation producing a .32 and a .22 p-value, respectively.

A relationship was found between operating net income and the inside member ratio. The p-value was .038 indicating a relationship. When analyzing the data it was found that the higher the ratio of inside members, the higher the operating net income is. This is concurrent with the hypothesis stated previously. To test the data even further the opposite difference of means test was run, to determine if the size of the net income determined how many inside members were present on the board of directors. There was found to be no relationship between the size of the net income and the number of inside members present on the board. This indicates that larger hospitals with high operating net incomes do not necessarily have a higher number of inside members, but hospitals with a higher ratio of inside members tend to have higher operating net incomes.

When a linear regression was run on the data, none of the financial measures showed a relationship to the ratio of inside members on the board of directors in a New Hampshire hospital.

The next unequal variance difference of means test that was run compared the ratio of medical professionals on the board of directors to the three financial performance measures. In order to determine the number of medical professionals on the board of directors at each hospital I had to conduct background research on the members of each board of directors at each New Hampshire Hospital in 2009. To determine if the individual was a medical professional I looked at the credentials that followed the individual's name. The total number of medical professionals on

each board of directors was divided by the total number of members on the board for each New Hampshire hospital. Similar to the inside members ratios, I divided the hospitals into two groups, group one consisting of hospitals with a high ratio of medical professionals, and group two the hospitals with a low medical professionals ratio. There was a clear split between high and low ratios, the group of hospitals with low medical professional present contained twelve hospitals while the remaining nine hospitals had high medical professional ratios. The mean of the three financial performance measures was computed for each group and compared against each other.

When comparing the ratio of medical professionals to the base compensation of the chief executive officer and the dollar amount of charity care provided no relationship was found. The difference of means test for CEO compensation and charity care produced p-values of .69 and .40, respectively. There was a relationship found between the ratio of medical professionals and the operating net income of New Hampshire hospitals. The difference of means test produced a p-value of .028 indicating a relationship between the two variables. After analyzing the data it was found that in a New Hampshire hospitals with more medical professionals who actively participate and are members of the board of directors have higher operating net incomes than hospitals with a low ratio of medical professionals.

A further analysis was completed to determine if the operating net income had any relationship to how many medical professionals were on the board of directors. I have proved that more medical professionals on the board tends to lead to higher net income but when the reverse difference of means test was run the test

showed no relationship the other way. A p-value of .39 indicates there is not direct, negative or positive, relationship between the operating net income of a hospital determining the number of medical professionals active on the board of directors of a New Hampshire hospital.

A linear regression was also run and indicated no relationship existed between the ratio of medical professionals and the three financial performance measures.

The third test run determined if there was a relationship between the number of females on the board of directors and the financial performance of a hospital in New Hampshire. I created a female member ratio by researching and totaling the number of females on each board of directors for each New Hampshire hospital. I then divided this number by the total number of members on each board.

Similarly to the previous two tests I divided the hospitals into two groups, hospital's with a high percentage of females on the board of directors and hospital's with a low percentage of female on the board of directors. The means of all three financial performance measures were compared between the two groups.

No relationship was found between the gender composition of the board of directors and the financial performance of the hospital. All three financial performance measures produced p-values of over .1, indicating no relationship. A linear regression analysis was also run which proved there was no relationship between the factors.

The fourth test run compared all three financial performance measures to determine if a hospital performs better based on its geographical setting. New

Hampshire hospitals are evenly divided between rural and urban areas. Because of the few hospitals I had to disregard from my sample the breakdown for my study focused on nine urban hospitals and twelve rural hospitals. I compared the means of the three financial measures between the two groups and found strong relationships between the geographical setting of a hospital and all three financial measures.

These results were somewhat expected because the demand in an urban setting is significantly higher than the demand in a rural setting. The strongest relationship found was between urban hospitals and the compensation of the Chief Executive Officer. This difference of means test produced a p-value of .0016 indicating a strong relationship. This proves that in New Hampshire hospitals located in urban settings tend to compensate their Chief Executive Officers higher, based on their raw salary, than hospitals in rural settings.

Another strong relationship was displayed between geographical setting and operating net income, with a p-value of .003. The relationship depicted hospitals in urban settings to be positively related to higher operating net income. Again, this is to be expected because of the higher population and therefore demand that is associated with an urban setting.

The third relationship that existed was between the geographical setting of a hospital and the dollar value of charity care provided by the hospital. This difference of means test produced a p-value of .01, showing another strong positive relationship between charity care and urban hospitals. It is proven through this relationship that urban hospitals tend to provide more charity care than rural

hospitals. This is understandable because urban hospitals tend to be larger and have higher occupancy. They tend to see a higher percentage of charity care cases, which presents them the opportunity to provide more charity care. My study did not look into the ratio of charity care provided versus total care provided. This would be something interesting to look into in the future in order to further the study.

The strong relationships between the geographical setting of a hospital and the financial performance measures led to a further analysis of what else the geographical setting has a relationship with. A difference of means test was run comparing the geographical setting of a hospital to the independence attempting to determine if an urban or rural hospital influenced more inside members on a board of directors. The test produced a p-value of .71 indicating the geographical setting of a hospital does not influence the number of inside members present of a board of directors in a New Hampshire Hospital.

The same test was run to determine if the geographical setting of a hospital was related to the number of medical professionals on the governing boards of New Hampshire hospitals. This test as well indicated there is no relationship between the two factors with a p-value of .11.

Size of the hospital was originally researched as a potential factor to determine financial performance. After generating the data for the size of each hospital based on the number of hospital beds it was quickly determined that hospitals with a large number of hospital beds will appear to have higher financial performance because of resources available. The relationships with the three

performance measures did not reveal anything that was unknown so it was excluded from the study.

## **Conclusion**

My study has proved that the composition of the board of directors in a New Hampshire hospital can play some role in the financial health of the hospital. Operating net income, which is arguably the most important indicator of financial health, used in this study, was linked to three of the four attributes of a board of directors. It is certainly proven that the geographical location of the hospital, whether it is located in an urban or rural setting, plays a role in the financial performance of a hospital, as it was linked to all three financial measures.

The hypothesis of the geographical location analysis was proven true, as urban hospitals proved to be more financially well off than hospitals located in a rural setting. This result was to be expected because of the higher population of urban hospitals and also the vast variety of resources available to an urban hospital versus a rural hospital. Rural hospitals are not typically equipped with the medical technology that are available in urban hospitals, and many patients of rural hospitals are sent elsewhere for advanced treatment or further diagnosis because of the lack of technology. This deprives rural hospitals of revenue, which in turn limits the hospital.

New Hampshire has an estimated population of 1.3 million. An approximate 900,000 of the residents live in urban locations throughout the state (US Census Bureau). This provides urban hospitals with a larger patient base to serve. According to the United States Census Bureau, New Hampshire has 7.8% of its

population living under the poverty level, with 11.1% of New Hampshire residents living without health insurance (Rural Assistance Center). According to the USDA Economic Research Service poverty levels in rural areas of the state are actually higher than poverty levels in urban areas. This would lead you to believe that hospitals in rural parts of the state would provide more charity care, because there are more people who cannot afford to pay for services rendered. This was not found as the case as there was a strong relationship between the dollar value of charity care provided and urban hospitals. Again, a limitation of this study was the amount of charity care was taken as a raw dollar value, and not as a percentage of total care provided. It would be beneficial to look at the percentage of charity care provided by urban and rural hospitals to determine if the ratio of charity care provided by rural hospitals is higher. One would expect it to be as there is 10.7% poverty rate in rural areas of the state compared to the 7.4% in urban areas (Rural Assistance Center).

The amount of resources available to urban hospitals coupled with the higher operating net income leads to the higher compensation of the Chief Executive Officer. An urban New Hampshire hospital handles many more patients, staff, and operational duties than a rural hospital, causing the CEO many more difficult decisions to make on a daily basis. It only makes sense the CEOs of urban hospitals would be compensated higher than CEOs of rural hospitals. My research and analysis support this assumption and my original hypothesis of urban hospitals having higher financial performance than rural hospitals.

In previous research it was debated whether or not independent boards of directors composed of inside members led to the most efficient and profitable hospitals. My research has shown in New Hampshire hospitals the highest financial performance is linked to a high ratio of inside members on the board of directors. Discussed earlier was the issue of agency theory. It was previously proven that agency theory does not exist within hospital boards, and should not be a factor when selecting members of a board of directors. In 2002 the implementation of Sarbanes-Oxley led to the reversal of the small dependent board trend among all corporations, not just hospitals (Linck, 313). In my data collection I did not see this trend dissolve, and my research suggests independent boards are not the most successful in a hospital settings. The importance of the information an inside member on a board can provide cannot be overlooked.

A board of directors composed of members who work and are involved in the organization daily is extremely pertinent when the board is making organizational decisions. This is shown in my research because there was a positive relationship between the ratio of inside members on the board of directors and operating net income. The role of a board of directors is to maximize shareholder value and keep investors happy; this cannot be done with a low operating net income.

Similarly to the inside member ratio is the medical professionals ratio. It is the significance of the information they can provide that is so pertinent to keeping the hospital running smoothly. I was amazed to see that Speare Memorial Hospital did not have a single medical professional on their board of directors. Medical professionals, along with inside members, provide a voice for hospital operations. If



a board is composed of all executive members and financial gurus, the services provided by the hospital have no representation within the governing board. A board of directors with no to low representation of medical professionals to make difficult decisions about hospital operations cannot be efficient. This is proven in my research as there was found to be a positive relationship between a high ratio of medical professionals on a board of directors and a high operating net income. Like discussed previously, a high operating net income is essential to keeping shareholders happy and the hospital running efficiently. My analysis proved both my hypothesis on the effect of inside members and medical professionals on financial performance to be true.

The gender composition of the governing board did not show any impact on the financial performance of the board of directors. It was difficult to develop a hypothesis on the matter because I did not find any prior research looking at gender of the governing board as a factor on financial health in the health care industry. The analysis was run to see if there was some impact of gender composition, on the basis that a gender balanced board would make different financial decisions than a board that was one gender dominant. There was no relationship found linking the gender composition of a board of directors on the financial performance of a New Hampshire hospital, but is an interesting idea to explore further.

Overall it was found that the composition and break-down of the members of a board of directors in a New Hampshire hospital does affect the financial performance of a hospital. While each hospital is different and there is no ideal model for the best board structure, the results in this study should be considered

when depicting the most efficient board of directors. My findings support the notion that a board of directors with a high ratio of inside members, a high ratio of medical professionals and an urban location will have the highest financial performance.

A furtherance of this study could be preformed stretching the geographical region past New Hampshire, to all of New England, to see if the results still stand. It would be interesting to compare the results of identical studies across different regions of the United States. Time limitations required this study to only look at New Hampshire.

### End Note

Although all analysis was done through Microsoft Excel the formula to run an unequal variance difference of means test follows:

$$t = \frac{(\bar{y}_1 - \bar{y}_2) - D_0}{s_{pool} \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \sim t(n_1 + n_2 - 2), \text{ where}$$

$$s_{pool}^2 = \frac{\sum (y_{1i} - \bar{y}_1)^2 + \sum (y_{2j} - \bar{y}_2)^2}{n_1 + n_2 - 2} = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}$$

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