Organizational Culture of Mississippi Hospitals as Perceived by Laboratory Professionals

SABRINA BRYANT

ABSTRACT

From 2006 through 2008, patient safety events cost the Medicare program $8.9 billion and were associated with 99,180 hospital deaths.[1] Of the $2.5 trillion spent on healthcare in 2009, 2.3% or $57.5 million was spent on laboratory costs.[2] Reduction of laboratory-associated errors to 3.4 errors per 1 million tests could save money and lives.[3] The organizational culture of a facility has an impact on quality improvement implementation.[4] Clinical laboratories in Mississippi were surveyed to determine the predominant culture type as perceived by the medical laboratory professionals. Of the 1200 surveys mailed to 90 facilities, 272 were returned complete. It was determined that although the individual participant return rate was 28.6%, 49 of the 90 hospitals or 54.4% of the Mississippi facilities were represented through one or more individual participant responses. The culture scores revealed the following distribution for the individual respondents: group/clan culture scores were predominant for 106 (39.0%), hierarchical culture scores for 94 (34.6%), rational/market culture scores for 36 (13.2%), and developmental/adhocratic culture scores for 24 (8.8%) of the individual respondents. The remaining 12 (4.4%) individuals reported blended or codominant culture scores with 50% claiming a group/clan and hierarchical split. The consolidation of the data to represent the 49 healthcare institutions revealed a different distribution, with 24 (49%) as hierarchical culture, 22 (44.9%) as group/clan culture, and 3 (6.1%) as rational/market culture. Mississippi hospital data parallels previous findings with either hierarchical or group being the predominant organizational culture.

ABBREVIATIONS: MLS - Medical Laboratory Scientist, MLT - Medical Laboratory Technicians

INDEX TERMS: healthcare reform, organizational culture, quality improvement

Sabrina Bryant, PhD, MLS(ASCP)^{CM}, University of Southern Mississippi, Department of Medical Laboratory Science, Hattiesburg, MS

Address for Correspondence: Sabrina Bryant, PhD, MLS(ASCP)^{CM}, *University of Southern Mississippi, Department of Medical Laboratory Science, 118 College Drive 5134, Hattiesburg, MS 39406-0001, 601-266-4908, sabrina.bryant@usm.edu*

INTRODUCTION

Social trends can be tracked and documented as the driving force of cultural change in the healthcare industry. The focus on the cultural changes needed within the healthcare workflow design is necessary to reveal the failings of the healthcare system or, in this case, the growing need for quality of healthcare services delivery.[5] The development, implementation, and integration of technologically advanced resources through innovation will aid in compliance with mandated improvements and typification of the perpetual transformations associated with providing cutting edge, quality healthcare.[6] The process of systematic innovation is described as the "purposeful and organized search for changes, and in the systematic analysis of the opportunities such changes might offer for economic and social innovation."[7]

Organizational efficacy is predicated upon the concept that culture develops within an organization over time. Organizational culture is defined as the beliefs, values, attitudes, behaviors, and standards shared by individuals and/or groups within an organization.[8] The culture of an organization defines the organizational structure, which may impact individual and group contributions to the growth of an organization. Innovation is the foundation of economic stability in the healthcare industry and is essential for developing cultures. If an organization wants to survive economic instability and successfully evolve, it will refine or redesign its mission based on influences that relate to cultural attributes.

However, organizational innovation or change is limited by the predominant organizational culture.[9]

A review of the literature reveals that each organization has its own culture with features and attributes from one or more of the four culture types. Shortell described and evaluated four distinct types of organizational culture: clan, adhocratic, hierarchical, or rational.[10,11] Group or clan culture refers to the focus of organizations on internal maintenance with flexibility, concern, and sensitivity for customers. This culture emphasizes adaptability, individual creativity, mission, timeliness, and outcomes.[12] The leadership in clan or group culture supports employees much like a parent with a child. Developmental or adhocratic cultures focus on external maintenance with flexibility, concern, and sensitivity for all individuals.[10] Adhocratic culture is considered temporary or developmental and is more independent and accommodating than the group or clan type. Hierarchical organizations focus on internal maintenance with a need for stability and control.[10] This culture resembles a bureaucracy with a traditional structure and restrictive workflow. This regimented cultural type is a basic element for new or restructuring organizations. Market or rational culture is based on external maintenance with a need for stability and control, while rewarding achievement through objective-oriented and structured goals.[12,13] The adaptability and flexibility of the culture are a measure of an organization's ability to change.[9]

The primary purpose of this study was to identify the type of organizational cultures currently found in Mississippi hospitals as viewed by the clinical laboratory personnel. Since organizational culture plays a key role in the structural and operational systems of an institution, it is important to determine the type of culture before implementing changes.[14] Certain organizational cultures will promote successful implementation of quality improvement programs while others ensure failure when making significant changes.[15] Laboratory personnel are acclimated to change, which is common in the healthcare setting.

MATERIALS AND METHODS

At the time this research began, the Mississippi Hospital Association had on its roll 114 facilities. Twenty-four of these facilities were eliminated from the recipient list, leaving 90 facilities selected to participate. Approximately 3,500 clinical laboratory professionals are estimated to work at the Mississippi clinical sites.[16] Due to financial and time constraints, 1200 surveys were mailed to these 90 facilities. The survey, with a cover letter stating the purpose and significance of the study, as well as contact information, completion and submission instructions, a statement of gratitude for participation, and prepaid return packaging were mailed within two weeks of the first letter. A postcard reminder was sent to the laboratory managers one week after the anticipated survey receipt date. A second postcard reminder was sent two weeks after the initial survey. Eight weeks was the maximum time allotted from the delivery of the survey notification letter to return the survey, but due to low return rates the return date was extended for two months. A predetermined coding scheme was recorded and secured prior to survey mailing. Each hospital was given single to multiple letter designation (A – KKKK) and each survey was numbered (1-1200). Each coded survey was input to an Excel spreadsheet as the survey was returned. The Excel file was then imported into SPSS 19.0 for analysis. No pilot test was conducted because the instrument was validated over many uses for consistency to eliminate bias and reduce error.

Dr. Stephen Shortell's QUALITY IMPROVEMENT IMPLEMENTATION SURVEY II was utilized with permission to assess the organizational culture of Mississippi hospitals.[10,11] This instrument is based on a combination of the competing values map and was further modified to evaluate healthcare institutions using the basics of Baldrige's criteria for performance excellence.[10,11] The instrument identifies four organizational culture categories: Hospital A/group or clan culture; Hospital B/developmental or adhocratic culture; Hospital C/hierarchical culture; and Hospital D/market or rational culture.[10,11] Survey items 1 through 20 are divided into 5 classifications and required participants to distribute 100 points per item set to determine the predominant culture of the facility. Survey items 1 through 4 focused on the character of the hospital with regard to culture differentiation. Survey items 5 through 8 represented hospital managerial traits. Survey items 9 through 12 related to the cohesiveness of the hospital. Survey items 13 through 16 identified hospital emphases. Survey items 17 through 20 defined the reward systems of the institution.[9,11]

Each response in the item set was assigned a value from 0 to 100 by the respondents, as per the survey instructions. The survey items were summarized according to the guidelines provided with the Shortell instrument. Culture scores were derived by summing the survey items from each set. An average or mean was then calculated based on the number of responses. The survey items were totaled and divided by the number of responses for each culture type: group or clan culture survey items 1, 5, 9, 13, and 17; developmental or adhocratic culture survey items 2, 6, 10, 14, and 18.[10,11] Hierarchical culture survey items 3, 7, 11, 15, and 19; and market or rational culture survey items 4, 8, 12, 16, and 20.[10,11] The culture score reflected the predominant culture as rated by the participants. The scores may represent one or more than one type of organizational culture within a facility.[11,12]

RESULTS

Of the 1200 surveys mailed in July 2009, 249 were returned incomplete and were not counted. Of the 951 possible remaining surveys, 272 were returned complete by January 2010 and were used in this study. The Cronbach's alpha reliability testing results for survey items one through twenty is found in Table 1. Items with values greater than 0.70 are considered reliable for future survey use and factual result reporting. It was determined that although the individual respondent return rate was 28.6%, 49 of the 90 (54.4%) hospitals in Mississippi were represented through one or more individual responses.

Table 1. Reliability Test – Evaluation of test items as reliable survey items for repeated use.

N=272	Survey Item Numbers	Valid Response Number and Percentage	Cronbach's Alpha	Cronbach's Alpha on Standardized Items
Group/Clan	1,5,9,13,17	160 (58.6%)	0.869	.871
Developmental/ Adhocratic	2,6,10,14,18	127 (46.5%)	0.576	.594
Hierarchical	3,7,11,15,19	162 (59.3%)	0.860	.870
Rational/Market	4,8,12,16,20	147 (53.8%)	0.649	.649

Of the 272 responses, 197 (72.4%) reported facility ownership as being publicly-owned and 75 (27.6%) as being privately-owned. When the data was compiled to represent the 49 facilities, they were reported as 36

(73.5%) publicly-owned and 13 (26.5%) privately-owned. There is a slightly positive correlation (0.115) between facility size and organizational culture indicating that the relationship is not due to chance and would probably not become stronger with a larger sample size. An insignificant p-value of 0.058 should be looked at carefully as it is close to α and may be masked by intervening variables. The statistical variation may be due to the recent changes in ownership through mergers, acquisitions, and closures, as well as changes in service needs.

The facility size as determined by the number of beds in a facility was reported by the 272 individual respondents with the distribution summarized in Table 2. Of the 272 respondents, 186 (68.3%) reported working at a facility with at least 100 beds and 28 (15.1%) of the 186 worked at facilities with more than 500 beds. When the survey results were summarized by facility, 24 (49%) of the 49 facilities reported having at least 100 beds and 3 (12.5%) of the 24 reported having more than 500 beds. According to the 2011 Mississippi Hospital Association membership directory and the current American Hospital Directory, the 49 institutions represented actually have the following distribution, 13 (26.5%) less than 50 beds, 11 (24.5%) with 50 to 100 beds, 14 (28.6%) with 101 to 250 beds, 6 (12.2%) with 251 to 500 beds, and 5 (10.2%) with more than 500 beds. There is a slightly positive correlation that organizational culture is associated with the facility size at (0.210), p-value of 0.001, which is significant at 0.001.

Table 2. Facility Size – The number of beds that a facility has is indicative of the size of the facility.

Number of Beds	Frequency n= 272	Percent	Frequency n = 49	Percent
Less than 50	59	21.7	15	30.6
50-100	27	9.9	10	20.4
101-250	86	31.6	12	24.5
251-500	72	26.5	9	18.4
More than 500	28	10.3	3	6.1
	272	100	49	100

In terms of the educational degree of the respondents (Figure 1), 208 (76.5%) were working as Medical Technologists/Clinical Laboratory Scientists/Medical Laboratory Scientists (MLS) with either a Bachelor's

degree or certificate, and 64 (23.5%) are working with an Associate Degree as Medical Laboratory Technicians/Clinical Laboratory Technicians (MLT). According to the Bureau of Labor Statistics, there is an equal distribution of MLS to MLT working in Mississippi.[16] The respondent results revealed a disproportionate representation of the MLS at the rate of two for every one MLT. There was no significant difference in the results based on the cultural perceptions by educational level, whether classified as a MLS or a MLT. Of the survey respondents, 257 (94.5%) reported holding a certification from ASCP, AMT or another agency and 15 (5.5%) holding no certification at all. There is a slightly negative correlation with educational degree and organizational culture at (-0.099), *p*-value of 0.105, and a slightly positive correlation with certification and organizational culture at (0.029), *p*-value of 0.635 with neither being significant.
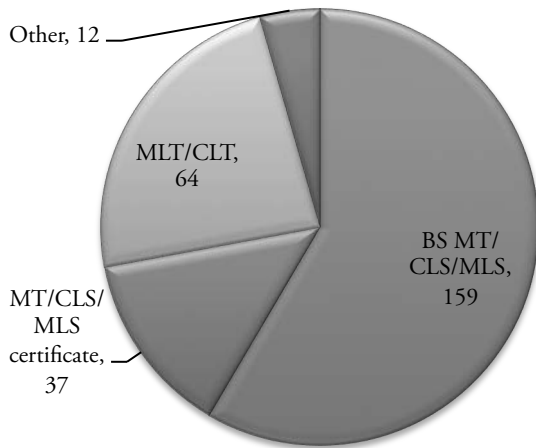
have a hierarchical culture type. The predominant culture scores revealed the following distribution for the individual respondents (Figure 2). Group/clan culture scores were the predominant score for 39.0% of the individual respondents, hierarchical culture scores were predominant for 34.6% of the individual respondents, rational/market culture scores were predominant for 13.2% of the individual respondents, and developmental/adhocratic culture scores were the predominant score for 8.8% of the individual respondents;. The remaining 4.4% individuals reported a blended or codominant culture score with 2.2% reporting a group/clan and hierarchical split. The consolidation of the data to represent the 49 healthcare institutions revealed a slightly different distribution with 24 (49%) as hierarchical culture, 22 (44.9%) as group/clan culture, and 3 (6.1%) as rational/market culture. A two tailed *z*-test with a *p*-value of 0.322 indicates there is no significant difference between the means of the two predominant culture scores.
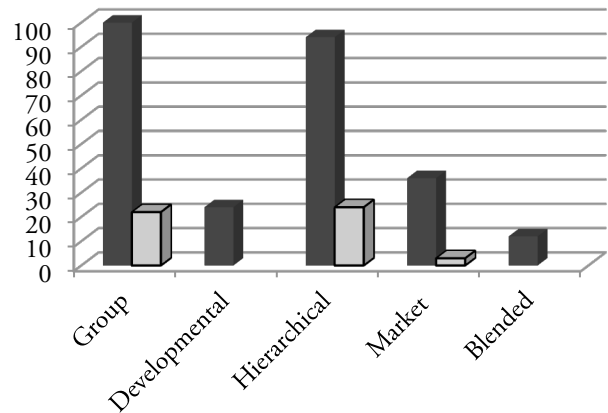

Figure 1. **Type of Degree/Certificate** – This figure depicts the self-reported distribution of credentials for respondents. The majority of the respondents had a Bachelor's degree in Medical Technology(MT)/Clinical Laboratory Science (CLS)/Medical Laboratory Science(MLS); n=159 or Bachelor's degree in Chemistry or Biology and a certificate in Medical Technology(MT)/Clinical Labora-tory Science(CLS)/Medical Laboratory Science(MLS); n=37. The remainder of the respondents were Medical Laboratory Technicians (MLT)/Clinical Laboratory Technicians (CLT) n=64 or were trained on the job and had been grandfathered into the laboratory profession n=12.

The assumption based on published data is that approximately half of the healthcare facilities will have a clan or group culture and the remaining facilities will

Figure 2. **Organizational Culture Types (Individuals versus Hospitals)** - First column per set indicates individual response summary (n=272) of perceived predominant organizational culture type. Second column per set indicates facility response summary (n=49) of perceived predominant organizational culture type. The comparison provided no significant difference in the predominant culture types represented. The elimination of Developmental/Adhocratic and Blended culture types at the hospital level is due to data compilation.

DISCUSSION

As in previous studies conducted by Shortell, this study found that the predominant culture scores were associated with hierarchical cultures and group cultures. A comparison of the predominant culture scores from

this survey population and those previously obtained by Dr. Stephen Shortell are noted as follows.[10,11] The mean group or clan score for the 49 Mississippi hospitals is 32.9 as compared to a range of 9.7 – 56.7. Developmental mean score for Mississippi hospitals is 0.59 (n=49) as compared to a range of 10.0 - 37.5. Hierarchical mean score for Mississippi hospitals is 43.7 (n=49) as compared to a range of 15.4 – 40.0. Finally, rational mean score for Mississippi hospitals is 22.3 (n=49) as compared to a range of 14.3 – 36.2.[10,11]

With the exception of development or adhocratic culture, which was noted significantly less in Mississippi hospitals, the predominant culture scores as perceived by Mississippi laboratorians is reflective of other previously surveyed institutional healthcare professionals: physicians, nurses and pharmacists. The results seen for laboratory professionals as compared to the previously surveyed healthcare professionals indicates that regardless of the professional standing, perceptions appear to be representatively similar. Healthcare team inclusion for all institutional employees is essential when designing and implementing organizational changes, particularly with hierarchical and group cultures. This study reflected the literature findings that predominant cultures types exist, but that pure organizational cultures are uncommon. The blended culture was represented as an unexpectedly significant option with employee focus that is stable yet flexible.

The laboratory is monitored by many agencies, but the anticipated maximum level of hierarchical culture was not observed. The rational/market culture level did not parallel the current push for healthcare reform. The lack of hospital identified developmental/adhocratic culture type did not correspond with the prevalence of healthcare mergers noted in Mississippi. Although individual responses recognized developmental culture as representative of their institutions, it is important to understand that developmental cultures are typically short-lived and will move toward one of the more predominant culture types.

IMPLICATIONS FOR FUTURE RESEARCH
It will be important for future investigations to look at the blended cultures ratios rather than just the predominant culture scores before making organizational changes. It is essential to clarify the impact of cultural blends on quality improvement efforts as outcomes may be negated with cultural blends that are equally proportionate. Another important issue to consider is that although organization cultural does play a significant role on the impact of quality improvement efforts, organizational changes must consider the leadership and their relationship with the employees who work with them. The buy-in of the leadership and the employees may enhance the outcome regardless of the predominant organizational culture.

Since healthcare reform is inevitable, the plan for reformation should include first and foremost quality improvement specifically in the areas of leadership, information exchange and data analysis, strategic organizational design, benchmark management, satisfactory outcomes, personnel utilization, customer satisfaction and employee satisfaction. These constructs are critical to understand as they lend to the greater issue of quality improvement in healthcare effectively saving lives and money. By improving laboratory outcomes approximately 2.3% or $17.2 billion of the $2.5 trillion spent on healthcare for laboratory testing can be used to make more tests available, to provide more clinical laboratory professional, to decrease errors and save lives.[2]

LIMITATIONS
The limitations of this study include self-reporting in all areas. The number of participants completing survey instruments was small and may have skewed the results due to group think. To utilize this instrument to its full potential with clinical laboratory personnel, face-to face completion is recommended. The discrepancies between individually-reported information and publically-available information about the facilities included in the study could be interpreted as a lack of understanding or knowledge of facility characteristics by laboratory personnel or as a failure of the survey instrument to exclude areas of ambiguity and overlap. Constant institutional mergers and acquisitions make accurate reporting difficult.

ACKNOWLEDGEMENT

professionals who took their time to answer the surveys.

REFERENCES:

1. Reed, K, May, R. The seventh annual health grades patient safety in American hospital study. Available from https://www.cpmhealthgrades.com/CPM/assets/File/PatientSafetyInAmericanHospitalsStudy2010.pdf. Accessed 2011 Oct 25.
2. Center for Medicare and Medicaid. National Health Expenditure Data. Available from http://www.cms.hhs.gov/NationalHealthExpendData/25_NHE_Fact_Sheet.asp. Accessed 2011 Nov 11.
3. Ravichandran, J. Setting up a quality specification. Six Sigma Forum Magazine, 26-30. Available from http://www.asq.org. Accessed 2006 July 1.
4. Weiner BJ, Shortell SM, Alexander J. Promoting clinical involvement in hospital quality improvement efforts: the effects of top management, board, and physician leadership. Health Serv Res. 1997;32:491-510.
5. Sobolev, B, Kuramoto, L. Policy analysis using patient flow simulations: Conceptual framework and study design. Clin Invest Med. 2005;28:359-63.
6. Berta, W, Teare, GF, Gilbart, E, Soberman Ginsburg, L, Lemieux-Charles, L, Davis, D, *et al*. The contingencies of organizational learning in long-term care: Factors that affect innovation adoption. Health Care Manage Rev. 2005;30:282-92.
7. Drucker, PF. The discipline of innovation (Reprint 1985). Harv Bus Rev. 2002;August:95-103.
8. Dranove, D, Hughes, EFX, Shanley, M. Determinants of HMO formulary adoption decisions. Health Serv Res. 2003;38:169-91.
9. Davies, HT, Nutley, SM, Mannion, R. Organisational culture and quality of health care. Qual Health Care. 2000;9:111-19
10. Shortell, SM, O'Brien, JL, Carman, JM, Foster, RW, Hughes, EWX, Boerstler, H, O'Connor, EJ. Assessing the impact of continuous quality improvement/total quality management: Concept versus implementation. Health Serv Res, 1995;30:377-401.
11. Quinn, RE, Kimberly, JR. Paradox, planning, perseverance: Guidelines for managerial practice. Managing Organizations 1984. Homewood, IL: Dow Jones-Irwin.
12. Zazzali, JL, Alexander, JA, Shortell, SM, Burns, LR. Organizational culture and physician satisfaction and dimensions of group practice. Health Serv Res. 2007;42:1150-76.
13. Alexander, JA, Weiner, BJ, Shortell, SM, Baker, LC, Becker, MP. The role of organizational infrastructure in implementation of hospitals' quality improvement. Hospital Topics: Research and Perspectives on Healthcare. 2006;84:11-20.
14. Borkowski, N, Gordon, J. Entrepreneurial organizations: The driving force for improving quality in the healthcare industry. J Health Hum Serv Adm. 2006:531-549.
15. Bathazard, PA, Cooke, RA. Organizational culture and knowledge management success: assessing the behavior-performance continuum. Proceedings of the 37th Hawaii International Conference on System Sciences, Big Island. 1-10; 2004.
16. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2010-11 Edition, Clinical Laboratory Technologists and Technicians, Available from http://www.bls.gov/oco/ocos096.htm (accessed November 10, 2011).
17. Ilarda, E, Findlay BM. Emotional intelligence and propensity to be a teamplayer. E J Appl Psychol. 2006;2:19-26.