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# Investigation of The Influence of Malcolm Baldrige National Quality Award (Mbnqa) On Health Service System Performance

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## ABSTRACT

**Objective:** The purpose of this research was to determine whether the application of the Malcolm Baldrige National Quality Award in health services can lead to efficiency in health services. **Design/methodology/approach:** This research explores the longitudinal outcome data of the Malcolm Baldrige National Quality Award in healthcare in terms of patient outcomes, as well as financial measures and healthcare efficiency and profitability. **Findings:** To support the hypothesis, the Baldrige National Quality Award in healthcare results in an increase in positive clinical outcomes, while financial measures and healthcare efficiency all show very positive operative outcomes.

**Keywords:** Malcolm Baldrige National Quality Award, Health Service

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## 1. Introduction

### 1.1 Background

The purpose of the Malcolm Baldrige National Quality Improvement Act was to provide a framework for businesses and organizations to improve the quality of the goods and services they produce and provide (One Hundredth Congress, 1987). While the Baldrige Program's effectiveness has been evaluated and validated in other industries (Baaldrige Stock Study, 2011), little research has been done to validate the effectiveness of the Baldrige process in healthcare. Hospitals that win MBNQA are organizations that have reached a maturity level of performance that should lead to better outcomes and enable them to outperform the competition (Montoya, 2011). Although there are many papers describing what the Baldrige Program is and its value to organizations (DeCarlo, 1990; Rayner, 1992; Hodgetts, 1994; Frank & Chapman, 1995; Townsend & Gephardt, 1996; Frank, 1996; Frank, 1997; Meyer, 1998; DeBaylo, 1999; Ugwueke, 2001; Kelley, 2002; Meyer Goldstein & Schweikhart, 2002; Nesbitt, 2006), there are several published empirical studies that test the hypothesis that the Baldrige Criterion actually improves the overall performance of healthcare organizations (Kelley, 2002). ) and there are very limited studies focused on the healthcare industry exclusively.

## **2. Literature Review**

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### *2.1 Heading-level 1*

Total quality management is a management approach for building quality awareness into the day-to-day operations of an organization, thereby integrating these principles into every decision and activity throughout the organization's value chain (Evans, 1992). The three principles of TQM include meeting and exceeding patient expectations, reducing and preventing errors, and measuring the costs of not doing something right the first time.

The main contribution of quality programs is forcing people to understand explicitly and customers' implicit needs (Kotler, 1986) and enable them to translate these needs into specific product and process responses (Handfield & Ghosh, 1995). Research has shown that companies that adopt quality not only as a program, but also as a way of doing business, enjoy the greatest benefits, but quality programs must become part of the organizational culture. Through TQM, an organization can maintain customer focus and continuously improve in order to better customize and satisfy customer needs (Duke & Price, 1993). As DA Crosby points out, "What costs money is things that aren't quality – all actions that include not doing the job right the first time" (McMurtrie & Gupta, 2003, p.23)

The meaning of these seven diseases is very clear because they are the root of the problem that the 14 points must deal with: failure to follow the 14 points results in a deadly disease. Ignoring just one point tends to multiply the effect across the organization and thereby cripple TQM efforts (Elshennawy & McCarthy, 1992). These illnesses are not the only obstacles that must be overcome in order to have a successful TQM philosophy for work. There are also many obstacles that Deming discussed that management must be aware of and overcome. These barriers should be clear to any company actively seeking quality improvement through TQM (Walton, 1986):

- Ignoring long-term planning
- Rely on technology to solve problems.
- Look for examples to follow rather than develop solutions.
- Reasons, such as "Our problems are different".
- Obsolescence in school.
- Reliance on quality control department.
- Blaming workers for problems.
- Quality by inspection.
- Wrong start.
- Unmanned computers.
- Meeting specifications.
- Inadequate prototype testing.
- The idea that "anyone who comes to try to help us should understand all about our business".

The story are the contributions of Joseph Juran, Genichi Taguchi and Armand Feigenbaum, all of whom brought the message of statistical methods to this issue as applied to quality control. Juran's acid test for quality focuses on the customer for the products and services provided. He believes

all quality control should be based on developing processes that deliver the highest quality product or service in the most economical manner. (McMurtrie & Gupta, 2003). Losses that occur before and after delivery of a product or service to customers form the theme of Genichi Taguchi's approach to quality. These losses include those incurred during production, those arising through warranty claims, and those due to performance failures and dissatisfied customers (McMurtrie & Gupta, 2003). According to McMurtrie and Gupta, Taguchi's philosophy has two strands: first, reducing variation in a product or process represents lower loss to society, and second, developing appropriate strategies can intentionally reduce variation. Taguchi looks at the design and development phases and the product life cycle which is divided into three stages: system design, parameter design, and tolerance design. National Malcolm Baldrige Health Care Criteria for Performance Excellence. Since 2005, more than 50% of all applicants for MBNQA have come from the healthcare industry (Foster & Chenoweth, 2011). The Malcolm Baldrige Health Care Criteria for Performance Excellence were developed by industry and academic experts, and developed using concepts similar to the original MBNQA (Meyer, 1998). The 1995 pilot project demonstrated that the Malcolm Baldrige National Quality Award could also be valuable and relevant in the health and education sectors (Berman, 1995; Gropper, 1996; NIST, 2005). These criteria were piloted and 46 healthcare organizations completed applications for a pilot health award study (Meyer, 1998). On October 30, 1998, President Clinton signed the 1998 Technology Act, thereby expanding the eligibility of awards for non-profit and nonprofit education and health organizations (Kelly, 2002). The Strength of the Malcolm Baldrige Criteria for Performance Excellence. organizations that assess performance, create awards, and provide feedback to applicants. When President Ronald Reagan signed the law into effect, there were three main goals behind strengthening the US. competitiveness. First, the goal is to help improve organizational performance practices, capabilities, and outcomes. Facilitating the communication and sharing of best practice information between US organizations of all types forms the second objective. The third objective is for law to serve as a working tool for understanding and managing performance, in addition to guiding organizational planning and opportunities for learning (NIST, 2005). According to NIST, although not prescriptive, Criteria are helpful in integrating performance management in organizations (2011). They were developed to lead to the delivery of ever increasing value to customers, thereby contributing to quality improvements, as well as improvements in overall organizational effectiveness, capabilities and organization and personal learning (NIST, 2011). Critics of the Malcolm Baldrige Criteria for Performance Excellence Over time, Malcolm Baldrige's Criteria for Performance Excellence has received criticism from various renowned quality gurus. Crosby for one believed NMBQA would serve no useful purpose and believed that the process was nothing more than filling out an exercise formular (Main, 1991). In addition, Deming called MBNQA nonsense (Chuan & Soon, 2000). Blumenthal and Epstein (1996) note that "Despite the apparent success in certain cases, there is so far no convincing evidence that the application of total quality management techniques in health care improves the quality of care across institutions or among physicians" (Shortell, Bennett). & Byck, 1998, p.606) Malcolm Baldrige National Quality Award and Its Influence on Organizational Culture. Based on the research of previous MBNQA recipients, difficulties in implementing program quality can be traced to the overarching changes in culture and processes that must occur throughout the organization to be successful (Bau, 1986; Sargent, 1986). A major problem plaguing the change management process is that managers have largely neglected to adapt quality initiatives to fit their own organizational culture (Hill, 1991). Saraph, Benson and Schroeder (1989) have suggested that it is critical for top management with the business unit to develop policies, quality departments,

and training tailored to the work that must be done to achieve the desired product or service outcome.

### **3. Research Methodology**

The experimental group includes all public hospitals, non-federal, acute care and health systems in the US that have won the Malcolm Baldrige National Quality Award in healthcare. This study is based on a single case research method designed to use visual analysis of graphic data for the interpretation of longitudinal pre and post results belonging to National Quality Award recipient Malcolm Baldrige. A unique feature of the single-case design is the ability to carry out experimental investigations with one subject or one case. The methodology is distinguished by incorporating multiple approaches and designs that rigorously evaluate interventions with one or a small number of cases (Kazdin, 2011). The interventions analyzed were changes in mean, level, trend and latency. This study uses interpretive procedures and visual analysis to address if there is a change in data patterns, as well as if the change corresponds to the year an organization becomes a recipient of MBNQA.

### **4. Results**

The results of this study are presented using line graphs and table data. The data is analyzed separately with research questions and also with hypotheses. For simplicity, only a sample line chart is provided in the body of the text with the line chart and the remaining table data provided in the appendix.

Research Question 1: To what extent does being a recipient of the Malcolm Baldrige National Quality Award in healthcare affect patient outcomes in hospitals?

For the purposes of this study, patient outcomes were defined as mortality, complications and patient safety indices. Health care reforms and the emphasis on value-based purchasing – linking reimbursement to outcomes – have made these patient outcome indicators increasingly important for hospitals and health care systems.

The first three research hypotheses answered this research question and were analyzed separately. The true victory of MBNQA serves as a proxy for the effective implementation of the Baldrige principle. Therefore, the three research hypotheses related to research question 1 are stated below:

H1: Winning the Malcolm Baldrige National Quality Award has a positive effect on risk-adjusted mortality.

H2: Winning the Malcolm Baldrige National Quality Award has a positive impact on risk-adjusted complications.

H3: Winning the Malcolm Baldrige National Quality Award has a positive effect on risk-adjusted patient safety

As described in chapter three, mortality, complications, and patient safety outcomes examined and scrutinized from three visual perspectives.

The rate of change from pre to post. Upon completion of the visual numerical analysis the codes were applied to changes in the mean rate of means for mortality, complications and patient safety. These data are coded as 1, 0 and -1. 1 being a positive change in the mean level of the facility, which means that mortality, complications and patient safety outcomes have decreased from pre to post. 0 means there is no change in level and -1 is a negative change in the mean level of the means, which means mortality, complications and patient safety outcomes have increased from pre to post. Six of the seven hospitals experienced positive changes in mortality and complications with five of the seven hospitals experiencing positive rate changes, thus supporting the positive effect of being an MBNQA recipient on patient safety.

Latency changes from pre to post. The next step is to code the change latency. Latency is determined by determining whether the first data point after becoming an MBNQA recipient is within or outside the high and low range of the pre-Baldrige receiver data. Once again, codes 1, 0 and -1 were used for the finding data. Code 1 states that the first data point after becoming an MBNQA recipient drops below the lowest pre-data point. The trend is changing from pre to post. The final step in this process is coding the trend data. A trend was established for the pre and post-datasets. The indicated improvement in mortality, complications and patient safety data before becoming MBNQA recipients, then a reversal in post-trend outcomes, indicating better outcomes for mortality, complications, and patient safety, was coded 1. If there was no change in trend from pre to post, regardless of whether it is a positive or negative trend, it is coded 0. Finally, if there was a negative trend prior to becoming an MBNQA recipient, and then the trend reversed and the negative post became an MBNQA recipient, then the code is -1. The mortality outcome showed five hospitals with no change in trend data (coded 0) and two hospitals that showed a positive trend reversal (coded 1), thus indicating a positive effect of being a recipient of the MBNQA. The trend results for complications showed three hospitals with no change in data trend (coded 0) and four hospitals that showed positive trend reversal (coded 84 1) indicating a positive effect of being MBNQA recipients. Finally, patient safety trends. The data revealed three hospitals with a negative trend (coded -1), two hospitals without a change in trend data and two hospitals with a positive trend reversal (coded 1) indicating nearly even distribution of results.

Research Question 2: To what extent is the recipient of the Malcolm Baldrige National

Quality awards in health care affect financial outcomes and efficiency in hospitals?

For the purposes of this study, financial outcomes and efficiency were defined as mean length of stay adjusted for severity, hospitalization cost per discharge and operating margin. The actual victory of the Malcolm Baldrige National Quality Award serves as a proxy for the effective implementation of the Baldrige principles. Therefore, the hypothesis is as follows:

H4: Winning the Malcolm Baldrige National Quality Award has a positive effect severity-adjusted mean length of stay.

H5: Winning the Malcolm Baldrige National Quality Award has a positive impact on cases mix and inpatient costs adjusted for wages per debit.

H6: Winning the Malcolm Baldrige National Quality Award has a positive effect adjusted operating margin

As described in chapter three, average length of stay, cost per debit and profitability are examined. The results have been examined from three visual perspectives.

The rate of change from pre to post. After completing the visual analysis, numerical codes were applied to the mean rate of change means for the average length of stay, cost per discharge and profitability. These data are coded as 1, 0 and -1. 1 being a positive change in the level for the mean of the means, which means that the average length of stay and cost per discharge decrease from pre to post and that the rate change increases from pre to post for profitability. 0 there is no change in level and -1 being a negative change in the mean level of the facility, which means the average length of stay and cost per discharge has increased from pre to post and profitability has decreased from pre to post. All seven hospitals experienced a positive change in the average length of stay, and five of the seven hospitals experienced a positive change in levels, thus supporting the positive effect of being an MBNQA recipient for the average length of stay and profitability, with two hospitals experiencing rate changes are negative for both of these indicators.

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