PROCEEDINGS

of the
BUSINESS AND HEALTH ADMINISTRATION ASSOCIATION

CHICAGO, IL
March 18-20, 2009

2009 PROCEEDINGS EDITOR
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Sample Footnote: Please use the following style when referring articles from the Proceedings:
De Vito, Josephine M. (2009), "Adolescent Mothers: A Nursing Management Challenge," in *Business & Health Administration Proceedings*, Jack Newhouse, Editor, p. 82.

EDITORIAL PREFACE

March 2009

Dear BHAA Colleagues:

I am delighted to present the 2009 Proceedings of the Business and Health Administration Association on this CD. There are a variety of themes and topics represented in the papers and abstracts presented in this compendium. The volume of this year's submissions is down from previous years, but not in the quality and scope of what is contained in these Proceedings.

As with any project of this nature, the work of a number of individuals is required to accomplish the task. I want to acknowledge Bill Stroube particularly for his commitment to this effort. Bill developed and coordinated the initial compilation. He also was responsible for the actual production of the CDs once all of the Proceedings were edited and organized.

It is my hope that you enjoy the scholarship represented in this collection and can learn and benefit from this body of work. I look forward to seeing all of you in Chicago this March and working with you as we turn our attention to next year's conference in 2010.

Sincerely,

Jack Newhouse
Proceedings Editor

COMPETITIVE PAPERS & SPECIAL SESSION TRACKS

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WAL-MART: THE TRUE COST OF SHOPPING AT WAL-MART

Jillian Augsburger, Grand Valley State
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ABSTRACT

Wal-Mart's trademark slogan "Always low prices, Always", has made it the largest retailer and the second largest corporation. Wal-Mart was founded by Sam Walton in 1962. Wal-Mart has been greatly criticized for its effects on the following: labor, economics, employee benefits and environment. The paper discusses the use of illegal immigrants, child labor violations, employee benefits, and environment and makes some recommendations.

INTRODUCTION

"Always low prices, always." The four powerful words defining the trademark slogan of the world's biggest and most controversial retail store. The first store was located in Bentonville, Arkansas. Sam Walton put 95 percent of his money to open the first store. In 1962 we also saw the opening of Kmart and the first Target. Walton believed "sell stuff that people need every day just a little cheaper than everyone else, sell it at low price all the time and customers will flock to you". Wal-Mart forced suppliers to be more frugal and asked them to lower the prices of their products. The company that essentially didn't exist as a grocer few years back now sells more food than Kroger and Safeway. In the US., Wal-Mart is the single largest employer, employing over 1.8 million "associates" Wal-Mart is as big as Home Depot, Kroger, Target, Costco, Sears and Kmart combined. They say if Wal-Mart comes to town you can save 15 percent on groceries, save $75 a month and this adds up to $900 over the course of a year What Fishman calls a "Wal-Mart-effect" is that Wal-Mart's arrival translates to lower prices between 7 percent and 13 percent over the long-term"(Basker, 2005). Further Wal-Mart's arrival causes retail wages to fall by about 3.5 percent (Fishman, 2006). Wal-Mart has stores in Mexico, Canada, England, China and recently entered a joint venture agreement with New Delhi based Bharti on August 6, 2007. The partnership is known as Bharti Wal-Mart and plans to open its first wholesale cash-and-carry outlet by the end of 2008.Retailer fear U.S giant will overwhelm market. Wal-Mart signed an agreement with Indian conglomerate Bharti Enterprises to launch a joint venture on the subcontinent. Thousands of protesters from around India rallied against the encroachment of multinational retailers into the country's retail sector. Farmers, small-scale retailers and trade union officials took to the streets in major cities like Delhi, Kolkata, Mumbai, and Bangalore to protest against the prospect that Wal-Mart's presence will undermine India's homegrown retail sector. Wal Mart's partnership with Bharti gives the Bentonville, Arkansas based retail giant a foot in the door in the world's most attractive retail destination. A number of foreign retail chains have expressed interest in coming to India, like Tesco Olc, a British grocery and general merchandising chain, the Paris based Carrefour SA-the world's second largest retail group. Both recently pulled out of negotiations to launch ventures similar to Bharti Wal Mart. Metro AG, a German retail giant that started a wholesale operation in India in 2003 has yet to reap benefits from coming to India. The jury is still out on Bharti Wal Mart.

Wal-Mart has grown from a mere small town store in Rogers, Arkansas to a multi-billion dollar corporation basing its business strategy on offering lower prices than its competitors, regardless of how they can be achieved. Although Wal-Mart has grown to be the world's largest retailer, the majority of focus on this corporation has been directed toward Wal-Mart's effects on the local community, employees and even its impact on the environment. Wal-Mart's use of illegal immigrants has sparked much conflict within recent years. The employment of illegal immigrants has been discovered through the use of subcontractors who most often hire these individuals to clean

Wal-Mart stores after hours. During a raid in 2005, as many as 125 immigrants were found at a construction site in which they were participating in the construction of a Wal-Mart facility. According to the Department of Labor, Wal-Mart has also been found in violation of several child labor laws. From 1998 to 2002 at least eighty-five minors were discovered operating hazardous machines.

Beginning with the introduction of the first Wal-Mart Super Center in 1988, to the expansion into the international market in 1990, numerous questions have arisen concerning the fair treatment of the company's employees. Multiple lawsuits and complaints have been made by employees stating that Wal-Mart provides unequal wages for females, denies lunch breaks, under staffs their stores, and refuses to pay employees for overtime. Most critics argue that the wages and work environment Wal-Mart offers are not suitable for today's standards.

Wal-Mart has been accused of being destructive to the environment and numerous fines against the corporation have reported by the Environmental Protection Agency (EPA). The Environmental Protection Agency (EPA). has cited fines against Wal-Mart for storm water, air pollution, and oil storage violations. These violations have encouraged Wal-Mart executives to create environmental goals and ways in which they plan on enforcing these objectives in their facilities worldwide.

ILLEGAL IMMIGRANTS

The use of illegal immigrant workers is a criminal offense in the United States and can potentially cost a company anywhere from thousands to millions of dollars. There are many reports of Wal-Mart having used illegal immigrant workers to clean their stores after hours. In 2003, after an investigation by the Department of Labor, sixty-one Wal-Mart stores in twenty-one different states were raided. Authorities arrested 250 immigrant workers during these raids (Armour, 2003). After these raids, Wal-Mart executives claimed that they had no idea that twelve of their subcontracted cleaning companies were using illegal workers. Wal-Mart has agreed to pay $11 million which will be used to enforce immigration laws within the United States (Barbaro, 2005). Fishman justifies the use of illegal immigrants to clean the stores overnight because it was least expensive cleaning contractors (Fishman, 2006). The immigrants have made accusations stating that they were being paid lower wages and offered fewer benefits because they are Mexican. They also stated that they would work at least fifty-six hours a week but were not paid overtime (CNN, 2003). Another raid was conducted in 2005 in which 125 illegal immigrants were arrested in Pennsylvania at a local Wal-Mart construction site (CNNMoney, 2005).

CHILD LABOR VIOLATION

Illegal immigrants are not the only problems that Wal-Mart has had to face. They have also been in trouble for not abiding by Child Labor Laws. During an investigation by the Department of Labor it was discovered that Wal-Mart was violating the "youth employment provisions of the Fair Labor Standards Act" by allowing eighty-five minors operate hazardous equipment such as paper scrap balers and fork lifts. Wal-Mart had to pay $135,540 in federal fines per their agreement with the Department of Labor. This agreement also includes a fifteen day notice of any audits. This means that Wal-Mart managers will receive a written notice fifteen days before an audit or investigation and allowed ten days after an investigation to fix any violations. There are many suspicions as to why Wal-Mart got away with these violations so easy. Some speculate that this had to deal with the fact that Wal-Mart is a large contributor to the Republican Party in the 2004 election ("Wal-mart Fined for Child Labor Violation," 2005). Wal-Mart is a major donor to Republican electoral campaign and was second largest contributor in the 2004 election cycle. No wonder that Vice-president Dick Cheney praises Wal-Mart as, "One of our nation's great companies, outstanding companies. Wal-Mart is a real credit to the United States of America." The Maine Department of Labor ordered Wal-Mart to pay the largest fine in the state history for violating child labor laws. The Department of Labor discovered 1,436 child labor law infractions at 20 Wal-Mart chains. In addition, the world's largest company suffered another blow as Sweden followed Norway in blacklisting Wal-Mart stock from portfolio of a national pension fund, citing persistent human rights violations.

WAGES

In 2000, Wal-Mart's assets totaled more than the GDP of 155 of the 192 countries in the world, with annual sales of more than $137.6 billion. Nearly three-quarters of a million women worker work as "sales associates" in the Wal-Mart stores. On an average, these women earn $6.10 per hour or $12,688 per year if they are permitted to work full-

time. This wage puts many of the families below the poverty level-half of them even qualify for federal assistance under the food stamp program. Employees from Wisconsin, Michigan, Ohio, Washington, Illinois, Iowa and West Virginia have sued Wal-Mart for underpaying its hourly workers. Employees from Missouri and Kansas have filed class-action suits alleging "acts of wage abuse." These acts include neglecting to pay workers overtime, preventing rest and lunch breaks and forcing them to "work off the clock." Wal-Mart doesn't share its wage scale and doesn't break out pay of its Sam's club workers; Etter states that Wal-Mart pays employees about $9.68 an hour, which is 3.5% less than other retailers. Wal-Mart countered this with a study of their own claiming that lower wages is being accounted for in the lower costs to purchase, hence giving consumers more buying power an independent research firm concurred that there is direct relationship between having a Wal-Mart in a community and the lower wages (Etter, 2005). Wal-Mart is a defendant in numerous class-action law suits Involving employment related issues such as failure to pay required over-time to hourly employees and allegations of gender based discrimination in pay, promotions, job transfers, training, job-assignments and health care-coverage. Wal-Mart is well known for their low wages. In their Florida stores, the average full time work week was cut from forty to thirty-five hours. Through an internal memo leaked to the *New York Times*, it was discovered that Wal-Mart has decided to increase the proportion of its workforce that is part-time by 40% while forcing out longstanding employees.

UNPAID OVERTIME

It has been reported that federal jury in Portland, Oregon found the world's largest retailer forced employees in Oregon to work unpaid overtime between 1994-1999. More than 400 employees from 27 Oregon stores had sued the retailer, accusing it of violating the federal and state laws. The ruling claimed that Wal-Mart managers got 350 employees out of 15,000 to work "off-the-clock" by asking them to clean up the store after they had clocked out and by deleting hours from time records. Wal-Mart did concede that some of the workers did work "off-the-clock but the company policy prohibited it. Some workers were serving the reprimand and worked after clocking

Imagine a $218 billion dollar company employing over 1 million workers in 3250 stores in the USA has 39 class action lawsuits pending against Wal-Mart in 30 states. These cases from California to New York involve hundreds of thousands or workers seeking ten of millions in back pay. It is reported company settled two similar overtime cases in Colorado and New Mexico. The

Reported paid $50 million to settle "off-the clock" lawsuits covering 69,00 workers in Colorado and recently settled for $500,000 a case involving 120 workers in Gallup, New Mexico (CBSNews,2002). Further, California law requires companies to pay workers a full hour's wages for every missed lunch. The jurors in Alameda County Superior Court decided that Wal-Mart "pay $57 million in general damages and $115 million in punitive damages to employees for violating a2001 state law that requires employers to provide 30-minute unpaid lunch breaks to employees who work at least six hours in a shift.

EMPLOYEE BENEFITS

Across the country, politicians and labor groups have complained about Wal-Mart's health plans for their high expense and bare –bones coverage. Two states, California and Maryland even passed laws demanding that Wal-Mart spend more on employee health benefits. The cheapest plan for a family cost about $1500 a year in premiums and required workers to pay $3000 in medical bills before Wal-Mart began paying any of their expenses. Even fewer could afford the more than $10,000 in bills they could end up responsible for under the plan. Labor groups like the United Food and Commercial Workers, which has members in grocery chains that compete with Wal-Mart, called attention to company's meager coverage. The evidence was compelling: Wal-Mart workers routinely showed up in the large numbers on state Medicaid rolls from Georgia to Washington. Encouraged by the passage of the California law in 2003, dozens of states considered bills requiring Wal-Mart to spend more on employee health benefits.

Wal-Mart employees have stated basic employee benefits are lacking within many Wal-Mart stores. The deductible for employees is $1000 after a set number of doctor visits and drug prescriptions. Critics say deductible is too high in comparison with their wages. This has led to numerous claims that Wal-Mart discourages less-than-healthy people from applying for jobs. The CBS news reported that 46percent of the children of Wal-Mart workers were uninsured or are on public-health-care (Unions protest-2006). Wal-Mart also hurts the economy by its employee's use of publicly financed programs like Medicaid and food stamps a ***key competitor for Wal-Mart is Costco*** which posted a profit margin of 2 percent in 2005. Costco was co founded by Jim Sinegal, son of a coal-miner and steel worker. Fed-Mart's chairman Sol Price is given credit for inventing the idea of high-volume ware-house store selling a limited number of products. In 1983 a Seattle entrepreneur Jeff Brotman assisted Jim Sinegal to found Costco Wholesale Corporation. Jim Sinegal started his company with a single store in Issaqah, Washington near

Seattle. Costco business is based on Fed-Mart's chairman Sol Price's model, "sell a limited number of items, keep costs down, rely on high volume, pay workers well, have customers buy membership, go for upscale shoppers, and save advertising costs so don't advertise. In 2005, Costco had over 45million steady members each paying $45 per year to join. Over 86 percent of members renew, making a high renewal rate. Costco has also "Executive Membership program". The "Executive Membership program offers members additional savings and benefits. The average annual income of Costco is $74,000 and more than one third of members earn over $100,000(Greenhouse, 2005). Costco offers high-quality merchandise at low prices. Wages at Costco start $10 an hour, rising to $ 18.30. Costco also awards twice a year large bonuses between $2000-$3000. The turnover rate at Costco is low. The turnover-rate at Wal-Mart is 44 percent per year while at Costco 17 percent overall (Cascio,2006). At Costco it is better to be an employee or a customer rather than a shareholder.

Based on 2005 figures Costco had 338 warehouses and employed over 67,000 workers. At Costco 85 percent of employees are covered by the company's health care insurance plans. Wages at Costco start at $10 an hour, rising to $18.32, excluding twice-a-year bonuses of between $200 and $3000 for those at the top wage for more than a year. Costco average hourly wage is $17 an hour and Wal-Mart doesn't share its wage scale (Cascio, 2006). At Costco workers pay 8 percent of their health premiums. Full-time workers at Costco are eligible for health insurance after three months and part-time workers after six months. Eighty-five percent of Costco employees have health insurance coverage compared to less than half at Wal-Mart (Greenhouse, 2005)

Further, in the state of California, there have been numerous claims that lunch breaks have been denied to many employees. The state of California passed a law in 2001 that required employees be allowed a lunch break during any shift in which they are working more than five hours (Hudson, 2005). Lawsuits were filed based on the denial of meal breaks and Wal-Mart workers have now been granted their much earned breaks. Wal-Mart was required to pay $172 million to 116,000 employees in several states to compensate for the denied lunch breaks (Hudson, 2005). This lawsuit was one of many pending against Wal-Mart in at least twenty-six states (Hudson, 2005). Wal-Mart has also taken measures to make sure lunch breaks are taken in an accurate amount of time by incorporating new technology in their stores that alerts cashiers when they are due for a meal break. Although Wal-Mart has, in a sense, admitted to denying thousands of employees lunch breaks, A Jury in Pennsylvania court decided that Wal-Mart broke a state law by refusing to pay staff. 187,000 staff that worked for Wal-Mart between March 1997 and May 2006 and has been ordered to pay at least $78million in compensation to workers who were forced to work during the breaks brought the class action. The former employee who headed the case, Delores Hummel who worked at Sam's club for 10 years claimed that she worked between 8 and 12 hours unpaid each month regularly during breaks and after closing time because of the work demands. In the lawsuit, she said, "One of the Wal-Mart's undisclosed secrets for its profitability is its creation and implementation of-the-clock for its hourly employees. Wal-Mart executives are vowing to a "broad-ranging" appeal of the verdict. In December 2006, a California court ruled that Wal-Mart must pay $172 million in compensation to 118,000 employees who had been denied lunch breaks.

In addition to being denied lunch breaks, Wal-Mart employees have declared that they were locked in stores after hours and forced to stay until the managers had checked every department to ensure things were in order. Furthermore, employees were not paid for the time they were locked in the stores after hours and were denied pay for overtime work. Unfortunately, employees have stated that the reason they frequently have to stay after hours to complete tasks is due to the fact that Wal-Mart under staffs many of their stores.

WORKERS' RIGHTS TO FREEDOM OF ASSOCIATION

The right of workers to organize is well established under international human rights law. USA as a member of ILO (International Labor Organization) is legally bound to protect the fundamental right to organize. Employers. Under ILO and under the Wagner Act 1935 cannot mount aggressive and coercive anti-union campaigns or interfere with the workers' right to organize collectively and or bargain collectively.

Wal-Mart is the largest company in the world with roughly $351.14 billion in revenue and $11.3 billion in profits. It is the largest private employer in the USA with over 1.3 million US workers and close to 4000 stores nation wide. None of those workers is a union. This is no accident.

Wal-Mart employs a highly sophisticated and multifaceted strategy to prevent union activity at its US stores and when that strategy fails, Wal-Mart quashes organizing wherever it starts. Wal-Mart pursues its anti-union agenda from the day a new worker is hired. Wal-Mart gives managers clear instructions on how to prevent union formation, contained in company's "Manager's Toolbox." "Manager's Toolbox." Is a guide for managers on how to remain

union free? Store managers must call Union Hotline when workers ignore the company's warnings and attempt to organize. Wal-Mart has told workers :- a) When employee wage and benefits are subject to collective bargaining, workers could be the lose a lot b) Don't let a third party speak for workers because we have a open door policy c) Wal-Mart will permanently replace workers who strike in support of economic demands, such as higher wages and benefitsetc.Case of Aiken, South Carolina: Wal-Mart workers told Human Rights Watch that they believe that 2001 union campaign failed in their store because of a climate of fear, intimidation. Workers were scared to lose their jobs or even sign the cards. The NLRB (National Labor Relations Board) has filed case against New Castle,Pennsylvania Wal-Mart for ULP (Unfair Labor Practices) Here Wal-Mart illegally discouraged workers of the Tire and Lube Express department to form and join a union. The NLRB also filed a case against the Jacksonville, Texas Wal-Mart for unfair labor practices. Wal-Mart here threatened meat cutters, interrogated them and fired those who were pro-union.

ENVIRONMENT

Wal-Mart has become a retail giant in the business world but has also incurred consequences like harming the environment on the way to the top. As this company has grown, they have broken many storm water regulations made by the Environmental Protection Agency. In 2001, while building various locations in Texas, New Mexico, Oklahoma, and Massachusetts, ten of Wal-Mart's contractors failed to obey regulations and also allowed pollution to be released from these sites. After these violations were brought to the attention of the Justice Department and the Environmental Protection Agency, they made a settlement with Wal-Mart for $4.5 million to launch an environmental management program. Wal-Mart has to also pay an additional $1 million in civil penalties (Agency Group 1, 2001).

Then, in 2004 Wal-Mart was charged again with storm water violations for twenty-four construction sites in nine states they were building in. The Environmental Protection Agency also stated that Wal-Mart failed to control their polluted runoff and also failed to install sediment and erosion controls. The company had to pay another $3.1 million penalty (ENR, 2004). The year after, Wal-Mart faced yet another set of violations at twenty-two of its Connecticut stores. Wal-Mart has agreed to pay $1.15 million for the infractions. They will also give $600,000 to cover the civil penalties acquired from 1996 to 2003 while another $500,000 will help the municipalities in storm water issues. Lastly, they are handing $50,000 over for environmental projects in the Connecticut River Watershed (WSJ 1).

Among the many storm water violations, Wal-Mart has also violated air pollution and storage of petroleum regulations. In 2004, the company paid $400,000 to the government in order to settle the claims that Sam's Club, which is a division of Wal-Mart, ignored the federal air pollution regulations in eleven of the states they were operating in. In addition, in 2004, Florida forced Wal-Mart to pay $765,000 for fines induced from operating out of the restrictions on petroleum storage. Wal-Mart also failed to perform routine checks, lacked the technology to prevent overflows of petroleum, blocked the inspectors from the records and failed to show the correct insurance papers (Walmartwatch.com, 2001).

Even though the media has focused on the infractions of this company, Wal-Mart has made steps to help the environment. CEO of Wal-Mart, H. Lee Scott, has outlined three environmental goals for Wal-Mart to meet. These goals are to be supplied by 100% renewable energy, create zero waste and to sell products that sustain our resources and environment.

POSITIVE ASPECTS

While adversaries of Wal-Mart argue that no good can come from the company, enthusiasts beg to differ. There have been many studies noting some of the positive effects that have come out of the Wal-Mart Corporation. One of the strongest arguments opponents of the retail giant discuss is that Wal-Mart only takes from communities and kills local businesses when creating a retail store or Super Center. In 2005, Wal-Mart funded a study with a business called Global Insight to analyze the overall effect the creation of a store had on local economies. The nine month study conducted by eighteen of Global Insight's top economists gave them complete access to detailed data pertaining to Wal-Mart's sales, employment, and wage information (Holling, 2006).

Overall, the study performed by Global Insight proved to be favorable for Wal-Mart. Economists concluded that with the opening of each retail store, 150 to 350 new jobs are created and up to 500 jobs were created with the development of a Super Center. In the long term, an average of 97 new jobs is created with the development of each new store. One of the economists in the study noted that, "While Wal-Mart does appear to displace other retail establishments in a county, it also serves to stimulate overall retail sector development." (Holling, 2007) Wal-Mart created 100,000 new jobs in the US in 2004 and 125,000 new jobs in 2005 Wal-Mart is the largest corporate employer in the United States with 1.2 million employees (Fishman, 2001)

Wal-Mart believes strongly in giving back to its local communities. In 2005 alone, Wal-Mart's cash donations exceeded $170 million dollars. In addition, another $30 million dollars was generated through grants and donations. Of the donations, nearly 100,000 different companies benefited while ninety percent of the companies on the receiving end were where local customers and employees reside (Troy, 2005)

Understanding the importance of greater education, the Wal-Mart Corporation established a program called The Teacher of the Year Program in 1995. Today, the program has recognized more than 25,000 teachers in the U.S. and Puerto Rico and contributed more than $19 million to those schools. In 2005 alone, $4 million dollars were donated to local schools and 3,500 teachers were recognized for their outstanding teaching abilities.

Wal-Mart launched the $4 generics program late last year as it pushed a variety of health care and environmental initiatives, to counter political pressure led by union groups over its labor practices, including health care insurances. Critics have called it a publicity stunt but in our opinion $ 4 generic program is a good start. In response to Wal-Mart, the Walker based Meijer offered seven popular oral antibiotics free for adults and children with prescriptions at its 181 pharmacies in five states. Such programs not only benefit Wal-Mart or Meijer because they provide an added service. Such programs not only draw more shoppers into their stores who may come for prescriptions and then make purchases in other departments but also fulfills a greater role of acting socially responsible. They not only protect and enhance Wal-Mart's and Meijer's social responsibility but help them fulfill their obligations to the society in which they operate.

CONCLUSIONS AND RECOMMENDATIONS

Wal-Mart boasts of its low cost to customers. "Always low prices, always." The four powerful words defining the trademark slogan of the world's biggest and most controversial retail store. But Wal-Mart lowest prices around are results of a variety of moral dilemmas: employee relations, health-care, safety, community impact, gender discrimination, low wages, illegal immigrants, worker's rights, and child labor violations.

Individuals have alleged that Wal-Mart has been unethical in their treatment of employees. Workers have been denied lunch breaks, deprived of pay for overtime hours and forced to stay after hours while managers examine the cleanliness of the store. Although it has taken Wal-Mart multiple lawsuits to act, Wal-Mart has taken several measures to ensure that their employees receive lunch breaks.

While Wal-Mart has violated many of the regulations enforced by the Environmental Protection Agency, they have also recognized that there are several ways to collectively help the environment and save on costs. The CEO, H. Lee Scott, has found ways to help his company be a better retail entity in the market by outlining three goals he plans on achieving in the near future. Wal-Mart has also tried to overcome media scrutiny by donating money to needy organizations and local businesses within communities. Wal-Mart has made steps to help the environment. CEO of Wal-Mart, H. Lee Scott, has outlined three environmental goals for Wal-Mart: 100% renewable energy, create zero waste and to sell products that sustain our resources and environment. Recently Wal-Mart has modified its slogan to, "Save Money. Live Better". Wal-Mart claims that "we are committed to saving people money, so they can live better. It starts with Wal-Mart's unbeatable values on quality, name-brand products. And ends every year with savings of over $2300 for the average American family". We feel that Wal-Mart should aim for providing 'high living standards for its workforce. So Wal-Mart should change its "wage-policy" and pay the employees well so they can maintain high living standards. Wal-Mart could function within a Union where employees have someone to seek out and represent them in times in which they feel they are being treated unfairly. By establishing a Union, Wal-Mart could potentially avoid personal lawsuits filed by employees who feel they have no other option.

Wal-Mart could also periodically investigate the subcontracting companies in which they are working with. By investigating these companies, the use of illegal immigrants could be drastically reduced. Subsequently, Wal-Mart needs to continue with the education of individual managers about the utilization of minors within stores. Wal-Mart can also improve by posting warning signs on hazardous equipment that indicates age restrictions. Wal-Mart should continue working with supplier, driving costs out of the supply chain and passing savings to their customers in the health-care area. Wal-Mart should expand its national $ 4 generic prescriptions by about 20-30 percent and more drugs.

As far as the environment is concerned, Wal-Mart needs to ensure that their building sites are not in violation of storm water regulations and make sure pollution stays out of local water ways. In addition, Wal-Mart needs to continue their efforts of making their stores "green" by focusing on the heating and cooling of their buildings, changing their light bulbs to those that operate in more energy efficient ways, reduce packaging while recycling plastics, and continue their use of organic products. Further, it is reported that Wal-Mart shifts the health-care burden to tax-payers and tax-payers subsidize nearly $20.5 million for medical care for Wal-Mart employees (Chase 2003). Wal-Mart covers only 43 percent of health care costs which looks bad when you look at the fact that Wal-Mart employs Wal-Mart employs more than 1.39 million US workers. Many consumers would be willing to spend "a little extra for products that are produced by the companies that pay workers good wages, have good working conditions. Wal-Mart should try to improve health-burden and focus more on how employees can live better.

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TRANSCULTURAL PERSPECTIVES ON ALTERNATIVE HEALING PRACTICES

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ABSTRACT

Complementary and alternative healing therapies are widely used to enhance wellness. The purpose of this paper is to provide a beginning reflection of the author's exploration of transcultural alternative healing practices. Practices offered by the Native Hawaiian Healers at the Native Hawaiian Traditional Healing Center located on the island of Ohau, Hawaii are described. These practices include lomilomi, la `au lapa `au, pale keiki, laaukahea, and ho`oponopono .

INTRODUCTION

As a Global Scholar at the University of Evansville, the author is engaged in efforts to promote a global view of alternative healing practices which have the potential to enhance wellness. Goals of the author's research activities include increased integration of alternative healing practices in the baccalaureate nursing program at the University of Evansville, and identification of alternative healing practices that may be appropriate for the University community to use to promote stress management and wellness. Travel to Hawaii was chosen as part of the research effort because of its rich blend of cultures and ethnicities. According to the U.S. Census Bureau, the Hawaiian population is 40% Asian, 9% native Hawaiian and other Pacific Islander, 19% two or more races, and 8% Hispanic or Latino. Less than 25% of the Hawaiian population is white (U.S. Census Bureau, 2009). The diverse population draws upon both Western and Eastern healing practices. This paper is a beginning reflection of the author's exploration of transcultural alternative healing practices.

COMPLEMENTARY AND ALTERNATIVE MEDICINE

Complementary and alternative medicine (CAM) is defined by the National Center for Complementary and Alternative Medicine (NCCAM), a division of the National Institutes of Health, as "a group of diverse medical and health care systems, practices, and products that are not presently considered to be a part of conventional medicine" (NCCAM, National Center for Complementary and Alternative Medicine, 2009). Major types of complementary and alternative medicine and examples of each include: Whole Medical Systems (traditional Chinese Medicine and Ayurveda); Mind-Body Medicine (prayer, art, music, and dance); Biologically Based Practice (dietary supplements and herbal products); Manipulative and Body-Based Practices (chiropractic or osteopathic manipulation and massage); Energy Medicine (therapeutic touch and electromagnetic therapy). Functions of the NCCAM include advancing scientific research, training CAM researchers, sharing news and information, and supporting integration of proven CAM therapies (NCCAM,2009).

New findings on the use of complementary and alternative medicine in the United States were released in December of 2008. It was reported that 38.3 % of adults use some type of CAM therapy, with the greatest use among adults age 30-69 years. The most common therapies used by adults included natural products, deep breathing, meditation, chiropractic and osteopathic therapies, and massage. The disease or condition for which CAM was most frequently used was back pain. CAM use by race and ethnicity among adults indicated higher use among the American Indian/Alaskan Native, White, and Asian populations than the Black and Hispanic populations (NCCAM, 2009). Dr. Chen-Yen Wang is a researcher, practitioner, and professor who operates an outpatient clinic in Chinatown of Honolulu, Hawaii. The clinic serves a culturally diverse population. She conducted research to

determine the prevalence of the use of alternative healing practices among her clients. She reported that 63% of her clients use some type of Chinese Medicine (C. Wang, personal communication, July 28, 2008).

Several reasons why people seek the use of CAM therapies have been acknowledged. Kniesl, Wilson, and Trigoboff (2004) identified the following reasons:

1. Wanting greater control over their lives
2. Having a sense of responsibility for their own health care
3. Wanting a more holistic orientation in health care so that body, mind, and spirit are addressed
4. Concern over the side effects of conventional therapies
5. Finding the results of conventional treatments to be inadequate
6. Identifying with a particular philosophy or practice because of cultural background (p. 765).

NATIVE HAWAIIAN HEALING PRACTICES

"If nurtured properly, spiritual strength may set the stage for the recovery of good health."
Terry Shintani, MD, JD, MPH

A visit was made to the Waianae Coast Comprehensive Health Center (WCCHC), a community health center located on the Waianae Coast on the island of Oahu, Hawaii. It serves over 27,000 patients, with more than 139,000 visits annually. WCCHC provides comprehensive health services, integrating conventional medicine with Hawaiian and Traditional Healing Arts. Primary care is provided by family practitioners, pediatricians, internists and nurse practitioners. Specialty services offered include orthopedics, obstetrics- gynecology, podiatry, urology-gynecology, nephrology, and general surgery. Community health services include case management, health care to the homeless, perinatal support services, babysafe services, transportation services, child passenger safety seat fitting stations, and patient assistance services. Dental services, Women, Infants, & Children supplemental nutrition program, behavioral health services and adult day care, and a fitness center are also offered. Walking trails offer beautiful views of the Waianae Coast, and trails where medicinal herbs and plants are grown (Waianae Coast Comprehensive Health Center, 2009).

The Native Hawaiian Traditional Healing Center is a part of the Waianae Coast Comprehensive Health Center. It combines traditional Hawaiian healing with services offered by the community health center. This is a unique combination, made possible by the enactment of the Native Hawaiian Health Care Act of 1988. The purpose of this bill was as follows:

" to improve the health status of Native Hawaiians through the establishment of a comprehensive health promotion and disease prevention effort that involves health education in Native Hawaiian communities, and the provision of primary health care services using traditional Native Hawaiian healers and health care providers trained in Western medicine (U. S. Code Congressional and Administrative News, volume 6, 1988, p. 3864).

A law written in 1999 legalized Native Hawaiian Healing practices that were previously considered illegal as the "practice of medicine" without a license. The law, a state law under Hawaii Revised Statutes 453-2, established an exception to the requirement of a license to those who are certified to be Native Hawaiian Healers by an Elder's ("Kupana's) Council (T.Shintani, personal communication, July 22, 2008). The term, "traditional Native Hawaiian healer means a practitioner:

A. who-
   (i) is of Hawaiian ancestry, and
   (ii) has the knowledge, skills, and experience in direct personal health care of individuals, and
B. whose knowledge, skills, and experience are based on a demonstrated learning of Native Hawaiian practices acquired by-
   (i) direct practical association with Native Hawaiian elders, and
   (ii) oral traditions transmitted from generation to generation (U. S. Code Congressional and administrative News, vol,ume 2, 1988, p. 2922).

Practices offered by the Native Hawaiian Healers at the Native Hawaiian Traditional Healing Center include lomilomi,, la `au lapa `au, pale keiki, laaukahea, and ho`oponopono .

Lomilomi is a form of relaxing massage incorporating massage, music, chanting, and dance work or hula movements. Touch, energy flow, and breath work are key components in this massage, with the goal of positively affecting the physical, mental, emotional, and spiritual health of the person.
Positive benefits to clients have included reports of increased relaxation, decreased back, shoulder, arm, and neck pain, decreased depression, and decreased need for chronic use of pain medication (H. Kanawaliwali O'Connor, personal communication, July 30, 2008).

La `au lapa `au is the use of medicinal herbs. Native Healers grow many of their own herbs on the grounds of the Native Hawaiian Healing Center. The noni fruit is an example of a medicinal herb grown there, and used for the treatment of rashes, high blood pressure, and diabetes (H. Kanawaliwali O'Connor, personal communication, July 30, 2008). According to the NCCAM. noni has been used as a topical preparation for joint pain and skin conditions, and as a fruit juice for conditions including cancer, cardiovascular disease, and diabetes. The National Cancer Institute is funding preliminary research on the use of noni for breast cancer prevention and treatment (NCCAM, 2009). Examples of other herbals commonly used by people in this area of Oahu include malaleuca oil and forify, both used to kill bacteria in the gastrointestinal tract (H. Kanawaliwali O'Connor, personal communication, July 30, 2008). Plans are under way to build a new facility on the complex of the WCCHC where research will be done on plants and flowers used for medicinal purposes.

Pale keiki is care of mothers and children before, during, and after birth. This parallels the role of the midwife in other cultures.

Laau kahea is spiritual healing through prayer and chants. The Hawaiian populations view the body, mind, and spirit as one, and believe there must be harmony and balance between these in order for healing to occur. Depression and anxiety are prevalent in the population served by the WCCHC. Contributing factors shared with this interviewer include conflicted relationships with parents, spouses, and significant others, and history of abuse issues. The Native Hawaiian Healers work jointly with the behavioral health practitioners at the WCCHC to positively impact mental health concerns. Clients are prescribed psychotropic medications as appropriate on an individual basis, and then referred to the Native Hawaiian Healers for spiritual help. Spiritual healing techniques have been successfully used for the treatment of depression, anxiety, schizophrenia, and dissociative identity disorder (H. Kanawaliwali O'Connor, personal communication, July 30, 2008).

Ho`oponopono is a traditional Hawaiian spiritual approach to conflict management. It literally means, "setting to right". The goals are forgiveness and restoration of harmony between family members or friends. The process is facilitated by the guidance of a "Kuhanaehu, which is considered the equivalent to a psychiatrist (Broad & Allison, 2002). There are four phases in the Ho`oponopono process: an opening, discussion, resolution, and a closing phase. The opening consists of a prayer, followed by a statement of the problem and a description of the procedures that will be used. The discussion phase focuses on each participant identifying the network of conflict, and how he/she has been affected by the conflict. The resolution phase consists of confession of wrongdoing and the seeking and giving of forgiveness. Summarization of the session and affirmation of family strengths occur in the closing phase. All members who have participated then share in a meal or snack, prepared by the participants (Miura, 2000). Helen Kanawaliwali O'Connor is a Native Hawaiian Healer interviewed as part of this research effort. She shared the duration of time she has spent with family members using Ho`oponopono for conflict resolution has ranged from four hours to three eight - hour days. The largest group with which she has worked was 22 participants. When asked how successful this spiritual approach has been for conflict resolution, she replied, "All are successful!" (H. Kanawaliwali O'Connor, personal communication, July 30, 2008).

CONCLUSION

Initial efforts to explore transcultural alternative healing practices have illuminated the significance of further investigating Western and Eastern approaches to managing wellness. Practices observed and described by interviewees in addition to the Native Hawaiian Healing practices portrayed in this paper include nutrition, music, humor, healing touch, light therapy, aromatherapy, yoga, meditation, acupuncture, tai chi, prayer, and art therapy. The importance of caring for body, mind, and spirit is evident. In the words of Dr. Terry Shintani (1997), "…when

we are searching the world for answers to the ultimate question of how best to heal this nation and our people, we need not look beyond our borders to find a rich tradition of spiritual healing and ancient wisdom" (page 12).

ALOHA

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PHARMACEUTICAL COUNTERFEITING

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ABSTRACT

The present study analyzed the scale and severity of pharmaceutical counterfeiting, both nationally and internationally, which has become a problem that threatens both economic stability through loss of revenue and the safety of drug users. Results indicated that implementing Radio identification (RFID) model in the pharmaceutical supply chain would solve a significant problem by using technology that already exists. Ideally, the FDA will place greater emphasis on RFID technology in the future and will encourage its implementation as soon as the costs are deemed feasible.

INTRODUCTION

Counterfeit medicines are those that are intentionally and fraudulently mislabeled with respect to identity and/or source. Pharmaceutical counterfeiting has been escalating at an alarming rate. Unfortunately, it has become a severe situation that is difficult to accurately assess since counterfeiting is hard to detect, investigate, and quantify. The problem has occurred worldwide, yet has been more widespread in developing countries. It has been estimated that over 10% of drugs worldwide are counterfeit, and tragically, some countries report that more than 50% of the drug supply is made up of counterfeit drugs (WHO, 2006). Furthermore, pharmaceutical counterfeiting is a profitable market. The U.S. FDA estimated that the industry earned over $35 billion U.S. dollars in 2005. This figure has been predicted to increase to $75 billion by 2010 (Booz, 2006). The soaring profits fuel the continuation and appeal of counterfeiting. Counterfeit drugs – illegal and inherently unsafe – are a growing healthcare problem. An FDA task force has been working with other agencies and the private sector to help protect the nation's drug supply from the threat of counterfeits (FDA, 2004). In 2006, this task force reported that software and hardware companies had made encouraging progress toward implementing RFID for drug products (FDA 2006).

Counterfeit drugs in wealthier countries frequently tend to be new, expensive lifestyle medicines, such as hormones, steroids and antihistamines. A commonly counterfeited drug is Viagra. However, developing countries face a much more serious implication, since most counterfeited medicines are those used to treat life-threatening conditions such as malaria, tuberculosis and, HIV/AIDS (Behrens, 2002).

Major negative effects of pharmaceutical counterfeiting include both dangerous threats to patient safety as well as major financial consequences for pharmaceutical companies. Since 2000, an increasing number of Americans who have filled prescriptions expecting reliable medicine were in fact given counterfeit medicine instead (Rudolf, 2004). The medicine looked the same; the packaging was the same; even the pharmacists had difficulty distinguishing the authentic drugs from fake drugs (Ham, 2003). However, the truth was the medicine was different. Counterfeiters seeking profits had diluted it, replaced it with cheaper ingredients, or relabeled it to appear a stronger dose than it actually was. Pharmaceutical manufacturers, patients, pharmacists, and customs officials often cannot tell if drugs are real or counterfeit because the packaging and pills or liquid look identical (Rudolf, 2004).

The recipients of the counterfeit drugs are not necessarily those who tried to buy prescriptions from the Internet, from India, or across the border in Mexico or Canada. The U.S. consumers of the counterfeit medicine may be those trying to fill their prescriptions legitimately in reputable U.S. pharmacies (Rudolf, 2004). The FDA reports that in some countries the counterfeiting of drugs is endemic – with some patients having a better chance of getting fake medicine than a real one. The FDA estimates that one percent of the drugs sold in the US are counterfeit compared to over 10% in other areas in the world (FDA, 2004).

Not only are the patients at risk, but the pharmaceutical companies face to lose profits as well (Wertheimer, 2003). Counterfeit drugs have been estimated to cost the pharmaceutical industry over $30 billion per year in lost revenues (WHO, 2006). Faced with ineffective and sometimes expensive solutions, pharmaceutical manufacturers may be tempted to take no action at all. However, doing nothing can be expensive (Wertheimer, 2005). This manuscript will examine the technological defense against it, in particular radio frequency identification (RFID).

Radio frequency identification (RFID) is a technology, invented in the 1970s, that uses radio waves to automatically identify people or objects (Becker, 2004). This technology is an automatic identification method that relies on storing and remotely retrieving data using devices called RFID tags, or transponders (Bouchie, 2003). The tag can be attached to a variety of objects including products, animals or persons, and radio waves are then used for the purpose of identification (Young, 2004). There are several methods of identification, but the most common has been to store a serial number that identifies a person or object, and potentially other information, on a microchip that is attached to an antenna. The antenna enables the chip to transmit the identification information to a reader. The reader converts the radio waves reflected back from the RFID tag into digital information that can then be transmitted to computers that can analyze it (James, 2005).

Due to the technology's increasing affordability, RFID chips are becoming more common for everyday use. The Canadian Cattle Identification Agency began using RFID tags as a replacement for barcode tags. The tags are required to identify a bovine's herd of origin and are used for tracking when a packing plant condemns a carcass (Canadian Cattle Identification Agency, 2005). The USDA is currently examining options to implement such a program in the US (USDA, 2007).

Many retailers use RFID tags to track inventory. Wal-Mart introduced a large-scale RFID program three years ago that met with supplier resistance. However, since January 30, Wal-Mart has been charging suppliers a $2 fee for each pallet they ship to its Sam's Club distribution center in Texas that doesn't have an RFID tag. The charge is to cover Sam's cost to affix tags on each pallet (Weier, 2008). Wal-Mart is expected to require RFID down to the item level in 22 distribution centers by 2010 (Lee, 2004).

The costs of the technology are only slightly higher than bar-coding. The cost of establishing an infrastructure would be in the same range as it took to establish barcodes. It is estimated that a 96-bit EPC inlay (chip and antenna mounted on a substrate) would cost 7 to 15 US cents. The price would be 15 cents or more if the tag was embedded in a thermal transfer label on which companies could print a bar code. These are basic passive RFID tags (RFID Journal, 2008). Others have estimated that retail compliant, RFID-enabled smart labels would cost 10 to 15 cents finished (Modern Materials Handling, 2008). At these prices, it would be cost effective to track drugs at the package level that have prices of $20 or more.

RADIO FREQUENCY IDENTIFICATION DEVICE

There are several technologies that may prove helpful in fighting this problem, such as RFID, which uses electronic devices to track and identify items, such as pharmaceutical products, by assigning individual serial numbers to the containers holding each product (Becker, 2004). The FDA is working towards an Electronic pedigree (ePedigree) system to track drugs from factory to pharmacy. This technology may prevent the diversion or counterfeiting of drugs by allowing wholesalers and pharmacists to determine the identity and dosage of individual products (FDA, 2006).

The FDA has been pushing the pharmaceutical industry towards solutions that generate a pedigree of history, the digital version of which is called an 'ePedigree'. RFID technology has become the leading candidate for this form of electronic tracking (James, 2005). RFID is a form of wireless identification, which is an effective tool for tracking moving objects. A complete RFID serialization requires a costly infrastructure, and some pharmaceutical companies may not see the benefit, although it has more advantages over other tools such as bar-coding. RFID can hold more information, can quickly read the serial number of every bottle in a case, and will be more difficult to counterfeit than bar-coding (Young, 2004). Most of the benefits of RFID implementation are accomplished through securing the supply chain, improved accounting accuracy, and greater warehouse and inventory efficiency. The benefits increase as more products are tagged at the unit-of-sale level (Young, 2005).

The FDA has stepped up its efforts to improve the safety and security of the nation's drug supply by encouraging the use of the technology that will tag the product packaging electronically. The RFID chips have allowed manufacturers and distributors to more precisely track drug products through the supply chain (Becker, 2004Johnson & Johnson is one of the companies that has established standards for RFID technology and is participating in RFID pilot studies. They currently employ RFID to comply with retailer mandates that certain products be shipped with RFID tags. Johnson & Johnson have also performed tests in which RFID tags were used to track promotional displays, and are currently employing the technology to manage surgical implements (O'Connor,

2008). Other companies with plans to examine such technology include Pfizer, GlaxoSmithKline, and Purdue Pharma (FDA, 2005).

Pfizer began a pilot program almost a year ago that began shipping RFID-tagged bottles of Viagra for U.S. distribution. Pfizer, so far, has spent $5 million on its Viagra implementation (Pfizer, 2006). Before the company proceeds on a larger scale, they want to see mass acceptance of the technology and standards. During the last few years, companies have advanced their pilot programs and are expanding them to encompass entire product lines. Pressure from the FDA on the pharmaceutical industry to adopt RFID as a means to stop counterfeiting is increasing (Krohn, 2005).

The partnership between VeriSign and Texas Instruments (TI) proves there is an industry interest in finding a solution to pharmaceutical counterfeiting. Texas Instruments and VeriSign are developing the authenticated RFID model together;his infrastructure is expected to support item level authentication at origin, along the supply chain, and at the pharmacy at any point along the chain of custody (Texas Instruments, 2005). One of the challenges that face both manufacturers of pharmaceuticals as well as the retailers that provide the drugs to consumers face is to determine the custody of a product at various levels along the supply chain. Using a product developed by TI and VeriSign could provide the answers to determine the exact location of the product at any given place along the supply chain. In particular the TI / VeriSign product would have the following features:

- Unique RFID Tags – The initial safety in the model is the actual RFID tag or transponder. During production, the tag manufacturer writes data onto the tag, including a Unique Identification (UID) number and the Product Manufacturer Identifier (PMID) number. The information stored on the tag is unable to be changed therefore providing some level of security.
- Digital Signing of Tags – The manufacturer develops a key that is only used by the manufacturer for that product. The key is private and therefore providing another layer of security. A digital signature is then used by an Authenticated RFID reader to validate the tagged pharmaceutical product at the pharmacy or anywhere in the supply chain.
- Supply Chain Event Validations – The products that have a tag with unaltered data and a private key move throughout the supply chain. Authenticated RFID readers write chain-of-custody even markers on the tag. An added layer of tag validation is then implemented by comparing the tag event markers to data from full chain-of-custody systems of record in the supply chain. This is yet another line of security.

(Texas Instruments, 2005).

This complex pharmaceutical distribution infrastructure makes it difficult to ensure supply chain integrity as products move from point of manufacture to point of dispensing (Texas Instruments, 2005). Counterfeit drugs – illegal and inherently unsafe – are a growing public health problem. An FDA task force has been working with agencies in the private sector, such as Pfizer and Texas Instruments, to help protect the nation's drug supply from the threat of counterfeits (FDA, 2006).

The office of the U.S. Trade Representative has relaxed patent restrictions to allow poor developing countries greater access to pharmaceuticals and test kits when facing public health crises. This plan allows countries, such as India and Brazil, to manufacture generic versions of patented drugs for export to countries that lack domestic production capacity to curb an HIV/AIDS epidemic. For example, drugs and test kits were sent to sub-Saharan Africa (Office of U.S. Trade Representative, 2006).

Across Southeast Asia, where the drug supply's percentage of counterfeits has been reported as high as 53%, anti-malarial drugs have been the most commonly counterfeited. Scientists in this area have been trying to combat the counterfeit drugs by raising awareness with doctors and patients, and by running lab tests to screen for counterfeits (Aldhous, 2005).

The lack of regulation and enforcement intensify the situation (Bouchie, 2003). The quality, safety and efficacy of both imported and locally manufactured medicines in many developing countries cannot be guaranteed (WHO, 2006). The situation is worsened by the fact that medicines exported from many industrialized countries are not regulated to the same extent as those that are distributed domestically (Frankish, 2003). Some policy-makers believe that drug regulation represents an unnecessary barrier to and should be reduced to a minimum. Pharmaceutical, however, cannot be considered a standard commodity since consumers and prescribes are unable to assess their quality, safety and efficacy and the results can be harmful to patients' health (WHO, 2006).

Legislation forms the basis for drug regulation. Medicines need to be safe, effective and good quality in order to produce the desired effect. Ensuring these properties requires the creation of competent nation drug regulatory authorities with the necessary human and other resources to control the manufacture, importation, distribution and sale of medicines. Governments need to develop strategies to reduce corruption and criminal activity and promote cooperation between regulatory authorities, police, customs services and the judiciary to effectively control the drug market and enforce drug regulation (Cockburn, 2005). Since the opening up of trade

barriers between countries has led to an increase in counterfeiting, consistent and systematic efforts are needed at the international level. These should include the timely and appropriate exchange of information and measures in place to prevent the spread of counterfeit drugs (Cockburn, 2005). Some countries have begun to make serious efforts to address the counterfeit medicines issue. In China last year, the State Drug Administration closed 1,300 illegal factories and investigated cases of counterfeit drugs worth US$ 57 million (SFDA China, 2006).

METHODOLOGY

The methodology of this research was conducted in a manner to successfully complete a thorough literature review on the advantages and disadvantages of using technology to battle pharmaceutical counterfeiting. The study search strategy was defined to reputable journals in which online access was available from electronic databases. The research completed yields journal articles of high impact.

When completing the online research, the terms 'Huntington's disease' OR 'Huntington's chorea' AND 'pre-symptomatic testing'.When completing the online research, the terms 'counterfeiting' AND 'pharmaceutical' OR 'RFID' were used. For the search, the chosen timeline was from 2000 to the present, and non-English articles were excluded.

Fifty-seven articles were screened by full text reviews. Articles relating to the general and legislative history and future of pharmaceutical counterfeiting, RFID chips and the use of RFID chips as a solution to the counterfeiting were included in this analysis, while all other articles were excluded. Thirty-eight articles were used for this study.

The FDA and WHO websites were also important sources providing insight to the situation on a national and international level. The *American Journal of Health-System Pharmacy* provided numerous articles with useful information on the future uses of RFID chips in pharmaceutical counterfeiting.

RESULTS

Unfortunately, the use of RFID chips to defend against pharmaceutical counterfeiting is still in its early stages. Therefore, evidence for or against the solution is difficult to obtain. Also, implementation of RFID chips is an expensive and extensive solution thus many companies opt not to implement. Inadequate information and a current lack of in-depth studies are limitations of the present study.

Pharmaceutical counterfeiting is a considerable problem today not only because the loss of revenue threatens corporate economic stability, but more importantly due to the safety of the drug users. Implementing an RFID model would utilize technology that already exists to solve a significant problem. Furthermore, implementing such a system would provide a solution that all participants in the pharmaceutical supply chain could assure their customers safe and authentic products by closing the gaps in supply chain integrity, while also securing their brand, reputation and financial performance (FDA, 2004).

According to the Healthcare Distribution Management Association's Healthcare foundation the benefits of RFID far outweigh the costs, and can potentially save pharmaceutical manufacturers as much as $1 billion and healthcare distributors as much as $400 million (Healthcare Distribution Management Association, 2006).

RFID makes it easier to ensure that drugs are authentic, and it also creates an electronic pedigree of the chain of custody from the point of manufacture to the point of dispensing (James, 2005). Electronic pedigrees will improve patient safety and protect the public health by allowing wholesalers and retailers to rapidly identify, quarantine, and report suspected counterfeit drugs and conduct efficient, targeted recalls (FDA, 2006).

In its 2004 report on Combating Counterfeit Drugs, the FDA optimistically looked towards the rapid development of RFID technology to curb pharmaceutical counterfeiting problems. The FDA had high hopes that this data collecting technology would be ready for implementation by 2007 (FDA, 2006). Today, RFID is only marginally closer to widespread use than it was in 2004. Although this technology holds much promise for improving supply chain efficiencies, there remain significant economical, political, and technological challenges to overcome before RFID technology can be utilized to its full potential(Cockburn, 2005). Despite all the legislation in the works, the reality is that even with the more advanced RFID implementation in Pharma, RFID is not yet ready to deliver the capabilities of tracking and tracing pharmaceutical products through the entire distribution system (Young, 2004). In order to achieve track and trace capabilities, all parts of the supply chain would have to invest in compatible technology and agree to capture and share information about a product's movement in common data formats (Young, 2004). The high costs of implementing an industry wide RFID infrastructure and the lack of agree upon industry standards are holding back wide scale adoption of this technology. Cost of using RFID consists of three different elements:

1. Tag, where the costs depend mainly on read range, chip (or chipless) and possibility to rewrite the tag (or disposable)
2. Reader/writer, where the costs depend on complexity and power (low frequency less costly) of reader/writer.
3. System integration, which may be the biggest cost, depending on compatibility of other standards (Jones, 2005)

Critical mass is important to lower the costs of tags and infrastructure and to strengthen standards, yet such critical mass is difficult to achieve unless costs come down and robust standards are implemented. Many companies and retailers are looking for the return on interest (Krohn, 2005). Since RFID is still in its early stages, not seeing immediate return is a huge barrier, deterring companies from implementing such technology. Unless RFID technology matures, read rates and directionality problems improve, and companies map out their processes in detail, RFID will not efficiently be able to produce e-pedigree across the entire supply chain. Processes and information flows for drug track-and-trace will leverage RFID opportunities and allow investments to pay off in areas like inventory management and supply chain visibility (Becker, 2004).

Implementing RFID involves many challenges. A major challenge continues to be cost. Other challenges include:

1. Resistance to change – Many organizations today rely heavily on manual processes or barcode scanning track goods. In any organization, moving from a familiar technology poses a challenge, especially when it requires process change.
2. Established bar-coding infrastructure – Barcode systems have been used for many years. They are efficient and represent substantial investment; it can be difficult to change to RFID.
3. No one size fits all – Each organization builds and develops their own RFID system.
4. Lack of skilled personnel.
5. Evolving Standards.
6. Resistance to information sharing.

Source: (Jones, 2005)

CONCLUSION

To fight the pharmaceutical counterfeiting crisis in developing countries, advancing security of the pharmaceutical supply chain will improve patient safety. While RFID technology may be developing slowly, pharmaceutical counterfeiting is not slowing down. Threats to our drug supply need to be addressed immediately using technology that is already available. Many of the pilot programs that have been implemented are in their early stages and no conclusive evidence has been reported. There exists a problem, RFID tags in theory, sound like the best option, but are expensive and complex to immediately implement. Moreover, there are no immediate reports on the success of these pilot programs. Since the problem is escalating, it is necessary to take action now. Barcode technology is readily available, economic, and will allow mass serialization. Mass serialization is a process where unique codes are applied to individual pharmaceutical products during the manufacturing process. These item-level codes can be related to unit codes on boxes, cases, and pallets to establish "parent child" relationships. Mass serialization could be implemented in such a way to be compatible with RFID technology to be implemented in the future.

Currently, the European Federation of Pharmaceutical Industries and Association (EFPIA) have endorsed a mass serialization approach based on serialized barcodes. Some U.S. pharmaceutical companies are now also moving in this same direction. Hopefully, the FDA will reconsider the emphasis that was place of RFID technology in 2004 and will encourage the immediate implementation of mass serialization using barcodes with the intent to implement RFID when possible. It is not only feasible, but also benefits consumer safety. RFID is not the only solution, changes to state regulations, more stringent licensing of pharmaceutical wholesaler, modification of business practices, and increased enforcement are also key factors. New initiatives, regulatory requirements, FDA guidelines and standards development will continue to drive RFID forward.

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HOW DO VENDORS CHOOSE CLIENTS?

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ABSTRACT

Healthcare professionals often choose vendors based on price and promotion as a response to the challenge of reducing the high cost of expenses. This presentation will briefly discuss the increased utilization and high cost of healthcare expenditures. However, the focus will be on the market created for value added services based specifically on the increased utilization of diagnostic imaging services.

A CENTER FOR ORAL HEALTH PROMOTION: ESTABLISHING AN INTERDISCIPLINARY PARADIGM FOR DENTAL HYGIENE AND HEALTHCARE MANAGEMENT EDUCATION

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ABSTRACT

The need for education about oral health issues has been discussed with great urgency in recent times. Current research has shown strong correlations between oral and systemic disease. Disease entities have been connected to bacteremia and inflammatory processes, both of which can result from oral pathologies. People need to be educated about these connections and advised how, by maintaining proper oral health they can avoid these systemic consequences.

Students in both dental hygiene and healthcare management programs can play a vital role in this education. By jointly operating a center for oral health promotion, they can develop core understandings that will serve them well in the future. These students will develop the skill set to reach out to the underserved and establish protocols to provide free education and care at affordable rates. They can also better appreciate the interconnections between healthcare delivery and its management.

INTRODUCTION

Educational settings for students in the United States admitted to the 296 dental hygiene programs reside in technical schools, community colleges, four-year colleges, universities, and dental schools. Except for programs housed in the 58 dental schools, the education is provided in separate departments and not integrated with other healthcare provider disciplines. As a result of this framework, students do not learn to view their profession as part of a holistic healthcare provider approach. Also, dental hygiene students do not typically practice their educational and clinical skills in a realistic setting where the principles of ideal healthcare management are taught and practiced by students from other disciplines. Similarly, healthcare management programs are rarely developed and worked from an integrated scheme. In most cases, healthcare management students would have their first integration experience when they do their practicums or internships towards the end of their programs. The ability to effectively interact with healthcare providers will be crucial to the success of a healthcare manager and needs to be addressed in the curriculum. A Center for Oral Health Promotion will address the need to provide dental hygiene students with more extensive practical experience and introduce them to the business side of healthcare delivery. The Center will at the same time allow healthcare management students to have extensive contact with providers and afford them the opportunity to become acculturated to the delivery side.

ORAL HEALTH AND SYSTEMATIC HEALTH

The need for a Center for Oral Health Promotion from a pure health perspective starts with understanding the importance of oral health, particularly as it relates to systemic health. The relationship between the two begins with the creation of inflammatory processes that typically result from periodontal disease. Periodontitis is caused by bacteria infection which affects supporting tooth structures including the gingiva, periodontal ligament, cementum, and bone (Nield-Gehrig & Willmann, 2003). These causative gram negative bacteria contain metabolic products and

lipopolysaccharides within their cells walls which initiates the inflammatory process in the mouth. The process is further exacerbated as the bacteria attacks the junctional epithelium cells which triggers the release of inflammatory mediators: cytokines, prostaglandin E2, matrix metalloproteinases, and tumor necrosis factor (Nield-Gehrig & Willmann, 2003). The systemic connection begins as these inflammatory mediators travel to the liver where they stimulate the production of C-reactive proteins. Elevation of the C-reactive protein levels can damage the lining of the coronary arteries which will produce atherosclerosis and subsequent emboli. Increased levels of C-reactive protein have also been correlated to increased morbidity from diabetes (Hein, Cobb, & Iacopino, 2007).

Studies have shown that the risk for cardiovascular disease may increase as much as 20% in the presence of periodontal disease and the risk for stroke appears to be even greater (Meurman, Sanz, & Janket, 2004). The inflammatory process mentioned above may be assisted by the causative bacteria infecting atherosclerotic lesions after they have been developed. This further promotes inflammation and underscores the systemic sequelae of periodontitis (Epstein, 2002). Other studies have shown that atheromatous lesions in the carotid arteries have been found to contain antigens from periodontal pathogens giving more evidence to the linkage between periodontitis and cardiovascular disease (Haraazthy, Zambon, Trevisan, Zeid, Genco, 2000). Significance of this relationship is compelling in light of the fact that cardiovascular disease is the leading cause of death in both the United States and Georgia (National Center for Health Statistics, 2008).

The diabetes issue is almost equally crucial considering that this condition is becoming more and more prevalent in our population (Mokdad, Bowman, Ford, Vinicor, Marks, & Koplan, 2001). The relationship between periodontitis and diabetes works both ways; namely, periodontitis is a major complication of diabetes and periodontitis increases the risk of poor glycemic control in diabetics (Ryan, Carnu, & Kamer, 2003). The probable explanation for greater existence of periodontitis in diabetics is that diabetes itself tends to increase the susceptibility to infection and the disease also impedes the utility of immune cell mechanisms that control infection (Gurenlian, 2006).

The issue of poor glycemic control relates to the periodontitis inflammation paradigm. Tumor necrosis factor (TNF-a) has a significant role in insulin resistance. It appears not coincidental that periodontitis has been shown to produce elevated levels of TNF-a which impedes and destroys the cells essential for repairing connective tissue and establishing bone integrity; both of which have a significant role in glycemic control (Gurenlian, 2006).

One of the more pressing healthcare issues existent in the United States involves pregnancy and subsequent delivery. Specifically, the issues of premature births and low birth weights are highly consequential and have been linked to periodontal diseases. Periodontal disease has not been associated as the only factor producing these outcomes, but has been demonstrated to be highly correlative (Jeffcoat, Geurs, Reddy, Cliver, Goldenberg, & Hauth, 2001). This finding is especially important for practitioners in Georgia because Georgia ranks in the highest category in the U.S. having 9.5% of its births classified as low birth weight. This compares to the national average of 8.2% (State Health Facts.org, 2005).

As mentioned previously, chronic infections can stimulate the inflammatory process which will elevate the levels of prostaglandins and tumor necrosis factor. In the amniotic fluid these higher levels will cause uterine contractions preterm and lead to the premature rupturing of membranes producing early delivery with the obvious outcome of low birth weight. It has also been suggested that this connection between periodontitis and premature delivery is even more direct. Studies have shown that periodontal pathogens may travel directly from the gingival sulcus to the placenta and initiate the premature contractions (Han, Redline, Li, Lihong, Hill, & McCormick, 2004). As the evidence seems to suggest, periodontal disease can be implicated in low birth weights then clearly the need to emphasize oral health in women of child-bearing ages becomes dramatically more important.

SERVICES OFFERED IN THE OFFICE FOR ORAL HEALTH PROMOTION

The Center for Oral Health Promotion would offer clients preventive dental care and include a new innovative approach to educating the public about the connection between oral health and systemic health status. The present Clayton State University Dental Hygiene Program would be housed in the Center, and the Center would be managed by students in the Clayton State University Healthcare Management Program. Children services would include oral examination, radiographs, dental prophylaxis, fluoride treatment, sealants, nutritional counseling, and individualized home care instructions. Adult services would include oral cancer screening, evaluation of vital signs, dental charting, periodontal screening, radiographs, dental prophylaxis or scaling and root planning, fluoride treatment, desensitizing treatment, nutritional counseling, and individualized home care instructions.

The Center's oral health education program would improve the knowledge of patients by educating them on the link between oral health and systemic health status. Dental hygiene students would provide the patient education and learn to become an "Oral Health Coach." A review of the literature revealed no relevant information

on "oral health coaching".The sources found dealt with "coaching" as it relates to athletics and traumatic dental lesions and mouth guards (Spinas and Savasta, 2007), and a longitudinal study on smokeless tobacco cessation for collegiate baseball players (Gansky, Ellison, Rudy, Bergert, Letendre, Nelson, Kavanaugh, & Walsh, 2007). A broader search of "health coaches" resulted in articles on health coaches for lower risk of CVD and diabetes (Medscape Medical News, 2002) and employers providing health coaches for their employees to fuel workplace productivity (Krisberg, 2007). This new title of "Oral Health Coach" best describes the role of a dental hygienist while educating others.

Currently 75 percent of adults in the U.S. have undiagnosed periodontal disease (Lewis, 2008). The bacterium found in periodontal disease has been linked to systemic health problems such as osteoporosis, heart disease, low birth-weight babies, diabetes, respiratory disease, and kidney disease (American Academy of Periodontology, 2008). The Center for Oral Health Promotion would provide education concerning these risk factors, offer nutritional counseling addressing the risk factors associated with obesity, and provide tobacco cessation programs.

COMPARISON FEE SURVEY RESULTS

While oral health and preventive care is vital for overall systemic health, access to dental care and education is not feasible for an increasing number of Americans. For some, it means living in an area with no physical access to dental healthcare providers. For many, the access challenge is economic. According to the American Dental Association, a large percentage of Americans lack dental insurance and cannot otherwise afford treatment. While there are federal programs designed to provide dental health care to those in need, they are severely under funded (American Dental Association, 2008).

The vision for a Center for Oral Health Promotion is to meet the needs of both students in the healthcare education system and the local community they serve. A goal in support of this vision is to provide needed preventative oral health care to the community, particularly for those who require an economic alternative to the typically higher fees of conventional providers. To assess fees for preventative dental services surrounding the proposed center, a survey was mailed to 57 dentists in Clayton County as well as to two adjoining counties (Henry and Fayette). The survey indicated dental procedures within the scope of dental hygiene practice and requested dentists to provide their fees for these services (Table 1). To improve the response rate, offices which did not respond were contacted by telephone.

Fifteen dental offices replied, yielding a response rate of 26.32%. Results were tabulated and an average calculated. The averages for each procedure were compared to fees from the proposed center (Table 2). While one procedure was within $7.25 of the survey average, the comparison demonstrates significant differences in fees for 93% of the procedures listed. Variations ranged from $24.04 to $634.14, with proposed Center fees consistently lower. The fee differences indicate a potential benefit for a segment of the population in need of dental care who do not have the financial means to afford the higher fees charged outside of the center.

All the services to be provided at the Center are important to oral health, but perhaps the most valuable in terms of health vs. economic impact is the oral health screening exam. The exam fee at the proposed Center is $ 10.00 compared to the area average of $65.13. This represents an 85% difference, a significant economic benefit. With the incidence of undiagnosed periodontal disease being high, the oral exam visit provides significant health benefits relative to cost. As mentioned earlier, the oral health examination entails a thorough evaluation of the patient's dentition, periodontal status, and an oral cancer screening. Of potentially greatest value, patient education is also an integral part of the exam visit. The health benefit for some patients will not only be the diagnosis of existing disease, but possibly more importantly, the education the patient receives about how it is to be treated. For others, the value will be the education received on how to prevent oral disease and the association of oral health to systemic diseases and conditions.

The initial treatment for periodontitis involves non surgical periodontal therapy. As seen in table 2, this procedure can be quite costly. The average survey cost was $749.14 as compared to the center's fee of $105.00. This reflects a savings of $634.14 for a single treatment. However, the treatment for periodontal disease requires a lifetime maintenance regimen with patients often visiting their healthcare provider 3 to 4 times a year. This multiplies costs for treatment as well as the potential for savings into the thousands of dollars by those choosing to receive treatment at the center.

Another oral infection which often goes undetected due to the lack of access to dental care is caries. Dental caries is a preventable disease with proper education and a preventive regimen adopted by the patient. Prevention begins with oral health screenings including radiographs. This allows the healthcare provider to either detect early caries (which are often reversible with the use of fluoride) or educate the patients in ways to prevent caries. One of

the most effective preventive measures against caries formation in children is the use of sealants. Sealants are a plastic material placed on the chewing surfaces of permanent teeth which provide protection to the enamel from the damaging effects of bacterial plaque. A parent on a limited income with a child having 4 permanent molars would pay a total of $95.00 at the center for an exam, radiographs, a prophylaxis and 4 sealants compared to an average total of $417.50 for those dentists participating in the survey. This represents a potential savings of $322.50 (Table 3).

PREVENTIVE SERVICES DENTAL QUESTIONNAIRE

Please complete this survey with your current fees for the following services. If a service is not available at your location, please mark the fee box with an X.

Services Available		**Fee**
Oral Health Screening/Examination		
Adult Prophylaxis with Fluoride		
Child Prophylaxis with Fluoride		
Adult Full Mouth Radiographs		
Child Full Mouth Radiographs		
BW's Adult Radiographs		
BW's Child Radiographs		
Sealants (p*er tooth*)		
Single Radiograph (*per film*)		
Panographic Film (with BW's) adult or child		
Teeth Whitening Trays/Education		
Refills (whitening)		
Antibiotic Therapy (*each site*)		
Non-surgical Periodontal treatment (includes radiographs)		
Non-surgical Periodontal treatment (with out radiographs)		

Thank you for your assistance.

Table 1. Preventative Dental Services Questionnaire

Procedure	Survey Average Fees	Center Fees	Difference	% Difference
Oral Health Screening Exam	$65.13	$10.00	$55.13	85%
Adult Prophylaxis	$ 94.99	$35.00	$59.99	63%
Child Prophylaxis	$83.84	$20.00	$63.84	76%
Adult Full Mouth Radiographs	$102.54	$20.00	$82.54	81%
Child Full Mouth Radiographs	$106.18	$12.00	$94.18	89%
BW's Adult Radiograph	$54.96	$10.00	$44.96	82%
BW's Child Radiograph	$40.07	$8.00	$32.07	80%
Sealants (per tooth)	$45.22	$10.00	$35.22	78%
Single Radiograph (per film)	$26.04	$2.00	$24.04	92%
Panoramic Film (with BW's) adult or child	$87.65	$25.00	$62.65	72%
Teeth Whitening Trays/Education	$385.17	$100.00	$285.17	74%
Refills (whitening)	$57.25	$50.00	$7.25	13%
Antibiotic Therapy (each site)	$45.60	$10.00	$36.50	80%
Non-Surgical Periodontal treatment (includes radiographs)	$626.01	$125.00	$501.01	80%
Non-Surgical Periodontal treatment (without radiographs)	$739.14	$105.00	$634.14	86%

Table 2. Comparison of Survey Fees to Proposed Center Fees

Procedure	Survey Average Fees	Center Fees	Difference
Oral Health Screening Exam	$65.13	$10.00	$55.13
Child Prophylaxis	$83.84	$20.00	$63.84
Panoramic Film (with BW's) adult or child	$87.65	$25.00	$62.65
Sealants 4 teeth	$180.88	$40.00	$140.88
Total	$417.50	$95.00	$322.50

Table 3. Fee Difference Example

DISCUSSION

The need for a Center for Oral Health Promotion is demonstrated by the above discussed linkages between oral health and systemic health and by the socio-economic factors in Clayton County Georgia, the principal catchment area for this Center. While the presence of a center for oral health promotion would be a useful addition to healthcare delivery in any community, its existence in Clayton County has an even greater sense of urgency. Two separate, but related factors explain this need: the socio-economic status of its residents, and the prevalence of systemic diseases with oral disease connections.

Socio-economic factors existent within Clayton County have produced a situation whereby both children and adults are underserved in their oral health needs. The ratio of dentists per 1000 population is 0.46 within the state of Georgia, but only 0.18 per 1000 population in Clayton County. Similarly, the statewide ratio of licensed dental hygienists is 0.58 per 1000 population while in Clayton County it is 0.25 per 1000 population (Analysis of Access to Dental Care, 2006).

Data available for children under the age of 19 enrolled in either Medicaid for Peachcare (SCHIP) reveal

that in Clayton County only 37.5 percent receive any dental services. This compares to a statewide total of 40.7 percent. Clayton County had only 41 dentists who actively participated in either Peachcare or Medicaid in 2005 serving a population of 286,517 (Analysis of Access to Dental Care, 2006).

The problem of access to dental services in Clayton County is further exacerbated by income levels. County residents had a median household income in 2006 of $48,076 compared to the statewide median household income of $56,112. In 2004, the county had 14.8% of its residents living below the poverty level while the statewide figure was 13.7% (U.S. Census Bureau, State & County Quickfacts, 2007).

Within the State of Georgia there exists significant levels of morbidity for diabetes, heart disease, and respiratory diseases, all conditions with previously explained oral health connections. Clayton County unfortunately reflects these patterns. Within the county the morbidity rates in 2006 per 100,000 people was 127.9; for heart disease 1, 219.7; and, for respiratory diseases 573.3 (OASIS, Georgia Division of Public Health, 2008)

Clearly, within the county a need exists for bridging this gap in healthcare delivery. We feel that the Center for Oral Health Promotion will go a long way in filling this need.

OPERATION OF THE CENTER FOR ORAL HEALTH PROMOTION

The Clayton State University Department of Dental Hygiene would partner with the Clayton State University Department of Healthcare Management to ensure the success of the Center for Oral Health Promotion. The dental hygiene students would provide the preventive dental care for the Center's clients. The healthcare management students would manage the clinic, market services, and work with the surrounding communities to arrange preventive oral health services and oral health education classes and programs. The healthcare management students would work with local schools, churches, service organizations, clubs, and senior citizen centers to schedule visits to the Center to learn about oral health issues and systemic health concerns. Together, the dental hygiene department and healthcare management department would work with local community dental and medical offices to refer patients that are at risk for serious health problems as determined by their oral health status.

The Center for Oral Health Promotion would offer more than preventive oral care services and systemic health education. The Center would promote collaboration among healthcare professionals and create a model that could be adapted at other universities. The concept would teach dental hygiene and healthcare management students the importance of interdisciplinary collaboration in order to achieve goals for optimal healthcare services. Together students would work with the dental, medical, and public health community to provide services to improve oral and systemic healthcare.

ROLE OF HEALTH CARE MANAGEMENT STUDENTS

Students enrolled in the Health Care Management Program at CSU would guide the operations of the Center.

Staffing

- Oral Health Director (RDH, MS) along with dental hygiene graduate students
- Healthcare Management Director (MS) along with CSU Healthcare Administration graduate students
- Receptionist – to schedule groups and individual appointments/visits
- Healthcare Management Students – daily operation of the facility
- Sr. DH Students – therapists/Oral Health Coach
- Jr. DH Students – therapists, assist with data collection/ Oral Health Coach
- MSDH Students

Hours of Operation (regular clinic hours)

Clients

- Men
- Women
- Children
- Nursing home residents
- Extended living facility residents
- Low socioeconomic individuals
- Homeless & near-homeless

Marketing of the Center

- Information inserts in area church bulletins
- Presentations at area churches i.e. teens & elder church meetings
- Pamphlets at food shelters
- Pamphlets at civic organizations – Masonic Lodge, Lions Club, VFW Lodge
- PSA on local radio stations
- PSA on local cable channels – local news/public access channel
- Local newspaper – health section
- Local K-12 school newspapers/bulletins
- Flyers to K-12 parents
- PTA presentations
- Flyers in area laundromats& supermarkets
- Flyers on car windshields
- City bus posters
- Posters/flyers in area barber shops, beauty salons & restaurants

ROLE OF DENTAL HYGIENE STUDENTS

The role of the dental hygiene student in the Oral Health Center would be that of the "Oral Health Coach." Coaches would provide preventive dental hygiene services. They would also provide group and individual instructions on preventive and therapeutic practices for: expectant parents, pre-school children, elementary and high school children, adults, and geriatric and special medical/social populations. Their main function, whether in the group setting in the auditorium or on an individual basis in one of the health education rooms, would be to stress the correlation between oral health and systemic health.

PHYSICAL PLANT OF THE CENTER FOR ORAL HEALTH PROMOTION

Reception Area

The reception area of the Center for Oral Health Promotion would be outfitted with state of the art supplies and equipment. The main entrance would have glass panels and sidelights. A 32 inch flat panel television monitor would be mounted on the wall for ease of visibility. The monitor would have cable access capabilities to display the health/medical channel. A DVD player, (located at the reception desk) would be connected to the monitor to display oral health infomercials and/or dental hygiene students' oral health presentations. Wall mounted magazine and oral health pamphlet storage would be placed for ease of accessibility. The area would be equipped with patient reception chairs, wall-to-wall carpeting, water fountain, house phone, and a wheel chair accessible bathroom with hand rails. The receptionist's area should be large enough to accommodate two individuals and provide each with a desk and chair, desktop computer with a flat screen monitor, printer, photocopier, fax machine, adequate fluorescent lighting, and telephone/data jacks and phones. In close proximity, the receptionist's desk would have the intercom/public announcement system (to inform students that their patients have arrived). Along with the controls for the satellite radio for the reception area and clinic would be the cash register, patient medical history, and consent and other patient forms. The reception area would have a counter to accommodate patients who are writing checks. A locked file room/area would have a mobile vertical file system for patient charts/files and would be in close proximity to the reception desk.

ORAL HEALTH EDUCATION AREA

The Clayton State University Dental Hygiene Oral Health Education suite would be housed in the Center for Oral Health Promotion. The auditorium would be used to provide oral health educational services/presentations for various groups of individuals. The maximum capacity for this area would be 48. Each of the health education rooms (2) would be used for smaller groups (maximum capacity: 8). The main objective for these rooms would be to provide the dental hygiene students, faculty and clients/patients more privacy when discussing sensitive and personal topics.

Oral Health Education Auditorium and Health Education Rooms A and B			
Auditorium Item/Equipment	**Number Needed**	**Cost Per Unit**	**Extended Cost**
Smart Board (wide screen color Panaboard with SD memory card and USB)	1	3,000.00	3,000.00
Elmo document camera/Visual Presenter	1	2,000.00	2,000.00
Projector	1	900.00	900.00
VCR/DVD combo	1	300.00	300.00
Lectern w/Media Cart	1	350.00	350.00
Speakers	4	3,000.00/set	6,000.00
Automatic window blinds	POR		
Laser pointer wireless remote	1	110.00	110.00
OHI pamphlets	200	0	0
Chairside instructors - English	50	50.00	2,450.00
Chairside instructors - Spanish	12	50.00	600.00
Literature Display– wall mounted	2	260.00	520.00
Wall to wall carpet	POR		
Tables	13	450.00	5,850.00
Nesting Chairs on casters	50	340.00/2pk	8,500.00
Telephone & jacks	1	70.00	70.00
Computer w/wireless connection	1	1,500.00	1,500.00
42” plasma TV (wall mounted)	1	2,000.00	2,000.00
TOTAL - Auditorium		14,380.00	34,150.00
Health Education Rooms A and B **Item/Equipment**	**Number Needed**	**Cost Per Unit**	**Extended Costs**
Smart Board (wide screen color Panaboard with SD memory card and USB)	2	3,000.00	6,000.00
Elmo document camera/Visual Presenter	2	2,000.00	4,000.00
Projector	2	900.00	1,800.00
VCR/DVD combo	2	300.00	600.00
Lectern w/Media Cart	2	350.00	700.00
Speakers	2	3,000.00/set	3,000.00
Medical/dental information streamed via cable network on flat screen TV	2 connections	300.00	600.00
Automatic window blinds	POR		

Laser pointer wireless remote	2	110.00	220.00
OHI pamphlets	200	0	0
Chairside instructors - English	18	50.00	900.00
Chairside instructors - Spanish	18	50.00	900.00
Literature Display– wall mounted	2	260.00	520.00
Wall to wall carpet	POR		
8 ft. Conference Tables	2	450.00	900.00
Nesting Chairs on casters	18	340.00/2pk	3,060.00
Telephone & jacks	2	70.00	140.00
Computer w/wireless connection	2	1,500.00	3,000.00
Room darkening blinds	POR		
Oral hygiene model kit: brush, mouth and floss	2	45.00	90.00
Oral hygiene supplies: toothbrushes, paste, floss, mouth rinse, mirrors	300	0	0
4 drawer lateral file drawer	2	1,075.00	2,150.00
Sink	POR		
Paper towel dispenser	POR		
Paper towels	POR		
Waste receptacle	2	35.00	70.00
42” plasma TV (wall mounted)	2	2,000.00	4,000.00
TOTAL : Health Education Rooms A and B		15,835.00	32,650.00

Table 4. Estimated Oral Health Education Area Costs

CLAYTON STATE UNIVERSITY DENTAL HYGIENE DEPARTMENT CLINICAL AREA

The Clayton State University Dental Hygiene Department would be housed in the Center for Oral Health Promotion. The program is accredited by the American Dental Association’s Commission on Dental Accreditation. The teaching/learning dental hygiene services area would contain all the items/equipment required for accreditation and are listed in Table 5. The anticipated cost of the Center for Oral Health Promotion is $954,827.

CSU Dental Hygiene Department

Estimated New Clinic Cost

Patient Reception Area			
Item/Equipment	**Number Needed**	**Cost Per Unit**	**Extended Cost**
Patient chairs – some bariatric (we have 18 new patient chairs)	7	$187.00	$1,309.00
Carpet	1575 sq. ft	**POR**	
Side Tables	3	$132.00	$396.00
Lighting	3	$110.00	$330.00
Wall art			$550.00
Coat rack	1	$220.00	$220.00
Flat screen wall monitor for patient education & data drop	1	$550.00	$550.00

Literature Rack	1	$220.00	$220.00
Receptionist Area			
• Sliding glass panel in receptionist area	1	$330.00	$330.00
• Wall mounted sliding file system	1	$4,012.80	$4,012.80
• Intercom system, sound system, call light system	1	$2,200.00	$2,200.00
• Communication and faculty mailboxes	1	$550.00	$550.00
• File cabinets	2	$330.00	$660.00
• Cabinets	**POR**		
• Desk and chair	1/1	$3,238.40	$3,238.40
• Wedge data drop	**POR**		
Dental Assistant Area			
• Desk and chair	1/1	$485.10	$485.10
• File cabinets	1	$128.10	$125.40
Faculty Offices			
Faculty Offices (includes desk, bookcases and 2 drawer files for each space)	5	$3,238.40	$16,192.00
Part-time faculty offices	4	$856.90	$3,427.60
Chairs	12	$471.90	$5,676.00
Carpet	See above		
Ceiling	**POR**		
Administrator's Office			
Desk	1	$1,622.50	$1,622.50
Bookcases	2	$583.00	$1,166.00
Credenza	1	$2,175.80	$2,175.80
Chair	1	$306.90	$306.90
Lighting	**POR**		
Table/Chairs	1/4	$1,335.40	$1,335.40
Professional Review Area			
Conference table	1	$1,050.50	$9,645.50
Chairs	8	$471.90	$3,775.20
Projector screen	1	$660.00	$660.00
Unisex Student Locker Room			
Narrow lockers	80	$235.40	$18,832.00
Mirrors (one for each sink and one full length)	1/4	$110.00	$550.00
Sinks	4	**POR**	
Clinic Toilet Area			
POR			

Dental Laboratory (needs to be near advanced practice units)			
Stations each with counter/cabinets	20	**POR**	
• stool	20	$797.50	$14,645.00
• light source with magnifier	20	$227.70	$4,181.40
Model trimmers	3	$562.10	$1,686.30
Plaster traps	3	$51.70	$155.10
POR = Part of Renovation			
Dental Laboratory Continued			
Item/Equipment	**Number Needed**	**Cost Per Unit**	**Extended Cost**
Sinks with plumbing	5	**POR**	
Elmo demonstration camera	1	$2,572.90	$2,362.39
Wall monitors	5	$330.00	$1,650.00
Wall bins	4	$165.00	$660.00
Eyewash station	1	$220.00	$220.00
Fire blanket	1	$110.00	$110.00
Vacu/Press	2	$319.00	$638.00
Wigglebug vibrators	5	$525.80	$1,931.12
Ceiling projector/screen	1	$660.00	$660.00
Clinic			
New compressor (we have a new one to move if possible)			
ADEC 511 Dental Chairs	20	$8,750.50	$17,501.00
ADEC 533 Continental Delivery Unit w/touchpad/dental light	20	$8,935.30	$178,706.00
ADEC 550 Assistant arm w/touchpad	20	$1,065.90	$19,573.80
ADEC dividers with sinks, cabinets/viewboxes	10	$8,300.60	$83,006.00
ADEC support arm	20	$258.50	$5,170.00
ADEC support link	20	$210.10	$4,202.00
Stools (operator)	20	$797.50	$15,950.00
Stools (assistant)	20	$907.50	$18,150.00
Oregon cart w/ fixed top and 5 drawers (for wireless keyboard mouse and charts)	20	$894.30	$178,886.00
Dental RAT systems (computer/software)	20	$1,098.90	$21,978.00
Cavitrons	20	$1,826.60	$36,520.00
Curing light	1	$702.50	$1,441.00
Diagodent	1	$ 2,310.00	$3,751.00
Digital intraoral cameras (wired)	10	$2,352.90	$23,529.00
Radiology			

Digital Printers	2	$275.00	$550.00
Gendix x-ray tubes	3	$2,750.00	$8,250.00
Digital systems in combination with conversion of panographic to digital	5	$13,860.00	$69,300.00
Software	1	$2,200.00	$2,200.00
Installation	1	$8,800.00	$8,800.00
Server	1	$3,548.60	$3,552.60
Laptops	4	$1,258.40	$5,033.60
ADEC 511 dental chairs	5	$8,750.50	$43,752.00
ADEC cabinets with sinks and viewboxes (pull out counters)	3	$8,300.60	$24,901.80
Dental track light	5	$1,650.00	$8,250.00
Stools	5	$797.50	$3,951.50
Oregon carts w/ fixed top and 5 drawers (for wireless keyboard mouse and charts)	5	$894.30	$4,471.50
Moveable partition/wall for x-ray units	1	$990.00	$990.00
AT 2000 XR processor	1	$5,742.00	$5,742.00
DXTTR manikins	3	$7,029.00	$19,361.70
Lead aprons	3	$385.00	$1,155.00
Radiology Teaching Area			
Counter/cabinets	**POR**		
Viewboxes	6	$220.00	$1,320.00
Stools	6	$797.50	$4,785.00
Sterilization Area			
Eyewash station	1	$220.00	$220.00
LISA sterilizer/magnaclave	1	$5,711.20	$5,711.20
Miele ultrasonic washer (instruments)	1	$6,908.00	$6,908.00
Assistina plus (handpiece cleaners)	2	$1,653.30	$3,306.60
Top and bottom cabinets	**POR**		
Distilled water dispenser	1	$110.00	$110.00
Sterile/non sterile instrument holding locked cubbies	80	$55.00	$4,400.00
TOTAL		**$153,670.70**	**$954,827.21**

Table 5. Estimated New Clinic Cost

OPERATING COSTS

CLAYTON STATE UNIVERSITY CENTER FOR ORAL HEALTH PROMOTION STAFFING

I. PERSONNEL			
Position	Base Salary	FTE's	Total
Oral Health Director	60,000	1	60,000

Healthcare Management Director	60,000	1	60,000
Receptionist	25,000	1	25,000
Fringe Benefits (31%)			44,950
SUBTOTAL			**189,950**
II. OTHER DIRECT COSTS			
Office Operations (5,000 X 2)			10,000
Communications/Marketing (3,000 x 2)			6,000
Travel (2,000 x 2)			4,000
Meeting Expenses (1,000 x 2)			2,000
Surveys (500 x 3)			1,500
Equipment (2,000 x 2)			4,000
Project Space/Dental Equipment			860,784
SUBTOTAL			**888,284**
III. PURCHASED SERVICES			
Consultants			In-Kind
Contracts			In-Kind
SUBTOTAL			
IV. INDIRECT COSTS (up to 12%)			
1,078,234 x .03 (3%)			32,347
GRAND TOTAL			**1,110,581**

Table 6.

CONCLUSION

The Center for Oral Health Promotion would provide an interdisciplinary paradigm for dental hygiene and healthcare management education. The need for educational experiences for future healthcare providers in an interdisciplinary setting is essential to the future of healthcare in the United States. As healthcare moves to centers housing holistic care, providers must have experience in such environments.

The Center would provide services at a reduced fee to people in Clayton and surrounding counties. The demographics related to this population clearly demonstrate the need for the Center and the reduced fees for services provide a significant savings to patients seeking care. Beyond providing dental hygiene services at a reduced fee, the Center would provide preventive dental education to this population. Preventive dental health education is essential to eradicating dental disease, what the Surgeon General of the United States has named the silent epidemic.

The Center for Oral Health Promotion would also address the oral health, systemic health connection through educational programs. These educational opportunities would help to foster on understanding of the importance of good oral health and how the health status of the mouth can serve as an indicator of a persons overall health status.

A combination of educational experiences, oral hygiene care at affordable fees and education to promote oral and systemic health for the public, is the purpose of the Center for Oral Health Promotion. The Center is a new approach to providing education to future healthcare providers while delivering dental hygiene services, healthcare management experience and preventive educational programs to the public.

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USING EVIDENCE BASED MANAGEMENT TO REDUCE SURGICAL ERRORS IN HEALTHCARE FACILITIES

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ABSTRACT

Medical errors and evidence based management have received increased attention in the healthcare field since the 1999 release from the Institute of Medicine "To Err is Human: Building a Safer Health System." Surgical errors have become an unremitting issue challenging physicians, staff, and management at various levels. Among the errors reported by 287 American hospitals and surgery centers in 2006, surgical errors ranked number one on the list (Boen, 2008). The author offers a framework of comparing traditional management strategies to evidence based management strategies to improve patient safety. This paper provides an overview of the rationale behind evidence based management and suggestions for preventing future surgical errors within acute care facilities. Application of strategy and tools for healthcare executives will impact current efforts and lead to a reduction in medical error.

INTRODUCTION

Throughout the last decade the healthcare market has suffered extensive hardships in managing medical errors and maintaining a standard of safety for the delivery of patient care. With an age of the evolving consumer driven market, managers continue to face challenges on decisions that reduce medical errors and maintain an advantageous operational level. Tedious amounts of information create issues on deciphering how to strategize and manage situations in which medical errors occur. Specifically, surgical errors have instigated a plethora of questions, studies, and research. Assessment and perspectives from governing boards, the Joint Commission, the World Health Organization (WHO), and The Agency for Healthcare Research (AHRQ) suggest several solutions in reducing such surgical errors. This article provides a theoretical, literature based explanation on how to use evidence based management concurrently with clinical guidelines. Managers will be provided with operations management techniques to implement evidence based management that reduces medical errors.

MEDICAL ERRORS

History of Medical Errors

Medical errors are commonly known as adverse clinical events that lead to injury or death usually preventable with the current state of medical knowledge. The Institute of Medicine's 1999 press release on medical errors initiated a nationwide response towards quality care. At a crucial time in healthcare history, the public eye became educated on healthcare's weakness; medical mistakes. Confounding statistics illustrated medical errors as being the fifth-leading cause of death in the US, with up to 98,000 deaths annually (Institute of Medicine, 1999). The healthcare industry was prompted to initiate further action. Developments such as *Crossing the Quality Chasm* restructured patient safety goals as well as operational strategies (Daft, 2006).

Healthcare organizations realigned quantifiable and qualitative goals to focus on improvement and variability reduction. State health departments began formulating reporting systems and online databases. The Pennsylvania Healthcare Cost Containment Council (PHC4) is a prime example of the efforts taken to reduce medical errors. An

independent state agency responsible for addressing the problem of escalating health costs, ensuring the quality of healthcare, and increasing access for all citizens regardless of ability to pay, PHC4 promotes information exchange.

The United States healthcare system formulated a unified approach in promoting a system of quality. Evidence Based Medicine illustrated the country's efforts at prioritizing safety, quality, and efficiency. The core idea illustrates that medical care given to patients should be based, to the greatest extent possible, on evidence. This value system activated healthcare professionals to concomitantly restructure medical safety policy, operation, and management.

Quality Improvement Persists/Medical Errors Continue

Regardless of the continuous efforts placed forth by the industry, errors continue to concern the nation. The Agency for Healthcare Research and Quality (AHRQ) has documented a trend of steady, modest improvement in quality of American healthcare until now (Brady, 2008). Certain areas of healthcare have progressed in reducing error and improving patient satisfaction yet mistakes continue to occur at unacceptable and preventable levels. According to Brady et. al, the fifth annual National Healthcare Quality report explains overall quality improved an average of 1.5 percent per year between 2000 and 2005. This modest rate of improvement actually represents a decline when compared with the 2.3 percent average annual rate over the longer reporting period from years 1994-2005. The industry's effort towards quality improvement and reducing medical errors has reached a hiatus.

Significance of Surgical Errors

Surgical errors constitute a large percentage of national medical error statistics. According to a recent publication from AHRQ, insurers pay an additional $28,218 (52% more) for surgical patients who experienced acute respiratory failure during surgery. $19,480 (48%) more for surgical patients who experienced post operative infections was also paid by insurers as compared with patients who did not experience error (Hellinger and Encinosa, 2008). Evidence for strategic realignment may be necessary for future healthcare facilities. The taskforce has already documented that major errors, typically designated as "failures" included: incorrect patient, incorrect patient medical chart, incorrect documentation in patient's medical chart, or absent identification of the surgical site (Allen, 2008). Surgical proficiency, necessary to assure patient quality, has delineated from strict paths. Clinicians and executives continue to face the unremitting consumer population demanding quality surgery.

Causes of surgical errors often deal with systemic issues including: lack of communication, inconsistent procedural expectations and managerial absence. The Annals of Surgery study found that thirteen percent of surgeries involved miscounts of objects by surgical technologists or nurses. According to researchers, it takes an average of thirteen minutes to resolves these discrepancies (O'Reilly, 2008). Such documentation provides executives with a concrete dilemma and allows the formulation of strategic action plans. Accredited organizations including: the National Quality Forum, Joint Commission, the World Health Organization as well as the Centers for Medicare and Medicaid have initiated collaborative efforts to pass laws, standards, and criteria to minimize disparity within the operating room.

Joint Commission

Subsequent to the assertion of medical error statistics, the Joint Commission embarked upon a challenge to balance management, efficient patient care, and clinical injury. Facilities incorporated guidelines and projects directing preventable surgical practices. *Universal Protocol for Preventing Wrong Site, Wrong Procedure, and Wrong Person Surgery* was re-established by the Joint Commission in 2008. Organization of guidelines emphasized a pre-operative verification process that ensures all of the relevant documents and studies are available prior to the start of the procedure. The process continues with information gathering and verification. Further precautionary actions were illustrated in the preoperative preparation of the patient. A necessary "time out" is now considered a mandatory course of action. Unambiguously identifying the intended site of insertion and conducting a final verification of the correct patient, procedure site and applicable implants concludes the protocol. Such actions illustrated the Joint Commission's thrust toward quality care and error reduction.

World Health Organization

The World Health Organization Guidelines for Safe Surgery suggest ten objectives necessary in eliminating surgical complications in acute care institutions. The world renowned organization has become a database of quality improvement initiatives. Priding itself on efforts in medical reduction control, WHO (2008) explicated three main components: (1) complications of surgical care, (2) the safe surgery saves lives approach, and (3) organization of guidelines to assist medical professionals. Objectives from these components emphasize methods known to prevent harm from administration of anesthetics. Expert opinion, controlled trials, and incident reporting illustrate safe practice. Recognition and preparation prior to surgery for life-threatening loss of airway and blood loss must also be completed. Guidelines recognizing the causes of error in delivery of peri-operative medications assist clinicians.

WHO (2008) states the *"team will prevent inadvertent retention of instruments or sponges in surgical wounds"* through general criteria counting. Documentation of utensils used throughout surgery and exploration before closure is recommended. Teams are required to effectively communicate and exchange critical information on the patient. Patterns of communication breakdown during surgery shall be noted by proper professionals on the scene. Hospitals and public health systems who establish routine surveillance of surgical capacity, volume, and results can effectively improve surgical error rates. In referring to Table 1: Who Guidelines For Safe Surgery, managers can prevent variability of medical errors.

TABLE 1: WHO GUIDELINES FOR SAFE SURGERY

Objective	Surgical Rule/ Protocols
Objective #1:*The team will operate on the correct patient at the correct site.*	Verification, Marking, Time Out during surgical steps
Objective #2:*The team will use methods known to prevent harm from administration of anesthetic, while protecting the patient from pain.*	Patterns of avoidable morbidity and mortality during anesthesia, approached to improve anesthesia, preparation for delivery, supplies, care standards
Objective #3:*The team will recognize and effectively prepare for life-threatening loss of airway or respiratory function.*	Incidence of difficult and failed airway management, airway assessment, thyromental distance, mallampati classification, management of airway, aspiration of gastric contents preparation
Objective #4:*The team will recognize and effectively prepare for risk of high blood loss.*	Resuscitation of hypovolaemic patients, prevention of blood loss, management of blood loss
Objective #5:*The team will avoid inducing an allergic or adverse drug reaction for which the patient is known to be at significant risk.*	Types of adverse reactions, causes of error in delivery of perio-operative medications
Objective #6: *The team will consistently use methods known to minimize the risk for surgical site infection.*	Pathogenesis and microbiology, prevention and surveillance of surgical site infections, definition of surgical site infection, superficial incisional surgical site infection, post-discharge, blood glucose and risk of infection, minimize contamination in OR, sterility of surgical instruments
Objective #7:*The team will prevent inadvertent retention of instruments or sponges in surgical wounds.*	Sponge count, sharps count, instrument count, documentation of counts, count discrepancies, methodical wound exploration before closure
Objective #8:*The team will secure and accurately identify all surgical specimens.*	Individual institution recommendations
Objective #9:*The team will effectively communicate and exchange critical information on the patient.*	Team culture and its effect on safety, patterns of communication breakdown, reducing communication breakdown during surgery, use of checklists to improve safety, record keeping
Objective #10: *Hospitals and public health systems*	Feasibility and implications of measurement,

will establish routine surveillance of surgical capacity, volume and results.	infrastructure, economic considerations, positive incentives, negative incentives, case mix and risk adjustment, volume outcome, capacity, surgical surveillance, number of ors, surgical procedures, vital statistics

Source: http://www.who.int/patientsafety/safesurgery/tools_resources/technical/en/index.html*WHO Safe Surgery Saves Lives 2008*

Centers for Medicare & Medicaid

The Centers for Medicare and Medicaid have demonstrated ongoing efforts with quality assurance and reduction of surgical errors through the last decade. Continuing focus on payment incentive programs requires hospitals to report quality measures (CMS, 2008). Achievement of full update to payment rates in the ensuing year are obtained through compliant hospitals. Revising coverage and payment policies provides hospitals with financial incentives for reducing the incidence of serious adverse events that should never occur. Reasonably preventable surgical events through adherence of evidence based guidelines are quality measure proposals for the 2009 fiscal year. The Centers for Medicare & Medicaid continue to revise and establish new measures for prevention of medical errors and financial incentives to improve quality care.

Governing Boards

The role of governing boards in supporting healthcare leaders has developed into a substantial issue for reducing variability of medical errors. Essentially programs are institutionalized by the board of trustees. Therefore, reduction in error depends on how well senior management delivers information to the board. Negative publicity about medical errors brings the issue of patient safety to the attention of the trustees and top management of healthcare delivery systems (Abelson et al., 2002). It is critical for the survival of healthcare facilities that the governing board members understand quality improvement initiatives. Governing boards have an important role in ensuring the safety of the organization by holding the leadership accountable for defining and meeting the goals of safety plans (Abelson et. al, 2002).

MANAGERIAL ERRORS

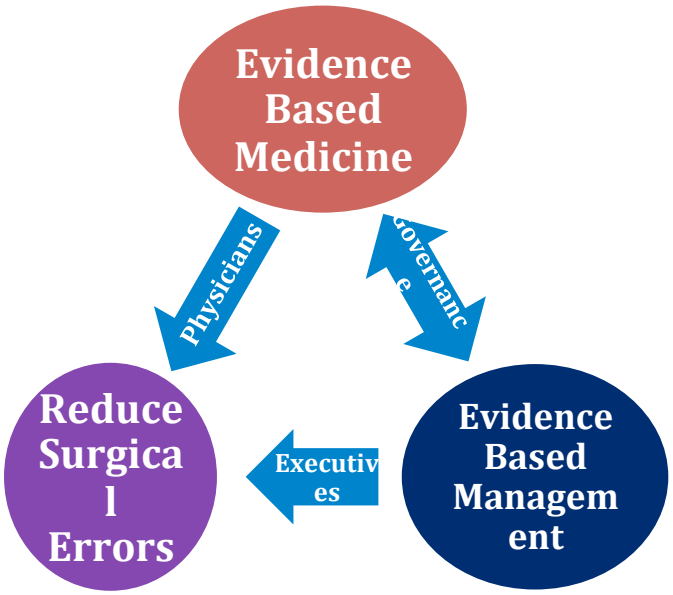
Accredited literature argues that managerial dilemmas are evident within healthcare facilities. Cuschieri (2008) explains how surgical errors are typically present at a systems level of operation. The federal government's agency for Healthcare Research and Quality found that 18 categories of medical errors, such as postoperative infections, accidental reopening of surgical wounds and medical objects left inside patients, result in 32,500 hospital deaths annually and cost $9.3billion in additional hospital charges. Over 2.4 million extra days spent in hospitals has been seen as a result of surgical errors. Such frequency in surgical error supports the importance of frontline management. A hiatus in the collaboration of clinicians and management essentially illustrates that a systems level of operation must be realigned. Putting accredited guidelines into operation requires strategic decision implementation. Administration can advance and execute the elimination of surgical mistakes by reassuring appropriate guidelines are adopted, implemented, and evaluated. Frontline management or senior management drive the implementation of safe practice by ensuring the message is clear to clinicians. Evidence based medicine along with evidence based management encompasses a critical role for such surgical error reduction.

Evidence based medicine uses a systems approach that seeks to prevent errors by improving operational conditions in the workplace. Reducing human error and minimizing consequence are the crucial points in reduction of surgical error. Incentives for physicians and healthcare professionals are incorporated to encourage and motivate. The overall emphasis promotes improving quality by controlling variability and following protocol guidelines.

Successful healthcare delivery is a business requiring a balance between patient satisfaction, cost efficiency, and charismatic leaders. Managers are essentially the liaisons between the clinical team, patients, and physicians that ensure the business operates efficiently. Their ability to communicate, execute, and implement the importance of safety guidelines is critical. Surgical errors have been documented as one of the most common preventable medical errors, yet complications continue to occur. Collaborative unification of clinicians, executives, and patients will

reduce future error as illustrated in Figure 1. Evidence based medicine in combination with evidence based management can impact quality care.

FIGURE 1: REDUCING ERROR THROUGH COLLABORATION OF SYSTEMS



EVIDENCE BASED MANAGEMENT

Background of Evidence Based Management

New methods for improving medical decisions and policies are introduced through the establishment of evidence based management. Evidence based management is an emerging movement that uses the current, best evidence in management decision making. The fundamental approach aims at applying the scientific method to directly control medical issues. Incorporating a set of principles and methods intended to ensure that to the greatest extent possible, medical decisions, guidelines, and other types of policies are consistent with good evidence of effectiveness and benefit are required (Clancy and Cronin, 2005). The strategically structured way of managing decisions can allow administrators to implement error-reduction practices without proceeding through randomized trial and error patterns. Literature based research from institutions nationwide enhances an opportunity for success. Evidence based management benchmarks standards of safe practice, efficient patient delivery, as well as cost saving techniques that allow managers to address healthcare issues in a timely fashion. Creating a culture of safety and matching health care needs with service delivery capability are priorities that must be met in future decision making.

Challenges with Evidence Based Management

Implementation of evidence based practice is a challenging developmental process. Managers struggle with the appropriate knowledge and educational training necessary to lead organizations with evidence based management. Incorporation of new strategy almost always consists of doubt, hesitation, and resistance to change. Professionals

often lack the time and commitment necessary to review scientific data. Resources such as trade magazines and news articles become priority over reviewed scientific information.

A fundamental dilemma in implementing evidence based management into practice is the idea of spending too much time looking for actual evidence (Dunning, 2001). People often feel pressure to find the most up to date information; ignoring the overall fact that evidence based management is a continuous cycle of new information. Much like healthy lifestyles include constantly "watching what you eat," evidence based management persistently includes "incorporation of new guidelines." Experience has shown that it is wise to focus implementation initiatives on clinical topics where the evidence is robust and generally non-controversial. Time and history shows that studies cannot confirm new strategies will work and produce successful outcomes. Trial and error is never completely eliminated. Nevertheless, professionals have coordinated systems for managers to proceed in the execution of evidence based management.

Modern vs. Future Management

Change is a widespread, uncomfortable aspect for many executive professionals. Managers often hesitate on incorporation of innovative ideas, adhering to traditional management styles. Distractions, complications, and overwhelming managerial dilemmas discourage the use of ordered guidelines. As seen in Table 2, traditional management styles and evidence based management styles depict the value of modification. Discussions and examination over the last ten years have concluded that changing clinical practice is necessary in a world of advanced technology, consumer driven demands, and cost efficient patient care (Dunning, 2001). However, institutions continue to struggle with the incorporation of innovative management techniques.

TABLE 2: MODERN VS. FUTURE MANAGEMENT

Modern Management	Future Management
➢ Obsolete knowledge gained in school ➢ Patterns from experience ➢ Routinely ignores evidence about management practices that clash with beliefs and ideologies ➢ Bases decisions on untested, strongly held beliefs ➢ Systems focused on consultants recommendations ➢ Lacks access to worldwide information	➢ Knowledge routinely guided by best logic and evidence ➢ Patterns from research ➢ Applies scientific method to business ➢ Incorporates new practices into institutions based on statistics ➢ Compares situations and allows managers to choose "best fit" for the culture of the institution ➢ Listens to advice from experienced executives ➢ Provides effective tools to use information correctly

Traditional management styles are based solely on knowledge gained in school or patterns from experience. Evidence based management takes knowledge routinely guided by best logic and evidence; making information available through the World Wide Web. Traditional management does not effectively address current research and literature. Managers in history have chosen to control dilemmas through consultant recommendations or personal belief. Advanced technology now provides healthcare facilities with the ability to manage quality care through scientific resources. Evidence based management provides benchmarking; providing institutions with proportional statistics. Choosing models and programs that relate to ones organization cannot be achieved through traditional management styles. Past management systems focused on untested ideologies and lacked research based literature. Evidence based management is an innovative approach in directing a new realm of healthcare business.

UNITING MANAGEMENT AND CLINCIANS

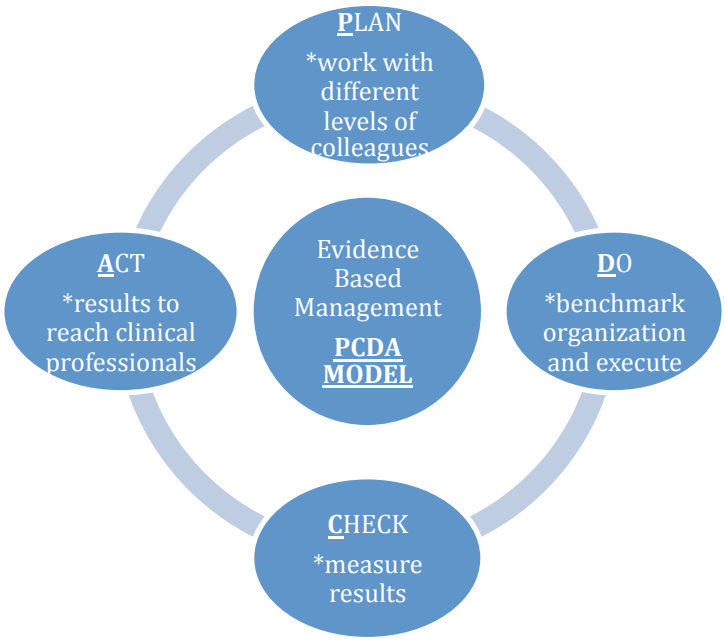
Operations Management Importance

The use of quality tools and methods is fundamental in the establishment of new guidelines. Humans operate more efficiently when given concise direction on how to execute an action. As suggested by Komashieet. al (2007), the concept of control resulting in improved quality has been effective over the years. Modern quality philosophies like Six Sigma and Shewhart's laid the foundation for industrial quality methods in healthcare. The Pennsylvania Healthcare Cost Containment Council website demonstrates interactive operation managerial tools in comparing quality outcomes.

Establishing Shewhart's Cycle

Connecting management and clinicians is crucial in reducing surgical errors within healthcare facilities. The process of collaborating two different professional fields is a concept that can amalgamate information skills and knowledge to solve problems as well as execute decisions. Shewhart's Concept of Quality Management also known as the PLAN (P), DO (D), CHECK(C), ACT (A) cycle can provide administrators with appropriate direction. PCDA is a four step model structured around change within an organization. (Kelly, 2008) suggest that the model is critical in proposals intended for quality management, starting a new improvement project, or development of a new service. Applying Shewhart's Cycle to evidence based management can assist executives in the implementation process. Evidence based management, organized in Shewhart's cycle, provides an operations management tool that illustrates how decisions can be made.

FIGURE 2: PCDA MODEL FOR EVIDENCE BASED MANAGEMENT



Plan- Strategic Planning

The planning phase fundamentally recognizes an opportunity and executes a plan of change. During the planning phase leaders typically feel inevitably enthusiastic, expecting people to give up personal time and place the same amount of energy into the innovative project. Awareness and respect for colleagues' reactions is legitimate and fundamental for senior managers to understand. ShewhartsDO phase of quality management stresses working with different levels of healthcare professionals. Relationships various levels of management as well as with physicians and clinical staff is a fundamental part of the do phase. Experience has shown that senior commitment to initiatives is a prerequisite for success (Dunning, 2001). Participating in new quality improvement measures

requires management to understand the impact on service delivery. Operating rooms are sensitive atmospheres that tend to foster fast paced, highly stressful situations.

Do-Implementation

ShewhartsDO phase tests the change incorporated into the organization. Dunning (2001) argues that the implementation of error-reduction practices is too urgent to await rigorous proof of efficacy in randomized trial tests that may never be done. Actions regarding evidence based management should essentially emphasize operational strategies that work best for the specific organization. Evidence based medicine benchmarks scientific quality initiatives that require evidence based management to put into operation. In the DO phase managers must execute the idea of evidence based management. This can be done by comparing facilities characteristics with similar documented organizations, which have already experienced the error. Delegation of responsibility and knowledge about research evidence can further cultivate organizations. Utilization of external benchmarks helps to establish measurable parameters.

Needless to say the most important aspect to the DO phase requires management's attention and participation with clinicians. Research has revealed that frontline managers who partake in patient interaction and employee tasks have lower error rates (Frankel et al, 2008). In a Health Services Research study, difficulty discussing errors decreased in hospitals that had frontline managers. Educational training in frontline managing promotes error reduction cultures. Management that implemented cultures fostering educational environments for errors led to enhanced outcomes (Frankel et. al, 2008). Although implications with the DO phase exist such inexpensive mechanisms should be promoted amongst executives.

Check-Assessment

The CHECK phase reviews how the process was carried out and measures the results. This critical phase of quality management coordinates evidence based management decisions in an organized fashion. Different organizations react uniquely to innovative operational styles. Evidence based management is intimidating to administration because it can work for one organization and fail for another. There is a tendency for managers to read or hear new evidence based models and wonder if these were even worth doing (Pfeffer and Sutton, 2006). A combination of personal management styles and evidence based literature can allow managers to try new decision making, act, and assess its effects on clinical operations. Comparison is completed through evidence based database literature and established industry benchmarks.

Act-Action and Evaluation

Shewhart's quality management ACT stage identifies what was learned in the process. Managers must cultivate an environment of surgical quality through the acknowledgment of trial and error. Evidence based management provides documentation, internet blogs, and information for managers to communicate at intricate levels. Executives understand how to approach decisions in the future from learning. Essentially this learning comes from engagement and communication with colleagues, physicians, and other healthcare facilities. Communication is often an issue overlooked in operational decisions. Dunning (2001) suggests utilizing venues of communication thatassists teams on how managerial messages reach clinical teams. Posting information on data graphs and charting can be helpful. Steps should be executed to ensure the consistency of messages. Making the best use of existing communication systems is imperative. Documentation and reporting of errors electronically can lead to fixing an error prone system; an example of evidence based management collaboratively working with evidence based medicine.

CONCLUSION

Theory

The demand for evidence based management within healthcare facilities continues to grow. Interest in evidence based management or informing decisions about organizational or financial strategies to improve health care, such

as utilization management, use of hospitalists, disease management programs, or pay for performance, has greatly increased in recent years (Clancy and Cronin, 2005). Evidence based medicine concurrently integrated with evidence based management can produce quality outcomes. Future healthcare executives will require research based literature to eliminate surgical errors. National benchmarks, performance reward programs, and other quality initiative programs demonstrate the need for collaboration between clinicians and executives.

A strong need for unification of management and clinical professionals will continue to rise in future years. The emergent demand for efficient, cost effective, safe surgical care has persistently increased in past years. Effective solutions to manage such implications lie in the control of management. Development of a systems approach to implement quality initiatives must be aligned in a strategic, patient oriented manner. Evidence based management joined with evidence based medicine can provide healthcare professionals with a direct approach. Necessary action and execution can only lead institutions in reducing surgical error.

Application

Evidence based management can be seen as an innovative business strategy that assists healthcare managers in handling clinical decisions with ease. Shewharts Quality Management model ensures that evidence based management produces an action fostering effective and competent surgical care. Extensive guidelines must be cultivated within operating rooms by all clinicians to reduce error. Evidence based management as presented through Shewhart's model,underscores the importance of appropriate planning and implementation.Management movement toward better surgical practice will therefore provide efficiency, stability, and safe care.

Shewhart's PCDA Evidence Based Model (Kelly, 2008) provides a theoretical yet tangible information system for managers to educate and implement while reducing surgical errors. Researched evidence is most likely to be used in organizations whose management fosters experimentation and data collection. Evidence based management provides strategic, error advancement applications. Executives are capable of reaching clinicians through diagrammatic illustrations with key tasks. Incentive for both clinicians and executives to participate in reduction of surgical error requires persistence with economic reward systems, governing boards, and attentive management.

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A UNIVERSAL PROBLEM: THE AGEING DEMOGRAPHIC AND THE FUTURE OF HEALTHCARE

Jonathan P. Forte, University of Scranton

ABSTRACT

The future of healthcare will depend on the successful management of an ageing demographic. This study examines the current and future effects of the baby boomer generation on healthcare services and health financing within United Kingdom and the United States. Previous studies have shown that ageing demographics lead to an increase in health expenditures. This article examines the specific implications associated with an ageing demographic and the boomer generation's effect on the future of healthcare in two very different delivery models. Boomers around the world are demanding a higher level of care. Can the universal model meet these demands?

RESTRAINT REPLACEMENT IN A NURSING HOME: WHAT ARE THEY SAYING?

Ronald M. Fuqua, Clayton State University

ABSTRACT

Implemented in 1990, social and behavioral changes were intended outcomes of the nursing home reform legislation known as OBRA-87 including a reduction in use of restraints, the introduction of resident rights, and maintaining the independence of nursing home residents. There is little doubt that restraint use is down. Steps by staff have resulted in replacements for restraints relative to patients' activities of daily living. Are these replacements becoming de facto restraints, especially in the way they are applied? Are these becoming disenfranchisements for patients and their families?

Research questions for this article included: 1) Are there practices in nursing homes that replace restraint? 2) What practices constitute these freedom replacements? 3) Are freedom orders related to restraints?

INTRODUCTION

It has been argued that the act of restraining nursing home residents is oppression based on age (Williams, 1989). In this view, restraints are undesirable encroachments on residents' remaining, if limited, freedom. While restraints have been perceived as oppression of nursing home residents, another phenomenon might also exist. This opposing phenomenon might be a form of freedom of residents from the "oppression" of their other treatments.

The Nursing Home Reform Act, known as OBRA-87, mandated changes in the use and application of restraints:

> Residents have the right to be free from . . . any physical or chemical restraint imposed for purposes of discipline or convenience and not required to treat the resident's medical symptoms. . . . Restraints may only be imposed (I) to ensure the physical safety of the resident or other residents, and (II) only upon the written order of a physician that specifies the duration and circumstances under which the restraints are to be used.

OBRA-87 also mandated that nursing homes have certain responsibilities. They:

> . . . must provide services and activities to attain or maintain the highest practicable physical, mental, and psychosocial well-being of each resident in accordance with a written plan of care . . . be administered in a manner that enables it to use its resources effectively and efficiently to attain or maintain the highest practicable physical, mental, and psychosocial well-being of each resident . . . [and] maintain clinical records on each resident in accordance with accepted professional standards and practices that are complete, accurately documented, readily accessible, and systematically organized.

The purpose of this study is to understand whether or not the staff of the nursing home was intentionally practicing freedom. Three research questions guided this research. First, is there such a thing as "freedom" practice in nursing homes today? Second, what nursing home practices constitute freedom? Third, how does freedom relate to use of restraints? This study utilized qualitative research centered on the changes in freedom orders for the residents of a nursing home and its relation, if any, to restraint orders and other variables.

The nature of this research required that in-depth interviews be conducted with the nursing home's staff to investigate more directly the existence and development of a freedom ideology among the staff. Interviews were conducted with five people who are working in key administrative and health care leadership positions on the nursing home staff. Five interviews with key staff members, when coupled with the earlier focus groups, allow for the range of variation that exists to be expressed but would also be manageable for the purpose of transcribing and analyzing the data produced. The nature of this sample is not representative of all people working in nursing homes. This is a sample of the people who work at a particular nursing home. For convenience and to improve readability, reference is made to people working on nursing home staffs in the general sense, even though this study is about a particular group of people working in one unique nursing home.

The interview consisted of a set of four staging questions that allowed the participants to be set at ease and to engage them fully in the interview as well as identify who was speaking while maintaining their anonymity. General characteristics such as job title, tenure in their position, other experience in long-term care, and gender were collected, although all the interview participants were women. The participants were interviewed using an interview guide composed of eight open-ended questions. Inquiry was made about the participants' opinion about the primary consideration in caring for residents and how that had changed over time. Specific questions were asked about the purpose and categories of orders on medical charts for residents. A series of questions were used about specific freedom orders, without using that term but instead using the generic reference "other" orders that appear on the medical charts of residents and probed for the origins and purposes of such orders. Finally, participants were shown some graphical presentations of data reflecting the changes in both restraint orders and what is referred to as "other orders" and were asked to explain the changes. The taped interviews took an average of about twenty-five minutes each, during which notes were taken.

The interviews were transcribed generating a total of forty double-spaced pages. Table 1 summarizes the interview information including time spent during the interviews and the number of transcribed pages. In addition, characteristic information collected at the beginning of the interview is included. Content analysis was used to analyze these data as well as the verbatim transcripts from the focus groups conducted by the original researchers. Table 2 presents a description of this data.

Table 1: Study Participants and Interview Characteristics

Staff Position	Interview Length	# Pages in Transcript	# Years Employed in Home
Executive Director	28 Min.	8	22
Director of Human Services	24 Min.	6	21
Director of Health Services	31 Min.	9	10
Director of Recreation Therapy	33 Min.	10	1
Director of Staff Training		7	10
	27 Min.		

Table 2:

Description of Nursing Home Residents

Year of Study	Residents' Age	Days in Facility
1988 – Mean		1506
Minimum		18
Maximum	84	10498
Range	63	10480
N	103	109
	40	
1990 – Mean	109	1587
Minimum		60
Maximum	85	11487
Range	55	11427
N	104	90
	49	
1994 – Mean	89	1543
Minimum		3
Maximum	87	11689
Range	67	11686
N	108	115
	41	
	121	

REVIEW OF THE LITERATURE

Archea and her colleagues (1993), found that the background of restraint use illustrates it has been a long-standing practice in long-term care. The medical model has historically demonstrated its suitability to acute care settings such as hospitals. The rehabilitative model in long-term care, on the other hand, emphasizes the attainment of the most optimal functioning and independence for individuals with chronic conditions.

Falls, one of the main reasons given for using restraints, are not necessarily eliminated by their use. Long-term care facilities that have limited their use of restraints have reported either no increase in falls or only a slight increase (Blakeslee, 1988). Tinetti, Liu, and Ginter (1992) reported that 17% of restrained residents had a serious fall-related injury compared to 5% of unrestrained residents.

Studies of physicians and nursing home residents deal with quality of care, communication, ethical and legal issues, and care practices (Cefalu, 1995; Hayley, Cassel, Snyder, &Rudberg, 1996; Elon, 1995). Cefalu (1995) argues that physicians need to know how to do several things. First, they need to know how to assess the quality of care in a nursing home. Then, they need to allow enough time for nursing home visits and must be able to interpret federal regulations. If they can provide this type quality care, they would minimize telephone calls from the nursing home staff, thereby compensating for the additional time they had spent in the facility.

Hayley and colleagues (1996) note that autonomy, or self-determination, is fundamental in medical ethics as well as the daily lives of most Americans. However, becoming a nursing home resident means a certain amount of autonomy is left at the door. According to the authors, whether it is the right to have visitors or the right to privacy in using the bathroom, the physician is often in the best position to enhance resident autonomy and set a tone that respects resident dignity, privacy, choice, and control.

Blocker (1992) encourages maintenance of functional independence and provides guidance to physicians, urging them to mobilize bedridden elderly people. He states that maintaining mobility among the geriatric population is the key to preventing unnecessary nursing home placement. Older patients who become immobilized as the result of acute illness or injury are at high risk of morbidity and mortality from the physical and mental effects of de-conditioning. Dawe and Moore-Orr (1995) reported on the benefits of low-intensity, range-of-motion exercise on the cognitive performance of non-cognitively impaired nursing home residents. The authors note that these mild exercise programs are low-cost, yet practical interventions for enhancing memory and independence.

According to Kane, Williams, Williams, and Kane (1993), restraint use is a metaphor for society's approach to care. They have seen a shift in attention, from simply performing technical acts on or for the patient to a philosophy of person-centered care, in which the autonomous functioning of the client has become a major goal. Since the implementation of the new federal regulations, several studies have found significant improvements in quality of care and resident outcomes. Many focused on changes and reductions in the use of psychotropic drugs and physical restraints.

Regulations often serve as justification for staff action that restricts the autonomy and free choice of residents (Kane, 1995). Frequently, there is more impact from staff action due to their interpretation as opposed to the regulation itself. Residents might be told they cannot sleep in due to regulations when it is possible to write a care plan that will accommodate a resident choice on when to get out of bed. According to a study by Bourret, et al, (2002), obstacles to mobility were perceived differently by nurses and residents. Residents identify physical barriers and unhelpful attitudes of staff and visitors while nurses focused on workload and time issues.

Neary, Kanski, Janelli, Scherer, and North (1991) reported that 51% of nurse's aides agreed with a statement that good alternatives do not exist. Stilwell (1991) reported the main alternatives suggested were medications and sitters. From a study of 441 new admissions to nursing homes, Burton and colleagues (1992) found that staff attitudes and administration philosophy are significant determinants of the use of physical restraints. They identified nursing homes that were high users of restraints and homes that were low users. Studies indicate that restraint use and restraint reduction programs affect nurses' and nursing assistants' attitudes (Schott-Baer, Lusis, & Beauregard, 1995; Sundel, Garrett, & Horn, 1994). Sundel and colleagues (1994) found that more nurses supported removal of restraints after completion of a structured restraint reduction training or clinical program (36% compared to 15% before the training). Ageism, stereotypes about older people, and attitudes of nurses toward deviant patients are topics studied and reported in connection with the use of restraints and efforts to reduce their use (Helmuth, 1995; Carveth, 1995; Pursey&Luker, 1995; Lookinland& Anson, 1995). Carveth (1995) studied perceived patient deviance and avoidance by nurses and found that restraint use occurred more with patients identified as deviant than with others. Agreement between nurses in the identification of deviant patients was also high.

CONTENT ANALYSIS

Qualitative data collected from in-depth interviews and applied a content analysis approach to the verbatim transcriptions from the interviews and three earlier focus groups that does provide the capability to explore the questions more fully. Content analysis is a research method that uses a set of categorization procedures for making valid and replicable inferences from data to their context (Krippendorf, 1995). This method combines qualitative (defining the categories) and quantitative (determining numbers within categories) aspects. Categories must be exhaustive and mutually exclusive. This method is "unobtrusive" and "objective." Use of this approach allowed me to keep an eye open to the emergence of an explanation from within the data itself.

RESEARCH METHODS

This study includes qualitative analysis of data on use of freedom orders in a nursing home. Using the qualitative research technique of content analysis, the verbatim transcripts from the focus groups conducted during the VA study for were studied for references to freedom. Additional data was collected during direct in-depth

interviews of members of the nursing home staff to seek a better understanding of freedom ideology and the nursing home staff's role in such an ideology. Identifying the nursing home staff's perceptions and attitudes established the existence of an ideology of freedom and added to the exceptionally limited research findings currently reported.

SAMPLES

A sample used to collect qualitative data on the use of restraints consisted of selected members of the staff of the nursing home. Through verbatim transcripts of three focus groups, this sample was also used for re-analysis with an eye toward references to freedom, independence, choice, or autonomy.

A second sample was used to gather qualitative data from the nursing home's current staff by way of direct in-depth interviews. This aspect of the investigation focused specifically on the use of freedom orders and the emergence of any ideology of freedom among the home's staff. Since time has passed since the original research was conducted, care was exercised to insure this sample did not contain a large number of newcomers. Old-timers are those who were working in the nursing home before 1990 and personally experienced the transition in both restraint orders and freedom orders. Newcomers are those who began working in the nursing home after 1992. Care was used to try to avoid nursing home workers who began their employment during the period 1991 through 1992 where the changes manifested.

DATA COLLECTION TECHNIQUES

Direct interview procedures. -- Direct in-depth interviews were used to collect data for qualitative analysis. Pseudonyms were assigned each of the interview participants in order to protect the privacy of the respondents. The interviews were conducted with the nursing home's Executive Director, "Brenda Goff," Director of Health Services, "Murphy Brown," Director of Human Services, "Sadie Russell," Director of Recreation Therapy, "Ashley Otto," and Director of Staff Training, "Beatrice Webb." Interviews were scheduled during normal working hours and conducted at the nursing home. Using a general interview guide approach, the interview schedule was as follows:

1. What is the primary consideration in caring for residents?
2. How has care changed over the past several years?
3. What is the purpose of orders on the medical charts?
4. What categories do orders fall into?
5. What comes to mind when I mention the following orders on residents' records? (Specify freedom orders as defined.)
6. How would you characterize these orders?
7. How would you explain the reduction in restraints and increase in these other orders?

DATA ANALYSIS

The qualitative analysis of this study utilized the application of in-depth interviewing techniques in collecting data from the nursing home staff. In-depth interviewing has been described as "a conversation with a purpose" (Marshall &Rossman, 1995). According to Marshall and Rossman, in-depth interviews utilize three main types of questions: descriptive, structural, and contrast. Descriptive questions allow the researcher to collect a sample of the participant's language; structural questions discover the basic units in that cultural knowledge; and contrast questions provide the meaning of various terms in the language used by the participant. Analytic procedures for content analysis included the 5 modes mentioned earlier: coding, categorizing, classifying,

comparing, and concluding. All 5 modes were accomplished for both the focus group data and the data from the in-depth interviews.

FINDINGS

The aim in using qualitative techniques for this research was to gain an understanding of the interactions between freedom and restraint, regulations, and the values and ideals of the nursing home staff. In reviewing the verbatim transcripts of the focus groups, analysis was done of the earlier comments by staff members for references to freedom or freedom.

In-depth Interviews

The results of the five in-depth interviews with Brenda Goff, Murphy Brown, Sadie Russell, Director of Recreation Therapy, "Ashley Otto," and Director of Staff Training, "Beatrice Webb" are more directly related to freedom orders than to restraints. As new data collected subsequent to this research design, it was geared toward the specific area of interest, that being freedom orders and a freedom ideology or practice among the nursing home staff. The interview schedule consisted of eight questions progressing from "What is the primary consideration in caring for residents" and "How has care changed." Intermediary questions were "What is the purpose of orders on medical charts" and "How would you classify orders." Each of the freedom orders in this study was posed to the respondents for their reaction. Comparisons of the actual data for restraint orders and freedom orders were shared with the respondents, both in summary form and in detail, followed by the question, "What does the data mean." The final question of the interview was: "How is control over the residents' care shared."

Primary Consideration in Caring for Residents

The Director of Health Services, Murphy Brown, stated that the primary consideration in caring for residents was " . . . trying to make sure that we have qualified personnel actually delivering the care." In clarifying whether the interest was one of quality of care, she said it was to insure " . . . that we're addressing all of the needs of the residents on all levels." The Director of Human Services, Sadie Russell, indicated that the primary consideration in caring for residents was just that, " . . . caring for the residents." "I'm not sure how to answer that," she said. "Our primary consideration is caring for the residents. It's giving them a quality of life and the opportunity to live and do things as their life ends and not to warehouse them like people thought nursing homes were supposedly doing." Director of Staff Training, Beatrice Webb, felt that care was primarily concerned with keeping the residents comfortable. When probed for why this was primary, her reaction was that "their cognitive functioning is so depleted."

In addition to the responses above, another respondent, Ashley Otto, felt the primary consideration included being groomed, dressed, fed, and having all basic needs met in a timely fashion. Opportunities were incorporated into the primary consideration for care, according to this particular respondent. Specifically, opportunities for self-expression, opportunities to enjoy themselves, and opportunities to participate in cultural and spiritual activities to their liking were necessary to care for residents. When queried about why they felt this way, the Director of Recreation Therapy, Ashley Otto, said, "Because quality of life is not satisfied by just living. There is a need for texture in your life. That comes from environment, it comes from people around you, and it's a spiritual thing."

The most succinct answer was given by the Executive Director, Brenda Goff, that care involved meeting the residents' needs. Specifically, when asked, she said these needs were health and cleanliness needs, as well as their daily needs. Essentially, to these staff members, meeting residents' activities of daily living were the core care for nursing home residents.

How Care of Residents Changed

While exploring how care for the nursing home's residents had changed over the years, Murphy Brown, the first interview respondent, felt that the acuity of the resident population had increased. This particular nursing home has a history of long stays. Those residents that had lived in the nursing home from 1988 until 1994 had declined as

a result of "aging in place." Their needs were felt to be more acute than in 1988, requiring more physical care. In addition, respondents felt that newer residents now come into the nursing home sicker and with a higher level of physical need than was true formerly. Murphy Brown gave an example saying it "might be a majority of the residents 10 years ago were ambulatory, and the majority of the residents now are in wheelchairs."

Another answer to the question about how care has changed was that both the care and the caregivers are considerably more sophisticated now than before. "Sophisticated" was the description used by Brenda Goff and Sadie Russell for this question. One respondent described a nursing home HMO program called Evercare, which is an HCFA-funded study that funds a nurse practitioner with geriatric nursing training for rounds at the nursing home. Additionally, this staff member described the care as driven by a new philosophy. "More than anything, it is the philosophy of the home and the quality of the professionals that we hire that provide the quality of care we deliver." When pressed for more detail, she stated that, in addition to a greater knowledge base on the part of the nursing staff, there was also an attitude that aims at care that is almost injury-free and very oriented toward keeping people as well as possible.

The second response that mentioned sophistication of care used the term in comparison to the bed and body care that was provided in the past in nursing homes. While recognizing the continuing large amount of that kind of care, this respondent credited the government with expecting a more scientific approach. Using an example for incontinence pads, she said: " . . . when somebody comes into this facility, we are expected to determine their bladder patterns and toilet to those patterns to the point that they do not need an incontinence pad or prove that there are no patterns, as opposed to just diapering an incontinent person." She says that this management by objectives (MBO) approach to care in the nursing home has yielded clear-cut care planning processes for every aspect of the resident's life. She said, "It's got to be measurable and you've got to prove whether you've achieved it or not."

Ashley Otto thought that care had changed in terms of the demand for quality care. "In terms of seeing the care change, I think that as more and more people get into nursing homes, their demand for quality care is changing, too. People are demanding now that they get the things that they want and that they are in a nice environment. Either residents or their family members are more demanding for quality care." The last interview respondent felt that during the time she had worked in long-term care, which was over 45 years, care had changed toward making sure the residents were getting quality care as opposed to just custodial care. When asked why she thought this change had happened, she credited state regulations as the reason.

The Purpose of Orders on the Charts

Responses to my question on the purpose of orders on medical charts provided the most consistency. Most nursing home staff members understand that orders on the charts are to provide guidance from physicians about the care to be given residents. Murphy Brown said, " . . . the purpose [of orders] is to give the caregivers directions as to what the care is all about, from the medications to the type of treatment. It is basically spelling it out to the person who is actually providing the care." When asked about the source of the orders, she responded that they came from the doctors on rounds as well as from nursing assessments given to the physicians. This particular respondent felt that the largest majority of orders originated from nursing assessments.

Brenda Goff stated it in theoretical terms. At first she responded that the staff was not permitted to direct the care of residents; the physician directs the care. When asked if that was the reason for orders on the charts, so that physicians could direct the care of residents, she added, "In theory, yes." When questioning the reality of this notion, she said, "The reality is that every month the physician has to reissue his or her orders, and those orders are signed without ever being looked at. As an example, we had a resident who was being tube-fed for over three months, and there was [still] an order [in the chart] that said the resident may have snacks at cocktail parties, like they are feeding a person who can no longer eat."

Ashley Otto pointed out that a lot of different people work in the nursing home and that there were not one or two people assigned to provide all the care for each resident. To her, orders were part of "an information process." She said, "You can't casually mention that somebody needs some treatment or something, you need the documentation." It also was stated that there were legal reasons in many cases. Beatrice Webb indicated that orders were to insure that residents get the correct medications "or whatever the order is." This respondent also acknowledged that orders "are a means of insuring consistency in care."

Classification of Orders

The purpose for asking how each respondent classified the orders on medical charts was to discern whether the nursing home's staff recognized a classification of orders that related to freedom orders. Murphy Brown categorized orders as medical, treatment, rehabilitation, and ancillary. When asked to define these categories, she said that medical orders are medications and supplements; treatment orders are something specific like "a foot soak or a skin care treatment;" rehabilitation orders describe nursing rehabilitation as well as physical therapy, occupational therapy, and speech therapy; and ancillary orders would " . . . probably be something that gives more direction to the nurse, such as a specific kind of chair or that the resident is eligible for a medical leave of absence, or that this person can have alcohol . . . ." When the source of these ancillary orders was sought, this staff member indicated she was about to say "the nurses" but then thought about it and decided " . . . it is really probably coming from the resident."

Ashley Otto classified orders as medication orders, orders for physical care, dietary orders, and therapy or treatment orders. She did comment further about areas that did not receive enough attention as far as orders go. She said, "The orders they don't get into are psycho-social aspects of care, issues of life fulfillment, and the importance of activities and recreation therapy." She felt that physicians should write more of these type orders if they are directing the resident's care. Beatrice Webb, however, classified orders into medical, treatment orders, and a category of social service-type orders. She cited an example of a woman who became verbally aggressive, and the only way she could be calmed was to sing to her. She said an order was written that specified, "If this person gets verbally aggressive, the first step is to try singing the song *You Are My Sunshine*."

It is very interesting to note that only one respondent mentioned restraint orders in response to this question. She classified orders as psychotropic medications, medications for wellbeing such as blood pressure, "and then you have restraint orders which most places are trying to get rid of but still you have orders." She then added physical and occupational therapy as another group of orders.

May Have Alcohol

At this point in the interview schedule each of the freedom orders identified for study in this research was discussed. The freedom order, "may have alcohol if requested," was seen as a means to afford a continuation of life customs or practices that included alcohol, usually with meals or at cocktail parties. Murphy Brown said, "Out of this group there might be someone who does not tolerate alcohol well, so we might have a specific order for them to not have alcohol." With regard to the order itself, it meant they could serve alcohol to the resident. The Director of Human Services, Sadie Russell said, "Having alcohol is a normal cultural experience."

During an interview with the Executive Director, Brenda Goff, this order triggered the reaction, "That's a standard order for us." Using a probing question for clarification, she was asked "So it automatically goes on the chart?" She then reacted, "Right, we will put that on the admitting record." I then asked if that was accomplished mechanically, meaning the system just applies it to the charts. Brenda Goff replied, "The system being when our nursing staff issues their list of orders." When I queried for the purpose of this order, she replied "We have a cocktail hour twice a week and we are just protecting ourselves. If someone is on a medication where alcohol is counterproductive, then we put the monkey on the physician's back. He really never reads [the order] and will end up being liable for it."

Ashley Otto said that when the "may have alcohol" order was written, it was probably for someone who included alcohol in their past life. She speculated, "It was something they enjoyed and, in some cases, if someone has been a heavy drinker all of their life, you can't take it away from them and expect that they are going to function as a normal human being or as their personal human being." As to how the order got on the charts, it was suggested that it could be part of a care plan or it could be a dietary plan result. According to this logic, "It could be that this person eats better when they have a glass of wine." Beatrice Webb produced the possibility that perhaps it was the lifestyle of the particular resident to have wine before they went to bed at night. She considered it as a continuation of their life's habits. She suggested that this order was written by physicians, based on conversations with the resident, if they were competent enough " . . . and the ones who would get that order would be."

Exercise for Range of Motion or Mobility

Murphy Brown responded that an order for exercise to increase range of motion or for mobility was a rehabilitative order. The respondent felt that it usually originated from a therapist's assessment. The motivation for such an order was revealed to be "what we can do as a facility to maintain a person at that level and prevent further decline." Murphy Brown felt that these orders were someone's attempt to elicit cooperation from the resident to comply with the exercise therapy. She said, "Sometimes people will respond better if a doctor orders it." It was her opinion that "some people will not go to therapy. Some like to do it for the activity, and others won't do it if you stand on your head."

Brenda Goff responded that it was a therapy order. Since the government only pays for rehabilitative therapy, the issue of range of motion or mobility is incorporated in the nursing care plan. Brenda said, "It will not be something initiated by the physician, though it should be." The reason it was part of care planning is "partly because it is essential and partly because federal law says residents should be kept from avoidable decline. She commented on the irony that Medicare will pay for improvement only, not maintenance. The decline in the resident's physical abilities is the actual trigger for Medicare to pay. This order elicited a similar response from Ashley Otto. She indicated, "That [exercise order] would fall under the care plan. It would originate from physical therapy and when we did a quarterly review, it would be on the care plan." The Director of Staff Training, Beatrice Webb, replied, "That is something that is incorporated in their care to keep their extremities mobile. Most of the time it is placed by a physical therapist who has done an extensive exam, and the doctor agrees."

Up-Ad-Lib

This freedom order generated a great deal of concern for the staff members. Most indicated that it was not a common order [it appeared 22 times on the charts], and, in fact, they often had to speculate about its meaning and application. Beatrice Webb reflected on "my days in acute care experience." She said it was "usually for someone who is coming out of an acute care situation." She said that she did not like to see the order because being up is the normal routine--residents should be up. Her reaction was, "This is an expectation and I don't need an order for an expectation." Beatrice felt it was more appropriate to have an order for bed rest, since that would be out of the ordinary. Upon further questioning about the acceptability of an up-ad-lib order for an extended period, Beatrice Webb supported it based on certain situations. She said, "Depending on the situation and the type of facility, if it is a sub-acute facility or somebody has been on extended bed rest. When they come off, there might be an order for up-ad-lib. But when they are up, that order should come off."

Sadie Russell response was, "I can't imagine why somebody would order up-ad-lib. Everybody's up-ad-lib anyway. That's a bizarre one. We actually encourage residents to be up and discourage them from staying in bed." Again, Ashley Otto responded, "Really, I think in this environment you almost always see the opposite of that order, needs bed rest, because it is just presumed that everybody is up. We don't allow people to stay in bed. You're not even going to see that on the chart." Murphy Brown reacted: "Up-ad-lib? I have never heard of it. I guess that would mean they could be up whenever they wanted. That is very rarely seen. I would have a problem with that as an order. I think a lot of people would have a problem with that."

Leave of Absence with Family and Friends

Orders for leaves of absence were seen as traditional orders that most residents received when they were admitted. Murphy Brown said, "It is a resident's right, anyway." Sadie Russell thought that leave of absence was a "required order." By required, she meant, "I think in order for someone to leave for overnight there has to be an order. Medicaid says that, if you can be away from the nursing home for so many days in a year, you don't need to be in one." Brenda Goff stated, "That goes on the chart only prior to requiring it because a doctor has to approve it--it is a regulation thing." The other two staff members, Ashley Otto and Beatrice Webb, tended to see leave of absence as a right for the residents. Ashley Otto described it as an opportunity to take a vacation from their surroundings, while Beatrice Webb specifically said she thought it was a resident's right to leave whenever they wanted.

Do Not Rouse

Of all the orders felt to befreedom orders from their appearance on the medical charts, "do not rouse" was the only one that was seen as originating almost exclusively from the residents. Murphy Brown indicated her familiarity with requests from residents not to be awakened from their sleep, but she was not aware of it as an order on the charts. She speculated that "it might have been from the resident telling the doctor to 'put on that chart to tell that nurse not to wake me!'" Since nursing homes are 24-hour care facilities, many times residents are checked on a regular basis throughout the night. It was during this interview with Murphy that the change in residents from 10 years earlier was discussed. She said, "We check every single resident, and that check might have wakened some residents. It is not a common order and not a common request. Now, most of the residents are not even aware of what is happening at night. Ten years ago the population was quite different, and these requests could have been more common."

When asked how the population was different, Murphy said:

> We had a very large population that was in charge of their environment. They had a lot of control and set up things kind of the way they wanted them. We have a resident council committee, so we had a very active group of residents then. This group was very alert and very aware of what they wanted. Over the last few years there has been quite a bit of deterioration…. Some of them have declined either mentally or physically to the point that the things they used to be so concerned about are no longer important to them.

Sadie Russell agreed the "do not rouse" order was a request from residents. When this order was posed to Brenda Goff, a more caustic response was received to a probing question on how she speculated that this order was originated. Brenda said, " . . . I don't think physicians go to the depth of thinking about some of the things that happen in this environment." When further asked about the possibility that this order was based on complaints from residents, it was acknowledged as possible because " . . . some people will put signs on their door that say do not disturb in the middle of the night."

One interviewee, Ashley Otto, responded with giggling when the "do not rouse" order was brought up. She said she was not aware of that order, but it sounded like "do not feed the animals" at the zoo or "do not walk on the grass" in the park. To her, it sounded silly. The final interview respondent from the nursing home staff, the Director of Staff Training, Beatrice Webb, also was unaware of the order but quickly speculated that it came from the residents as a request.

Recognition of Freedom Orders

After discussing each of the five freedom orders individually, none of the interview participants reported seeing a logical classification for these orders. Murphy Brown briefly stated that she saw that some orders were originated from doctors, some from nurses, some from therapists, and some from residents. Sadie Russell said she saw the orders as somewhat useful but attributed them to physician misperceptions of "what goes on in a nursing home." The Executive Director of the nursing home, Brenda Goff, was most limited, responding with "No, just other orders." Ashley Otto observed, "Some of them [freedom orders] are quite vague and some of them are on the mark. Overall, there seems to be bits and pieces missing out of each one. They all kind of relate to quality of life issues." Beatrice Webb, said, "It would depend on the care needs of each individual resident. It would not apply as a group of orders to any specific resident, normally."

Staff Reaction to Changes in Orders

Toward the end of the in-depth interviews, staff members were asked to look at a couple of bar charts and reflect on the changes that were displayed. One of the bar charts, based on data that were collected from the medical charts for 1988, 1990 and 1994, depicted the number of residents in the nursing home with at least one restraint order compared to the number of residents with at least one freedom order. In order to avoid revealing the label "freedom orders," these were referred to as "other orders." The other bar chart depicted the same information for each type of restraint orders and each of the other orders. The staff had different opinions on the significance of the changes. Murphy Brown felt that the data reflected the specific effort to reduce restraints. She also felt that restraint orders were as high as they were due to the definition of restraints that included seatbelts and wheelchair lap trays. She did notice that the "harsh restraint" of posey vests went down significantly and "softer restraints" had increased. Concerning the other (freedom) orders, Murphy Brown felt

the changes were indicative of the changed population with an increase in cognitive impairment and greater frailty. In other words, with an increase in frailty and cognitive impairment, more restraints would have been expected, yet there was a modest reduction. In effect, this represented a large "virtual" reduction in restraint orders with a noticeably tangible increase in freedom orders.

Sadie Russell echoed the reaction to the changes in restraint orders as a reflection of "a big movement in the industry and the country to reduce restraints." She pointed out that "it has been found that people that are restrained are more at risk for falls and injuries." She also recognized the apparent changes in posey vests and seatbelts. Her interest was greater in the changes in the other orders. She felt the changes in orders for alcohol "might be that there is a concern for the volunteers who serve the alcohol and a desire to insure that the doctors are ordering the alcohol and there is not a conflict with the medications or the resident's condition." As for changes in the resident population, she felt they were definitely coming into the facility less healthy than they used to. Regarding exercise orders, she credited that to a move toward rehabilitation by the doctors. She acknowledged that "it may be that doctors are recognizing the viable lives that can be experienced by our residents with rehabilitation."

The Executive Director, Brenda Goff had some very clear opinions about the changes presented in the data. With respect to the reduction in posey vests, she suggested that occurred when Posey, the company, came out with a new product, "the padded lap thing that just slips in." It was also when the facility began using seatbelts. She also associated the increased use of advance directives with the reduction in restraints, mittens specifically. She noted that mittens were used primarily when residents were tube-fed. If the resident tended to try to pull the tube out, staff would use mittens to prevent them from succeeding. With advance directives, if the resident did not want to be tube-fed, they could state that in advance of the need. She said, "These data are clearly indicative of these changes in regulations regarding advance directives." Her opinion of the changes in exercise orders was that the same number of residents received range of motion exercises throughout the study period. Her statement was, "To my recollection there were the same number of staff assigned to do range of motion in all three periods. Clearly OBRA-87 forced these on to the records." In other words, the behavior of staff had not changed, only documentation practices.

Recreation Director, Ashley Otto, confessed that "I have to tell you what's interesting about this is that I do notice that people here are really 'order happy.'" When probed for clarification, she said, "Care planners are order happy. I mean we are. We wonder why orders don't get carried out and we put more orders out. We get crabby because we say these orders aren't getting taken care of, and we ask why people aren't reading the charts." This participant also noticed that the use of posey vests was down, but then she pointed out that the variety of restraints in use has increased, saying, "We have expanded the kind of restraints that we are using. I think we discovered that more things work; we discovered alternatives." When asked about the changes in other orders, she responded, "It's funny that we have so many alcohol orders. I just don't see that many people drinking." After discussing that having a permissive order for alcohol did not mean residents actually consumed alcohol, she observed:

> Yeah, that's right, it's just very interesting. I think it might be also that it has become recognized that people in nursing homes have rights and they have needs. I think we are becoming more humane in nursing homes. We're really working with the person who is. I think we are taking a more holistic approach, and we're looking at the person, trying to work with them as they change rather than trying to make everybody fit the same profile. We are allowing people to be who they are. If that means someone has a leave of absence, then that's okay. It's becoming more and more okay to be old.

Beatrice Webb, felt that the changes in restraint and other orders were attributable to the change in the residents. When asked about the specific changes, she added, "Mental status, they are more cognitively impaired. They are sicker." She described the way restraints were treated in the past as more immediate: "Instead of going through the practice of asking, 'what do we do before we use a restraint?' Today we have to go through several steps before you can get to any type of restraint, and that is the resident's rights." She explained further how staff have to collect a lot of information and attempt to determine the cause of a fall so they can change the cause instead of restraining the resident. She posed such questions as, "Did we take the resident for a walk after their meal? Did we consult with the psychiatrist to have an interview with the resident to determine if there is depression? Did we do blood work?" When asked why they now did these things

before restraining someone, and she said it was part of state requirements. She said, "You have to have all that you have done, documented, showing how you've tried to correct the problem before you can restrain." As an evaluative afterthought on restraints, she said, "It was a really horrible thing to do to someone."

In pursuing this idea of the inappropriate, oppressive nature of restraints, asking this respondent if it is a better situation today,her reply was, "Oh yes! It's a better situation now because you're not saying, 'Oh, I did this because I am tired of being bothered.' You're saying instead, 'I've tried everything in my power to make this resident as comfortable as possible and find out what is going on with him before we even get to chemical or physical restraint.'" When asked if she felt better about the way it is today, and she said, "Of course, of course." This respondent addressed only leave of absence orders specifically from the list of other orders. She associated the increase in orders with a greater involvement on the part of the families of residents.

Summary

In-depth interviews were used to collect new information focused on freedom ideology and practice among the nursing home staff. Using an interview schedule that avoided directly using the terms freedom or freedom, five staff members provided responses to questions on care and how it had changed. They also answered specific questions about each of the five freedom orders targeted in this research. The nature of care was identified as meeting the needs for activities of daily living of the residents. The understanding that quality of life was multi-dimensional was expressed. The texture of life was used to describe the reasonable expectation of nursing home residents and their families.

Care was described as changing in three specific ways. First, care changed in response to changes in the residents. Residents had aged in place making them, in effect, sicker than in previous years, and newer residents arrived in a sicker condition. These changes in the residents resulted in corresponding changes in the care, i.e., it became more like acute care than chronic care traditionally provided in nursing homes. Second, both the nurses and the care became more sophisticated requiring thoughtful consideration of what care was needed in each resident's case. Less of the care provided was "cookie cutter" care and more of it was "custom-designed" for the resident in question in the form of care plans and an increase in the number of orders, specifically, freedom orders. Third, care had changed because there was a demand for more quality care by residents and their families, as illustrated by the do not rouse orders to protect the sleep quality of certain residents.

The purpose of orders on the medical charts was consistently described providing direction for the care residents received. There was a difference in understanding the meaning of this among the staff participants. Some felt that, since doctors directed the care of residents, orders provided a means for the doctors to document their directions to the staff. Others thought in terms of the 24-hour by seven-day operation of the nursing home and the need to provide consistency in care. Ultimately, orders were seen as a means of communication. It was acknowledged that staff had significant input into orders on charts and took full advantage of this in order to influence the care provided residents.

As freedom orders were discussed, the interview participants described the reasons for them. Permission to have alcohol was reported as a means of continuing the culture of residents as well as dietary habits that included wine or cocktails. This order was characterized as principally for the benefit of the resident, although it was described as a shield for the facility from liability as it placed the burden on the doctor. Exercise was described as a product of care planning. The beneficiary was clearly felt to be the resident. The order, up-ad-lib, was a curiosity for the interview respondents. One associated it with acute care settings and rehabilitation. Others said it was rarely used although it appeared 22 times in the charts. It was suspected that it might be meant to encourage residents to get up out of bed when they were reluctant. The data indicate this does not really reflect freedom. As staff said, residents have a "right" to be up. They suggest that this order is only ordered after forced bed rest to reflect a change.

Leave of absence orders were reported to be either automatic orders written at admission or as needed when a resident left the facility with family or friends. Some respondents thought it was tied to Medicare or Medicaid funding. Others thought the order was for the benefit of residents who needed to get away from the environment of the nursing home, like a vacation. This also does not seem to reflect freedom practice. As

noted, the law gives residents the right to leave. It is reasonable to agree with the person who said that leaving was more related to family support than to nursing home practice. The final freedom order, do not rouse, was universally thought to be an order that originated from residents. Actually, it was perceived to be an accommodating order for residents who complained about being awakened in the night for checks by staff.

The staff did not use the term "freedom" with these freedom orders. In fact, they were generally without consensus that the orders composed a specific group. The staff was able to provide explanations for the probable source of each order and associated them more with residents than with doctors or staff. While the staff was very aware of changes in restraint orders, they were not aware of the corresponding changes in freedom orders.

CONCLUSIONS

Additional research into the attitudes and motivations of nursing home staff is needed. Questions arise from the findings that require investigation of the impacts of these replacements on patients and their family members. What is required from health care administrators in light of these replacements of restraints? Additional research is required to answer these questions.

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ETHICS AND JUSTICE THEORIES AS APPLIED TO THE AGE-BASED RATIONING OF HEALTH CARE

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ABSTRACT

While health care costs in the United States are vey high, they are also on the rise. In fact, as various experts have suggested, these costs are spiraling out of control. Currently, the United States (individuals, government, and private insurance companies) spends some 16% of its total national income on health care (the largest per capita among all industrialized countries). By 2030, this will reach 26%, leaving only 74% of total income for all the goods and services purchased by consumers, businesses, and various levels of the government.

Several factors explain these high and rising costs of health care. Among the very important causes of this high and rising health care costs is the aging of American
Society. While life expectancy in the United States was 47.3 years in 1900, it was 76 years in 2000, and for those born early this century, it will reach 85 years. Moreover, the fastest growing age group is the population 80 and over, which is the very segment of U.S. population that tends to require expensive and intensive medical care. In fact, a very large segment of health care expenditures in the United States is devoted to the health of the elderly. According to D. P. Rice: "By the year 2040, the elderly will comprise one fifth of the population and almost half of all health care expenditures in the United State".

Given the scarcity of resources and the rise of life expectancy, various critics find it unjust that the United States allocates a disproportionate amount of scarce resources on the health care servicers of the oldest members of American society. Believing that the lives of many among the very old cannot improve much by even the most sophisticated and expensive treatments , procedures and tests, those critics have begun to ask the following questions: Has the time come when we decide that prolonging the lives of the vey old who no longer serve the land is truly a burden on the youth of society? Or, Is the day of rationing our nation's health care services on the basis of age close at hand? In fact, emphasizing the high demand of the very old for health services and the scarcity of resources, critics like Daniel Callahan and former Colorado governor Lamm, who see no end to the rising health care costs, propose the age-based rationing of health care. Critics like Callahan and his followers, by adhering to the utilitarian notion of justice, find the age based rationing of health care a just solution to the health care problem in the United States. To Callahan, in whose view medicine would have the goals of relieving pain and suffering and the curing of disease when possible, health care professionals should not try to prolong the livers of the very sick elderly, because a very long life does not necessarily guarantee a better life. To proponents of age-based rationing, it is unjust that the elderly receive a disproportionately large piece of the health care pie while a greater number of younger people are deprived of an equal share of the nation's economic resources for their health care.

However, there are also writers such as Cassel, Binstock, Etzioni, and others who, opposing the utilitarian notion of justice, and adhering to more egalitarian notions of justice (like Kantian and Rawlsian), find the rationing of health care on the basis of age unjust, being unfair to women who live longer and to different regions (or countries) with higher life expectancies. To some of the opponents, age-based rationing of health care also leads to intergenerational conflicts; it borders on involuntary, passive euthanasia; since Callahan and his followers emphasize the lack of productivity of the very sick elderly, opponents of age-based rationing cannot see why it should also not be applied to the extremely handicapped younger individuals, and other less than productive members of this society.

The purpose of this study is to introduce the debate about the age-based rationing of health care that began with Callahan's landmark book (1987) *Setting Limits* (and perhaps the insensitive remarks by former Colorado Governor Richard Lamm) , to analyze it and discuss the ethical implications of the arguments made by both sides of thedebate. As indicated above, Callahan and his followers emphasize utilitarianism (i.e. the greatest good for the greatest number of people, the good being health care) with roots in the works of English writers Jeremy Bentham (1748-1832) and J.S. Mill (1806-1873). The ethical implications of utilitarianism for health care allocation as applied by Callahan and his followers will be further elaborated.

Opponents of the age-based rationing have utilized more egalitarian theories of justice, i.e. theories that emphasize equal access to the goods in life (including health care) that every rational person values. Egalitarian theories of justice focus on doing the most good for the individual based on equity and equal rights. Among egalitarian theories that can be used in opposition to the age-based rationing of health are the principles of justice introduced by John Rawls in his 1971 book *A Theory of Justice*. In that book, Rawls developed two principles which are very relevant to this debate-the liberty principle which emphasizes the equality of rights for each person, and the difference principle that justifies inequalities if they exist with the greatest benefit (here health care) to the least advantaged (that includes the very old). As the study will demonstrate, opponents of age-based rationing also use Kant, and the egualitarian theories that emphasize need.

THE ECONOMIC EFFICIENCY OF TRUST AND REPUTATIONAL CAPITAL IN THE PROVISION OF HEALTH CARE: A COMPARATIVE-INSTITUTIONAL ANALYSIS

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ABSTRACT

This paper aims to evaluate the economic roles of trust and reputational capital in the context of health care delivery systems. Trust, the expectation that institutions and professionals will act in one's interests, facilitates health care delivery by reducing the transaction costs that attend informational asymmetries. This comparative institutional analysis reveals that the problem of health care is not only one of transaction but also of production. The organizational structures through which health care is produced bear critically on the efficiency of trust and reputational capital as compared to their regulatory substitutes.

This comparative-institutional analysis applies microeconomic models from game theory, contract theory and the economics of capability with context-specific characteristics of health care systems. I draw on the work of Ronald Coase and Oliver Williamson, among others, to identify and evaluate the characteristics of health care organization that bear on the economic role of trust.

CURRENT ISSUES IN HOSPITAL MARKETING

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ABSTRACT

This paper, which is based on questions posed by a Midwestern hospital, is a literature review of some of the more pressing marketing questions facing hospitals, especially small to mid-size hospitals. It addresses target marketing, promotional efforts, social media issues, customer satisfaction and relationship management, and measuring return on marketing investments.

INTRODUCTION

Hospital marketing differs from other types of marketing. First, with the exception of positive life experiences such as the birth of a child or plastic surgery, hospitals are a service that most people don't want to buy, but need to. As one orthopedic surgeon put it, "The last thing my patients tell me is that they hope they never have to see me again." Thus, brand image is critical to a product/service that most people consider to be a regularly unsought good, and marketing provides one avenue for brand development. In the face of financial restrictions, however, marketing is often the first budget to be cut in hospitals, according to Rees (2001): "But that's risky business. Executive decision makers need to keep in mind that it's dangerous for their hospitals to drop out of sight." (p. 2)

From 2001-2004, marketing budget figures declined from .77 percent to .56 percent of net revenue, according to a study by the American Hospital Association. Marketing budget averages in 2001 ranged from $250,000 for facilities with 100 or fewer beds to $2.5 million for 400+ bed hospitals. In a challenging economic environment, hospitals need to be strategic about how limited marketing funds should be spent. Sturm (September 2006) recommended that hospitals allocate their marketing budget three ways: for brand development, new patient development, and return business. Many hospitals have concentrated primarily on the first two options; however, customer relationship management offers the opportunity to develop patient loyalty. Attracting new business is important as well, and deciding who to target and what to say is another challenge.

WHO SHOULD BE TARGETED?

While businesses in general spend around seven percent of their revenues on marketing, hospitals have to do more with less money. (Roberts, 2007) Some hospitals are using this money to focus on attracting senior citizens and women to their facilities. Seniors are targeted because they are frequent users of medical facilities, while women usually are the primary health care gatekeepers for their families. (Botvin, 2001) A recent study indicated that women are particularly receptive to direct mail pieces involving health care, with 85 percent of 25-44 year olds looking at them. (Anonymous, 2007)

Co-branding and promotion

Sturm (September 2006) argued that hospitals need to provide distinctive services, and pointed to the fact that most hospitals tout their cardiac care. While demographics suggest that as Baby Boomers age they will increase the demand for cardiac services, it will not be enough for most hospitals to rely on their cardiac care as their distinctive competency. Hospitals may want to focus on lesser-known specialties in order to be known as a regional "center of excellence".

WHAT ARE HOSPITALS ADVERTISING?

Through interviews and content analysis of advertising, Larson, Schwartz, Woloshin and Welch (2005) analyzed the marketing efforts from 17 large academic medical centers, including 127 print ads. They discovered that over 50 percent of the advertisements in their study focused on promotion of particular departments, while nearly 30 percent touted the complete medical center. Most of the ads appealed to consumer emotions (60 percent), stressed the center's prominence in the medical community (60.7 percent), or focused on a disease and/or its symptoms (53 percent).

What advertising media are hospitals using?

According to an article in the *Boston Globe*, Boston hospitals spent $8.6 million on radio advertising in 2005, followed by $3.5 million for newspaper advertising and $3.1 million for television. Radio is most likely preferred because of its ability to reach specific target markets at a lower cost than other traditional mass media.

Do websites attract new business?

Websites are valuable, but perhaps not as much for choosing a hospital. Research conducted by Forrester Research indicated that only 4.6 percent of respondents who have used a hospital for health care between 2001-2006 used the hospital's website to find out more information before choosing a health care facility. Health insurer and third-party websites fared even more poorly, at 3.1 percent and 1.3 percent, respectively. (Anonymous, 2006)

The importance of blogging

The website Technorati tracks approximately 112 million blog sites. Blogging has moved from a social media phenomenon to a business necessity, according to Nora Ganim Barnes of the University of Massachusetts—Dartmouth. Barnes conducted research on the Inc. 500 that indicated that many companies on the list are already familiar with and/or currently have business blogs. Barnes also stated that businesses that do not participate will be left behind by their customers. Although hospital blogging has not yet become a mainstream phenomenon, more hospitals will be likely to start blogging in the future.

HOW IMPORTANT IS EVENT MARKETING IN DRIVING TRAFFIC TO HOSPITALS?

Many hospitals perceive that sponsored events drive traffic to the hospital. At least one recent research study bolsters this perception. In 2005, George P. Johnson Event Marketing sponsored research that indicated that face-to-face event marketing produced the highest return on investment for healthcare-related organizations. Sneath, Lacey, Finney and Close (2006) conducted qualitative research on event marketing with 20 key marketing executives at U.S. healthcare organizations and developed a list of best practices. According to the authors, "Respondent advice to organizations contemplating using sponsorship and/or event marketing was relatively straightforward. Not surprisingly, much of it was strategic. These included clearly identified objectives, selectivity, targeted marketing, customer relationship management, event planning, event education, and synergy with other elements in the organization's promotional strategy. The importance of event 'presence' and 'shelf life' also was a theme. Most respondents recommended that organizations engage in fewer but better events." (p. 32) To measure the return on investment, these organizations used routine measurements such as number of attendees and revenues as well as attendee/cost ratios and amount of media coverage generated (in terms of measuring what media placement costs would have been without the free exposure).

A recent article in the Journal of the Association for Healthcare Philanthropy (Lawson, 2007) suggested that viral marketing be used in conjunction with events.Wikipedia describesviral marketing as using social networks to spread brand awareness and preference, usually through the Internet. In other words, marketers wish to create a "buzz" around their product through people voluntarily passing on Internet video clips, advertisements, "advergames", text messages, etc. Webcasts or podcasts on select medical topics would also help hospitals reach a younger, technology-savvy generation.

WHAT AFFECTS PATIENT SATISFACTION?

One survey found that while hospital executives claim that their hospital's reputation is extremely important, they do not fully understand how to go about measuring it. Indeed, 39% of respondents have never tried to do so. (Anonymous, 2006) Landro (2007) reported that while many hospitals conduct patient satisfaction surveys, they have been slow to make significant changes based on patient feedback.

Repeatedly, health care studies indicate that interaction with hospital employees is the most powerful determinant of patient satisfaction. Happy employees translate into the best salespeople for their employers. And there are also marketing benefits that accrue from happy employees. According to Endresen (2006), "One of the most interesting findings of our research was that healthcare organizations that focus on the internal customer—employees and staff—rate themselves as more successful in their marketing efforts overall. Happy employees just might be the secret to successful marketing!" (p. 12) Unfortunately, not all employees are happy employees, as over 20 percent will resign their positions over the next year. (Anonymous, 2007)

Powers and Valentine (2006) indicated that patients who are satisfied with their interactions with physicians, interns, and surgery were more likely to return patient satisfaction surveys, which indicates the potential for significant non-response error. In other words, patients who were unhappy with their health care experience may be less likely to return the surveys. Not only might this skew the results of any research conducted, it also means that hospitals might miss out on gathering valuable feedback that could improve health care delivery.

In order for any branding effort to be successful, top management must be supportive, and employees must be clear about their role in developing the brand image. Murphy (2007) cited a study by Berry and Lampo. He wrote, "Of the 60 most influential associations that consumers noted for high-preference brands, 82% related to employee behavior; for low-preference brands, 90% related to employee behavior…There are many similarities between the hospitality industry and healthcare organizations. One is the need to provide the highest level of service across numerous touch points with a customer/patient." (p. 30-31) Since patients have taken on a consumer orientation and are willing to shop around for health care services, patient loyalty will be easier to obtain if the patient is satisfied with the quality of service they received.

UTILIZING CUSTOMER RELATIONSHIP MANAGEMENT IN HEALTH CARE

Marketers readily acknowledge that it usually costs far less to keep an existing customer than to attract a new one. Hospitals are just beginning to realize this fact. (Sturm, May 2006)

Sturm (September 2006) surveyed 1000 hospital marketers that subscribe to his company's health care newsletter, and found that nearly 75 percent of the respondents (n=110) spend one-fifth or less of their marketing budgets to keep current business. With hospital marketing budgets averaging $1.2 million in 2002, that's approximately $240,000. Arguably, marketing directors might be avoiding the implications of HIPAA regulations, which restrict the use of medical records for marketing purposes; however, hospitals need not shy away completely from using patient information to develop targeted marketing communications. HIPAA defines marketing as "to make a communication about a product or service that encourages recipients of the communication to purchase or use the product or service." Some forms of communication, however, do not appear to violate the HIPAA definition, even though the health care organization might profit from the communication. According to Borten (2006), "Typically, health and treatment communications, as well as communications about your health-related products and services, are not considered marketing by the Privacy Rule, even if they also promote or provide a clear benefit to your organization." (p. 91) For example, Borten identified "communication to patients about disease management" and "information about new diagnostic tools," as being exempt. Token gifts of minimal value are also allowed, so long as the CE, or covered entity, is the one supplying the gift. The involvement of third parties appears to be the main trigger for HIPAA violations.

Paddison (2004) offered two examples of customer relationship management tactics that could be effective. One example is sending birthing center information to women with children between 18-20 months old (the average time between births is 31 months), along with an offer for a token gift such as a pregnancy planner. According to Weng (2006), "Of the many services hospitals offer, obstetrics is one of the few with the potential for establishing long-

lasting and positive client relationships. Such relationships form the basis for more effective marketing strategies resulting in increased market share, repeat purchase behavior, and referral of other patients in a direct marketing environment." (p. 197) Paddison's second example is mailing information about heart attack symptoms and cardiac services to patients with repeated high blood pressure readings (since over one-third of such patients will experience a cardiac episode within a couple of years).

Murray (2007) concurred that hospitals have been slow to adopt customer relationship management tools but are starting to show more interest. He suggested that some hospitals might consider using "hosted solutions" or on-demand systems, rather than investing in CRM software. Using a third party may seem risky under HIPAA regulations, but vendors who target health care providers usually are aware of the regulations and comply with them. The key is to work with a third party who is certified as HIPAA compliant.

Other ideas

Chamberlain (2005) recommended that hospitals looking to increase revenues consider partnering with local employers. By working closely with businesses, hospitals can gain a deeper understanding of issues that workers face, and can work with the employer to provide services such as classes, screenings, etc. "Launching a successful employer-directed program begins with the hospital approaching local business owners and suggesting that by working together they can lower the businesses' healthcare costs, reduce absenteeism, and provide for an overall healthier workforce." (p. 55) Such a program would require employees to complete confidential health assessment surveys, which, when the data are aggregated, could highlight potential workplace concerns.

MEASURING ROI

There are several ways that hospitals could go about measuring return on marketing investments. Spiegelman (2005) recommended the use of call center data, citing statistics that indicate that people who make calls to a hospital call center average $13,848 in hospital bills within one year, as opposed to $5,524 for patients in general. Spiegelman developed a formula which uses "reconciled revenues", or revenues generated from call center data, which should be matched against patient information to ascertain that the caller actually used the service in question (following applicable HIPAA regulations). He then subtracted contractuals, market share estimates, direct cost of care, and indirect cost allocations. Finally, he divided the resultant contribution margin by marketing costs to arrive at ROI.

Another approach, suggested by Marlowe (2007), is to calculate "effort ROI" by subtracting marketing expense from net revenue (calculated in a similar fashion to Spiegelman), then dividing by marketing expense, and multiplying that number by 100. In order to calculate net revenue, the hospital will need to determine how long to track the marketing effort, and how to count "new patients". Marlowe recommended that hospitals start small, using one rigorously tracked marketing effort to determine ROI, and then build to include more efforts. He cited hip and knee replacements and emergency services as two areas that might realistically be tracked.

CONCLUSION

Two main themes seem to jump from the literature. The first theme is the need for hospitals to measure hospital brand awareness and patient satisfaction with services received. Indeed, there even seems to be some confusion about whether patient satisfaction surveys could be a violation of HIPAA (apparently, they are not). The second theme is the use of CRM (customer relationship management) tools, which hospitals have been slow to adopt because of HIPAA regulations and uncertainty about what constitutes acceptable marketing efforts.

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WHO/WHAT IS OLD?

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ABSTRACT

The recent US presidential election demonstrated that a 72 year old man, a torture victim with chronic medical conditions, could be a viable candidate and almost win an election. A 40 something year old victor will be inaugurated in January 2009. The national senatorial elections returned many long term senators over age 70 and 80 years old to Washington DC. The Society pages of The New York Times regularly report on straight and gay marriages where both partners are over 70, 80 or even 90 years of age. Birthday greeting cards now offer a choice of best wishes in age specific ranges above 100. A perusal of the faculty of our own college's business school reveals a not insignificant number of faculty well over age 65. A 58 year old Brazilian died shortly after completing the NYC Marathon. Multiple 60 plus year old women in the US and abroad have successfully carried surrogate pregnancies and delivered their own grandchildren. Sixty plus year old men regularly begin new lives, new marriages and new families with women significantly younger then them. Conversely, demographic studies around the world report reduced marriage rates, marriage at an older age, older first time parenting ages and shrinking fertility rates. Some countries traditionally known for their large families have even entered into the realm of negative population growth. The implications for business and society are myriad. We shall discuss these aging issues specifically as they pertain to health care delivery, general economic indicators, and human capital/human resources concluding with recommendations about mandatory retirement age.

EMPLOYEE ATTITUDES AS A CONSTRUCT FOR EMPLOYEE PRODUCTIVITY IN AN ACUTE CARE HOSPITAL

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ABSTRACT

Some acute care hospitals do well financially, have high patient satisfaction scores and high employee satisfaction scores. Others, in the same market are failing in the same market. Employee satisfaction is a factor, according to the research, in reducing employee turnover. Although the research is not conclusive, employee satisfaction could be a factor in increasing productivity and financial success. Additional research is warranted in the area.

BOSSES MAY DISAGREE, BUT A SHORT NAP (15-30 MINUTES) HELP RECHARGE BATTERIES, ENHANCE PRODUCTIVITY, ALERTNESS & SATISFACTION IN THE WORK PLACE

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ABSTRACT

Napping on the job? This could be used as a ground for dismissal. But naps, forty winks, siestas have caught on a slow-natural acceptance of positive thinking managers. Napping has replaced the taboo it invoked a few years ago. Books like The Art of Napping at Work (1998), Power Sleep (1998), Take a Nap! Change your Life (Workman Publishing), Rossi, The Twenty Minute Break (Tarcher, LA) all emphasize the value and benefits of napping. And state that napping enhances productivity. National Aeronautics and Space Administration (NASA's) Fatigue Countermeasures Programs reports that a short nap of 40 minutes improves performance by 34 percent and alertness by 100 percent(Haidee, ZZZ, 2002). We can say without question that napping contributes to higher productivity, efficiency, sales (Meyer, 2001). Slowly, a number of companies have incorporated "napping" into their workplaces and some are allowing supervised siestas. Some companies that allow napping in the workplace are: Union Pacific Railroad, Ben and Jerry's, Levi Strauss, Yarde Metals Inc, Japanese electronics company Matshusita (Shumard 2001). Chowdhury of New York based marketing firm, Stawberry Frog believes," Taking naps midday enhance creativity, and a 15 to 20 minute nap boosts productivity (Klie, 2007).

INTRODUCTION

Long stigmatized, napping in the workplace has gained more attention due in large part to an increasingly sleep deprived population. The National Sleep Foundation (NSF) released some alarming statistics concerning overworked and under-rested Americans. While sleep experts recommend at least eight hours of sleep a night, 33 percent of adults are getting only 6.5 hours or less. Over half of the American workforce reports that absence of sleep interferes with the amount of work they get done on the job. Employees estimate that the quality and quantity of their work is diminished by about 30 percent (Fox, 2000). Workplace napping is a natural no-cost way to increase worker productivity. Most employers do not mind coffee break but if employees take a nap break they will probably get fired. In today's fast-paced society, cut-throat- global-competition, most companies frown on the idea of "napping", in the workplace. Some bosses fear napping allows workers to slack off. Others feel that it is kind of giving up. But if, the concept of napping is going through a slow evolution it is because of the concerns about the "bottom line", reduced productivity, profits due to sleep deprivation. Sleep deprivation is estimated to cost the U.S businesses$18 billion annually (Paul, 1998)

Napping has been scientifically proven to boost alertness and creativity. This has interesting implications for the workplace. If managers were to let their employees take a short 20-30 minute nap during the afternoon, it could boost productivity. Today's 24/7 culture has created a sleep-deprived nation, with too many people cheating on their sleep to get through all their activities. Traditionally many companies have been against letting their employees take a nap, but many Americans are sleep deprived and a short nap makes a lot of sense. While more companies are now allowing a short nap, they are a small minority.

Sleep and sleep deprivation

Shakespeare called 'sleep' the 'chief nourisher of life's feast'. But sleep is a rare commodity in stressed out America. Overachievers used to state loudly "Lunch is for Losers" and believed "Sleep is for Suckers" Additionally, social culture glorifies sleeplessness. Encouraging a culture of sleepless is nonsensical and downright dangerous. The ultimate perk for the truly successful is now eight (8) hours' of sleep. (Ann-Jeffrey, 1999). Nearly two thirds of adults get less than eight (8) hours of sleep at night, according to the National Sleep Foundation, Washington, D.C. And nearly one third (1/3) of Americans go with 6 ½ (six and a half) hours or less sleep a night during the work week.

Sleep deprivation is not just an individual health hazard, it is a public one (Czeisler, 2006).Sleepy workers are dangerous, less productive, and a major source of increased
Health care costs and corporate liability. Studies of the workplace and transportation industries reveal that human error causes up to 90% of accidents, with inadequate sleep representing a major factor in human error (Time, 1990). In the U.S they are responsible for a fifth of all motor vehicle accidents and 8000 deaths annually. Estimates are that 80,000 drivers fall asleep at the wheel every day, 10% of them run off the road and every two minutes, one of them crashes (Czeisler, 2006). Sleepy employees experience potentially dangerous degrees of impairment-essentially comparable to that of substance abusers. Their impairment can jeopardize your bottom line-in virtually identical manner. And you probably employ even more of them.

Yawning through life

Many Americans are yawning their way through life. According to the National Sleep Foundation, Washington, D.C., about 62% of adults have driven while drowsy during the past year and 27% have dozed off behind the wheels. About 40% of adults are so sleepy during the day that it interferes with their jobs, family duties and other daily activities (Ann-Jeffrey, 1999). In the old days of the "organization man," when moving up the corporate ladder meant working longer and staying later than your co-workers, sleeping eight (8) hours never paid off. But in today's high-tech, information driven economy, the fresher, more creative mind often wins today. Changes in technology such as e-mail, voice mail, intranets, the World Wide Web (www.), hand-held PC's, notebooks, etc., - has made the 24 hour work day possible. And the old macho idea "I work, work and I don't sleep is saying that the organization man is everything and I'm nothing doesn't cut any more. The days of the boss showing up at 6:30 a.m., and going home at 8 p.m., are really passé. "The more balanced and rested and resilient you are, the more you are going to produce." (Ann-Jeffrey, 1999). Even Madison Avenue is spreading the gospel of well-restedness. Sleep restores energy to the body particularly to the brain and nervous system. Most adults sleep from seven to eight-and-one-half hours every night. Persons who go without their normal amount of sleep lack concentration and become quick tempered. Extreme sleep deprivation (two days or more without sleep) can result in hallucinations. Sleep loss affects our communicationskillsby reducing the number of words in our vocabulary, both in verbal communication and in writing. This results in stilted conversation and a greater use of clichés. Learning and memory can also be impaired. Tests done on 10-14 year olds who slept about ten hours had performed far better on tests of memory, verbal fluency, and overall creativity, than students who only slept half that time. This test and many others have shown that there is a direct connection between sleep loss and the ability to concentrate and remember. Dr. Esra Tasali, assistant professor of the University of Chicago Medical Center recently reported
disrupting sleep damages body's ability to regulate blood sugar levels and that poor sleep may lead to type 2 diabetes (The Grand Rapids Press Jan.2, 2008)

Perhaps most dangerous of all is the fact that our motorskills are impaired because of lack of sleep. According to the National Highway Traffic Safety Administration, there is a direct connection between sleepiness and impaired hand-eye coordination. In the workplace, this impaired hand-eye coordination has contributed greatly to the $150 billion in losses in productivity, not to mention the thousands of work-related accidents each year. Some of the biggest victims of sleep deprivation are adolescent teenagers in high school and college students. 30% of high school students fall asleep in class weekly .There are four main effects of acute sleep loss: sleepiness, motivational aspects of tiredness, emotional changes, and alterations in attention and performance. One of the most drastic effects of sleep deprivation is that it takes an increased effort to perform the same cognitive, emotional, or physical tasks. Due to lack of refreshing sleep, everything is harder for people to do because they must focus harder. A

person's sleeping patterns develop gradually. Teens require 9-9.5 hours of sleep per 24-hour period compared to 7.5-8 hours in adulthood. Newborn babies sleep for periods throughout the day and night. Four-year-olds average from 10 to 14 hours of sleep a night and ten year olds average 10 to 14 hours of sleep a night and ten-year-olds average from 9 to 12 hours. At age 60 you may need less sleep say 7 hours of sleep.

SLEEP DEPRIVATION

Sleep Deprivation affects some 70 million Americans. Sleep Deprivation impairs the ability to make good judgments on the job, become quick tempered. Sleep Deprived workers are less productive & make mistakes. It affects the ability to concentrate, remember, communicate, do complex tasks and make sound decisions & results in deficit in performance. (Hartmann, 1973) People who go without sleep for two days or more have difficulty thinking, hearing, seeing clearly, lower level of employee productivity occur, as workers want to nap rather than work. Clark states that lack of sleep impairs speech, memory & innovative flexible thinking. Sleep deprived individuals have difficulty in finding and delivering the right words & ideas. Their communication skills are severely compromised. Sleep loss reduces the ability to cope with unforeseen changes and to revise information and adapt to new circumstances (Clark, 1998). What is the main cause of Sleep Deprivation? Tools of technological society-TV, Internet. Fifty-one (51)
percent of men and 42 percent of women would go to sleep earlier if they didn't have a TV or access to the Internet said the National Sleep Foundation survey(Dougan, 1998) The age group that is most affected by sleepless nights are those in their late teens & early 20's. One of the easiest ways to detect sleep problems is to view work patterns. "About 40% of adults are sleepy during the day that it interferes with their jobs, family duties and other daily activities" (WSJ, April 2, 1999). Other little signs of sleep disorders or lack of sleep are also easily detected. If one sleeps less than six hours per night, relies on an alarm clock to wake up, or simply dreads mornings then that individual probably suffers from some sort of sleep problem.

Sleep deprivation and accidents

The National Transportation Safety Board estimates that out of 100,000 crashes, there were 1,500 fatalities and 71,000 injuries due to drivers that drifted off to sleep while driving. Higher rates of motor vehicle accidents occur at night, rather than during the day. Shift workers report an increased incidence of traffic accidents or near misses due to sleepiness on their commute home. Sleep Deprivation is a major issue in the trucking industry where drivers are prone to micro sleep, where they just kind of go in and out of sleep while driving. (Dougan, 1998) Disasters such as Three Mile Island, Bhopal, and Exxon Valdez have all been associated with workers suffering from lack of normal sleep.

Another unfortunate accident that the entire nation witnessed in disbelief was the Challenger space shuttle tragedy. On January 28, 1986, the space shuttle lifted off only to explode in midair less than eight minutes after it left the ground. Key managers of that launch had been seriously sleep deprived. A Presidential Commission cited ground crew fatigue as a significant factor in causation of that disaster. The study concluded that the crew who worked on the Challenger shuttle was greatly sleep deprived and that this accident may easily have been avoided if the crew had been properly rested so as to not overlook any critical errors in the preparation of the shuttle mission. In the U.S they are responsible for a fifth of all motor vehicle accidents and 8000 deaths annually. Estimates are that 80,000 drivers fall asleep at the wheel every day, 10% of them run off the road and every two minutes, one of them crashes (Czeisler, 2006). Harvard Women's Health Watch indicates that sleep deprivation can cause headaches, irritability and fatigue. Sleep debt can result in weight gain, diabetes, heart disease, stroke memory loss (HWHW, 2006).Short naps may be answer to many of the above problems.

Short naps

A new approach to increasing productivity in the workplace is to allow employees to take naps. Taking naps during the workday has been shown to increase the alertness of employees, which leads to increased productivity. Despite this positive relationship, many employers have been hesitant to allow employees to take naps. In fact, less than one percent of companies allow employees to take a nap on the job Taking a short nap in the early afternoon in the early afternoon has been practiced for ages in China, India, Italy, Greece, North Africa and

Latin America. The idea originated from the fact after eating a large meal, a chemical is released from the brain that makes one tired.30-40 minutes was found necessary to refresh, recuperate. Born out of siesta culture and now supported by scientific research, a short-nap has proven to improve alertness and the mood. In down-under country, **Australia** workplaces allow naps for firemen, truck drivers, doctors, interns. It is interesting to note that David Johnson, managing director of **Deloittle Consulting** Company in Pittsburg feels his company has increased productivity due to "nap-room". "They love it, they lap it up" (O'Connor, 2004) At **Yarde Metals** branches have "nap rooms". This helps workers enhance performance, teamwork. Craig Yardee, president of Yarde feels that napping contributes to higher sales, higher productivity, efficiency and zero turnovers. Anthony and Camille of Boston University conducted a survey and found that 70percent of 1000 respondents admitted that they nap at work and it benefits them...**Gould Evans** installed 10 by 12 foot "nap room" and according to its spokesperson, there is no stigma attached to those using it. Workers at Gould Evans found that napping helps them get refreshed and revitalized... (Meyer 2001).**Ben& Jerry Ice Cream** of Waterbury, VT has no formal napping policy but does provide make-shift napping rooms and feel that naps help workers get recharged. It appears that providing workers a place to rest is along the lines of providing them time to get snack or have a coffee break Karl Rose director of **Time Warner Inc** states that two beds are used by tired workers who need to catch 40 winks(Haupt,1993). **Mac World and PC World** has "nap rooms" and claim that workers are taking advantage of nap rooms. The nap rooms are equipped with two futons, including down comforters and curtains for privacy and "nap rooms" have never been misused. (Flynn, 1994) Other companies seeing benefits from nap rooms are California consulting firms who have cut down on soda and coffee by 30 %(Paul 1998)
Jim Lehrer of public television closes his office door every day at 12:30 p.m for an hour's nap while an assistant holds all the calls (Markels, 1995).

Some companies have concerns about the "napping place". Common questions that rose are: Who should supply pillows, beds, alarm-clocks? etc. Should the "nap place" be gender specific? **Metro Naps** a company which sells high-tech sleeping pods to organizations for $12,485 has some answers. The chairs recline to scientific napping position where legs are at the same level as the heart. The pods have a sound-proof dome that provides privacy and a timer wakes you up. Metro Naps sleeping pods look like a recliner that elevates a person's legs with an overhang that covers a person's head and torso, providing privacy and blocking out noise and light (Weintraub 2007) The sleeping pods not only put you in a space to nap, they put you in a more fatigue reducing position. Vancouver hospital has three Metro-Nap- pods which they monitor the usage and the effects of naps in the workplace.
Procter and Gamble, Cisco Systems are among the 30 plus clients. Sligh Furniture Co, Holland, Michigan offers a $2700 File-A-Way-Desk Bed that contains two twin size mattresses(Markels, 1995) Companies in Japan are investigating using napping as a rejuvenation tactic for their employees. Japan Matsushita Electric Co has invested $4700 in a relax and refresh" chair that has a built-in-massager.

Napping has been practiced in countries like Mexico and Spain for ages (Haupt, 1993). In other countries, it is catching on as well. In Australia, the government has sanctioned napping rights for firemen, truck drivers, doctors and interns on long shifts (O'Connor, 2004). Studies suggest that the solution to sleep deprivation is to take a short nap 20-30 minute. Napping does help employees to be more alert, recharge batteries, perform better and lead to higher efficiency and productivity (National Sleep Foundation, 2007).

The importance of sleep

How much sleep did you get last night? Studies by sleep research centers indicate that most adults need approximately eight hours of continuous sleep to function at full efficiency. However, one-third of adults only average six hours or less per day (Frazee, 1996). Unfortunately, many adults may not even recognize how much sleep they need. Dr. Tasali, of the University of Chicago Medical Center recently reported that poor sleep may lead to type 2 diabetes (The Grand Rapids Press Jan.2, 2008)

It is recommended that the average adult get 7-8 hours of sleep a night, but 63 percent of adults do not get the recommended amount of sleep per night (Hellmich, 2004). Teens require 9-9.5 hours of sleep per 24-hour period compared to 7.5-8 hours in adulthood. Newborn babies sleep for periods throughout the day and night. Four-year-olds average from 10-14 hours of sleep a night and ten-year-olds average 9-12 hours. At age 60 you may need less sleep than 6 hours of sleep per night.

A person's sleep pattern develops over time. Experts seem to agree that there are individual genetic factors so there may be variations in sleep requirements among individuals. However, there is general agreement among experts that each individual has to get whatever amount of sleep that is required. The next section of our paper will focus on the importance of sleep.

Why is sleep so important

Sleep is a process during which a person rests body and mind. Sleep restores energy to the body, particularly to the brain and the nervous system (World Book, 1998). There are two kinds of sleep distinguished by the presence or absence of rapid eye movement(REM). During REM sleep brain waves are faster and less organized and eyes can scan back and forth under the lids. REM sleep is good for improving creativity and perceptual ability. During non REM sleep, brain waves become slower and more synchronized and are good for restoring muscle function (HWHW, 2006).The purpose of sleep is rest and recovery from the "wear and tear" of wakefulness. The wear and tear that results from not getting the required amount of sleep prevents employees from being as capable as they could be during the course of the work day. Employees might find concentration and being motivated to work difficult. It is hard to pay attention when you feel sleepy. Two-thirds of U.S. workers (an estimated 36 million Americans) believe that sleeplessness harmed their job performance. A byproduct of sleeplessness may be illness, depression, forgetfulness, irritability, negative attitudes, and impaired judgment and slowed reaction time (Simmons, 2004). The problems associated with sleeplessness have been compared to substance abuse. Sleepy workers are dangerous, less productive, and a major source of increased health-care costs and corporate liability. Sleeplessness has been found to be a factor in ninety percent of accidents resulting from human error (Toufexis, 1990).

Concern with the negative effect of sleeplessness is paramount in aviation, nuclear power, mining, military, healthcare, transportation and other areas where employees have to perform over extended periods (Driskell & Mullen, 2005). The National Sleep Foundation estimates that over-tired employees lacking sleep cost businesses $18 billion a year (Pappas, Daurat & Gordon, 1998). Despite the costs associated with sleeplessness for business, there is a stigma in America associated with sleeping at work; after all, our 24/7 culture requires service on demand. Between cell phones and e-mail there is no escape. However, as stated earlier, there are companies that do not follow the anti-napping norm and allow their employees to nap during the workday. As stated earlier, Nike, Spring, Deloitte Consulting and Gould Evans are some of the prominent companies that have allowed their employees to take naps.

Workplace napping

Workplace Napping is an innovative no-cost method being introduced in some areas. Businesses with nap rooms are experiencing an increase in production and are seeing less human errors than previously. Napping has considered an indulgence, perhaps allowed to idiosyncratic greats like Albert Einstein, Thomas Jefferson. But even Churchill took brief naps. He once scolded his colleagues when he was caught taking a nap, "Don't think you will be doing less work because you sleep during the day.That is a foolish notion held by people who have no imagination." Many feel that napping also seems to be leading to increased job satisfaction and better health for employees of the business. By napping 15-20 minutes, you can reestablish creativity & problem solving skills.(Mulrine, 1998). And many companies have found that since they created companies nap room, money spent on coffee and soda has declined by 30%. Nova corp. found that 25% of workers, who took a nap, did report a feeling of more alert and less stressed at night (Elash, 1998). So nap is inching its way into corporate culture. Many companies have found what employees really need is nap room. Martin, professor of physiology at Harvard Medical School recommends that companies establish napping policies, because sleep deprivation can cause short-term memory loss, loss of alertness etc.

Napping in America today

Employees interested in taking a nap while working are also receiving assistance from office furniture manufacturers. Manufacturers are designing furniture—for instance office chairs—with back rests to enhance comfort if the employee wants to take a nap (Baker, 2002). Baby Boomers are given credit for creating this more relaxed and comfortable work environment. They were the first to wear jeans to school and now they wear them to work. Baby Boomers created a change in America's attitude toward work. Although America continues to focus on work and achievement, more employees today are concerned with balancing work along with family and other activities. Work is important but it isn't everything. There is research that indicates that younger individuals are more likely to make napping a normal part of their daily routine. For instance, 38 percent of adults in the U.S. on average nap at least once during the work week. However, 41% of 18-29 year olds nap during the work week while 35 percent of 30-64 year olds nap during the work week. Younger individuals seem to have a different attitude toward napping (Vangen, 1999).

There are studies that suggest that naps do improve employee performance and productivity. A study from Harvard University indicated an hour-long nap at work resulted in computer programmers writing better code. The study suggested that the brain uses sleep to restore overused brain circuits and consolidate the memories of actions and skills learned during the day. Harvard concluded that any amount of sleep, even a short nap less than an hour, appears to improve our ability to process information and to teach (Jackson, 2003). The Harvard researchers indicated that 15-30 minute naps revive and refocus sluggish employees, thus improving their productivity and overall job performance. The researchers concluded that for some employees, such as pilots, truck drivers and night shift laborers, taking a nap should be mandatory (Barnes, 2004). Despite the developing evidence, American employers continue to resist napping in the workplace. However, this is not the case when one looks at businesses throughout the world and other cultures.

Napping is an established part of the culture in many countries such as India, Italy, Mexico, Spain, Germany, Japan, and Portugal. For example, Spaniards take *siestas*, Germans enjoy *ein Schlafeen*, Japanese professionals like to *power snooze*. Naps are a time-honored part of many cultures and between 40-60 percent of the world's adult population naps. The actual Spanish word *siesta* is derived from the Latin word *sexta*, which stands for the sixth hour or the middle of the day. Argentinean workers begin work at eight in the morning and work until noon. Then they have their *siesta*. Argentinean workers are not required to return to work until four-o'clock and finish their day at eight in the evening.

Despite the evidence that suggests sleeping at work improves performance and companies throughout the world allow it, there continues to be a stigma attached to napping at work in America. In fact, the stigma against napping in America may be increasing or getting stronger. There is research that suggests that employers are less likely to permit napping at work today. For instance, research that focused on shift workers (e.g., call center workers) reported that in 2001, 48 percent allowed employees to nap at work on their breaks and in 2002, 44 percent allowed it. By 2003, however, only 21 percent of shift workers were allowed to nap at work. The study also found that more employers—52 percent in 2003 compared to 38 percent in 2002—were punishing workers for catching a few Z's at work, even when they were on break (Shellenbarger, 2003).

Famous nappers

Some of the famous nappers are Winston Churchill, Albert Einstein, Thomas Jefferson, Brahms, Napoleon, Stonewall Jackson, Salvador Dali, and current President George W Bush. Winston Churchill always loved his midday naps while Brahms napped at piano. Painter Salvador Dali napped in his chair with a spoon in his hand and when the spoon fell and made noise he went back to work(Shumard, 2001). Napping has been used as a battery charger. Society should have an open-minded attitude allowing for a planned workplace napping.

CONCLUSIONS AND RECOMMENDATIONS

In today's competitive global society, cut-throat-global competition, the importance placed on productivity and efficiency can not be overlooked. Over half of the American workforce reports that sleepiness on the job interferes with the amount of work they get done. Employees estimate that the quality and quantity of their work is

diminished by about 30 percent (Fox, 2000). Workplace napping is a natural no-cost way to increase worker productivity. Often management will have an ad hoc napping policy where managers allow employees to take naps at their desks. We aren't fan of ad hoc policy. First they are uncontrolled and don't refresh and rejuvenate. Workplace naps should be able to refresh and rejuvenate. Naps if they are brief-less than a half-hour, are effective in restoring performance (Czeisler, 2006) a 30 minute nap in the afternoon would be ideal. You don't want to get into deep sleep because you need to be alert. Short nap will allow you to be productive right after the nap. Organizations can invest to buy a pod or rent one or they can go simple cost-efficient way of laying down on yoga met or having a recliner chair somewhere away from the work station. The evidence suggests that naps improve an employee's performance and overall productivity. American businesses will be wise to review the approach taken by businesses throughout the world regarding employees' napping at work. We feel that implementation of napping will be beneficial in aviation, nuclear power, mining, military, healthcare, transportation and other areas where employees have to perform over extended periods but not in retail industry where customer service is a must al all times. 24/7 culture requires service on demand. Companies can think of implementing napping policy on a trial basis. A good sleep policy is a smart business strategy for American companies. Supervisors & middle level managers should under go training in sleep and fatigue management. NSF (National Sleep Foundation) reports U.S companies lose about US$18 billion a year because employees are not functioning at their best (Traves,2005). Detroit News attests that, "Daytime snoozing is an important part of "full spectrum fitness." Workplace napping is a natural no-cost way to increase worker productivity.

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ADVANCES IN TELEMEDICINE: A MULTIMEDIA-BASED TEXTURE RECOGNITION DIAGNOSTIC SYSTEM

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ABSTRACT

The purpose of this paper is to propose a multimedia based texture recognition diagnostic system that has tremendous applications in telemedicine. The challenges of medical diagnostic errors get compounded in telemedicine. On the other hand, telemedicine offers opportunities with regard to exploiting vast databases of medical images and their retrieval. We design a multimedia system based on Grey Level Co-occurrence Matrix (GLCM) for automatically recognizing skin texture.Three dermatological conditions – acne, ichthyosis, and keratosis – are tested using this system. The results show thatthe GLCM technique is able to diagnose between the three disease conditions based on the skin texture images with an accuracy of 80%. Applications in the telemedicine context are discussed.

INTRODUCTION

The purpose of our research is to explore possible applications of multimedia technologies for health diagnosis, particularly in telemedicine. Reducing diagnostic errors is a challenge in medical practice. This gets compounded for telemedicine. In the medical field, images, and especially digital images are increasingly produced and used for diagnostics and therapy. Multimedia based image retrieval is superior to conventional text-based retrieval methods. In this paper, we outline a multimedia based texture recognition diagnostic system which can search and retrieve medical images based on specific criteria with minimal human intervention.

MEDICAL DIAGNOSIS

Medical error is an important problem in healthcare practice. In the United States alone, medical error results in 44,000-98,000 unnecessary deaths each year and 1,000,000 excess injuries (Weingart*et al.*, 2000). An Institute of Medicine report (1999) classified and categorized errors in medical practice into medication errors, procedural errors, diagnostic errors, and clerical errors (Copec*et al.*, 2003).

One of the most important predictors of healthcare performance is the accuracy and efficiency of medical diagnosis. Diagnostic errors have huge negative impact on patient care, such as an incremental cost per patient of $4,685 and average length of stay increase by 4.6 days as reported in a Harvard study (Bates *et al.*, 1997). Ironically, most diagnostic errors are preventable. Research shows that diagnosis errors often occur when clinicians are inexperienced and new procedures are introduced. Further, age, complex care, urgent care, and prolonged hospital stay have been found to be correlated with diagnostic errors. There are two types of diagnostic errors: errors of omission and errors of commission. An error of omission is a failure of action such as a missed diagnosis, a delayed evaluation, or a failure to prescribe needed drug treatment. Missed and delayed diagnoses may be difficult to detect retrospectively by chart review unless patients continue to use the same sources of care. An error of commission is an incorrect action such as administering the wrong drug to the wrong patient at the wrong time. A study conducted in Australia and published in the *British Medical Journal* found that errors of omission outnumbered errors of commission by 2 to 1 (Weingart*et al.*, 2000). Necropsy studies can uncover missed diagnoses and misdiagnoses. For example, a study of 61 patients who died in a Spanish emergency department identified undiagnosed major findings, such as malignant tumours or haemorrhagic pancreatitis, in 44% of cases and important discrepancies between the

necropsy report and the clinical diagnosis in 26%. In a retrospective study of 524 deaths occurring in 1990-91 at a Spanish tertiary care hospital, more than half of the risk of death was accounted for by adverse events that resulted from clinical care. The number of misdiagnoses and major unexpected findings at necropsy has remained essentially unchanged for over 40 years (Lundberg, 1998).

TELEMEDICINE

Telemedicine is a rapidly developing application of clinical medicine where medical information is transferred via telephone, the Internet or other networks for the purpose of consulting, and sometimes remote medical procedures or examinations. Telemedicine may be as simple as two health professionals discussing a case over the telephone, or as complex as using satellite technology and video-conferencing equipment to conduct a real-time consultation between medical specialists in two different countries. Telemedicine generally refers to the use of communications and information technologies for the delivery of clinical care. The problem of diagnostic errors is even more compounded in remote clinical practice, where availability of trained or specialized physicians is a challenge. Recent advances in telemedicine have taken heath care to the remotest corners of both developed and developing societies. Multimedia applications in telemedicine have the potential to optimize health diagnosis and to reduce the rate and nature of diagnostic errors.

MEDICAL IMAGES

With recent advances in imaging technologies, digital images in the medical field are now produced in ever-increasing quantities and used for patient diagnosis and therapy, treatment planning, medical reference, and training. For example, Muller *et al.* (2004) found that the Radiology Department of the University Hospital of Geneva alone produced more than 12,000 images a day. Digital images have also become sophisticated with regard to their quantity, content and dimension, due to an enormous increase in the number of diverse clinical exams performed digitally and to the large range of image modalities available. Information contained in medical images differsfrom that residing in alphanumeric format in terms of four major characteristics: (1) the semantics ofmedical knowledge extractable from images is imprecise; (2)image information contains form and spatial data, which arenot expressible in conventional language; (3) a large part ofimage information is geometric; (4) diagnostic inferences derivedfrom images rest on an incomplete, continuously evolving modelof normality (Copec*et al.*, 2003).

IMAGE RETRIEVAL

Over the past decade, a large number of digital repositories of medical images have come up all around the world. Other than storing medical information, one of the primary objectives of such repositories has been to use the images for patient diagnosis, i.e., analyzing and predicting various health conditions of patients. In effect, such databases of images enable doctors to tap onto large storehouses of information. In such a scenario, an efficient and fast mechanism for retrieval and management of the medical image data assumes fundamental importance. A data repository without an effective search and retrieval mechanism is comparable to a library without a catalog – even though the information is present, it is practically unavailable to somebody with a specific set of search criteria. In current medical image databases, images are indexed and retrieved mainly by alphanumeric keywords, classified by human experts. The existing and prevalent method of using textual captions for retrieval of images seems inconvenient due to several reasons:

(1) It requires investment of huge time and effort to manually annotate the images, which might be infeasible especially for large datasets
(2) Textual matching mechanisms only work when the exact term that exists in the database is provided in the search string, which limits its universality
(3) It does not provide a mechanism to use an existing image and search for similar ones, except through manual supervision, which might be too time-consuming.

Purely text-based retrieval methods are unable to sufficiently describe the rich visual properties or features of the image content and therefore pose significant limitations on medical image data retrieval. The ability to search by medical image content is becoming increasingly important, especially with the current trend toward evidence-based practice of medicine (Cai*et al.*, 2008).

PROPOSED SOLUTION

Our research tries to address the above issue by proposing a multimedia based texture recognition diagnostic system which is able to automatically search through the stored image collection and retrieve those images which satisfy specific user supplied criteria, with minimal human intervention. On the one hand, such a search mechanism could be automated, leading to reduced time delays, while on the other hand, given a specific query image, the system would be able to quickly retrieve similar images from the database along with corresponding diagnosis information. This provides a potential to possible diagnosis measures even in the absence of qualified doctors.

Texture is an important perceptual property of images based on which image content can be characterized and searched for in a content based search and retrieval system. Texture refers to visual patterns or spatial arrangement of pixels that regional intensity or color alone cannot sufficiently describe.

SKIN TEXTURE RECOGNITION

In this research, we design a multimedia system for automatically recognizing skin texture. To design such a system, the work makes use of pattern recognition algorithms for recognizing and discriminating between textures. A popular texture recognition technique is based on Grey Level Co-occurrence Matrix (GLCM). Texture is captured from digital images by computing GLCMs. GLCM introduced by Haralick (1979) provides one of the most popular statistical methods in texture analysis. The matrix defines the probability of grey level i occurring at a distance d in direction θ from grey level j in the texture image. This work uses a set of four directional normalized symmetrical GLCMs computed along the following directions: horizontal (θ = 0º and 180º), vertical (θ = 90º and 270º), right diagonal (θ = 45º and 225º), left diagonal (θ = 135º and 315º), with a distance offset d =1: The features computed from the GLCMs are: GLCM contrast (C), GLCM homogeneity (H), GLCM mean (M) and GLCM variance (V), as defined below. If $P_{i,j}$ represents the element (i, j) of a normalized symmetrical GLCM, and N the number of grey levels,

$$C = \sum_{i,j=0}^{N-1} P_{i,j}(i-j)^2 \tag{1}$$

$$H = \sum_{i,j=0}^{N-1} \frac{P_{i,j}}{1+(i-j)^2} \tag{2}$$

$$M = M_i = \sum_{i,j=0}^{N-1} iP_{i,j} = M_j = \sum_{i,j=0}^{N-1} jP_{i,j} \tag{3}$$

$$V = \sum_{i,j=0}^{N-1} P_{i,j}(i-M_i)^2 = \sum_{i,j=0}^{N-1} P_{i,j}(j-M_j)^2 \tag{4}$$

The final feature vector is a combination of the above four features,

(5)

METHODOLOGY

To differentiate between texture classes, feature values for each texture image are averaged over all the directional GLCMs to generate clusters in an appropriate feature space, pertaining to different texture classes. An unknown texture image is mapped to the corresponding feature space and its distance from each of the cluster members iscomputed using the Euclidean norm. The probability of its membership into one of the classes is

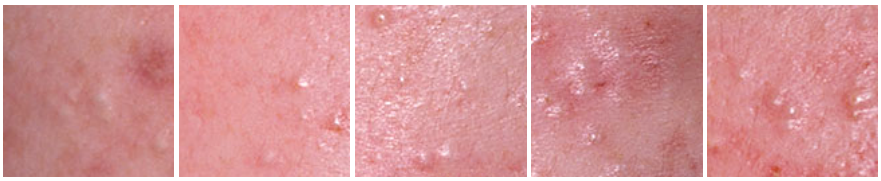
determined based on its distance from the clusters.The system is tested over a corpus of skin textures, categorized into three different disease classes: acne, ichthyosis, and keratosis, based on differences in texture appearance. The images were obtained from Dermatology picture atlas and image database (http://www.dermnet.com/) .

RESULTS

Experimental results show substantial accuracy in automatically identifying and categorizing skin textures.

Training set

Category – C1: Acne

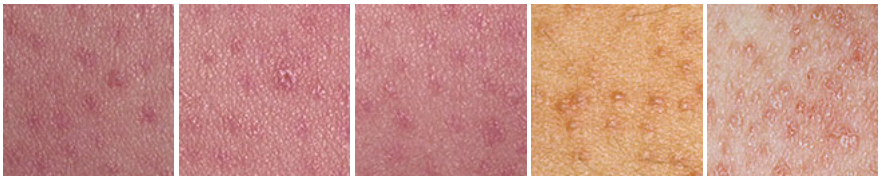


Features	Image-1	Image-2	Image-3	Image-4	Image-5
GLCM Contrast	13.0517	41.6006	150.8893	113.0675	88.8404
GLCM Homogeneity	0.3156	0.2366	0.1254	0.1584	0.1580
GLCM Mean	148.5748	178.1758	178.6715	151.6912	165.0423
GLCM Variance	109.1462	80.1985	221.5449	291.7119	147.8703

Category – C2: Ichthyosis

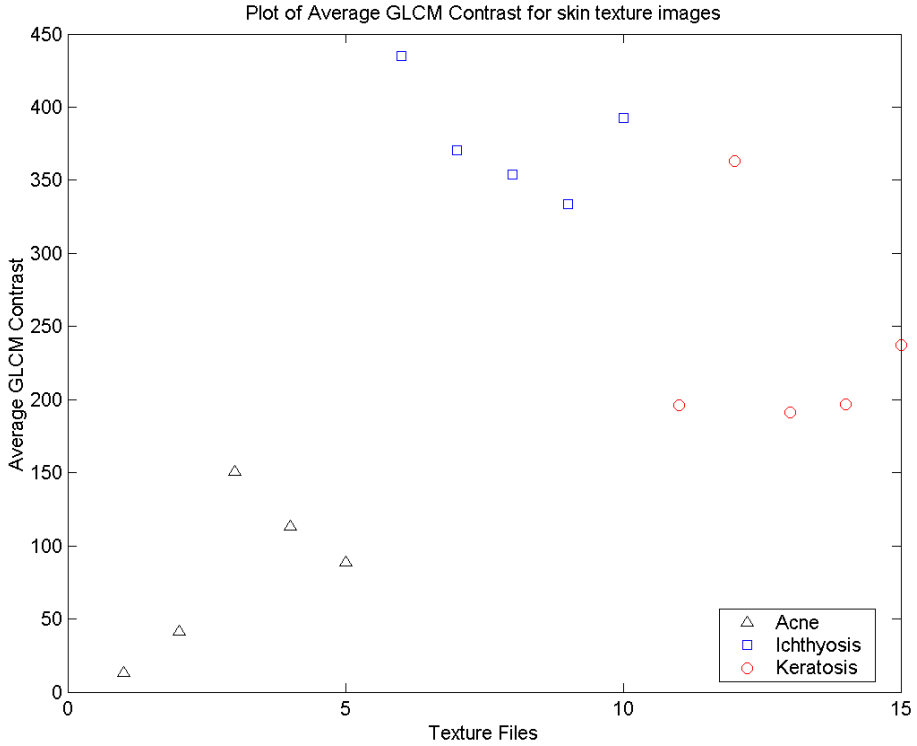
Features	Image-1	Image-2	Image-3	Image-4	Image-5
GLCM Contrast	434.8749	370.3622	354.0702	333.5086	392.6459
GLCM Homogeneity	0.0792	0.0840	0.0871	0.0969	0.0843
GLCM Mean	164.2955	173.6041	178.9728	173.0848	163.7456
GLCM Variance	440.3687	347.2243	312.6793	376.8711	393.3916

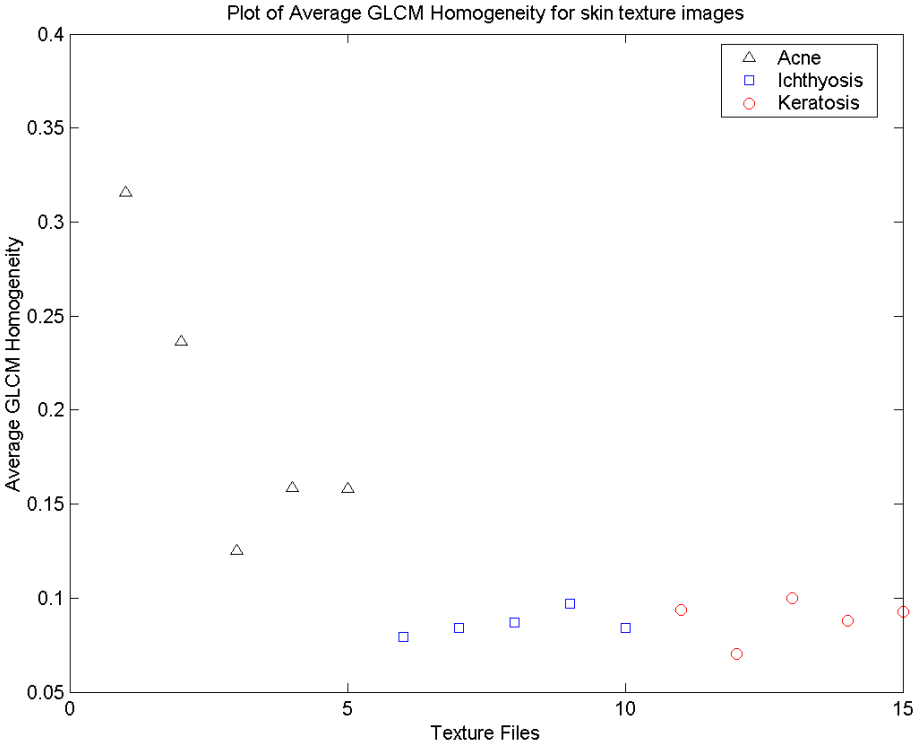
Category – C3: Keratosis

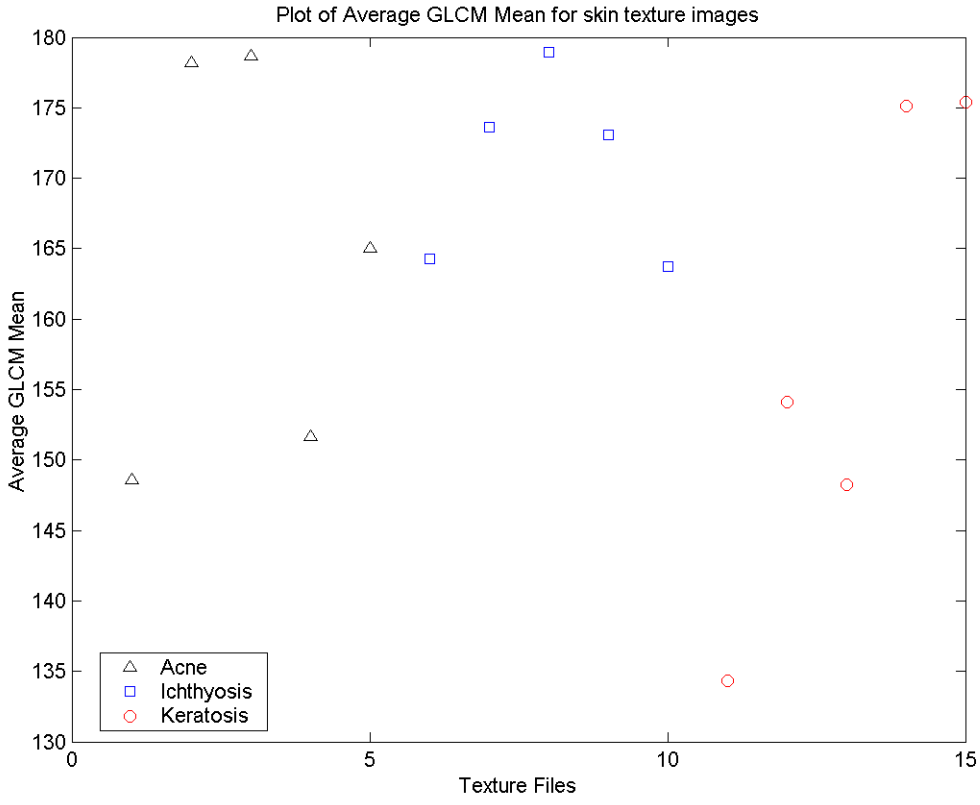


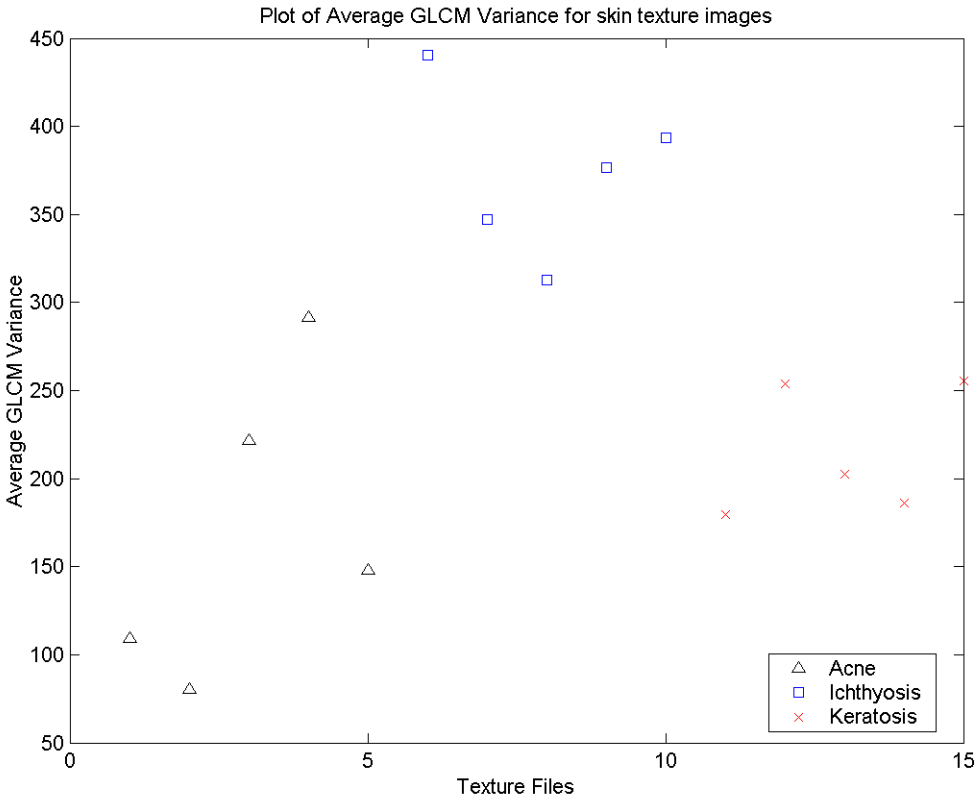
Features	Image-1	Image-2	Image-3	Image-4	Image-5
GLCM Contrast	196.0155	363.3410	191.1278	196.9207	237.3659
GLCM Homogeneity	0.0936	0.0703	0.0997	0.0880	0.0927
GLCM Mean	134.3506	154.1443	148.2174	175.0917	175.4274
GLCM Variance	179.7228	253.8683	202.4856	186.2723	255.5198

Figure 1: Plots



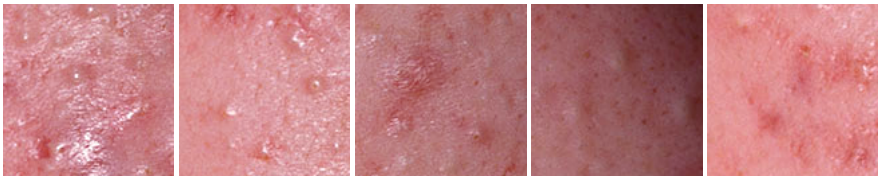

Plot of Average GLCM Homogeneity for skin texture images
Average GLCM Homogeneity
Texture Files
Acne
Ichthyosis
Keratosis
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
5
10
15


Plot of Average GLCM Mean for skin texture images
Average GLCM Mean
Texture Files
Acne
Ichthyosis
Keratosis
180
175
170
165
160
155
150
145
140
135
130
0
5
10
15



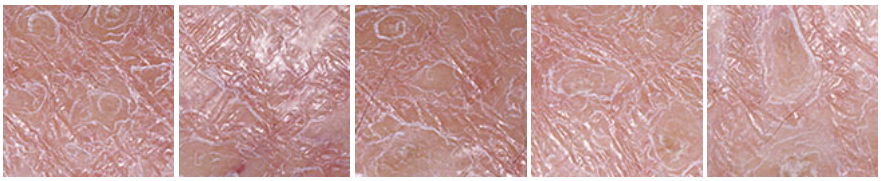
Testing set

Category – 1: Acne



Features	T1	T2	T3	T4	T5
GLCM Contrast	269.1271	117.2374	79.4780	18.3702	48.2674
GLCM Homogeneity	0.1082	0.1519	0.1710	0.3002	0.2151
GLCM Mean	159.1470	170.3813	134.4021	100.8649	166.1769
GLCM Variance	395.7756	196.0385	184.4261	444.9692	133.3445

Category – 2: Ichthyosis



Features	T6	T7	T8	T9	T10
GLCM Contrast	452.9488	580.9786	352.5610	400.0500	308.5430
GLCM Homogeneity	0.0748	0.0739	0.0915	0.0803	0.0941
GLCM Mean	159.0484	163.0369	148.9802	172.0055	174.8633
GLCM Variance	452.6673	711.5828	376.4298	389.3963	332.7262

Category – 3: Keratosis

Features	T11	T12	T13	T14	T15
GLCM Contrast	320.4616	250.6863	208.2907	256.5193	301.8737
GLCM Homogeneity	0.0744	0.0850	0.0905	0.0792	0.0811
GLCM Mean	157.6321	158.3215	182.5119	165.8965	155.9066
GLCM Variance	241.7574	196.8187	239.4308	240.8338	279.9377

Table 1:Computation of Class Probability

	Difference with respect to :												Com
	Contrast			Homogeneity			Mean			Variance			
	C1	C2	C3	C1	C2	C3	C1	C2	C3	C1	C2	C3	
T1	187.6	107.9	**69.8**	0.091	0.022	**0.019**	12.5	**11.6**	14.6	225.6	**39.5**	180.2	X
T2	**49.2**	259.8	119.7	**0.057**	0.065	0.063	12.4	**5.5**	16.8	74.4	178.0	**29.9**	C1
T3	**43.7**	297.6	157.5	**0.056**	0.085	0.082	30.0	36.3	**23.0**	72.1	189.6	**33.0**	X
T4	**65.2**	358.7	218.6	**0.1076**	0.2139	0.2113	63.5	69.8	**56.6**	274.8	**70.8**	229.4	C1
T5	**49.9**	328.8	188.7	**0.0651**	0.1288	0.1262	11.5	**6.3**	15.9	**67.7**	240.7	82.2	C1
T6	371.5	**75.9**	215.9	0.1240	**0.0115**	0.0159	12.5	**11.7**	14.6	282.6	**78.6**	237.1	C2
T7	499.5	**203.9**	344.0	0.1249	**0.0124**	0.0164	11.7	**7.7**	15.3	541.5	**337.5**	496.0	C2
T8	271.1	**32.2**	119.9	0.1073	0.0074	**0.0072**	15.6	21.7	**14.6**	206.3	**34.8**	160.8	X
T9	318.6	**36.9**	163.1	0.1185	**0.0064**	0.0126	12.7	**5.1**	17.1	219.3	**37.2**	173.8	C2
T10	227.6	**68.5**	93.5	0.1047	0.0089	**0.0075**	13.2	**5.7**	17.7	162.6	**49.4**	117.1	C2
T11	238.9	**56.6**	100.7	0.1244	**0.0119**	0.0161	12.8	**13.1**	14.3	91.6	132.3	**36.5**	X
T12	169.2	126.4	**58.8**	0.1138	**0.0043**	0.0097	12.6	**12.4**	14.4	74.5	177.2	**29.8**	X
T13	126.8	168.8	**44.9**	0.1083	**0.0068**	0.0074	18.1	**11.7**	25.1	90.2	134.6	**36.0**	X

T14	175.0	120.6	**62.3**	0.1196	**0.0071**	0.0132	11.5	**6.3**	15.9	91.1	133.2	**36.3**	X
T15	220.4	**75.2**	89.5	0.1177	**0.0060**	0.0121	**13.1**	14.8	13.9	114.5	94.1	**64.3**	X
Acc	12/15=0.8			12/15=0.8			4/15=0.2667			11/15=0.7333			7/15

Optimum accuracy: 80%

Thus, we see that the GLCM technique is able to diagnose between the three disease conditions based on the skin texture images with an accuracy of 80%.

COMPARISON WITH OTHER APPROACHES

Our proposed multimedia-based approach is superior to other approaches prescribed in extant research, such as object-oriented iconic queries, semanticsby association with prototypes, and generic schemas. In contrast to approaches like ASSERT (Shyu, 1999) which requires a physician to manually delineate pathology bearing regions on lung CT images and therefore has high data entry costs which prohibits its use in clinical routine, the approach described here works in an entirely automated manner. Some approaches like (Xia, 2005) which is based on fusion of several features like color, texture, shape, and IRMA (Keysers et. al., 2003) where characterization involves a number of steps like categorization of the entire image, registration with respect to prototypes, extraction and query-dependent selection of local features, hierarchical blob representation including object identification, might produce high recognition accuracies, but are computation intensive and often requires powerful systems, which might not be available in remote and rural areas. The proposed approach on the other hand demonstrates that high discrimination accuracies are possible with low-dimensional single features requiring minimal resources. This translates to smaller computational overheads and faster processing times, which makes it suitable for health centers in rural areas which might have low computational resources, and where it can serve as an initial test bed for patients before they might seek attention from specialists in metropolitan areas. Finally, systems like Archimedes (Tahmoush and Samet, 2007) do employ image processing methods for characterization of medical images, but subsequently use relational databases running on MySQL for image searches, and therefore suffer from the problems of manual annotations as described earlier.

APPLICATIONS

There are several possible applications of this multimedia approach in telemedicine. Our proposed approach changes the classical form of health diagnosis by providing efficient solutions to new challenges in telemedicine through multimedia-based computer-aided diagnosis and computer-supported cooperative diagnosis between health care professionals located in different clinical sites. It can provide new and inexperienced doctors in remote areas with the necessary expertise for correct diagnosis. Computer-aided diagnosis and treatment monitoring can help in providing patients in rural areas and developing countries with access to quality healthcare. Our proposed multimedia solution will also help doctors in benchmarking their cases with respect to a large reference database of images to establish the stage of treatment life-cycle and optimum clinical interventions. A future scope of this research is an improvement of texture analysis using Wavelet Transforms (Graps, 1995).

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APPLYING THE HEALTH CARE LEADERSHIP ALLIANCE COMPETENCY MODEL FOR DIVERSITY MANAGEMENT

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ABSTRACT

Senior healthcare managers and administrators are seeking ways to integrate diversity management within their healthcare organizations. Many of these approaches have been sporadic and limited in their scope of influence and impact. Even fewer have represented planned strategic initiatives designed to change the entire cultures of the organization. In the past five to six years major work has been done on developing health administration competency models that can serve as vehicles for credentialing, career enhancement, and professional development. One such model was designed by the Healthcare Leadership Alliance (HLA) through its Competency Task Force convened in the fall of 2002. This model consists of five major domains: Communication and Relationship Management, Leadership, Professionalism, Knowledge of the Healthcare Environment, and Business Knowledge and Skills. This paper uses the Healthcare Leadership Alliance model as the foundation to create diversity management and cultural competency throughout a healthcare organization. Each of the five domains represents specific actions and activities that move toward an integrated, organization-wide diversity management agenda.

INTRODUCTION

The origin of he Health Care Leadership Alliance Competency Model (HCLACM) can be traced back to 2001 with the work of the National Summit on the Future of Education and Practice in Health Management and Policy funded mainly by the Robert Wood Johnson Foundation. The principle goal of this conference was to review the current and future challenges of the American health care delivery system and offer strategies for health care administration and management development and education. The process that unfolded with this work propelled the development and promotion of evidence-based healthcare management (Kovner and Rundall 2006).

The principle vehicle for applying evidence-based healthcare management is competency modeling. For the past five to six years there has been significant work done to create competency models for healthcare administration and management education. This work was being developed both by several professional organizations, as well as university programs in health administration (Cherlin et al. 206; White, Clement, and Nayar 2006).
Professional healthcare associations were also moving in this direction. The work of the Healthcare Leadership Alliance (HLA)which is made up of six of the nation's leading healthcare professional associations representing over 100,000 management professionals assumed a major leadership role in advancing healthcare management competency modeling. (Stefl 2008).

The HLA formed a task force on competency modeling and held its first meeting in the fall of 2002. It's charge was to determine if there were healthcare management competencies that spanned all member associations of the Alliance and if so in what why could these competencies be applied to further the professional development of its members. The process employed by the Competency Task Force was based on job analysis surveys, role delineation studies, and review by subject matter experts. For the HLA member associations developing a universal

competency model would strengthen their credentialing and certification processes. The review of skills, knowledge, and abilities for all six member associations conducted by the Task Force revealed numerous overlaps and complementary competencies which clustered into five categories or domains: Communication and relationship, Leadership, Professionalism, Knowledge of the healthcare environment, and Business skills and knowledge (Steft 2008). Steft explains, "The identification of these five domains sends a powerful message to the healthcare field: Healthcare managers in a wide range of positions and settings share a common lexicon." (Steft p. 364).

This competency model represents the broad spectrum of the healthcare management profession. With its six associations: American College of Healthcare Executives, American College of Physician Executives, American Organization of Nurse Executives, Healthcare Financial Management Association, Healthcare Information and Management Systems Society, and the Medical Group Management Association, HLA can rightfully serve as the industry's leading competency model for healthcare administration and management. The work of the Healthcare Leadership Alliance Task Force continued and in September 2004 with extensive reviews of its work conducted by subject matter experts, further refinements were made resulting in specific competency statements and the identification of these statements as either skills or knowledge (Steft 2008). The following material will more clearly explain each of the five competency domains:

Communication and relationship management – the overarching theme of this competency is how healthcare managers understand their staff and colleagues and how effectively they use this knowledge in managing complex operations through high performance team work and interpersonal relationships.

Leadership – the core function of leadership is the creation of an environment where all staff can apply their full range of skills, knowledge, and abilities in the pursuit their work that ultimately supports the mission of the healthcare organization.

Professionalism – this represents the capacity to align one's personal and professional conduct with the established ethical standards of the organization in all exchanges and interactions with staff, patients, and other stakeholders, as well as with the management and handling of resources, money, and time.

Knowledge of healthcare environment – this deals with the applied understanding of the healthcare industry as an operational and system-based enterprise to convert resources into services for consumers and patients.

Business knowledge – the central theme of this domain is to have the skill and knowledge to apply accepted business principles and practices to the healthcare management environment involving eleven key practice areas which are: 1. Project management, 2. Organizational business and personal ethics, 3. Facilities planning, 4. Purchasing procurement, 5. evidence-based practice, 6. Inventory control systems, 7. Proposal analysis, 8. Contract negotiation, 9. Critical thinking and analysis, 10. needs analysis, 11. Outcomes management implementation

DIVERISTY MANAGEMENT AND CULTURAL COMPETENCY

Diversity principles and cultural competence need to be managed in order for healthcare organizations to embrace and practice them. If left unmanaged, the potential for negative outcomes from demographic, cultural, and psychographic differences is high. Such conditions do two things. First, there is this possibility that staff relations and team functioning will suffer, patient care will be less effective, patient and customer satisfaction will decline,

and health outcomes will be less than optimal (Santoro 1999; Warden 1999; ACHE 2005). The other reality is that lacking deliberate diversity management the healthcare organization cannot take advantage of the improved performance and increased healthcare delivery benefits managing diversity brings. Healthcare leaders need to planfor the implementation of diversity managementand cultural competence throughout their organizations. "For any diversity efforts to work, you must have buy-in from your leadership. As; with any major organizational initiative, if the leadership does not support it and promote it in their own words and actions, it will not produce lasting change." (Chyna 2001, p.?)

The weight of evidence strongly argues for this deliberate commitment to diversity management from the healthcare organization's senior administrators and leaders. By the mid 1990s many healthcare organizations were making strategic decisions to support the development of the business case for valuing diversity and multiculturalism (Wallace, Ermer and Motshabi 1996; Arredondo 1996; Weech-Maldondado, Dreachslin and Dansky 2002). Dreachslin and Saunders in 1999 observed that ,"The key demographic trend driving select health services organizations to assume the strategic position of diversity leadership is he changing racial and ethnic composition of both patients and workforce." (Dreachslin and Saunders, p. 428). What these authors and others discovered in their research was that developing a diversity sensitive healthcare organization did not happen by chance. There was nothing random about the adoption of diversity values and principles in hospitals and health systems. Integrating these practices and striving for the benefits of improved patient satisfaction and clinical outcomes, along with increased staff effectiveness through diversity management and cultural competencies required committed and deliberate work. "This role of leadership in shaping diversity strategy is likely far more important than previously thought". (Dansky 2003, p. 252).

The realization that diversity management for healthcare organizations required senior level commitment coincided with the larger competency movement in healthcare administration and management education. Driven principally by the work done in evidence-based management practices, the competency movement was viewed as an effective mechanism to assure evidence-based practices could be instituted and achieve established performance. The National Summit on the Future of Education and Practice in Health Management and Policy in 2001 brought together health administration practitioners, policymakers, and educators. Their charge was to examine the field of health administration and ways to effectively prepare and educate future practitioners of the field. A related charge was to determine to what degree practitioners and students of in the field had the required competencies to perform their roles and responsibilities effectively (Griffith 2001).

COMPETENCY MODLEING

Competency-based health management education was born out of this movement. The challenges that surrounded this development are reflected in numerous accounts and studies (Calhoun, J. G., P.L. Davidson, M.E. Sinoris, E.T. Vincent, and J. R.Griffith 2002; Shewchuk, R.M.; J.J. O'Connor, and D.J. Fine 2005: Shewchuk, R.M., S.J. O'Connor, and D.J. Fine 2006). This work often centered on several pursuits including identifying specific knowledge, skills, and abilities. Stelf reports, "Aside from this work in academia, the National Center for Healthcare Leadership has expended considerable effort in creating a competency model that can be applied to professional development and to academic programs." (Stelf 2008). Building upon this background, the Healthcare Leadership Alliance (HLA) began its work on competency modeling for the health administration field. The Alliance wanted to examine the credentialing and certification process for its member organizations and in 2002 formed a task force to determine if there were shared competencies among the six member organizations. If this was the case, then how could these competencies be used to increase professional development and advance the field of health administration. HLA believed its path for doing this lay with competency modeling that would allow for credentialing especially for early careerists (Stelf 2008).

The Health Care Leadership Alliance Competency Model with its five major domains serves as an effective platform for diversity management and cultural competency. Healthcare administrators can build their diversity management program on this model knowing that this model will represent a thorough process for integrating diversity management and cultural competency. Duane Reynolds from Ohio State University in his paper, *Improving Care and Interactions with Racially and Ethnically Diverse Populationsin Healthcare Organizations* offers fifteen strategies that healthcaremanagers can employ to improve the quality of care and relationships with racially and ethnically diverse patients. In the very first strategy he states, " The diversity imperative must be as

equally weighted as other strategic initiatives to invoke cultural change within the organization." (Reynolds, p. 245). Thanks to the fine work done by the Healthcare Leadership Alliance, the field has this its model for diversity management. There are other competency models in the field notably the Health Leadership Competency Model (HLCM) developed by the National Center for Healthcare Leadership which was in direct response to the Institute of Medicine's 2003 report, Health Professions Education: A Bridge to Quality. This was an empirically developed model focusing on healthcare leadership that is now in its second version. The model can be described as an interlocking Venn diagram with health leadership at the center of three converging circles: transformation, people, and execution. The model also is scaled offering five levels of complexity for each competency category within one of the three converging circles. The HLCM was thoroughly researched in its development and is most effective when applied to career development in health management. Its emphasis on behavioral performance can support valuing diversity and cultural competence practices at the core operational areas of a healthcare organization. But this level of application is less effective for an organizational wide cultural change being driven from senior administration. National demonstration projects for the Health Leadership Competency Model are continuing to further validate the model for identifying, developing, credentialing, and promoting healthcare leaders (Calhoun, P.G., L. Dollett, M.E. Sinioris, J. A. Wainio, P.W. Butler, J. R. Griffith, and G.L. Warden (2008).

DIVERSITY MANAGEMENT AND THE HLA COMPETENCY MODEL

Each of the five major domains in the HLA competency model are follow. Within each domain there is a list of recommended actions and activities to support the particular domain in a deliberate effort to implement diversity management and cultural competency.

Leadership

1. Highlighting that part of the mission statement which speaks directly to valuing diversity and creating culturally competent services
2. Determining what existing aspects of the organization promote this and support those aspects to continue. It also means identifying those aspects within the organization that hinder or thwart valuing diversity and cultural competent care
3. Create a vision about diversity management components for all levels of staff that represents common values and shared behaviors across the organization
4. Establish objectives with timelines, responsibilities, and outcome measures
5. Conduct the organizational cultural audit not for just the mission statement, but for the overall culture in terms of valuing diversity and assuring culturally sensitive care (COA360: Tool for Assessing Cultural Competency)
6. Using the results of that audit, develop appropriate action steps to create an organizational climate that supports each of the fourteen standards of the instrument to assure culturally and linguistically appropriate services (or a DSOas defined by Dreachslin)
7. Looking at the community and potential customers and patients coming from the community to focus on which ethnicities, cultures, and backgrounds should be incorporated into the diversity management agenda

Communications and Relationships

1. Creating corporate or organizational values or operating principles that include respecting all people both employees and staff, as well as customers, patients and other external stakeholders
2. Designing and conducting training programs and workshops that allow individuals to examine their own levels of valuing diversity and to experience learning situations that help develop needed skills, knowledge, and abilities in this regard
3. Offer mentoring programs and opportunities for new hires to expose these individuals to practical applications of he communications and relationship competency specific to diversity management

4. Incorporate performance measures targeted on diversity sensitive staff to staff working relationships and interpersonal communications as well as staff to patient relationships that are routinely reviewed and from which constructive feedback is given
5. Assuring linguistic competency for patients with their preferred language; when engaged with service delivery through the use of language appropriate translators
6. Establish mechanisms to manage and resolve cross-cultural conflict among staff and between staff and patients that are grounded in the organizational values supporting valuing diversity

Professionalism

1. Seek information on best practices in diversity management that has implications for all levels of management practice
2. Establish organizational approaches to discriminate such information across the institution
3. Make diversity management an integral topic of discussion and review within the operational context of the organization
4. Assigning a formal review process for the individual practice of diversity management within the annual performance evaluation that offers constructive analysis and feedback, rewarding decisions and actions that promote valuing diversity and offers honest discussions about how to achieve valuing diversity if these behaviors are not evident
5. Reward staff that introduce diversity management initiatives within their units or offer organizational-wide plans to increase and/or improve diversity management through formal recognition, honorariums, or paid-time off
6. Re-design position descriptions to include roles and responsibilities which relate directly to incorporating valuing diversity and cultural competence within the position's scope of influence

Knowledge of Health Care Environment

1. Disseminate the major research findings over the past fifteen years that showcase the rapid change of the American demographic profile regarding increased diversity in society today
2. Share as well the many research findings which disclose the issues of health disparities that face the nation over this same time period
3. Present the findings about under representation of minorities and women in administration and management positions within the American health care system
4. Disclose the disparities in both career attainment, compensation, and job satisfaction for minorities and women in American health care administration as reported in numerous studies over the past seven to ten years
5. Present the broad scope of diversity and cultural competence both as large and complex realities within health care, as well as their application for individuals as members in an array of identity groupings
6. Showcase the key findings in health care research that link diversity to the bottom line of hospital and health systems operations. This is the business case for making diversity a strategic initiative
7. On a periodic basis conduct the cultural competence assessment tool developed by the American College of Healthcare Executives, the AmericanHospital Association, the National Center for Healthcare Leadership, and the Institute for Diversity in Health Management to assign a baseline evaluation and then evaluate the continued status of diversity management within the organization

Business Knowledge

1. Organizational business and personal ethics – integration of the principles of respecting, supporting, and honoring differences both those that are obvious (race, age, gender) and those less obvious (sexual preference, learning styles,

socioeconomic status)

2. Facilities planning – notably where signage is required, that signage should reflect the first languages of staff, community members, and the patient population
3. Purchasing procurement – for items that represent social or cultural messages such as art work, interior decoration, these items need to support the diversity of both staff members, community members, and the patient population
4. Evidence-based practice - practice decisions that account for cultural differences and traditions, differences in learning styles
5. Inventory control systems – instructions that address differences in learning styles
6. Proposal analysis – assessment that includes practices supporting diversity and cultural competency
7. Critical thinking and analysis – integrate the values and principles of Diversity Management and cultural competency within this activity
8. Needs analysis – incorporate all of the diversity management and cultural competency practices in this analysis
9. Outcomes management implementation – same as above

DISCUSSION

There are major advantages for a healthcare organization that adopts this competency model for its diversity management and cultural competency program. In all of the five domains there are contributions to routine and on-going services both for diagnosis, treatment, and care, as well as for interpersonal communications and relationships. These various types of services are enhanced as a result of applying the competency model to diversity management.

Other benefits include building a heightened awareness, incentives for change and creating new mental models by using the HLA competency model for diversity management and cultural competence. Again, throughout the five domains of the model, there are examples recommendations that cause heightened awareness, change, and new attitudes toward people of a minority class whether that is due to race, age, gender, ethnicity, sexual orientation, or socioeconomic status.

Additional benefits exist for management planning, performance assessment, organizational alignment, and value creation. There are several examples in the domains for leadership, communications and relationships, as well as professionalism that speak to how diversity management and cultural competence are applied using this competency model. One example is the first recommendation in domain two – communications and relationships which describes creating corporate or organizational values and operating principles. Another comes from the leadership domain and is precisely recommending creating a vision about diversity management.

Applying the Healthcare Leadership Alliance competency model for diversity management offers a broad array of approaches that gives senior administrators and managers a construct to follow that incorporates the practices and principles of diversitymanagement and cultural competence. As more health care organizations make the commitment to integrate diversity management into their corporate cultures for a variety of reasons, the HLA competency model serves as an effective vehicle to do this. It makes diversity management and cultural competency a reality and offers senior administrators a sound model to follow to achieve this.

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DEVELOPING AND IMPLEMENTING A STUDENT-TO-STUDENT GRADUATE MENTORING PROGRAM

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ABSTRACT

Mentoring is a significant instrument within broader processes of socialization that has an impact on an institution and its new members. It has increasingly been used as a means for leadership development across a range of fields. The student -to-student mentoring program was established in conjunction with the ACHE student network at the University of Scranton, and offers all new incoming students with a second year graduate student mentor. Student mentors act as guides, friends, and role models to the mentee. This paper seeks to describe the rationale behind the preparation, implementation and specific student responsibilities in the student mentorship program. Finally, the paper assesses how this program has helped address some of the major needs and problems that were barriers to new students' adjustment to the university environment during their first semester and first year of academic study in the MHA program.

MARKETING THE BENEFITS OF E-PRESCRIBING IN RELATION TO PREVENTING PRESCRIPTION DRUG ABUSE

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ABSTRACT

Prescription substance abuse is a silent growing giant in America. Since illegal drugs are commonly abused in the United States, many are overlooking the problem of prescription drugs. E-prescribing offers a chance to drastically reduce this problem in the United States. This paper will examine the benefits of marketing e-prescribing to all physicians in America in order to reduce this growing epidemic.

PRIVACY UNDER HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT (HIPAA) OF 1996: THE IMPACT OF RFID

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ABSTRACT

The Health Insurance Portability and Accountability Act of 1996 (HIPAA) includes the Privacy Rule. The Privacy Rule creates a national standard for the protection of Protected Health Information (PHI). Radio Frequency Identification (RFID) chips have expanded the size and scope of files that contain PHI. Because the size and scope of the databases containing PHI is so much larger, policing the Privacy Rule needs to be automated.

INTRODUCTION

KEYWORDS: Privacy, HIPAA, RFID, Code of Conduct

OUTLINE

I. RFID in healthcare
II. RFID adds no new obligations (HIPAA & Privacy)

HIPAA privacy rules apply to all healthcare providers (who transmit healthcare information in electronic form), health plans, healthcare (information) clearinghouses, and business associates. The process of determining whether a given entity is subject to the privacy provisions of HIPAA is complex enough to require a flowchart. (HHS, 2006) The Privacy Rule protects all ″individually identifiable health information″ held or transmitted by a covered entity or its business associate, in any form or media, whether electronic, paper, or oral. The Privacy Rule calls this information "protected health information *(PHI)*." (OCR , 2007)

Examples of Protected Health Information (PHI)

- Name
- Address
- DOB
- SS#
- Email
- Employer
- Fax/Phone #
- Internet address/Web URL
- Med Record #
- Account #
- Photos
- Certificate/license #
- Finger or voice prints
- Any “other” identifying number, characteristic or code

The privacy regulation lists about two dozen categories of information identifiers which must be removed from any information that is disclosed. If it is possible to use several information identifiers from several categories to deduce information about an individual, then disclosure of those categorical statistics is prohibited. The privacy rule permits use of "individually identifiable health information" for 12 national priority purposes.

12 National Priority Purposes	
ν Required by Law ν Public Health ν Victims of Abuse, Neglect or Domestic Violence ν Health Oversight Activities ν Judicial and Administrative Proceedings	ν Law Enforcement Activities ν Organ, Eye or Tissue Donation ν Decedents ν Research ν Serious Threat to Health or Safety ν Essential Government Functions ν Workers Compensation

The covered entities must

- ν Secure patient records

- ν Establish sanctions for employees that violate HIPAA regulations
  - ν Take reasonable steps to limit use/disclosure of PHI
  - ν Adopt policy and privacy procedures
  - ν Train employees about HIPAA
  - ν Designate a Privacy Officer
  - ν Obtain signed authorization from a patient for use of PHI

Covered Entities are obliged to provide notice to patients of the privacy practices at the patient's first visit.

> "A covered entity must maintain reasonable and appropriate administrative, technical, and physical safeguards to prevent intentional or unintentional use or disclosure of protected health information in violation of the Privacy Rule and to limit its incidental use and disclosure pursuant to otherwise permitted or required use or disclosure." (HIPAA Glossary , 2008)

At this point, the use of RFID technology starts to have implications for the HIPAA Privacy Rule. As a result of using RFID technology, the covered entity will have:

- More protected information in machine-readable form
  - Higher quality data

The more sophisticated information system that goes with RFID may create a higher standard of conduct for the protection of patient privacy. A breach of privacy with a large, sophisticated information system is likely to involve many records and many patients.
The HIPAA Privacy Rule provides for both fines and prison sentences. Not complying with a specific rule can result in a $100 fine per incident subject to an annual maximum of $25,000. The fine may be waived if the violation was not intentional An intentional disclosure can result in a $50,000 fine and / or a one year prison sentence. If the offense was committed under false pretenses, the fine goes up to $100,000 and the prison sentence up to five years. If the offense was committed for financial advantage, the fine escalates to $250,000 and the prison sentence to ten years.

HIPAA PRIVACY RULE
NON-COMPLIANCE CRIMINAL SANCTIONS

HIPAA imposes the following criminal sanctions for each act of non-compliance with the Standards for Privacy of Individually Identifiable Health Information, "The Privacy Rule." (*HME Today*, 2002)

Violation Type	Monetary Penalty	Imprisonment
Knowing	$50,000	Up to 1 year
False Pretenses	$100,000	Up to 5 years
Commercial advantage, personal gain, or malicious harm	$250,000	Up to 10 years

Judgments on medical center fraud might give some sense of potential liability verdicts in this area.

Academic Medical Center Fraud Settlements (Stony Brook University, School of Nursing, 2003)

- Stony Brook University Hospital - $850,000
  - Howard University - $1.8 million
  - Mt Sinai School of Medicine - $2.3 million
  - Georgetown University - $5.0 million
  - Yale University - $5.6 million
  - University of Virginia - $8.4 million
  - Montefiore Medical Center - $12 million
  - Thomas Jefferson University - $12.5 million
  - University of Pittsburgh - $17 million
  - University of Texas at San Antonio - $17.2 million
  - Staten Island University - $80 million

Best practices

The HIPAA Privacy Rule requires a covered entity to make "reasonable efforts" to protect patient privacy and to follow "best practices." In the context of the HIPAA Privacy Rule and RFID, what might those best practices be? HIPAA focuses on best practices of IT security; key requirements in the Security Rule include:

- Account management: granting or removing user access to systems with PHI
  - Administrative procedures: polices to cover activities of IT staff and users
  - Backup and disaster recovery: protecting data in event of a disaster
  - Media reuse and destruction: handling and destroying media with PHI
  - Emergency access: accessing PHI in the event of a medical emergency
  - Physical security: controlling physical access to computers and networks
  - Use of email: specifying how PHI must be handled in email
  - System security: implementing best practices in desktop, server, and network security
  - Workforce training: training of users in good computing practices (Gatzert, 2005)

The HIPAA privacy requirements are not unusual. Publicly owned corporations must meet similar requirements under the provisions of Sarbanes Oxley (45 CFR 2002) ISO 17799 / BS 7799 also offer guidance in this area. The Gramm-Leach-Bliley Act of 1999 covers employee training requirements for financial firms (including health care providers) who hand confidential information. Canada imposes similar obligations under the Personal Information and Electronic Documents Act (PIPEDA).

In short, there are many places for healthcare providers to go for guidance for compliance with the HIPAA Privacy Rule. RFID does not change the nature of the obligations imposed by the Privacy Rule, but RFID does raise the stakes. RFID will result in the collection of much more and much higher quality information. While the obligations have not changed, the liability exposure will be greater.

HIPAA compliance software

The size of healthcare information systems requires that Privacy Rule compliance be automated. The major threats to these data bases are (Davenport, 2007):

- Internal security breaches
- Malicious software
- Physical security
- Wireless LANS and modems
- Identity theft
- Untrusted networks
- Instant messaging and peer-to-peer file-sharing

While internal security breaches can easily happen, they are also easy to detect. IBM recommended the following measures to a North Carolina medical center:

- Institute of group level security policy
- Require and implement unique IDs for all spersonnel
- Compile regular application log review reports
- Implement role-based and minimum necessary access thresholds
- Designate all physicians as VIPs and allow time-limited access only by the approval of a documented request.

IBM also recommended three approaches to minimize the likelihood of internal security breaches:

- HIPAA privacy training for physicians, clinical workers, and all other appropriate personnel
- Network and application level banners
- HR disciplinary action and/or medical staff review

IBM also recommended monthly application and file-sharing audits to help stay on top of the problem.

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TWELVE HOUR SHIFTS: FRIEND OR FOE?

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ABSTRACT

Registered Nurse's (RN), who work twelve hour shifts, primarily when worked back to back, are prone to increased medical errors and can potentially compromise patient safety. Kowalczyk (2004) reports nurse's who work shifts a minimum of 12.5 hours are three times more likely to commit error then those who work 8 hour shifts. Some of these errors can be fatal. Recent initiatives by the Institute of Medicine (IOM) concluded that there is strong evidence that workers experience increased fatigue, decreased alertness with longer work hours. Hughes (2004) recommends that state regulatory agencies prohibit nurses from working more than twelve hours in a 24 hour period and more the 60 hours per 7 day periods. Despite this evidence, regulatory bodies have been slow to enact any changes in their work schedules for RN's.

Studies have concluded that RNs who remained awake for 24 hours have slowed reaction time to a level equating with a blood alcohol level of 0.10%, which exceeds the legal limit for operating a motor vehicle (Scott, Rogers, Hwang & Zhang, 2006). Longer work days have negative effects on both patient safety and on the quality of life of the nurse. The impact of longer workdays have been shown to be concern for errors of omission, compromised problem solving, decreased energy for successful completion of tasks and reduced motivation.

The elimination of extended work shifts has been suggested for safety reasons. Despite the know negatives to working 12 hours, there are still some proponents who advocate working these longer shifts. RN's report that they prefer this type of schedule as it is convenient. The convenience of working fewer days and less commuting time makes this schedule appealing. In addition, some schedules are such that nurses can be off for long periods of time, therefore reducing child care costs (Pringle, 2004).

With the current state of health care, consisting of high patient acuity levels, rapid admission and discharge cycles and the nursing shortage, these are serious challenges which can inhibit the delivery of safe and effective patient care. The solution to this problem is not simple and is multifaceted; it may include changes in law, education of hospital administrators and intervention by regulatory agencies.

HEALTH BELIEFS RELATED TO WILLINGNESS TO ACCEPT TREATMENT OF PAIN WITH POTENTIALLY ADDICTIVE DRUGS[1]

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ABSTRACT

Over 40 years ago Zborowski (1969) demonstrated that cultural beliefs underlie reactions to pain in hospital settings. Despite documentation of the current prevalence of acute and chronic pain in the general population (American Pain Foundation 2007a,b, 2002, Cosby et al. 2005a,b), little is known about the relationship of health beliefs regarding pain treatment. The objective of this exploratory study is to assess relationships of health beliefs about pain to willingness to approve pain treatment for oneself with potentially addictive drugs. Taking a social marketing perspective (Hill 2001; Andreasen 1995), the current study draws on past studies of pain prevalence in the general population and on patient and clinical studies of attitudes and beliefs that present barriers to pain management, and extends consideration to the general population. Using data from the 2007 Southern Pain Prevalence Study (SPPS) carried out by the Social Science Research Center of Mississippi State University (Cosby et al. 2005a), the present study investigates the relationship of eleven attitudinal items to willingness to approve treatment of pain with potentially addictive drugs. Specifically, eleven health-pain beliefs are studied that may influence willingness to approve treatment, and six items are studied that address willingness to accept treatment for oneself with potentially addictive drugs under varying conditions ranging from a terminal illness to a condition that impedes leisure activities. Special consideration is given to consideration of the association of health-pain beliefs to willingness to approve treatment of oneself for pain with potentially addictive drugs for a terminal condition. If resistance to approved pain management treatments diminishes a patient's quality of life or leads to lower social functioning, or to less efficient or more expensive treatment, both the patient and the larger society suffer. Social marketing programs to change general population beliefs that are barriers to effective treatment may benefit the patient and society by encouraging a social environment that is conducive to medically approved pain treatments. A step toward preparing for such programs is to identify health-pain beliefs items that are associated with willingness to accept treatment.

The SPPS involved telephone interviews with 3,637 civilian, non-institutionalized persons over age 18. Survey Sampling International provided an enhanced stratified random digit dialing sampling design for selecting households in Alabama, Arkansas, Kentucky, Louisiana, Mississippi and Tennessee including those with unlisted numbers. The 3,637 respondents who completed the interviews represent a cooperation rate of 97.3% and a CASRO survey research standard overall response rate of 60.8%. The analyses presented in this report are based on 633 of these respondents who were asked all eleven of the health-pain beliefs questions and all six of the willingness to approve treatment questions used in these analyses, and for whom there was no missing data on these variables nor on basic demographic items related to age, gender, race, and marital status, although these demographic items are not included in the present analyses.
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[1] "The Southern Pain Prevalence Study 2004 (SPPS) was jointly sponsored by the American Cancer Society and the Social Science Research Center at Mississippi State University. We are grateful for the support, advice, and encouragement from Ms. Letitia Thompson with the American Cancer Society, Dr. June Dahl with University of Wisconsin Medical School, Dr. Karen Koch with North Mississippi Medical Center, Dr. Eric J. Pearson with Rush Medical Group, PA, Dr. B. Todd Sitzman with Wesley Medical Center, and Dr. Steve Parvin with Center for Breast Health and Imaging. While this study has benefited from the excellent advice of these fine individuals, all errors and oversights in this report are the sole responsibility of the authors."

Analysis proceeded through three stages. First, the scalability of the health beliefs items and the willingness to approve treatment items were assessed using Cronbach's Alpha. These items were coded with positive values reflecting strong adherence to the statement. The eleven health beliefs items included beliefs that: 1) pain can worsen if untreated (V1); 2) pain can be treated as a medical condition separate from other conditions that may be causing pain (V2); 3) addiction is a side effect of pain medication (V3); 4) drowsiness is a side effect of pain medication (V4); 5) having pain means that your condition has worsened(V5); 6) pain is a normal part of life (V6); 7) good patients don't complain to their doctor about pain (V7); 8) pain medicine should be saved for when the pain becomes worse (V8); 9) strong pain medication is most effective by injection (9); 10) your body heals better when pain is treated properly (V10); and 11) treating severe pain is more important than keeping people from abusing pain medicines (V11). Items 1 to 5 were coded for these analyses as: 1=never; 2=rarely; 3=some of the time; 4=most of the time, and 5=always. Items 6 to 11 were each coded as: 1=strongly disagree; 2=somewhat disagree; 3=somewhat agree; and 4=strongly agree. The treatment items included respondent reported likelihood of approving treatment for him- or herself under the following circumstances: 1) terminal illness with moderate to severe pain; 2) cancer with moderate to severe pain; 3) a severe burn with moderate to severe pain; 4) frequent moderate to severe back pain; 5) severe pain that limits ability to function at work or prevents performing everyday tasks; and 6) frequent moderate pain that inhibits my ability to engage in leisure activities. Codes for these items include: 1=very unlikely; 2=somewhat unlikely; 3=somewhat likely; and 4=very likely. In addition, the most extreme of the treatment items which referred to accepting treatment of pain with potentially addictive drugs for a terminal condition was copied and recoded as a new binary variable here named TERMINAL with "1" indicating "unlikely to accept treatment" (codes 1 and 2 from the original questionnaire, N=125), and "2" indicating "likely to accept treatment" (codes 3 and 4 from the original item, N=508). In the second stage of the analyses, differences in mean values for each of the eleven health-pain beliefs items were assessed across two levels of the variable TERMINAL. In the third stage, multiple regression analysis was used to assess associations of the health beliefs items to a summated scale made up of the six treatment items.

In Stage 1, the eleven health-pain beliefs items failed to produce a Cronbach's Alpha reliability coefficient sufficiently high as to justify using these items as a summated scale. Still, strong face validity justified treating the items as separate variables in the analyses. However, the six treatment items did produce an acceptable Cronbach's Alpha (above .78) and, thus, were summed to produce the TREATSELF scale on which high scores indicate greater willingness to approve treatment.

In Stage 2, differences of means comparisons revealed that four of the eleven health-pain beliefs had statistically significant differences in means across the two TERMINAL categories and that the differences were associated with greater openness to treatment. V1, the belief that pain can worsen if untreated, produced a mean of 4.002 for the Likely to Approve Treatment compared to 3.776 for Unlikely to Approve Treatment. The belief that addiction is a side effect of pain medication, Item V3, produced statistically significant differences in both means and variances with the Likely to Approve category producing mean of 3.250 and the Unlikely category producing a mean of 3.512. Item V8, the belief that pain medication should be saved for when pain becomes worse produced a mean of 2.736 for Unlikely to Approve Treatment compared to 2.354 for the Likely to Approve category. V11, the belief that treating severe pain is more important than keeping people from abusing pain medications, produced a mean of 3.079 for the Likely to Approve Treatment compared to 2.7365 for the Unlikely to Approve Treatment. .

In Stage 3, multiple regression of the eleven health-pain beliefs as independent variables with TREATSELF as the dependent variable revealed that four of the eleven health-pain beliefs had statistically significant associations with willingness to approve treatment. The full model produced a statistically significant adjusted R^2 of 13.1% ($F=9.633$, $P<.001$) for TREATSELF. Statistically significant betas for prediction of TREATSELF included: V1 (beta=.181), regarding the belief that pain can worsen if untreated; V2 (beta=.105), regarding the belief that pain can be treated as a medical condition separate from the conditions causing pain; V10 (beta=.087), the belief that the body heals better when pain is treated properly; and V11 (beta=.198), the belief that treating pain is more important than keeping people from abusing pain medications; Higher values for these attitudinal items were associated with greater willingness to approve treatment.

As a general population exploratory study, this study has achieved its objective of assessing potential relationships of health beliefs about pain to willingness to approve treatment of pain for oneself with potentially addictive medications. The results are relevant for pharmaceutical marketing (Stallings 1992), social marketing, and the efforts of physicians and other caregivers involved in pain treatment. The items identified as positively

associated with acceptance of treatment for pain with potentially addictive drugs can be used in social marketing campaigns to promote greater general population openness to medically approved, and clinically demonstrated, pain treatment regimens. The study has limitations. Perhaps the most significant is that we have not considered here whether the respondents themselves had suffered great pain or had been exposed to friends and loved ones who suffered great pain. Such experiences may affect willingness to approve treatment for pain with potentially addictive drugs. While much remains for the development of a health beliefs pain model, the orientations identified here can inform future research and benefit social marketing programs and pharmaceutical marketing, and may facilitate communication in clinical settings among medical professionals, caregivers, and patients.

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"TIME IN A BOTTLE"*: HEALTHCARE CHALLENGES FOR THE AGING WORKFORCE

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(Thanks to Jim Croce, singer & songwriter of the same title)*

ABSTRACT

The aging of the workforce in the United States is dominated by the Baby Boomers. This paper examines some consequences of the aging of this cohort for healthcare providers (paying particular attention to nurses and physicians) and for the general workforce, and presents some opportunities for business education.

INTRODUCTION

A large majority of the baby boomer generation (the demographic group born between 1946 and 1962) is facing traditional retirement age. At the present time, the oldest are now 62 and eligible for Social Security. If this older group followed the lead of their parents – a generation that reaped the benefits of the creation of Medicare, the expansion of Social Security, and richly funded employer-defined pension plans – their exodus from the workforce into retirement would create profound employment and medical challenges heretofore inexperienced in the United States.

It is estimated that by the year 2030, the number of individuals 65 and older will have nearly doubled from that of 2005, totaling approximately 70 million nationwide (Institute of Medicine, 2008). By the year 2015, over 20% of the workforce is expected to be aged 55 and over, an increase of nearly 50% through 2015 (AARP Public Policy Institute, 2006). According to the Bureau of Labor Statistics, between 1998 and 2008, the number of civilian workers aged 55 and over increased by 49.9% but those aged 25 to 54 increased by only 5.5% and those aged 16 to 24 actually decreased by 2.8% (Fullerton, 1999). These statistics alone warrant an examination of how and why both private sector employers and the U.S. healthcare industry must modify their approach to the inevitable consequences caused by these changing demographic – and employment market – conditions.

Jonas and Kovner (2008) cite five factors that influence supply and demand within the healthcare workforce: demographics, education, the healthcare delivery system, the economy, and government/politics. Briefly, this paper will review three of these factors (demographics, the healthcare delivery system and education) from the vantage points of some of the healthcare professions as well as the general, non-healthcare employment sector.

CHALLENGES IN SOME OF THE HEALTHCARE PROFESSIONS

The healthcare workforce and its sites of service are diverse and widespread. On the demand side, the challenges posed by the sheer size of the baby boomer population will be significant since their healthcare needs will escalate with age, while on the supply side their departure (or partial departure) from the workforce will create shortages within all employment sectors and, perhaps most acutely, in healthcare. According to Swenson, "human capital resources are about to reach true crisis proportions. The growth in the demand for health care occupations is twice that of non-health occupations, resulting in the need for more than 4.3 million health professions workers to fill the job openings created by departures and new positions between 2004-2014" (Swenson, 2008, p. 64).

For over twenty-five years, the evolution of managed care plans arguably created cost effective means of healthcare delivery. Unfortunately, however, it also streamlined both the number and the compensation of physicians and nurses. Among others, Schiller (2005) predicts that the U.S. is going to experience a tremendous shortage of healthcare workers in the near future. The phenomenon of globalization has compounded this problem even further.Although healthcare workers from all points of the globe migrate to the U.S. in search of better opportunities, our government has tightened immigration requirements and these strictures inevitably will affect the estimations of future supply and demand employment figures regarding all levels of healthcare professionals (Clark, Stewart and Clark, 2006).

Nurses

As the need for health services continues to increase as the population ages, fewer people are entering and staying in the nursing profession (Sochalski, 2002), where Boomers currently make up half of the workforce (Blythe et al., 2008). Partially due to the result of extensive training required, the average age of many workers in the healthcare professions tends to be an older than the national workforce average. Nurses are no exception to this generalization, as the average age of a nurse in the U.S. in 2001 was 44 (CFelver and Van Son, 2007). According to one source, "by 2010, approximately 40% of the U.S. nurse workforce will be over 50 years of age" (Hatcher, et al., 2006). Large numbers of retirement-age nurses will leave the profession at or shortly after that time, according to the Nursing Management Aging Workforce Survey that polled nearly 1,000 nurses and determined that more than 55% of respondents intended to retire between 2011 and 2020 (Orlovsky, 2006). A shortage of nurses in the future should thus be of no surprise, and has, in fact, been forecast since 1998 (Buerhaus, Auerbach and Staiger, 2007) as nursing "mirrors the trend in population" by aging with the rest of the population (Fitzgerald, 2007 p. 237), with some predictions of the shortfall as large as 500,000 by 2025 (Anonymous, 2008). While this shortage may be a bit less than predicted (Buerhaus, Auerbach and Staiger, 2007), due to larger than expected numbers of older workers entering the nursing profession (Auerbach, Buerhaus and Staiger, 2007; Christmas and Hart, 2007) and an increasing percentage of foreign-trained nurses in the U.S. (Polsky et al., 2007), a substantial shortage of nurses – especially hospital nurses (Buerhaus et al., 2002; Buerhaus et al., 2007) - appears to remain immanent. In addition, two-thirds of the nurses who have joined the workforce recently are aged 50 or greater, so the increase in supply of nurses will be short lived (Buerhaus et al., 2006).

While these data are significant, what may be more important are the replacement costs, the loss of intellectual capital, and the potential impact on the safety and quality of care of patients who are affected by this exodus. Older nurses have been found to be more courteous and committed than many younger nurses, and have a more in-depth understanding of patients' the needs, as they bring wisdom and experience developed through years of patient care (Gillies, nd; Watson, Manthorpe and Andrews, 2003). Sherman (2006) and Letvak (2003) found that older nurses also had more organizational loyalty, more respect for authority and a stronger work ethic than their younger counterparts. Hatcher et al. (2006) described older nurses as hard working, knowledgeable, dedicated, more intuitive and accomplished in decision-making skills, more adventurous and more optimistic. In short, older nurses possess valuable experiential knowledge (Fitzgerald, 2007), and their loss results in significant departure of institutional memory and intellectual memory (Swenson, 2008).

Physicians

For several decades, some health planners have forecasted a surplus of U.S. physician (Cooper 2004; Salsberg and Grover, 2006), while others have predicted a shortage (Fleming, Evans and Chutka, 2003; Sheldon, et al., 2008). This conflict in assessment is not confined to physicians in the U.S.: some researchers believe that the world itself is facing a surplus of physicians (Scheffler et. al., 2008), while others predict a shortage (Thistiethwaite, et al. (2008). Although the reasons for these diametrically opposed conclusions are often unclear, the fact that the methodologies employed are often diverse and subjective [see Scheffler et al. (2008) for a discussion of needs-based versus economic analysis, and Dumpe, Herman and Young (1998) for a review of some of the forecasting models for physicians] contributes to the discrepancy. However, those who predict a shortage of physicians appear to have powerful and compelling arguments. The demographic argument itself is quite difficult to refute. On the provider side, like the overall workforce in the U.S., the physician workforce is a component of the Boomer generations, and as such is aging as a group: over 30% of physicians are over 55 years of age, and the number 65 years or older is forecasted to double by 2020 (Sheldon et al., 2008). Similarly, on the health care recipient side, patients are also

part of the Boomer Generation, and the elderly not only require additional healthcare as they age (CITE), they are strong advocates for health care and (Cooper, 2004).

Certainly, whether one agrees with the projection of an overall shortage of physicians or not, there appears to be little or no argument that a shortage of physicians who specialize in treating or who predominately treat the elderly will occur. An obvious example is the practice of geriatric medicine, which has grown substantially over the last 3 decades. Despite this growth, the number of geriatricians necessary to properly care for an aging population has been judged to be insufficient (Besdine et al., 2005; Warshaw and Bragg, 2003). Despite the growth of training programs in geriatrics, and increasing exposure of undergraduate medical students and internal medicine residents to geriatric medicine, some (Warshaw et al., 2007) suggest that the actual number of practicing geriatricians has declined, perhaps due to the discrepancy between the incomes of geriatricians and other medical practitioners (Fleming, Evans, and Chutka, 2003), as the additional time spent in geriatrics training has actually been shown to decrease physicians' earning potential (Rubin and Beck, 1994). This is notwithstanding that the one year geriatrics fellowship training necessary to specialize in this field was deemed inadequate when the training programs were first established (CITE). The American Geriatrics Society estimates that at the present time, there are currently only 7,128 board certified geriatricians (Anonymous, 2008) and by the time the last of the baby boomers retire in 2030, the National Center for Policy Analysis (2005) projects that 36,000 geriatric physicians will be required to satisfy their needs. Unfortunately, current projections estimate that actual figures will be closer to only 11,000, leaving a large portion of the elderly without specialty care. It is clear that the medical profession must do something – and soon – to encourage more physicians to choose geriatrics as a specialty. While some (Scherer, et al., 2008) argue that the shortfall in the number of geriatric care providers can be mediated by increasing the numbers of Advanced Practice Nurses with training in gerontology, the shortage in number of nurses overall makes this argument difficult to accept, especially when one considers that currently less than 1% of registered nurses are certified in geriatrics (Anonymous, 2008).

Similarly, the supply of practitioners of physiatry (formerly known as physical medicine and rehabilitation) has been forecasted to be insufficient for some years (Hogan, et al., 1996). This problem will be exacerbated by the pressure on physiatric training programs to reduce the number of training positions (DeLisa, Subbara [sp?] and Christodoulou, 2001), especially since the training time required for this medical speciality exceeds 10 years. Compounding this difficulty is the fact that physiatry is not an economically rationale specialty to pursue: physiatrists earn significantly less than other medical specialists (CITE)

A recent McKinsey survey confirmed what many other researchers have reported. It revealed that while U.S. baby boomers control nearly 60% of U.S. net wealth, 60% of this population will not be able to maintain a lifestyle close to their current one without continuing to work, and the same percentage of older boomers already suffers from chronic health problems (Anonymous, 2008). The next part of this paper reviews some of the financial and workplaces challenges faced by the overall working population, and educational solutions for overcoming some of them.

CHALLENGES IN THE GENERAL WORKFORCE

What are the expectations of baby boomers regarding their workplaces and their benefits? The Center on Aging & Work (2006) found that 79% of baby boomers expect to work in their later years, 52% plan to work part-time, and only 10% anticipate a "traditional" retirement. Unfortunately, this same study discovered that many workplaces have not yet adapted to older workers: 80% of businesses have not established options for older workers, 60% of CEOs have not considered the aging of the workforce in their strategic planning, and only 8% of firms have formal policies for phased retirement (Center on Aging & Work, 2006, in Rubin, 2006). On a more positive and employer-based note, progressive organizations that included BP American, LLP, Ford Motor Company, IBM, JP Morgan Chase and Shell International participated in a Conference Board study that reported the following:

- Companies that adapt to potential retirees by recruiting, retaining and developing flexible work schedules for them are ahead of competitors who view the aging workforce largely as a strain on pension plans and costs
- Industries feeling the greatest pain in terms of skill shortages are oil, gas, energy, healthcare and government

- Approximately half of companies interviewed for the report believe the departure of mature works present potential knowledge vulnerabilities (Anonymous, 2005).

Similar to the disparity in opinion regarding the under- or over-supply of healthcare professionals, the opinions regarding the value of older workers varies. Haight and Miles (2005) believe that the aging of the baby boomer workforce poses serious concerns for employer, however, one study that primarily examined physiological changes nevertheless asserted that "the culture and values of the older worker are significant assets for the companies that choose to attract and retain them. These values include commitment and loyalty to the employer, fewer sick days, reduced injuries, and enhanced length of service" (McMahan and Sturz, 2006, p. 54). Studies have noted the professional value of older workers. Hill (2004) found that older workers were more conscientious, more agreeable, more emotionally stable and as made fewer mistakes due to their work experience, and Lockwood (2005, p. 7), in a report for the Society for Human Resource Management, noted that experiential knowledge of the older workforce was "at the very heart of the organization's future and its sustainability in an ever increasing competitive marketplace."

PRACTICAL BUSINESS EDUCATION OPPORTUNITIES

In very recent findings gleaned from MetLife's Sixth Annual Employee Benefits Trends Study and for the study's second consecutive year, retention was rated by employers as their number one benefits objective (Eldred and Madden, 2008). This study was a geographically and industry dispersed, two-pronged project: an employee survey of 1,380 full-time employees age 21 and over, and an employer poll consisting of 1,652 interviews with benefits decision-makers at companies with a minimum of two employees. Interestingly and regardless of age, 45% of the employees cited benefits as an important reason why they remain with their current employer – up from 33% in the previous year. The study also suggested several strategies that employers should consider to increase the value of their benefit plans, including the provision of better decision support tools (product calculators on products and coverage levels); a broader range of options (including health and wellness programs and broader resources for aging workers); and personalization (customization for various life-stage groups) (Eldred and Madden, 2008).

Using a case study methodology to investigate the aging workforce and its ramifications, the Conference Board Research Working Group on Mature Worker Engagement elicited feedback from companies that included but were not limited to Bon Secours Richmond Healthcare, CVS Caremark, Deere & Company, and GlaxoSmithKline. Conclusions from this report offered these practical approaches for employers to follow:

- To identify potential vulnerabilities and target interventions, use strategic workforce planning more diligently to assess the impact of approaching retirements
- Recruit mature workers since they are a priority for employers that face a shrinking supply of younger workers, or who want a workforce that mirrors their mature customer base
- To prepare for inevitable retirements, knowledge transfer from mature to younger staff must be key to succession planning
- Companies should band together to conduct workforce planning industry-wide, and partner with other employers, government programs and nonprofits (Anonymous, 2007).

While progressive employers are paying closer attention to the large departures from the workplace, others – notably, healthcare insurers – are seeking marketing and distribution opportunities among the baby boomer population. One study suggested that new groups of healthcare consumers could be reached through marketing relationships with assisted living facilities, specialty medical associations, and condominium developers and associations in popular retirement locations. An example of this strategy is already underway. UnitedHealthcare, in partnership with the American Association of Retired Persons (AARP), offers Medicare supplemental insurance, hospital indemnity insurance, and comprehensive insurance for seniors not yet eligible for Medicare, as well as health advice through a nurse line for the AARP's 35 million members (Bleil, Lewis and Singhal, 2005).

Regardless of the methods by which employers, insurers, or individuals educate themselves and others about these imminent retirement issues, it appears clear that the funding and provision of healthcare will become increasingly the responsibility of the private sector. In fact, Mercer, the consulting firm that chaired the Advisory Board of the World Economic Forum project, claims that "governments almost universally are shifting the

responsibility for funding and, in some cases, provision, of health care to employers or individuals" (Anonymous in Insurance Business Weekly, 2008, p. 76).

CONCLUSION

For various socioeconomic and psychosocial reasons, the baby boomer generation will continue to work beyond their parents' retirement ages. However, this decision also is predicated in part on the high cost of health insurance and a decrease in health benefits, especially at older ages, both of which have encouraged mature workers to remain working to retain employer-based health insurance or to return to work after retirement to obtain health insurance through their employers.

Steven A. Sass, Associate Director for Research at the Center for Retirement Research at Boston College and co-author of a book entitled "Working Longer: The Solution to the Retirement Income Challenge," recommends that both employers and the government must step up to the baby boomer conundrum. He believes that "employers will generally find it advantageous to develop activities and production methods that draw on experience, people skills, and reliability and to de-emphasize (or shift overseas) some activities better suited to a younger workforce" and that "a modest amount of on-the-job training can generally keep older workers productively employed" (Sass, 2008, p. 46). He goes on to say that the federal government can help make older workers more attractive by spending more than it does now on skills training; by reducing the cost of hiring or retaining older workers by eliminating the employer payroll tax for workers above a certain age; and by raising the earliest age at which workers can claim Social Security – with accommodations made for those with work-limiting health conditions (Sass, 2008).

Whatever choices are made by the constituents mentioned in this paper or elsewhere, it is abundantly clear that the educational and healthcare coverage concerns of the baby boomers warrant sober and serious attention – not only for them but also for the generations that follow them.

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AMBIDEXTROUS ORGANIZATIONS: HOW TO MANAGE AND LEAD

Robert J. Spinelli, University of Scranton
Matt Thomas, University of Scranton

ABSTRACT

In With intensifying competition and rising costs, healthcare managers need to capture refinement and efficiency along with variation and experimentation. Organizations capable of pursuing exploration and exploitation simultaneously have been suggested to obtain superior performance. This study explores the approaches organizations utilize to simultaneously pursue refinement and innovation and how senior executives reconcile conflicting demands and facilitate the balancing of seemingly contradictory forces in ambidextrous organizations. Previous research indicates that ambidextrous organizations are successful and are more likely to achieve high performance. In addition, research reveals that certain senior team attributes enhances the organization's ability to combine exploratory and exploitative innovations.

NAVIGATING AND MANAGING CHANGE –A BOARD RETREAT

Robert J. Spinelli, University of Scranton
Daniel J. West, Jr., University of Scranton

ABSTRACT

Healthcare organizations are vital and important parts of any community. Boards do make a difference in the governance of any community hospital. Change has become a necessary part of today's modern community hospital landscape. This presentation provides a narrative of how change in a community hospital can take place and describes the means by which a community hospital board can navigate and manage the necessary changes it must accomplish to meet the future demands of the healthcare marketplace.

FOOD IRRADIATION: A REVIEW OF A PUBLIC HEALTH ISSUE

Katie Schuck, University of Evansville
William B. Stroube, University of Evansville

ABSTRACT

The food supply in the United States is considered one of the safest in the world; however, food safety is a public health issue that is of growing importance to United States consumers. This is due in part to the emergence of new types of harmful bacteria and evolving forms of older types of bacteria, both of which can cause serious effects. Contaminated products, such as ground beef, non-pasteurized fruit juices and recently peanuts products, have been responsible for significant food borne illness.

Approximately forty countries have approved irradiation for over fifty different types of food. In 1963, the FDA approved the irradiation of food to control insects in flour and wheat. The process was extended to other products. There has been considerable public resistance to food irradiation. This paper examines the history of food irradiation and its development from a regulatory and public health viewpoint.

TRAINING MODULES FOR WORKERS CARING FOR INDIVIDUALS WITH ALZHEIMER'S DISEASE

Amy Szydlowski, University of Scranton

ABSTRACT

This presentation identifies the impact residents with Alzheimer's disease in long term care settings has on the workforce and the type of workplace training that is needed. Diagnosis, treatment and care planning, and evaluation of Alzheimer's residents is reviewed. Long term care management strategies and workforce training, including the aging workforce in these settings, is discussed. The training modules discussed in the presentation have been utilized in long term care settings. External trends will be examined to address changing workforce needs and the role the aging workforce has on improving quality of life for those with Alzheimer's disease.

OBESITY PREVENTION AND PLANNING IN NORTHEASTERN PENNSYLVANIA

Steven Szydlowski, University of Scranton

ABSTRACT

The presentation provides a framework in Northeastern Pennsylvania for addressing the obesity epidemic through a community collaboration. The research project is funded by the US Department of Health and Human Services, Centers for Disease Control and Prevention. The Healthy Northeast Pennsylvania Initiative is a community health project that coordinates regional resources to improve the health and education of citizens. The research shows how and why health systems provide health promotion and disease prevention programs in the community. The researcher addresses the marketing benefits and return on community investment for health systems that supplement the mission of creating healthier communities. The researcher utilizes its existing collaborative network to identify what community programs exist in Lackawanna and Luzerne counties and recommends ways to increase the number of these programs. The researcher shows the value-added when providing community health programs resulting from a free market economy. The proposal supports programming at each of the participating entities in a collaborative effort to build county-wide infrastructure for community programming.

PREPARING TO ESTIMATE THE IMPACT OF COMBAT RELATED POST TRAUMATIC STRESS DISORDER ON THE UNITED STATES HEALTH CARE SYSTEM

Sandy Weinberg, Health Care Management, Clayton State University
Scott Stegall, Health Care Management, Clayton State University
Ron Fuqua, Health Care Management, Clayton State University

ABSTRACT

Accurately estimating and evaluating the costs of war – financial and human – require that the equation include the long term costs of treating wounded military personnel. In modern warfare, society recognizes Combat Related Post Traumatic Stress Disorder (CRSD) as one of those long term costs.

No longer associated with the shame of "shell shock", CRSD is in effect as much an occupational hazard of active military service as are wounds, injuries, and physical fatigue. Current estimates issued from the United States Department of Defense suggest that as many as 30% of the soldiers serving tours in Afghanistan and Iraq have been diagnosed as suffering from CRSD, the form of Post Traumatic Stress Disorder related to serving in a hot war zone. Unreported and hidden cases may bring the total number of patients even higher.

Long term symptoms of CRSD include anxiety, insomnia, nightmares, enhanced alcoholism (and enhanced suicide rates), and depression. While some treatments are available (including conventional psychotherapy; drug therapies for anxiety and depression, and some promising clinical studies using d-cycloserine for direct treatment of PTSD), most patients still suffer from these long term and often disabling symptoms. Since these conditions are generally chronic rather than acute, and because patients are initially drawn from generally healthy populations in their early to mid twenties, the impact of CRSD will be felt by the health care system for a potential four to eight decades after onset.

In this paper we lay the foundation for a cost-of-illness study of CRSD by reporting from the literature current estimates of incident and prevalence rates of the disorder being generated by current combat operations involving US military personnel. These data are to be combined with available estimates of current direct costs of care as well as the indirect social costs to provide an estimate of the potential total burden of CRSD on the United States health care system, especially upon the VHA system.

It is anticipated that a completed cost-of-illness study would be used by policy makers to estimate the burden of cost associated with CRSD for inclusion in a war cost estimates and by health care management professionals in planning for the long term demand of care of returning combat patients upon the system. These data would also provide an estimated baseline for the cost-benefit analysis of different therapeutic interventions.

DEVELOPING A COLLABORATIVE MODEL FOR PRIMARY HEALTHCARE SERVICES IN HAITI

Daniel J. West, Jr., University of Scranton

ABSTRACT

The United Nations recently released a report on Haiti indicating that 76% of Haitians live on less than $2.00 a day. Over 21 % of children 6 to 9 do not go to school and only 15 % of teachers meet the academic requirements to teach. Furthermore, 42% of children below age 5 are malnourished. Preventable health problems like malnutrition and diarrhea account for 28% of the deaths of children zero to five. In Haiti 60 to 80% of the population is at risk for exposure to malaria and the prevalence of tuberculosis has been increasing. This presentation examines a new collaborative effort involving St. Elizabeth University in the Slovak Republic and the University of Scranton in developing a primary healthcare center in Southern Haiti. Both Universities work in conjunction with "Hope For Haiti" to coordinate the development of needed services.

CARDIAC REHABILITATION: USA-UK COMPARISON

Donald Rodd, University of Evansville
Ginny Waters, University of Evansville
Catherine Laventure United Lincolnshire Hospitals, UK

ABSTRACT

According to World Health Organization (WHO) an estimated 17.5 million people died from cardiovascular related diseases (CVD) in 2005. This represented about 30% of total deaths around the world. Although CVD is a leading killer throughout the world, at least 20 million people around the globe survive heart attacks and strokes every year; many requiring cardiac rehabilitation. The UK and USA utilize a strategy of comprehensive cardiac rehabilitation for those patients who survive some type of cardiac event. While the basic tenet of cardiac rehabilitation is the same in each country, some distinct differences are present.

Cardiac rehabilitation programs are divided into sections called phases. The UK utilizes four phases while the USA has consolidated the phases into three. **Phase I** is similar in both the UK and USA. **Phase II** is very different in the UK and USA. In the UK Phase II support is provided by nurses conducting home visits, via telephone contact or by use of the Heart Manual. Thus providing a ratio of patient to staff of 1:1 with a duration of about 6 to 12 weeks. **Phase II** in the USA is an outpatient hospital-based program of about 36 visits with a patient to staff ratio of about 5:1. **Phase III** in the UK is typically an eight-week outpatient program with structured exercise in a hospital setting. A cardiac nurse coordinates this phase and a Physiotherapist conducts the actual exercise. The patient to staff ratio is about 5:1. **Phase III** in the USA is a combination of phases III and IV. Phase III is an ongoing community-based program with a patient to staff ratio of about 15:1. **Phase IV** in the UK is an ongoing community-based exercise and education program with supervision by a certified exercise professional approved by the British Association of Cardiac Rehabilitation.

In Quality adjusted life years, Cardiac Rehabilitation has been has been estimated to be £1957 in the UK and $9200 in the USA. In the US, the prevalence of cardiac rehabilitation used among heart attack survivors aged <50 years was 25.3% and for >50 years 35.5% to 37.0%. In the UK, nationally, 29% of eligible patients attended rehabilitation, but the proportion of eligible patients participating in rehabilitation ranged between 14% and 37%.

The UK has a10-year £6 billion National Program for Information Technology Link initiative, which began in 2005, to link all parts of NHS to access records. Information access in the USA is more automated, but in general not yet nationwide.

Although the basic approach to Cardiac Rehabilitation is the same in the UK and USA some differences are apparent. Some of the major distinctions between countries include patient contact, reimbursement and information access. By revealing these distinctions, each country can learn and borrow successful ideas to better serve the patient population.

CHILDREN NEWLY DIAGNOSED WITH CANCER: PEDIATRIC NURSES' PERCEPTIONS OF POTENTIAL BARRIERS TO COMMUNICATION

Meira M. Yasin, East Tennessee University

ABSTRACT

The objective of this research is to examine the perceptions of Pediatric Oncology nurses in relation to potential communication barriers when dealing with children who have just been given a diagnosis of childhood cancer. A field study is proposed to collect data from a sample of Pediatric Oncology nurses. Content analysis will be performed on the collected data in order to derive relevant communication hindering factors. Practical recommendations to deal with these hindering factors will be proposed. The relevance of the conclusions and recommendations to the practice and theory of nursing are discussed.

INTRODUCTION

The nursing profession has always been perceived as one of the most stressful professions. Despite the professional training of nurses to handle the multifaceted stressful situations, nurses suffer from burnout at a higher rate than most other professions. While nurses are taught to handle different kinds of diseases and medical care, one of their main roles is to communicate with the patients and keep them informed about their health and treatments. Thus, communication is critical to the well being of the patient. Not only do nurses need to communicate to patients that they are on the right track towards recovery and encourage them to take care of themselves, but also nurses need to communicate hope and comfort to patients who have long, difficult stays under care.

While all nurses face many communication difficulties, and at times feel rather that it is an impossibility to make patients feel better, such communication difficulties become more vivid in the care of children. Children present unique challenges, as they bring special insecurities and reluctance to deal with the health care providers. Thus, the communication role of the nurse in dealing with sick children, especially children who are facing a life threatening illness such as cancer, is very critical.

The objective of this research is to shed some light on how Pediatric Oncology Nurses deal with the challenges faced when communicating with their Pediatric Oncology patients. This research project is ongoing after the following sections. After this brief introduction, Section 2 presents some of the relevant literature. On the other hand, Section 3 highlights the proposed study with emphasis on the methodology to be utilized. Finally, the relevance of this study to the nursing profession is examined in the conclusion section.

RELEVANT LITERATURE

When a child is diagnosed with cancer, it is undoubtedly one the greatest difficulties the child will ever have to face in his or her life time. Part of this stems from the fact that the child has a major illness which will take medicine, time, and great care to treat. As such, supportive care is vital to children diagnosed with cancer in order to achieve good quality of life and maintain the child's well being during treatment and afterwards (Vasilatou-Kosmidis, 1998). Due to progressing technology and medical advancements, however, the prognosis of children diagnosed with cancer is better than it has been in past decades. The American Cancer Society estimates that as of 2005, the overall 5 year survival rate for childhood cancer is 80%, with the percentage being higher for some types of cancers and lower for others (American Cancer Society, 2005). The way nurses view pediatric patients has

changed since the 1970s, when childhood cancer was viewed as a terminal illness from the time of diagnosis (Lally, 2006). Now it is viewed as a mostly curable chronic illness. As such, positive and open communication with the children and their families is critical.

Nurses have a major role in communicating with the families and the pediatric oncology patients after they are given the diagnosis and have spoken with the doctor. This involves not only answering the child's questions, but taking the time to actively listen to the child as he or she expresses fears and concerns (Gill, 2005). The communication style between health care providers and children with cancer and their families has an impact on the way the families view the illness, makes decisions pertaining to treatment, and whether or not they adhere to the treatment (Levetown, 2005). Once the informing interview with the doctor has taken place, nurses are responsible for evaluating the communication that has taken place between the family and the doctor (Ahmann, 1998). In addition, nurses serve as a liaison between the patient, family, and the doctor. The multifaceted role of the nurse as facilitator, supporter, counselor, educator, teacher, advocate for the child and an instrumental member of the multi-professional care team are all recognized (Price, 2006). As a nurse, one can reassure the child and the family through open communication and allowing them to ask questions (Mahany, 1990).

When going through the cancer process, children with cancer feel that honesty, support, and the need to be fully informed is critical to their recovery and wellbeing (Zwaanswijk, 2007). Confusion and misunderstanding are more harmful to the children than the anxiety that will arise from the truth about their condition (Gill et al, 1998). Talking to children about their serious illness will not psychologically damage the child as some parents fear; rather it serves to make the children more adaptable to change and loss when they are adults (Cauldrick, 1991).

Nurses can ensure that pediatric oncology patients are given the truth about their condition and can help the child understand what is going on. One way to encourage children to open up about their feelings is through drawing. Drawing can be a means for the child with cancer to express how he or she feels both about the cancer and how it is affecting daily life (Rollins, 2005).

METHODOLOGY

The proposed study will involve interviewing Pediatric Oncology Nurses to learn how they facilitate communication with their newly diagnosed pediatric oncology patients. For all intensive purposes, newly diagnosed will be defined as given the diagnosis of childhood cancer but not yet begun treatment.

Sample

The participants in the study will be selected based on a convenience sample. Potential participants will be Pediatric Oncology Registered Nurses, Licensed Practical Nurses, or Advanced Practice Nurses with at least one year experience in Pediatric Oncology and who are currently practicing in the Tri-Cities Affiliate St. Jude Clinic. The anticipated number of participants is between 6 and 10 Pediatric Oncology Nurses. Nurses who fit the inclusion criteria will be given an invitation to participate in the study (Appendix A). After a period of two weeks, a reminder card will be given to potential participants who have not responded (Appendix B.)

INSTRUMENT

Participants will 5 questions about their experiences communicating with the newly diagnosed children ages 5 to 18. The 5 study questions are as follows: 1. When a child is newly diagnosed with cancer, what strategies do you use to initiate communication with the child about his or her fears, concerns, or questions. 2. What fears, concerns, or questions do you anticipate a newly diagnosed pediatric patient having? 3. What barriers would be possible or present that would prevent the newly diagnosed child from discussing his or her fear, concerns, or questions with you? 4. What are you personal practices as a Pediatric Oncology Nurse to overcome these barriers? 5. Is there anything else you would like to share with me about your experiences which I have not asked you about? All interviews will be audio recorded.

PROCEDURE AND DATA ANALYSIS

After obtaining informed consent from participants, the principal investigator will meet with the participants individually for a private, audio recorded interview. Prior to the interview, participants will fill out a short demographic sheet (Appendix A). During the interview, the participants will be given a copy of the study questions (Appendix B). At the conclusion of the interview, the tapes from the interview will be transcribed verbatim. These transcriptions will be analyzed line by line for themes, consistent with the content analysis methodology practice. Once the principal investigator has assigned themes to the transcriptions, an expert in the field of Pediatric Oncology will be called on to analyze the transcriptions and come up with themes. The two theme findings will be compared. After this takes place, preliminary findings will be put together and sent to the participants so that the participants may validate the findings as accurate. Once this member check has been performed, the findings will be modified as needed, and then results will be created.

CONCLUDING REMARKS

The objective of this study is to learn about the strategies used by Pediatric Oncology Nurses to overcome communication barriers with their newly diagnosed pediatric oncology patients. In general, the current literature available on the topic of communicating with children diagnosed with cancer focuses on communicating with these children when they are at or near end of life. There is a knowledge gap in communication between nurses and children at the time of initial diagnosis. So much of the literature focuses on the communication that doctors or nurses have with the parents of children newly diagnosed, but there is little in the way of how nurses talk with the newly diagnosed children. The proposed research study has many practical implications for nursing. It will allow nurses to reflect on their communication practices as well as look for areas of improvement.

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APPENDIX A
LETTER TO POTENTIAL PARTICIPANTS

July 26, 2008

Hello! My name is Meira Yasin and I am an Honors Nursing Student at East Tennessee State University, working on my Honors Thesis. For my thesis, I would like to interview Pediatric Oncology Nurses about their experiences with children newly diagnosed with cancer.

The purpose of this study is to assess the nurses' perceptions of barriers to communication with the newly diagnosed pediatric oncology patients. If you agree to participate in the study, you will be asked for a one time interview which will take approximately 1-2 hours. The interview will consist of five open ended questions and will be audio recorded. Your confidentiality and privacy will be ensured by conducting the interview in private location of your choosing and keeping your interview information in a locked filing cabinet. There is no cost to you as the participant and there is minimal risk involved.

As a pediatric oncology nurse, if you are interested in participating in this study, please contact me at (423) 737 – 7703 by September 1, 2008. Your participation is critical to the success of this study and is greatly valued. I appreciate very much your participation in my study. Thank you very much.

Best Regards,
Meira Yasin

By signing below, you agree that you have read and understood the information in this letter.

Signature: _____
Date: _____

APPENDIX B
REMINDER CARD

Hello! This is a reminder that the deadline is approaching to sign up to participate in the Communication in Pediatric Oncology research study. Your participation is critical to the success of this study. Please take a few moments from your busy schedule to contact Meira Yasin at (423) 737-7703 by August 25th, 2008 to set up an appointment for an interview.

Your willingness to participate in this research study is sincerely appreciated.

Hello! This is a reminder that the deadline is approaching to sign up to participate in the Communication in Pediatric Oncology research study. Your participation is critical to the success of this study. Please take a few moments from your busy schedule to contact Meira Yasin at (423) 737-7703 by August 25th, 2008 to set up an appointment for an interview.

Your willingness to participate in this research study is sincerely appreciated.

Hello! This is a reminder that the deadline is approaching to sign up to participate in the Communication in Pediatric Oncology research study. Your participation is critical to the success of this study. Please take a few moments from your busy schedule to contact Meira Yasin at (423) 737-7703 by August 25th, 2008 to set up an appointment for an interview.

Your willingness to participate in this research study is sincerely appreciated.

APPENDIX C
DEMOGRAPHIC DATA SHEET

Participant Code: _____

Age: _____

Sex: Male Female

Ethnicity: _____

Race: _____

Years Experience as a Nurse: _____

Years Experience as a Pediatric Oncology Nurse: _____

Educational Background:
(Circle All that Apply)

ADN

BSN

LPN

RN

Pediatric NP

Pediatric Oncology NP

APPENDIX D
INTERVIEW QUESTIONS

1. When a child between the ages of 5 and 18 has been newly diagnosed with cancer (meaning given a diagnosis of childhood cancer but not yet begun treatment), what strategies do you use to initiate communication with the child about the child's fears, questions, or concerns?

2. What are the fears/concerns that you anticipate the child having after being given a diagnosis of childhood cancer?

3. What are barriers that may be present that would prevent the child from discussing his fears/concerns regarding diagnosis with you?

4. With the aforementioned barriers possible/present, what are your personal practices in helping the child deal with the barriers?

5. Is there anything else that I have not asked you about that you would like me to know about your experiences?

Factors Associated with the Provision of Community Benefits in California Hospitals

Tae Hyun Kim, Governors State University
Michael J. McCue, Virginia Commonwealth University
Jon M. Thompson, James Madison University

INTRODUCITON

The primary focus of this study relate to the hospital decision to fund unprofitable services that may be related to the level of community benefit. Community hospitals in the United States have experienced a substantial rise in the burden of community benefit over the past few years. Many services, including highly specialized inpatient services such as neonatal intensive care, burn care, and renal services, as well as palliative care services, are considered "community benefit" services because these services address a specific community need, but generate a low or negative margin.[i] In addition, community health promotion efforts by hospitals as well as the adoption of a community health orientation are also considered community benefit services, and have been found to be negatively correlated with financial performance in hospitals.[ii] Therefore, certain patient services offered by not-for-profit community hospitals are essential to documenting community benefit under their tax-exempt, not for profit status.

In addition, recent anecdotal evidence suggests that total uncompensated care costs combining bad debt and charity care increased to $31 billion in 2006 from $22 billion in 2001.[iii] Uncompensated care as a percentage of total hospital costs is over 10%, though it declined slightly nationally from 12.9% in 2003 to 11.5% in 2005, according to a recent report analyzing the Medicare cost reports.[iv] With increasing number of Americans without health insurance[v] and the recent downturn in the U.S. economy, the level of uncompensated care provided in community hospitals is likely to increase.

Currently, however, there is an ongoing debate about whether hospitals, especially not-for-profits, are providing sufficient levels of uncompensated care and community benefit. In exchange for tax exemptions, not-for-profit hospitals are required to provide community benefit and other benefits to their community. The Congressional Budget Office (CBO) says that not-for-profit hospitals received more than $12 billion in tax breaks in 2002.[vi] However, an Internal Revenue Service (IRS) report found that 45% of not-for-profit hospitals spend 3% or less of their revenue on uncompensated care.[vii] Increased scrutiny regarding uncompensated care and community benefit of not-for-profit hospitals may be fueled in part by growing profitability of community hospitals. Total margins for the nation's hospitals increased from 4.2% in 2001 to 6.0% in 2006, and the operating margins rose from 2.7% in 2001 to 4.0% in 2006.[viii]

The profitability and community benefit issues for community hospitals raise important empirical and practical questions for policymakers and administrators. What level of community benefit is enough? Should a hospital with a better financial condition provide a higher level of community benefit than a facility operating with lower cash flow margins or a lower level of cash and investments and long-term debt?

The primary purpose of this paper is to report findings from a study undertaken to assess the relationship of financial and mission characteristics of private, short-term acute care hospitals in California to their provision of community benefit. In this study, we use California data because California is one of the highest-ranked states in the U.S. for uncompensated care costs.[viii] In 2003, total uncompensated care costs were more than $5 billions in California.[ix] This paper addresses four research questions: 1) Do private hospitals with strong operating cash flow from operations provide a higher proportion of community benefit?; 2) Do private hospitals with high amounts of cash and investments provide a higher proportion of community benefit?; 3) Do hospitals with high levels of debt provide a lower level of community benefit?; and 4) Do hospitals offering a higher level of uncompensated care provide a greater number of community benefit services? Our study contributes to the literature by analyzing the association of financial and mission factors with community benefit, including a hospital's cash flow and uncompensated care.

The answers to these questions have important implications for policymakers and managers. Policymakers who ponder the appropriate level of community benefit in community hospitals will find it helpful to understand the relationship of community benefit in a hospital to financial and mission indicators. Study findings that show key

predictors of community benefit can inform the policy debate as to the appropriate levels of community benefit that may be expected in community hospitals. This study also has managerial implications. Hospital administrators will benefit from the study findings that show those factors that are associated with levels of community benefit which shape their ability to provide care to those who cannot pay for that care. Findings, therefore, will be of value in pointing administrators to financial decisions that could increase or decrease their level of community benefit.

LITERATURE REVIEW

There is considerable literature that has addressed hospital provision of community benefit, and that factors that are associated with uncompensated care. This literature is summarized below by referencing studies that address mission and financial factors, as well as the control factors representing market and operational variables, that are associated with the provision of community benefit.

Financial factors

The empirical evidence for the association of financial performance and community benefit is mixed. One can expect that financial surpluses in previous years may be related to decisions to provide services in the current year.[x] Specifically, Frank and Salkever and Gaskin hypothesized that one of the important determinants of the provision of uncompensated care is the hospital's financial surplus (i.e., income effect), but found insignificant results.[xi,xii] However, Bryce did indeed observe that hospitals with higher fiscal capacity, measured by gross patient revenues and net patient revenues, provide more community benefits.[xiii] Using a panel of private, not-for-profit hospitals in Pennsylvania during 1995-1998, Rosko also added empirical evidence that the provision of uncompensated care in the current year is positively associated with the financial surpluses in previous years, which are measured by both operating and non-operating income.[xiv] In another study, however, Sutton and Stensland found that a hospital's financial health was not associated with charity care expenditures, though they hypothesized that overall level of charity care will depend on past financial performance and that hospitals that are in a more secure financial condition will be more willing to spend funds on charity care.[xv]

While previous studies used revenue or income measures to account for the influence of financial surplus, there are at least two reasons for using cash flows to assess the financial performance of hospitals. First, hospitals are capital intensive entities that follow general accounting principles in their income statement by accounting for the wear and tear of equipment although no actual financial cash outflow occurs for the expense of depreciation expense on their statement of operations. Second, reported profit measures from the income statement fail to account for cash flow changes occurring within the current asset and current liability accounts of the balance sheet. Since the majority of the hospital revenue transactions are purchased on credit, one of the primary current asset accounts that profits fail to adjust for are the cash flow transactions related to the collection of accounts receivable. For example, a hospital may experience high profits but poor cash flow because of its inability to collect on its receivables. Kane's study illustrates the importance of measuring cash flow rather than profits in assessing the financial condition of hospitals.[xvi]

In addition, this study is different from prior studies in that the study assesses the free-cash flow of the hospital.[xvii,xviii] Free cash flow measures not only the hospital's cash flow transactions related to the income statement and working capital accounts but also accounts for the cash outlays transaction for its capital expenditures related to the purchase of plant and equipment. In a corporate finance study, Jensen argued that large free cash flows increase agency costs that are spent to monitor the managers' behavior to ensure that they are maximizing the wealth of the owner(s).[xvii] Managers with substantial free cash flows may misuse the funds to increase their own utility at the expense of shareholders: free cash flow can be wasted on extensive capital investment projects in order to increase the managers' own power by increasing the firm size. Thus, the problem is how to motivate managers to retain the cash rather than investing it at below the cost of capital or wasting it on organization inefficiencies.

Agency costs associated with free cash flow can arise if managers of not-for-profit organizations have an incentive to utilize free cash flow for excessive capital investment that may address their personal goals, but which may not be profitable or may not correspond to the mission of the nonprofit organization.[xix] Further, the ability to discipline management may be curtailed, since the market for control of the enterprise is hampered by the absence of publicly traded equity in not-for-profit organizations.[xix]

Following free cash flow theory, Kauer and Silvers claim that for-profit hospitals should return their excess cash back to stockholders by either paying out a dividend or buying backing their stock.[xviii] Since tax-exempt hospitals do not have any stockholders, they are unable to return their excess cash back. Instead, the authors recommend that tax-exempt hospitals with free cash flow should be returning this excess cash back to the community in the form of charity care or lower prices. Magnus, Smith and Wheeler, however, posit that not-for-

profit hospitals that lack market oversight of managerial decisions with free cash flow might engage in wasting cash on low-yielding investments and extensive capital projects, rather than charity care.[xx]

Another important financial factor is the role of debt in hospitals. In addressing the agency implications of debt in not-for-profit hospitals, Magnus, Smith and Wheeler proposed that debt may crowd out charity care.[xx] They argued that the burden of debt, such as restrictive bond covenants and debt-service obligations, may force the hospital's managers to adopt a more bottom-line orientation and to focus on profitability, rather than on charity care.

Mission factors

Mission factors that may be associated with the provision of community benefit are generally reflected in ownership, teaching status, and system affiliation. Empirical research typically has focused on comparing the two ownership types, private not-for-profit (NFP) hospitals and for-profit (FP) hospitals, because they have different mission objectives which may influence the provision of charity care. While NFP hospitals are usually expected to include the provision of charity care as an important organizational goal, FP counterparts whose primary purpose is to maximize the wealth of stockholders are typically expected to provide less charity care than NFP hospitals.[xxi] Frank, Salkever and Mullann used the National Hospital Discharge survey data and demonstrated that for-profit hospitals serve significantly lower percentages of uninsured discharges than secular or church-affiliated non-profit hospitals and public hospitals.[xxii]

Using 1996 data from California hospitals, Clement, White and Valdmanis found that in mixed ownership markets, for-profit hospitals provide significantly less charity care than not-for-profit hospitals.[xxi] However, Hultman argued that not-for-profit and investor-owned system hospitals are becoming more similar in levels of community benefit provided.[xxiii] Using 1981 data, Norton and Staiger found that NFPs and FPs provided similar levels of charity care but that FPs were more likely to locate in areas with less need for charity care.[xxiv]

In addition to ownership, teaching status may be closely related to community benefit. Teaching hospitals have received relatively generous indirect medical education payments from Medicare that may subsidize the provision of community benefit.[xxv] Many teaching hospitals are located in low-income areas in their communities, and hospitals might transfer stabilized, non-paying patients to other institutions, especially major teaching hospitals.[xxvi] In fact, Weissman, Gaskin and Reuter found that the market share of uninsured patients during the 1990s grew at academic health center hospitals relative to other hospitals in their service areas, and these increases occurred primarily in areas with high levels of managed care.[xxvii] Rosko argued that there may be a link between "high-tech" care that teaching hospitals provide and socioeconomic factors that are correlated with the need for "high-tech" services and the absence of insurance.[xiv] Hoffman and Schlobohm suggest that the uninsured use fewer preventative services than the insured, and that among those admitted to the hospital, the uninsured are more severely ill than the insured.[xxviii] Lastly, empirical evidence on the effect of system affiliation on the provision of community benefit is sparse. Although system affiliated hospitals may have greater capacity to provide more community benefit than freestanding hospitals, Sanders found that whether or not a hospital is part of a system may not be significant in determining community benefits.[xxix]

The primary focus of this study is to assess the relationship of financial and mission factors to community benefit. In addition, to control for market and operational factors, we included measures of these effects in our models, which we discuss below.

Market factors

Several studies have examined the association of market factors with the provision of community benefit. First, hospitals may respond to the need or demand for community benefit in the local market. While arguing that an ideal way to reflect the need for uncompensated care is to employ a direct measure of the number of uninsured individuals in the area, Rosko used the average annual unemployment rate in the market as a proxy for the need for uncompensated care and found its significance in the provision of uncompensated care by New Jersey hospitals.[xxx] Second, studies also suggest that the level of uncompensated care provided by a hospital is positively associated with their neighbors' provision of uncompensated care, since hospitals compete for public goodwill and legitimacy by providing levels of uncompensated care that are commensurate with those of their competitors.[xi,xii] In the 1984-1988 time period, Gruber also found that hospital care to the uninsured in the least concentrated markets in California reduced significantly, relative to more concentrated markets.[xxxi]

Third, state policy and HMO penetration are associated with provision of community benefit. Sutton and Stensland noted that hospitals operating in states with more prescriptive community benefit laws and minimum charity/community benefit standards (e.g., Texas and Washington) provided significantly more charity care than states like California that do not regulate the amounts of benefits that hospitals are responsible to provide.[xv] Using California hospital discharge data for 1988–1996, Currie and Fahr investigated whether increasing HMO penetration caused private hospitals to cut back on charity care.[xxxii] However, they found little evidence to support the hypothesis that the pressure from HMO penetration on the providers to reduce costs is causing existing private

hospitals to reduce their charity caseloads. Rather, private for-profit hospitals appeared to respond to HMO penetration by reducing the share of privately insured patients in their caseloads, and expanding the share of Medicare patients and Medicaid births which had become relatively more lucrative.

On the other hand, Davidoff et al. found that the level of Medicaid HMO penetration in the market had a negative association with uncompensated care provision for not-for-profit hospitals, and suggested that the negative effect of Medicaid HMO penetration on not-for-profit hospital payment rates and subsequent reduction in revenue may have influenced the provision of uncompensated care.[xxxiii] Recently, McKay and Meng observed that a higher percentage of private managed care patient days was associated with a decrease in uncompensated care as a percentage of total operating expenses among Florida hospitals.[xxxiv]

Operational factors

Operational factors related to community benefit that are commonly cited in the literature include facility size and efficiency. The number of hospital beds should control for scale effects, and larger hospitals may face more pressures for providing community benefit because they are more visible in the communities.[xi,xii] A study conducted by Bryce used the number of licensed beds of Texas hospitals as the measure of physical capacity and showed that the provision of community benefits is significantly and positively related to the operating constraint.[xiii] Based on 1992 Missouri data, Kwon et al. found that more efficient hospitals, as measured by higher occupancy rate, incurred significantly less bad debt cost than other hospitals.[xxxv]

METHODS

We focused on private, short-term, community acute care hospitals in California for several reasons. First, the California Office of Statewide Health Planning and Development (OSHPD) includes financial and operational data that are collected from hospitals' audited financial statements. Kane and Magnus found CMS Medicare Cost Report financial data elements to be inaccurate, especially depreciation expense, which is the key element in computing cash flow.[xxxvi] California OSHPD lists the key data elements of net patient revenue, other operating revenues, operating expenses, and current assets and current liabilities that are essential in computing reliable and valid operating cash flow measures. Second, California data provides timely financial information with the latest financial data reflecting fiscal years between July 2006 and June 2007. In contrast, the latest fiscal year for CMS cost report data do not end until July 2006. Third, California hospitals are also confronted by two recent state mandates: the capital expenditure pressures of seismic retrofitting of their hospitals, and minimum nurse staff to patient ratios requirement, which was enacted in 2004. More than half of the hospitals in the state of California have not complied with this seismic mandate.[xxxvii] Therefore, this study will assess the financial performance of acute-care hospitals by controlling for these state requirements, since they may also consume funds directed toward charity care.

Sample

To address our research questions, we selected short-term, private, acute-care community hospitals from the California Office of Statewide Health Planning and Development (OSHPD) database. We excluded from the sample public hospitals and specialty hospitals including children's, hospice, physical rehabilitation, mental health and psychiatric hospitals, and long-term acute care hospitals. We also excluded Kaiser Hospitals because they did not provide financial data for their hospitals. This resulted in an initial sample of 229 private acute-care hospitals. In terms of ownership, 65% of facilities were non-profits and 35% were for-profits. The average occupancy rate and staffed bed size were 60% and 190, respectively.

To control for any accounting variations with a given year and to reflect consistency of cash flow performance, we selected from this initial sample only those hospitals that reported three consecutive fiscal years of operating and financial data and accounting periods of at least 365 days. We then computed an average value for the operating and financial measures for each hospital over the three fiscal year period. The most recent data for computing the average operating cash flow had fiscal years ending between July 1, 2006 and June 30, 2007. To account for the effects of past financial and operational performance, the most recent data for computing the other financial and operational measures were lagged by one year with the most recent fiscal years ending between July 1, 2005 and June 30, 2006. As a result, the final sample included 193 private, acute-care hospitals with 80% of the sample facilities being non-profit, and 20% of the sample facilities being for-profit. The final sample's average occupancy rate and staffed bed size were 71% and the 201, respectively. Overall, the final sample represented 84% of the initial population; however this sample was over-represented by non-profit hospitals and under-represented by for-profit hospitals. Under-representation of the for-profits may stem from the sale of hospitals by Tenet Healthcare System, an investor-owned healthcare system that announced it sold 19 hospitals in California during this time, which resulted in some facilities with fiscal year data less than 365 days.[xxxviii]

Variables

The operational definition of each variable and its mean and standard deviation are presented in Table 1.

Dependent variables

Community benefit is measured by identifying those hospital inpatient, outpatient and educational services that are typically revenue neutral, and are provided to meet the greater community need rather than to generate profits. Following the American Hospital Association and Catholic Health Association guidelines for reporting community benefit, we developed an index of services, including neonatal intensive care, burn care, and other inpatient and outpatient services, and also included whether a hospital served as an educational setting for physicians. The index was measured by counting the number of the services reported as available at each hospital.[xxxix]

Independent variables

The independent variables included in the study represent market, mission, operational, and financial factors. The market variables reflect the demand for community benefit as well as hospital services, the degree of hospital concentration, and the influence of managed care organizations. To define the hospital market, we used both California Medical Service Study Areas (MSSA) and county. MSSAs are used to determine medically underserved areas and reflect sub-county and sub-city geographic units. For large urban counties such as Los Angeles, Orange and San Francisco, Medical Service Study Areas (MSSA) numbers were aggregated to the first decimal point. For California hospitals in rural and frontier counties, the MSSA were summed to the county level, since the MSSA was too small for a market area. For the percentage of population that is uninsured, the data were extracted from the public use file of the California Health Interview Survey (CHIS). This variable measures the number of uninsured by county.

The demand variables were measured by percentage of population below poverty line, population size, level of uncompensated care by county, and percentage of uninsured by county. To measure the influence of managed care and a hospital's market dominance, HMO penetration rate and hospital's market share were employed, respectively.

Mission factors were measured by the ownership status variable of for-profit vs. not-for-profit. In addition, two binary variables measuring hospital teaching status and system affiliation were included. With regard to uncompensated care, the OSHPD Accounting and Reporting Manual for California Hospitals develops a measure combining bad debt and charity care. Charity care measures patients who qualify for charity and are unable to pay for health care services. The Accounting and Reporting Manual for California Hospitals requires hospitals to report these charity care cases at established charges and list this account as deduction from revenues. In terms of bad debt expense, the California OSHPD database does not follow AICPA Audit and Accounting Guide for Health Care Organizations,[xl] which treats bad debt as an operating expense. In contrast, OSHPD requires hospitals to measure bad debts as accounts receivable which are considered to be uncollectible due to the patient's unwillingness to pay. Therefore, bad debt is listed as a deduction from revenue. Following Rosko[xli], this study also subtracts Disproportionate Share Payments (DSH) from uncompensated care measure. The DSH program uses state and matching federal funds to compensate hospitals that treat a high disproportionate share of Medicaid and low-income patients. In addition, the DSH program was established to create an incentive for private hospitals to service charity care cases.[xxxii] Therefore, because DSH payments are compensating hospitals for serving community benefit, they should be adjusted against their bad debt and charity care costs.

Operational factors, such as occupancy rate and bed size, represent measures of capacity. Occupancy rate measures capacity by accounting for the number of occupied beds, whereas bed size measures the number of staffed beds. RN FTEs per 1000 patient days measure state requirement. The percentage of Medicaid discharges per total discharges measures Medicaid patient mix.

Finally, financial variables are measured by the free cash flow, days cash on hand, long-term debt to total capital, and capital expenditure variables. Several studies have emphasized the importance of measuring cash flow rather than profits and have used this measure in evaluating financial performance of hospitals.[xvi,xlii,xliii,xliv] This study uses cash flow from the statement of cash flow, specifically the cash flow from operating activities and non-operating revenue and adjusts this value by subtracting capital expenditures for the year to arrive at "free cash flow". Thus, free cash flow is defined as net income plus non-cash expenses of depreciation as well as working capital adjustments minus capital expenditures. Free cash flow accounts for all the remaining cash flow available after accounting for all cash inflows and cash outflows, including cash outlays for capital.[xviii]

A hospital's level of cash and investments were measured by the sum of cash, temporary investments, and long-term investments scaled by (total operating expenses – depreciation expense)/365. With regard to measurement of debt, the ratio of long-term debt to total capital was used.

RESULTS

Table 2 presents the multivariate analysis showing the relationship of predictor variables to community benefits in hospitals. Among the financial factors, both long-term debt to total capital and free cash flow variables showed statistically significant negative coefficients. This suggests that higher level of debt or financial leverage is negatively associated with the level of community benefits, and higher level of free cash flow is also negatively associated with private hospitals' provision of community benefits, other things being equal.

Among the mission factors, the coefficients for system affiliation were positive and statistically significant in the inpatient services and research and education services, but not in the outpatient services models. Perhaps a more interesting finding is the fact that the coefficients on the not-for-profit ownership variable were not statistically significant in any of the three services, while its interaction term with free cash flow measure was consistently positive and statistically significant. This may suggest that not-for-profit hospitals with high free cash flow are returning this excess cash to the community by providing community benefit. On the one hand, the uncompensated care measure was not significant in any of the models. This is somewhat surprising, because the previous literature[ii] suggests that hospitals providing a range of subsidized and revenue neutral inpatient, outpatient and educational services would be likely to provide higher levels of community benefit.

The majority of the coefficients for market factors were consistent across the three models. In particular, the percentage of uncompensated care in the county is positively associated with all three measures of hospital community benefit, although it is only marginally significant in the inpatient services model. The remaining market factors had no significant effect on hospital's level of community benefit.

In terms of operational factors, two variables, the ratio of nursing staff to patient and the proportion of Medicaid patients, are statistically significant. The coefficients for the nursing staff ratio were positive in all three models, however, their statistical significance was found in only two models (i.e., inpatient services and research and education services model). Estimation results with respect to the proportion of Medicaid patients were as expected. Not only are the negative coefficients statistically significant, but also they are larger than other operational variables in the magnitude of the effect on the community benefit measures.

Discussion

The aim of this study was to examine the relationship of financial and mission factors to the provision of community benefit in community hospitals. With regard to financial factors, strong, negative association between free cash flow and community benefit may be attributed to the content of free cash flow theory. According to Jensen, the availability of free cash flow often provides incentives for managers to "over-invest" in unprofitable investment projects.[xvii] This outcome may occur because managers may consider expanding the firm's asset base by investing in even money-losing projects in order to increase their own power and compensation.[xvii] Consequently, undistributed cash flow that might otherwise be used to fund charity care may have been allocated toward perks and facility and equipment expansion.

However, the use of free cash flow in not-for-profit hospitals was likely very different from that in for-profit hospitals. In a for-profit setting, shareholders want free cash flow kept to a minimum in order to prevent management from wasting cash on perks, low-yielding investments, and empire building and have it returned to them. A typical distribution strategy is to dispense free cash flow in the form of regular or special dividends or through share repurchases.

Not-for-profit hospitals, on the other hand, may dispose of free cash flow by serving the needs of the community in the form of community benefit. In this study, we found that the role of free cash flow in a not-for-profit hospital is different when assessed through the theory of agency costs. Not-for-profit hospitals with higher level of free cash flow provide a greater proportion of community benefit, which is in contrast to prior studies. Both Kauer and Silvers and Magnus, Wheeler and Smith proposed that not-for-profit hospitals with free cash flow will likely engage in excessive capital investment since they cannot return funds to the market through stock buybacks and/or dividend payments.[xviii,xx]. Moreover, even if the community-at-large, the implied stockholders / owners of the nonprofit facility, want their hospital board and management to use free cash flow to fund charitable services, it is still possible that managers of the hospital, who serve as agents for the owners, may look out for their own financial interests, such as a higher salary, and not the interests of the stockholders. In the case of hospital managers, they may utilize this excess cash to expand the capacity, technology, and equipment of the hospital, which may be viewed as redundant or excessive from the community's perspective. As a result, managing a larger facility may enable management to negotiate a higher level of compensation.[xvii,xix]

Jensen argues to avoid this type of agency problem and better align management goals with owners/ stockholders, organizations need to implement controls, which in the case of equity may include independent audits of the company.[xvii] In today's healthcare environment, these controls may be derived externally in the form of

heightened Congressional, Internal Revenue Service and state scrutiny of compensation for hospital executives as well as the allocation of hospital free cash flow to fund charity in order to treat the growing numbers of uninsured and underinsured persons.

Findings for the financial variables indicate that the provision of community benefit is related to debt capacity and free-cash flow performance of the hospital while liquidity, specifically the cash and investment cushion, of the hospital is not associated with community benefit. Hospitals with higher levels of debt increase their risk of bankruptcy, which eventually will threaten the institution's survival. This will cause intervention by the debt markets, and thus, may result in the lack of cash to distribute a community dividend in the form of the provision of community benefit. This outcome may be associated with the proposition of Magnus, Smith and Wheeler that debt may crowd out charity care.[xx]

Hospitals with higher levels of cash and investment are not allocating these funds to community benefit. Instead, the continued demand by credit rating agencies for hospitals to build up and hoard their cash and investments in order to achieve a higher credit rating, as well as a lower cost of capital coupled with the higher returns they can earn from their investments, may be the underlying reasons for not expending their cash holdings.[xlv]

We also found that uncompensated care was not related to level of community benefit. This finding suggests that hospitals offering a higher number of community benefits services did not have higher levels of uncompensated care. This outcome may also reflect that hospitals may be allocating their community benefit in the form of either higher uncompensated care or higher levels of community services, but not both. Buchmueller and Feldstein argued that though commonly provided community benefit programs would benefit members of the community, they may differ substantially from inpatient charity care in terms of which members of the community are served.[xlvi] For example, many programs targeted mainly at general populations will do little to meet the most pressing unmet needs of the uninsured.

The finding that system affiliation is significantly related to level of community benefit suggests that membership in a hospital system may provide greater access to financial and administrative resources at the system level, and perhaps provide resource munificence and stability in responding to the needs of the environment.[xlvii] When facing increasing demand for community benefit, system-level support for keeping the hospital financially viable may help alleviate the burden of community benefit.

The study included market and operational factors as control measures and found a limited number of these measures to be significant. The levels of a hospital's community benefit may be related by competing hospital's provision of community benefit, as evidenced by increases in provision of community benefit in areas with higher total amount of community benefit. These findings are consistent with the rivalry hypothesis by Frank and Salkever that posits that hospitals compete for public goodwill by providing charity care.[xi]

Among the operational factors, the positive association of ratio of nursing staff to patient days with community benefit suggests that hospitals with a higher nursing staff ratio are likely to provide a greater level of community benefit or, conversely, hospitals with lower nursing staff ratio are likely to provide a lower level of community benefit. This may be related to the association of nursing staff ratio and financial performance. A recent study evaluating nurse staffing trends in California suggests that the hospitals that are likely to be below minimum mandated ratios are often financially struggling facilities.[xlviii] On the one hand, Medicaid share was inversely related to community benefit. Since Medicaid is known to have the lowest reimbursement rates for many common services and procedures[xlix], the financial performance of hospitals with a greater percentage of Medicaid admissions may decline. Eventually, hospitals with a high proportion of Medicaid patients may find that their financial position has deteriorated to such an extent that they may have to reduce community benefit to survive.[xiv]

In the future, non-profit hospitals with high free cash flow in California may face an array of obstacles in serving their community needs in the form of community benefit. A host of factors, including a rising uninsured population, slowing growth in Medicare and Medicaid reimbursement due to a declining economy, shifting of consumers to high deductible health plans, and increasing healthcare supply and capital costs, may erode away any excess cash and reduce not-for-profit hospitals' ability to maintain current levels of community benefit. Additional research should examine changes in community benefit levels over time as California hospitals address these increasing and significant influences.

Table 1. Variables, Measures, Mean, and Standard Deviation.

Variables	Measures	Mean	Std. Dev.
Dependent Variables			
Community benefits	Inpatient services: Burn, Hospice, psych acute adult, psych-LTC, renal, NICU, Trauma, Emergency services, Psych ER and Delivery Room Services. trauma, emergency services, psych ER and delivery room services	3.748	1.876
	Outpatient services: Home Nursing care, adult day care, family planning, psych, Parent Training Class, Public Health Class	2.064	1.478
	Research and education services: Approved Residency and Medical Research	0.484	0.694
Financial Factors			
Free cash flow	Net income plus non-cash expenses of depreciation as well as working capital adjustments minus capital expenditures	0.006	0.080
Days cash on hand	(Cash+short-and long-term investments)/[(Total operating expenses – depreciation)/365]	66.158	74.093
Long-term debt to total capital	1, public hospitals; 0, otherwise	0.533	0.654
Mission Factors			
System affiliation	1, system-affiliated; 0, free-standing	0.431	0.496
Not-for-profit	1, if private not-for-profit ownership; 0 otherwise	0.802	0.399
Not-for-profit*free cash flow	Not-for-profit ×free cash flow	-0.001	0.062
Teaching status	1, if teaching hospital; 0 otherwise	0.053	0.225
Uncompensated care	{(Charity care + bad debt)×Ratio of Cost to Charge)}-DSH payment]/total operating expenses	0.019	0.033
Market Factors			
% Population below poverty	Percentage of below poverty level /5	6.852	1.097
Log (population size)	Log of population in the market area	7.434	1.934
County uncompensated care	Sum of total uncompensated care in county	0.045	0.018
Hospital market share	Discharges/total admission in market	0.148	0.117
% Uninsured	Percentage of uninsured in county	13.528	3.252
HMO penetration rate	HMO penetration rate	0.433	0.177

Operational Factors			
Occupancy rate	Inpatient days/(facility beds*365)	0.712	0.188
Nursing FTEs per patients	RN FTEs/patient days	1.798	0.460
Bed size	Number of staffed beds	201.324	150.010
% Medicaid patients	Medicaid discharges / total discharges	0.220	0.150
Capital expenditures	Capital expenditures/depreciation	1.524	0.922

Table 2. Multivariate Analysis of Uncompensated Care

	Inpatient services		Outpatient services		Research and education services	
	Coef.	Sig.	Coef.	Sig.	Coef.	Sig.
Financial Factors						
Free cash flow	-0.118	***	-0.142	***	-0.156	***
Days cash on hand	0.000		-0.002		-0.002	
Long-term debt to total capital	-0.008	**	-0.007	**	-0.008	**
Mission Factors						
System affiliation	0.007	**	0.006		0.008	**
Not-for-profit	0.008		0.008		0.008	
Not-for-profit*free cash flow	0.114	**	0.148	***	0.135	**
Teaching status	0.002		0.002		-0.001	
Uncompensated care	-0.001		0.000		0.000	
Market Factors						
% Population below poverty	0.001		0.003		0.002	
Log (population size)	-0.001		-0.002		-0.003	*
County uncompensated care	0.205	*	0.432	***	0.848	***
Hospital market share	-0.010		-0.006		0.002	
% Uninsured	-0.039		-0.006		-0.080	
HMO penetration rate	-0.010		0.000		-0.017	
Operational Factors						
Occupancy rate	-0.005		-0.010		-0.009	
Nursing FTEs per patients	0.008	**	0.005		0.010	**
Bed size	0.088		-0.014		0.062	
% Medicaid patients	-0.116	***	-0.119	***	-0.118	***
Capital expenditures	-0.169		0.016		-0.147	
Constant	0.015		0.023		0.032	

* Significant at the 0.1 level
** Significant at the 0.05 level
*** Significant at the 0.01 level

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