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**Financial Competency Evaluation of Middle Managers in the
Teaching Hospitals of an Academic Medical Center**

By
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A doctoral project submitted to the School of Health Related Professions of the
University of Mississippi Medical Center

In partial fulfillment of the requirements for the degree of the
Doctor of Health Administration

University of Mississippi Medical Center
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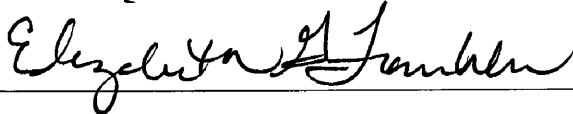
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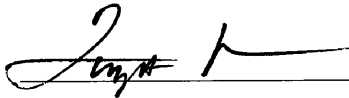
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DEDICATION

This project is first and foremost dedicated to Sarah, my wife, who unselfishly provided the love, support, and encouragement that made it possible for me to expend the time and energy on this journey for the past three years.

This project is also dedicated to several others without whom this project and degree would not have been possible:

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TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

Statement of Purpose	2
Importance of the Study	3
Study Questions	5
Definitions.....	6
Delimitations.....	7
Institutional Review Board	8
Summary	8

CHAPTER 2: REVIEW OF THE LITERATURE

Terminology	10
Concepts.....	12
Competency-based Assessment	14
Competency Assessment in Healthcare	17
Healthcare Competency Models	23
Summary	25

CHAPTER 3: INVESTIGATION

Description of Evaluation	28
Research Design.....	29
Data Collections and Analysis	32
Ethical and Legal Concerns	33
Validity.....	33
Summary	34

CHAPTER 4: FINDINGS

Introduction.....	36
Demographics	36
Financial Competency Findings	38
Summary	50

CHAPTER 5: DISCUSSION

Interpretation of the Findings.....	55
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Implications for Practice	55
Strengths and Limitations	56
Recommendations for Future Study	57
Conclusion	58
APPENDICES	
Appendix A: Institutional Review Board Approval	62
Appendix B: Financial Competencies	65
Appendix C: Financial Competency Evaluation Questionnaire.....	67
Appendix D: Aggregate Competency Distribution Graphs.....	76
Appendix E: Fair Use Statement.....	82
LITERATURE CITED.....	84

LIST OF TABLES

Table 1: Demographic Characteristics of Middle Managers	37
Table 2: Aggregate Competency Data	38
Table 3: Percent Competent by Degree Focus.....	41
Table 4: Percent Competent by Management Role.....	42
Table 5: Percent Competent by Highest Education Level Completed.....	44
Table 6: Percent Competent by Finance or Accounting Course Completion	45
Table 7: Percent Competent by Years in Management	47
Table 8: Percent Competent by Years in Current Management Position.....	49
Table 9: Summary: 50% or Greater Competent with Statistical Significance	52
Table 10: Summary: Less than 50% Competent with Statistical Significance	53

LIST OF FIGURES

Figure 1: Aggregate Distribution for Team Education Competency	39
Figure 2: Aggregate Distribution for Resource Assessment Competency	40

LIST OF ABBREVIATIONS

The following list provides abbreviations and symbols utilized throughout this project:

ACHE	American College of Healthcare Executives
AMC	academic medical center
AONE	American Organization of Nurse Executives
BSK	Business Skills and Knowledge
df	Degrees of Freedom
HLA	Healthcare Leadership Alliance
IRB	Institutional Review Board
KSA	knowledge, skills and abilities
MGH	Massachusetts General Hospital
NCHL	National Center for Healthcare Leadership
NMLP	Nurse Manager Leadership Partnership
SPSS	Statistical Package for Social Sciences
UMMC	University of Mississippi Medical Center

FINANCIAL COMPETENCY EVALUATION OF MIDDLE MANAGERS IN THE
TEACHING HOSPITALS OF AN ACADEMIC MEDICAL CENTER

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ABSTRACT

Middle managers within healthcare institutions function in the role of small business operators, directly influencing organizational financial success. Yet it remains common for middle managers to be selected for management positions without sufficient regard to the competencies needed for success in the new position. The purpose of this evaluation was to investigate whether or not middle managers in the teaching hospitals of an academic medical center had the financial competencies needed to successfully perform their jobs. A survey instrument, developed from an established healthcare industry competency directory, permitted 84 participants of 128 middle managers invited (65.6% return rate) to self-assess 12 competency statements. Data were evaluated using descriptive and inferential statistics, with responses compared by manager background (education focus and role), level of education (highest degree completed and finance/accounting course), and years of managerial experience (overall and in present position), as well as in the aggregate. Competency gaps (self-rating of less than 50% competent) were found in all areas evaluated. Statistically significant findings were found in four of the six areas reviewed. The results indicate a need to create a competency-based learning intervention to develop financial competencies in middle managers, particularly with newer managers (less than five years of experience), managers in a clinical background, and managers without a finance or accounting course in their education. Implications for practice and recommendations for the development of a competency-based intervention are made.

Keywords: financial competency, management competency, competency assessment, middle manager, management development, healthcare, hospital

INTRODUCTION

CHAPTER 1

INTRODUCTION

Middle managers oversee budgets that directly impact their organization's financial viability; in healthcare, these budget responsibilities can range from thousands to millions of dollars. Thus in a very real sense, healthcare middle managers function in the role of small business operators. Nevertheless, it is not uncommon for clinical managers to be selected for management roles based largely on prior success as a clinician (Buchhorn & Shannon, 2014; Cross, 2013; Harkins, Butz, & Taheri, 2006; Kleinman, 2003; Pilling & Slattery, 2004; Sanford, 2011). However, success in the clinical arena does not necessarily translate to success as a manager.

Granted clinical and technical knowledge is tremendously valuable; however, the managerial role requires a set of competencies that differ from the needs of clinical practice (Pilling & Slattery, 2004; Sanford, 2011). Clinicians who demonstrate knowledge and understanding of organizational needs, as well as care processes, are uniquely positioned for leadership in healthcare entities (Hudak, Brooke, & Finstuen, 2000). However, the operational performance of middle managers often suggests gaps in the financial competencies required to manage complex healthcare organizations (Harkins et al., 2006; Wolf, Bradle, & Greenhouse, 2006).

Statement of Purpose

Reports have indicated that, in healthcare institutions, staff are often promoted to leadership roles without the knowledge and skills to be successful (Baxter & Warshawsky, 2014; Buchhorn & Shannon, 2014; Golden, 2008; Harkins et al., 2006; Hudak et al., 2000; Kleinman, 2003; Pilling & Slattery, 2004; Sanford 2011). In some cases, such promotions appear almost "accidental" (Pilling & Slattery, 2004, p.90). That is, when a vacancy occurs, high performance at the staff level may yield a promotion, whether or not the new manager possesses the needed skills and competencies (Cross, 2013; Guglielmi, 2014; Pilling & Slattery, 2004). Results from several studies suggest a very real need exists for financial competency assessments to identify gaps so as to aid in the development of healthcare managers (American College of Healthcare Executives [ACHE], 2013; Ennis, 2008; Guo, 2003; Hudak et al., 2000; Krugman, MacLauchlan, Riippi, & Grubbs, 2002; Robbins, Bradley, & Spicer, 2001; Wolf et al., 2006).

The purpose of this evaluation was to investigate whether or not middle managers in the teaching hospitals of an academic medical center (AMC) had the financial competencies needed to perform their jobs. To meet this objective, this study first developed a survey instrument that allows healthcare middle managers to self-assess gaps in financial competencies. The survey design focused on 12 relevant financial competencies derived from an industry competency directory. It also captured standard demographic data, as well as data on managerial role and experience. Second, this study applied that instrument in a sample population of middle managers so as to determine any self-assessed gaps in competencies. Reported gaps were evaluated in the aggregate, as well as by middle manager background (education focus and role), education level (highest degree completed and finance/accounting course), and managerial experience (overall and in current position).

AMCs are complex institutions that often face conflicting and competing requirements between operational efficiency, regulatory compliance, community health needs, and the three missions of education, research, and clinical practice. This set of circumstances can overwhelm middle managers, particularly those inadequately prepared for the intricacies of healthcare finance. Thus professional advancement within healthcare should support the acquisition of a range of financial knowledge, skills, and practices.

The literature on developing competencies supports competency-based interventions can develop the knowledge, skills, and abilities (KSAs) needed by managers to successfully perform in their current role (Boyatzis, 2008; Ennis, 2008). Such findings suggest that, by understanding the financial competency gaps reported by their middle managers, healthcare institutions could better support long-term career development plans and ultimately achieve greater institutional success.

Importance of the Study

Healthcare entities are extremely complex organizations to manage; the mounting pressures of decreasing reimbursement and increasing costs demand greater efficiency alongside improving quality (Golden, 2008; Guo & Anderson, 2005; Lega, Prenestini, & Spurgeon, 2013; Stefl, 2008). Devine, O’Clock, and Lyons (2000), for example, identified a need for healthcare providers to shift their focus from revenue growth to accurately managing and analyzing costs. Moreover, in response to industry changes,

such researchers as Wolf et al. (2006) noted that acquisition of financial skills has been made essential by the changing healthcare landscape for nursing leaders. This could be argued as true for all healthcare managers.

A review of the literature yielded no reports on financial competencies of middle managers in teaching hospitals. Despite this absence of reports, overwhelming evidence underscores the need for financial competency development among clinical managers (Baxter & Warshawsky, 2014; Cross, 2013; Golden, 2008; Gregoire, Sames, Dowling, & Lafferty, 2005; Guglielmi, 2014; Hudak et al., 2000; Kang et al., 2012; Kleinman, 2003; Krugman et al., 2002; Sanford, 2011; Scoble & Russell, 2003; Stoller, 2008; Thomas et al., 2008; Waxman, 2005; Wilson & Collins, 2006; Yoon & Messersmith, 2002).

Harkins et al. (2006) discovered that most educational programs for nursing, ancillary, and medical leaders do not include business and management skills, creating a dependency on workplace training programs, where they exist, to develop these competencies. This has resulted in clinicians learning needed skills through far less structured processes than those of the formal education that resulted in their disciplinary acumen (Pilling & Slattery, 2004). Harkins et al. (2006) suggest that, all too commonly, skills acquired on-the-job are not well understood.

In another study, 45.5% of 198 health service manager study participants identified data analysis as one of the most important skills for managers (Leggat, 2007). In another assessment, nurse managers and nurse executives rated the importance of finance and budget competencies at 5.79 on a 10-point scale, and business acumen at 5.80 (Kang et al., 2012). In a healthcare professional knowledge survey, nurses, physicians and pharmacists self-rated their own financial competency below 3 on a 5-point scale (Krugman et al., 2002). Financial education was reported by another study to be one of the top three development needs for nurse managers (Contino, 2004). Finally, gaps in financial competency have been noted for other clinical disciplines, as well. For example, McKnight, Dundas, and Girvan (2002) validated the importance of teaching finance in dietetic programs. Their work was corroborated by a later study, in which hospital executives rated registered dietitians as minimally competent in hospital budget preparation, understanding of reimbursement systems, and financial analysis (Gregoire et al., 2005).

One significant challenge surrounding competency and competency assessments has been confusion and lack of agreement with respect to definitions of competency (Evans, 2008; Le Deist & Winterton, 2005; Shewchuk, O'Connor & Fine, 2005). Garman and Johnson (2006) concluded there is no “gold standard” (p. 14) definition for competency. As reconciling competing competency definitions is beyond the scope of the current work, the present study relied on a working definition of competency posited as the behavioral characteristics, skills, knowledge, and abilities mastered by effective managers in order to successfully perform their jobs (Ennis, 2008; Garman & Johnson, 2006; Healthcare Leadership Alliance [HLA], 2010).

This focus on a healthcare manager’s successful job performance agrees with the findings of Pilling and Slattery (2004), who noted the importance of identifying competencies relevant to each employee’s role. This perspective suggests that competency assessment for managerial employees would best be served by focusing on the practical, role-specific competencies needed and used by managers every day (Filerman, 2003). Identifying actual gaps in financial competencies that exist among healthcare managers would, thus, be important in predicting a healthcare manager’s ability to perform and achieve desired outcomes (Shewchuk et al., 2005).

For all these reasons, the identification and development of an assessment tool that can reveal financial competency gaps in otherwise skilled middle managers represents an important step toward addressing them (Robbins et al., 2001). Once identified, the literature demonstrates competency gaps can be used to develop career development plans and to develop competency-based educational interventions (Ennis, 2008). Such tools can be useful not only in management training, but for management recruitment as well (Guo, 2003). In fact, competency assessment can be effective in the professional growth and development of both new and tenured managers.

Study Questions

This study set out to investigate three overarching study questions: Do gaps exist in the financial competencies of middle managers in an AMC; do differences exist in the financial competencies of middle managers with clinical backgrounds as compared to managers without clinical backgrounds; and do differences exist in the financial

competencies of middle managers by education level? In review of the data, managerial experience emerged as an area of interest.

Definitions

The following key terms are relevant to this study. Operational definitions for each of these terms within the study are as follows:

1. *Academic medical center.* An AMC is here considered a healthcare institution that serves clinical, research, and educational missions, with the clinical mission consisting of ambulatory or physician practices and of teaching hospitals.
2. *Clinical middle manager.* A clinical manager is here defined as a middle manager holding a background and degree in a healthcare clinical field.
3. *Competency.* Competency is here defined as the behavioral characteristics, skills, knowledge, and abilities mastered by effective managers in order to successfully perform their jobs (Ennis, 2008; Garman & Johnson, 2006; HLA, 2010).
4. *Competency-based assessment.* Assessment of an employee using role-related competencies that are linked with successful job performance to identify gaps or deficiencies in job skills and knowledge (Bartram, 2005; Garman & Johnson, 2006; Hager & Gonczi, 1994; Markus, Cooper, & Allpress, 2005; Robbins et al., 2001).
5. *Competency-based learning intervention.* A competency-based learning intervention is here deemed to be an educational program using a competency model as a guide for the development and education of identified competency gaps (Ennis, 2008).
6. *Dreyfus model.* The Dreyfus model is a response scale using five anchors: novice (1), learner (2), competent (3), proficient (4), and expert (5) (ACHE, 2013; Ennis, 2008; Stefl, 2008).
7. *Education level.* The highest educational degree completed, regardless of discipline, by the respondent.

8. *Gap*. Identification of a difference between an actual and a desired condition; here, the difference between a manager's financial competency and that needed to perform at a competent or higher level based on the Dreyfus model scale.
9. *Knowledge, Skills, and Abilities (KSA)*. These terms are used in conjunction and, at times, interchangeably, with competencies in the literature. KSA's indicate the possession of the details and values (knowledge), expertise (skills), and mental and physical strength (abilities) needed for a job (Hudak et al., 2000).
10. *Management background*. Classification of manager as clinical or non-clinical, as based on the individual manager's education and, typically, job responsibilities.
11. *Middle manager*. Individuals in clinical or non-clinical management roles having the word manager in their title, and who also have accountability for budget and/or personnel. Excluded are individuals with words in their titles such as chief, executive, administrator, director, or supervisor.
12. *Non-clinical middle manager*. A middle manager having a background and degree in a discipline other than a healthcare clinical discipline.
13. *Participant*. A middle manager having participated in this study by providing a self-assessment of their own individual competencies. Also referred to as a Respondent.
14. *Teaching hospital*. A teaching hospital provides both patient care and a learning environment for clinical education in healthcare programs.

Delimitations

Individuals selected for participation in this study were limited to middle managers employed in the teaching hospitals of the University of Mississippi Medical Center (UMMC). This study did not look at senior leaders, such as administrators or directors, or entry-level managers, such as supervisors and lead technicians. This inclusion criterion limited the study to one subset of the universe of healthcare management. This criterion limited generalizing of study results to the role of middle managers in comparable non-profit teaching hospitals, and may limit it to the U.S.

Southeastern region. Thus any self-reported competency gaps examined by this study may or may not be seen in other types of healthcare organizations or regions.

The study's focus was further limited to the financial competencies associated with the role of the middle manager. The lack of financial competency programs for middle managers, as indicated in the literature, supports the need for assessments and educational development in this area. Finally, owing to their roles in managing staff and running daily departmental operations, often with sizable budgets, middle managers occupy pivotal positions that can positively or negatively influence day-to-day impact on hospital finances. This study thus represents an initial step in supporting improved KSA acquisition relevant to a middle manager's current professional role so as to yield an overall improvement in institutional operations.

Institutional Review Board

As this project involved human subjects, the study protocol was submitted to the UMMC Institutional Review Board (IRB) for review, and notice of approval was received on March 10, 2015 (see Appendix A).

Summary

The purpose of this study was to evaluate the financial competencies of middle managers in the teaching hospitals of an AMC to determine what financial competency gaps exist. Identifying gaps in financial competencies, along with any factors particularly associated with these gaps, could lead to competency-based education programs able to develop the financial KSAs of middle managers. Understanding competency gaps could benefit an employee in a current role, as well as supporting a long-term career development plan for future roles.

REVIEW OF THE LITERATURE

CHAPTER 2

REVIEW OF THE LITERATURE

A systematic review of the literature for the present study was conducted in Scopus, PubMed, and CINAHL by the relevant key words “financial competency,” “management competency,” “competency assessment,” “management development,” “healthcare,” and “hospital.” A total of 63 sources, covering the topics of competency, competence, competency assessment and financial competency within healthcare and other industries, were reviewed. Discussion of the literature was organized according to five areas: (1) terminology, (2) concepts, (3) competency based assessment, (4) competency assessment in healthcare, and (5) healthcare competency models.

Terminology

A plethora of definitions are applied to competency and competence, with no clear consensus (Axley, 2008; Cowin et al., 2008). Garman and Johnson (2006) found no definition that was authoritative or a “gold standard” (p. 14). Adding to the confusion, the terms competency and competence are also often used interchangeably (McMullan et al., 2003). To better understand these constructs, a review of the distinction between competency and competence emerging from the literature, as well as performance, will be discussed.

Performance

Performance has been defined as behavior (Bartram, 2005). It is the action, something people do, that can be observed. Job performance represents the outcomes or results of inputs, which are behaviors specifically associated with competencies, knowledge, skills and attitudes (Markus et al., 2005). McMullan et al. (2003) conclude that competence can only be inferred from performance, as it cannot be directly observed.

Competence

McMullan et al. (2003) defined competence as the attributes of a job an employee can perform. Cowin et al. (2008) report on several definitions in the literature that reflect the task orientation of competence, including the technical and interpersonal skills, knowledge, critical thinking, and ability to perform a task or job satisfactorily.

Competency

Much confusion and inconsistency has prevailed for the terms competency and competence (Evans, 2008; Le Deist & Winterton, 2005; Shewchuk et al., 2005). These concepts have been described as fuzzy, but nonetheless useful in describing the gap between an employee's knowledge and what is required to do a job (Le Deist & Winterton, 2005).

Numerous and varied definitions are found in the literature. Hudak et al. (2000) have described competency as managerial proficiencies. Several other authors focused on behavioral characteristics needed for successful performance (Bartram, 2005; Garman & Johnson, 2006; Markus et al., 2005; McMullan et al., 2003). McClelland (1998) defined competency as behavior clusters that are more characteristic of outstanding performers than typical performers.

On the other hand, the KSAs, along with attitude, needed for effective performance have been a common theme in a number of definitions (Axley, 2008; Calhoun, Davidson, Sinioris, Vincent, & Griffith, 2002; HLA, 2010; Markus et al., 2005; Pilling & Slattery, 2004). Boyatzis (2008) defined competency simply as an ability and capability. Combining both KSAs and behaviors, Ennis (2008) defined competency as an ability to use KSAs and behaviors, along with personal characteristics, to successfully perform in a job.

Core Competencies

The previously discussed approaches to defining competency focus on the individual. Core competencies, on the other hand, are the collective capabilities of the organization (Markus et al., 2005). These are the behaviors and KSAs required of all employees across all occupations within an organization (Ennis, 2008). Garman and Johnson (2006) described core competencies as those linked with organizational success. Tyler (2003) noted that core competencies are related less to a job title or functional role, but more to a particular job's scope and responsibilities. As core competencies can be related to both the organization and the individual, they are characteristics that lead to effective performance and can create a competitive advantage for both the individual and the organization (Calhoun et al., 2002).

Summary

The articles reviewed support the previously asserted literature findings that there is no consistent definition for competency. As noted by McMullan et al. (2003), the terms competency and competence are used interchangeably and will be so applied in this paper. Axley (2008) described the issue best by saying, "Competency is a concept that is difficult to define as evidenced by the various definitions found throughout the literature. However, competency is necessary for successful outcomes" (p. 218).

In general, competency refers to behaviors and competence in functional areas (Le Deist & Winterton, 2005). A competent employee meets the job requirements, and an employee who has competencies possesses the attributes required to competently carry out job duties. Clinically, competencies have been associated most with the technical aspects of a job (Axley, 2008). Yet competencies include personal characteristics such as motivation, attitude, maturity, and self-awareness of limitations (Ennis, 2008). Adoption of a standard definition within an organization would create a common terminology, setting a framework for organizational expectations.

Concepts

Behavioral Approach

The behavioral approach to competency has been traditional in the United States. In a classic and influential work, McClelland (1973) argued that testing for competence was a better predictor of occupational success than achievement testing and grades. He argued intelligence testing was particularly ineffective in predicting success in executive positions (McClelland, 1973, 1998). White and McClelland each described competency as the personal characteristics that lead to superior performance (Le Deist & Winterton, 2005; McClelland, 1973; White, 1959).

Barrett and Depinet (1991) criticized McClelland's theory and presented evidence supporting the predictive power of cognitive ability tests, particularly in conjunction with an assessment center or personality tests. Countering Barrett and Depinet, McClelland (1998) presented evidence demonstrating the success of a competency assessment program. McClelland identified competencies, or behaviors associated with outstanding performers, through behavioral event interviews and combined them to develop an assessment model.

The behavioral approach to competency is based on the theory that performance is maximized when a worker's capabilities are consistent with the demands of the job and the environment (Boyatzis, 2008). The behavioral approach asserts that competencies can be developed. Intagliata, Ulrich, and Smallwood (2000), for example, described competencies as malleable characteristics that can be developed and learned. Inputs, such as jobs skills, and personal competencies, such as motivation, are integral to success and can be identified and developed through training and experience (Markus et al., 2005; McClelland, 1973).

Functional Approach

The functional or performance approach to competencies, traditional in the United Kingdom, focuses on the functional skills and knowledge related to the job, along with the ability to meet the required performance expectations of the job (Le Deist & Winterton, 2005). The functional approach has also been referred to as the education approach in recognition of the need to develop KSAs necessary for job performance (Markus et al., 2005).

Vocational qualifications developed in the United Kingdom have been criticized for their lack of relevance to individual employers and a focus on assessment of competence at the exclusion of developing worker knowledge (Le Deist & Winterton, 2005). The latter has been reported to result in part from resistance towards the competency approach by academics. Another criticism of the functional approach has been its focus on performance and what an employee can do versus the employee's knowledge (McMullan et al., 2003).

Holistic Approach

The holistic approach, which has been prevalent in Europe, brings together a variety of attributes, including skills, knowledge, attitudes, and values (Evans, 2008). The dimensions of the holistic approach are cognitive, functional, personal or behavioral, ethical, and the ability to deal with uncertainties (Le Deist & Winterton, 2005). The holistic approach is seen as more difficult to assess as it focuses on context and underlying attributes (McMullan et al., 2003).

Summary

The literature reveals multiple approaches to competency and competence. The behavioral approach is the most common practice in the United States, location of the subject organization. This approach asserts that key job skills and personal competencies can be identified, assessed, and developed to meet individual and, ultimately, organizational goals (Boyatzis, 2008).

Competency-based Assessment

McMullan et al. (2003) have articulated that the objective of assessment is to maintain professional standards and to make a determination of an employee's knowledge and abilities compared to established performance criteria. Competency-based assessment has also been described as the assessment of an employee's competence in comparison with established standards of performance (Hager & Gonczi, 1994).

Competency Modeling

Competency based education and training began with the work of Taylor in the 1920's (Calhoun et al., 2002). Competency models represent a group of desirable competencies linked with successful job performance (Bartram, 2005; Garman & Johnson, 2006; Markus et al., 2005). These models focus on a realistic number of key performance tasks central to a profession versus all of the tasks associated with it (Hager & Gonczi, 1994). Competency models focus employees on current competencies and KSAs related to their job or role, with the goal of refocusing or developing competencies that will have the greatest impact on effectiveness as identified in the competency gap assessment (Calhoun et al., 2002; Ennis, 2008).

One article described competency models as "a descriptive tool that identifies the competencies needed to operate in a specific role within a(n) job, occupation, organization, or industry" (Ennis, 2008, p. 5). The model should define not only each competency, but also provide the standards against which to measure competence (Markus et al., 2005).

Some competencies for a job are recognized as more important than others (Intagliata et al., 2000). The tasks needed from a position will dictate the degree to which a competency is needed. In addition, competencies will vary between positions. These variations are to be taken into consideration when developing a competency model. The

model can describe the attributes needed for an employee to be successful, not only in the position, but also with the team and the organization (Ennis, 2008). In a clinical environment, the competency model measures job tasks, situational performance, and professional judgment (Cowin et al., 2008).

Several benefits and barriers of competency models have been noted in the literature.

Benefits. A primary benefit is the identification of gaps for career development (Calhoun et al., 2002; Ennis, 2008; Markus et al., 2005). Competency models provide a guide for the employee and organization to create competency-based learning interventions for development and training; however, competency assessment is for naught if the organization does not make available and/or the employee does not take advantage of training and developmental opportunities to address identified gaps (Ennis, 2008).

Barriers. Among the barriers are buy-in regarding use of the model and competencies, confusing terminology, cost, difficulty in implementing, and the decision to develop a new or use an existing model (Calhoun et al., 2002). While convenient and often less expensive, a limitation in picking an existing model is that the competencies may not be clearly linked to desired organizational outcomes (Intagliata et al., 2000). The most effective competency models both define expected behaviors and highlight why those behaviors are relevant to the organization.

Response Scales

Employees perform at different levels of proficiency based on the individual competency measured in the competency model (Picardi & Masick, 2014). A response scale provides a range over which employees can provide an opinion in a questionnaire. Response scales typically consist of five to seven anchors or choice options.

A response scale used several times in the literature is the Dreyfus model (ACHE, 2013; Ennis, 2008; Stefl, 2008). This model describes competence levels over a five-point scale ranging from novice (1) to expert (5), with competent (3) as the mid-point (ACHE, 2013; Ennis, 2008; Stefl, 2008). Employees will vary along this scale based on their experience, knowledge, and development.

Competency Models and Validity

Markus et al. (2005) noted several validity issues to consider in competency modeling. One concern is whether or not the competency model actually measures the competency it is intended to measure. The lack of a consistent definition of competency contributes to this challenge. The use of psychometric testing and subject matter experts can provide some assurance of validity and reliability (Cowin et al., 2008). Second, both content and face validity issues may arise as a result of the subjective nature of competency modeling (Markus et al., 2005). The more specific to industry and role a competency is, the greater its relevancy for the individual and, therefore, the more accurately it measures the intended competency.

Hager and Gonczi (1994) challenged and reputed the characterization of competency-based assessment as inherently unreliable and invalid. They noted that a model based on an integrated approach to competency standard development can more closely mirror the skills and knowledge needed of a position and, therefore, can indeed measure the intended competency.

Self-assessment

Self-assessment is the most common form of competency assessment (Evans, 2008). Self-assessment creates awareness of strengths and weaknesses along with opportunities for development and mentoring. Additionally, self-assessment is cost-effective to implement.

Limitations to self-assessment include rater bias (Evans, 2008). New managers completing self-assessments may lack self-awareness of their management weakness and strengths (Helfand, Cherlin, & Bradley, 2005). Perceptions from supervisors, peers, and subordinates could be used to enhance competency assessment (Garman, Tyler, & Darnall, 2004; Helfand et al., 2005).

A researcher can decrease the likelihood of self-report bias by ensuring responses are anonymous, wording questions in a non-judgmental way, and making competency statements relevant to the employee's role (Markus et al., 2005; Picardi & Masick, 2014). McMullan et al. (2003) noted, however, that no assessment tool is assessor proof, as each assessor brings a personal view of competency. Taking assessor subjectivity into account

will render a competency assessment valid through better context-sensitivity and, to the extent experienced leaders are involved, reliability.

Competency Assessment in Healthcare

Clinical Competencies

Axley (2008) argued that health professional competencies must be assessed to increase patient safety, reduce patient harm, and maintain professional credibility. A competent health professional tends to work better as a member of a team, to respect and appreciate the views of other health professionals, and to collaborate with others to expand the knowledge and skills of their profession. For clinicians in management positions, competencies, such as knowledge, skills, attitudes, values and motives, are the basis for management development (Leggat, 2007).

General Competencies

Core competencies. Baxter and Warshawsky (2014) noted that nurse managers need a range of business skills in order to manage “financial and human resources to efficiently improve quality care” (p. 46). Tyler (2003) listed the core competencies needed of all healthcare leaders as adaptability, communication, results focus, leadership, financial astuteness, and physician relationships. Pilling and Slattery (2004) noted that Tyler’s core competencies related more to senior leaders and argued that the competencies needed by all managers include negotiation, people management, and financial management.

Teamwork. In a recent work, Birken, Lee, and Weiner (2012) recognized the important role played by healthcare middle managers in leading and influencing teams to implement organizational strategies. Teambuilding and collaboration skills were reinforced by Cross (2013). Leggat (2007) identified competencies seen as integral to teamwork in the healthcare setting. These competencies, identified by over 50% of respondents, were leadership, organizational goals and strategies, respect, collaboration, and commitment to a quality outcomes.

Financial Competencies

In a recent study, Moore (2013) argued that regardless of role, all healthcare managers need knowledge of health economics, revenue cycle, performance metrics, business acumen, financial literacy, and a meaningful understanding of hospital financial

statements. Healthcare providers often learn business skills on the job; yet even when applied, these skills are not always understood (Harkins et al., 2006). Tyler (2003) emphasized financial astuteness, including the ability to perform financial forecasts and to understand the business and financial impact of decisions.

Mastering financial tools and information systems are core competencies that healthcare managers need to achieve financial objectives (Cross, 2013; Moore, 2013). Where these abilities are insufficiently developed, errors and miscalculations will be prevalent. For example, in their study of 12 articles covering different industries, Caulkins, Morrison, and Weidemann (2005) found that 46% of spreadsheets contain errors. Among the most common errors, 76% contained inaccurate data, 49% contained errors from reuse of spreadsheets, 33% had omission errors, and 33% had function use or formula errors. In one case, the errors in a return on investment spreadsheet resulted in a \$10 million unfavorable error.

In a study of new healthcare administration graduates, preceptors indicated that 38.3% of residents needed to improve in financial skills, while 40.4% needed improvement in maturity (Cherlin, Helfand, Elbel, Busch, & Bradley, 2006). Although residents and preceptors similarly ranked the importance of recognizing key financial indicators, the preceptors rated the residents much lower in their ability to devise budgets (9.8 to 15.8), understanding and managing financial risk (6.6 to 18.4), and managed care contracting skills (1.6 to 13.2). The results from this 360-degree evaluation indicate that residents lacked self-awareness to accurately judge their performance and to assess whether or not it met organizational needs.

Financial Competencies in Clinical Disciplines

The literature uncovered discussions of financial competencies in several healthcare clinical disciplines. While this is not an exhaustive list of healthcare clinical areas, the following examples do illustrate the consistent need to develop financial competencies across a broad range of clinical disciplines as clinicians move from the bedside to management roles.

Speech therapy. Pilling and Slattery (2004) highlighted deficits and development needs reported by speech therapists in financial management, strategic planning, human resources, and leadership. The authors noted a difference between managing the activities

needed for effective patient care and those needed to run a department. In making the shift from a clinical to a management role, competencies provide a guide for management development. The competencies recognized as important for speech therapists in the transition to management from a clinical role are communication, problem solving, accountability and evidence based practice, teamwork, focus, and industry knowledge.

Registered dietitians and food service management. Cluskey, Gerald, and Gregoire (2007) reported food services professionals have stronger technical than management related skills, including finance and communication. While McKnight et al., (2002) found financial management to be emphasized in most dietetic education programs, Cluskey et al. (2007) discovered difficulty in finding continuing educational offerings to refine these skills.

Hospital executives rated registered dietitians as having only limited competency in budget preparation, understanding of reimbursement systems, and financial analysis (Gregoire et al., 2005). Of the 39 competencies rated, all seven of the financial related competencies were in the twelve lower rated competencies. Of note, the lowest rated competency was in demonstrating an understanding of healthcare payment/reimbursement and its impact on hospitals.

A study of Korean dietitians examined 47 competencies found in the United States literature and taught in Korean dietetic programs (Yoon & Messersmith, 2002). The results indicated that 86% of dietitians did not feel prepared in their education to assume management roles. Dietitians rated lowest of all competencies the application of basic accounting skills and the design of food service facilities (both 1.8 on a 4 point scale).

Nursing. Cross (2013) noted the importance for nurse managers to acquire financial competencies such as budgeting, variance analysis, and strategic planning. To be successful in a business, a manager must understand the financial principles of the business (Thomas et al., 2008). Harkins et al. (2006) noted nurses understand the clinical language of healthcare, but often do not understand the business language. Thomas et al. (2008) argued nurse leaders must be conversant in both the language of clinical care and of hospital finance/accounting. Waxman (2005) suggested the abilities to understand and effectively communicate financial terms and concepts, as well as to read financial

statements are essential to success for nurse managers. Likewise, Waxman argued financial managers have a need to learn the language of clinicians to enhance communication, understanding and decision-making.

Contino (2004) reported financial management as one of the top three development needs for nurse managers, including managing budgets, interpreting financial statements, and understanding patient revenues. Healthcare managers need an understanding of how decisions and actions fit into the overall picture and, therefore, impacts organizational finances.

Sanford (2011) recommended the following for middle manager education: budgeting concepts, development, and variance analysis; methods for expense reduction; and accounting reports and terminology. Lin et al. (2007) identified resource planning and cost-benefit analysis as important competencies for supervisory, middle and senior level nursing managers.

Of 130 surveys received, Scoble and Russell (2003) identified leadership (N = 20), finance/budgeting (N = 16), and business acumen (N = 14) as the top three competencies needed of a successful nurse manager. Of 173 nurse leaders surveyed, the top three curriculum content areas suggested for nurse managers were business administration (N = 23), leadership (N = 22), and financial management (N=18). Sherman, Bishop, Eggenberger, and Karden (2007) conducted interviews (N = 120) with nurse managers regarding the key leadership skills needed for success. Financial management was cited as the greatest need. The authors concluded that most nurse managers learn their role on the job, with little formal leadership education. These studies illustrate the need for a strong business core nursing education to build financial competencies.

Lin et al. (2007) suggested that similarities between the Taiwanese and North American healthcare care systems, such as training programs, made possible comparisons between the countries. In a recent study, Taiwanese nurse managers self-rated highest (8.32) on the competency of integrity and lowest on the competencies of finance and budgeting and business acumen (5.79 and 5.80 respectively on a 10 point scale) competencies, while ranking themselves (Kang et al., 2012). Nurse executives also ranked managers lowest in finance and budgeting and business acumen (6.56 and 6.59

respectively). Finance was revealed as the most frequently utilized competency, suggesting the need for training programs to enhance the development of financial competencies.

Pharmacists. Pollard and Clark (2009) found 40% of the pharmacists in their study identified on-the-job training as the most common method of developing leadership competencies. The developmental needs identified as important before assuming a first leadership position were financial/budget management and human resource management, both at 52% of the respondents, and quality at 41%.

Physical therapists. Nazareth College created an innovative hands-on experience to teach physical therapy students leadership competencies in the areas of operations, quality improvement, and performance management (Wilson & Collins, 2006). The program involved student management of three clinics. Students reported the program provided a deeper insight into administrative skills needed to operate a therapy clinic including financial management.

Physicians. The complexity of healthcare is resulting in more physician leaders (Stoller, 2008). Of the five physician leadership programs reviewed by Stoller, the two common competencies taught across all five programs were an understanding of financial metrics and business plan development. Another survey of nine competencies needed for effective physician leadership revealed interpersonal and communication skills as most important and financial acumen and resource management as least important; however, all nine competencies were rated as highly important (McKenna, Gartland, & Pugno, 2004). Coaching or mentoring from an experienced leader was reported as the most effective method to develop physician leadership competencies, followed by on the job experience in a leadership role.

Financial Education Programs

Massachusetts General Hospital (MGH) has created the MGH Leadership Academy covering competencies of leadership, people management, finance, and communication (MGH, 2014). The model uses 14 financial management competencies, more than any other domain. This comprehensive list of financial competencies includes use of software tools, understanding health economics, interpreting financials, contract analysis, and cost/benefit analysis.

The Cleveland Clinic has established the Cleveland Clinic Academy, with a focus on competency-based education for physician, nursing, and administrative leaders (Hess, 2013). Participants develop and present a business plan (Hess, 2013; Stoller, 2008). As a measure of success, Hess (2013) has reported that 61% of business plans developed by participants in the Cleveland Clinic Academy have been implemented.

Thomas et al. (2008) reported the University of Memphis School of Nursing has added a robust financial/accounting education course to its executive masters of nursing curriculum. Reineck and Garner (2004) described a nursing course at the University of Texas San Antonio that emphasizes budgeting, break-even analysis, reimbursement, and economic evaluations.

Golden (2008) developed a financial workshop focused on the financial competencies of developing, monitoring, and analyzing budgets, variance reporting, and interpreting financial information. Using a pre-test/post-test methodology, Golden found financial knowledge improvements among nurse managers ranging from 21% to 81%, validating the assertion that financial competencies can be developed with a competency-based learning intervention.

The University of Pittsburgh Medical Center Health Care Leadership Academy was established to develop nursing leadership skills (Wolf et al., 2006). The three tiered approach trains emerging, operational and strategic leaders. Emerging leaders are those who are new middle managers or have been identified for a future leadership role. Focus areas for the emerging leaders include conflict resolution, delegation, change management, application of basic financial principles, and employee engagement. Results of the program indicate greater understanding of healthcare finance, both at the departmental and organizational levels.

The University of Colorado Hospital created a training program for medical residents, nurses, nursing students, and pharmacists to improve interdisciplinary financial education (Krugman et al., 2002). Using a pretest and posttest design over a two-year period, self-rated financial knowledge increased incrementally although financial knowledge remained very low.

Simulation. Simulation and business games have been used for active learning of competencies in real world scenarios (Ennis, 2008). Adventist HealthCare (Uhles,

Weimer-Elder, & Lee, 2008) designed a simulation game to help managers understand and apply essential healthcare financial principles. Participants (N = 170) self-rated an improvement to 91.3% in self-rated financial competency from 77.4% after the simulation exercise.

Healthcare Competency Models

Garman and Johnson (2006) identified three general models focused on all levels of healthcare administration. One model was developed using author experience and review of other models. The National Center for Healthcare Leadership (NCHL) model was developed from a literature review, best practices and industry experts (NCHL, 2012). The Healthcare Leadership Alliance (HLA) model was developed from the competencies of six major healthcare professional organizations (Garman & Johnson, 2006; HLA, 2010; Stefl, 2008). The HLA model is recognized as the most comprehensive healthcare competency model (Stoller, 2008).

The NCHL and HLA models will be discussed, in addition to two discipline specific models: one for nursing and one for healthcare administration.

Nurse Manager Leadership Partnership

The Nurse Manager Leadership Partnership (NMLP) was created by the American Association of Critical-Care Nurses and the American Organization of Nurse Executives (AONE) to foster collaboration (NMLP, 2006). The NMLP recognized the need for nurse managers to have well developed skills to create safe patient care environments, while being good stewards of resources. The model's three domains focus on business management, leadership development, and leading people. As designed, the nurse manager performs a self-assessment and the supervisor performs an assessment. The results are used to develop a career development plan.

American College of Healthcare Executives

The ACHE (2013) developed the ACHE Competencies Assessment tool, derived from the HLA Competency Directory, for managers to develop plans to both increase KSAs in areas of weakness and recognize areas of strength. The ACHE promotes self-assessment as a guide for lifelong growth in the healthcare profession.

National Center for Healthcare Leadership

The NCHL developed a behavioral and evidenced based approach to competency assessment (Calhoun et al., 2004; Calhoun et al., 2008; NCHL, 2012). This model was developed using input from best practices, subject matter experts, psychometric principles, and an organization with expertise in competency assessment (Calhoun et al., 2004; Garman & Johnson, 2006). It consists of three competency domains (People, Execution, and Transformation) and twenty-six competencies (Calhoun et al., 2008). The Transformation domain includes financial competencies. This model provides a common framework to evaluate competencies across healthcare management occupations, whether clinical or non-clinical.

Healthcare Leadership Alliance

The HLA was formed from a collaboration of the following healthcare professional organizations (Garman & Johnson, 2006; HLA, 2010; Stefl, 2008): the ACHE, the AONE, the American College of Physicians, the Healthcare Financial Management Association, the Medical Group Management Association and American College of Medical Practice Executives, and the Health Information Management Systems Society.

Several of these organizations had previously developed certification and credentialing processes containing discipline specific competencies (Stefl, 2008). Those competencies were reviewed for commonality, while recognizing the need for specific competencies within specialties, such as finance. Subject matter experts from each professional organization and a psychometric firm assisted in the competency development. The resulting directory consists of 802 competency statements (HLA, 2010, 2013a) that are organized in five domains (HLA, 2010; Stefl, 2008).

The domains and examples of clusters or subdomains within each domain are (ACHE, 2013; HLA, 2010): Communication and Relationship Management (communication skills, negotiation), Leadership (managing change, articulating a vision), Professionalism (accountability, lifelong learning, community service), Knowledge of the Health Care Environment (patient experience, healthcare policy), and Business Skills and Knowledge (BSK) (financial management, strategic planning, quality improvement).

The HLA model is a self-assessment tool designed to identify areas of improvement and strengths for both individuals and teams (HLA, 2010). The BSK domain is recognized as having particular relevance to middle managers, especially those who were promoted because of technical or clinical performance (Garman, Burkhart, & Strong, 2006). The BSK domain has been shown to effectively identify competency gaps and be used for manager development.

Response scale. The HLA uses the Dreyfus model as the response scale (ACHE, 2013; Stefl, 2008). The Dreyfus model ranges over five anchors: novice (1), learner (2), competent (3), proficient (4), and expert (5) (ACHE, 2013; Ennis, 2008; Stefl, 2008). Typically, a new manager would be viewed as a novice, an early career or less experienced manager as learner, a tenured manager as competent, and a senior manager as proficient or expert (Stefl, 2008).

Using the model. The HLA Competency Directory provides a common framework and terminology for healthcare managers across a range of positions and organizational types (ACHE, 2013). The directory is an Excel database, intended as a reference tool that can be sorted as needed by the user to identify relevant competencies (HLA, 2010, 2013a). The HLA Terms of Use/License Agreement permits use of the directory without limitation for educational activities (HLA, 2013b).

Summary

A review of the relevant literature revealed 14 varied definitions for competency. The terms competency and competence were found to be used interchangeably in the literature. While no gold standard definition has emerged, competency, as discussed previously, is here defined as the behavioral characteristics, skills, knowledge, and abilities mastered by effective managers in order to successfully perform their jobs (Ennis, 2008; Garman & Johnson, 2006; HLA, 2010).

The literature also revealed the use of self-rated competency models can be effective and valid for the assessment of competency gaps in managers by focusing employees on the competencies related to their individual role (Calhoun et al., 2002; Ennis, 2008). The literature further demonstrated that, once identified, competency gaps can be used to develop career development plans and to develop competency-based educational interventions that will have the greatest impact on individual and

organizational performance. Additionally, the literature points out the need to develop the financial competency of middle managers and illustrated how competency-based learning interventions can be successfully used to develop and improve these competencies in healthcare managers.

INVESTIGATION

CHAPTER 3 INVESTIGATION

Description of Evaluation

The overall success of a healthcare organization is influenced by the financial competencies demonstrated by its middle managers. In healthcare environments, many middle managers are promoted internally from prior clinical roles without the KSAs to be successful; however, both clinical and non-clinical managers may lack the minimum financial competency necessary to be successful (Baxter & Warshawsky, 2014; Buchhorn & Shannon, 2014; Golden, 2008; Harkins et al., 2006; Hudak et al., 2000; Kleinman, 2003; Pilling & Slattery, 2004; Sanford 2011). While several studies support the need for management development programs (ACHE, 2013; Ennis, 2008; Guo, 2003; Hudak et al., 2000; Krugman et al., 2002; Robbins et al., 2001; Wolf et al., 2006), none address the financial competency needs of middle managers in the teaching hospitals of an AMC.

This study evaluated if middle managers in the teaching hospitals of an AMC have the financial competencies to perform their jobs. This study investigated three overarching study questions, as follow: 1. Do gaps exist in the financial competencies of middle managers in an AMC? 2. Do differences exist in the financial competencies of middle managers with clinical backgrounds as compared to managers without clinical backgrounds? 3. Do differences exist in the financial competencies of middle managers by education level? In reviewing the data, experience as a manager emerged as an additional area of investigation.

To determine if middle managers have the requisite financial competencies, the study first sought to develop a feasible survey instrument that permits middle managers to self-assess current financial competencies. The survey design focused on 12 relevant financial competencies, derived from an industry competency directory, as well as relevant demographic factors. Second, this study applied that instrument in a participant sample of middle managers working in the teaching hospitals of an AMC. Their responses were used to determine, in aggregate, any gaps in competencies, along with factors contributing to such gaps. These gaps were evaluated in the aggregate, as well as by middle manager background, education level, and management experience.

The purpose of this competency assessment was to identify gaps in competencies so as to lead to the development of educational programs that support healthcare leaders as they master those key competencies. With the increasing complexity of healthcare, it has become correspondingly essential for healthcare organizations to identify gaps in management competency, as well as to use this gap analysis to implement training programs that develop managers for the challenges of the industry (Guo, 2003; Hudak et al., 2000; Krugman et al., 2002; Robbins et al., 2001; Wolf et al., 2006). By understanding self-assessed financial competency gaps, competency-based learning interventions can effectively develop the knowledge, skills, and abilities of individual healthcare employees and build the bench strength within an organization needed for success. (Boyatzis, 2008; Ennis, 2008).

Research Design

A survey research design that makes use of self-assessment questionnaire for measuring competencies guided this study. Self-assessment, the most common form of competency assessment (Evans, 2008), creates awareness of strengths and weaknesses, along with opportunities for development, guidance, and mentoring. The survey was limited in focus to the financial competency domain of an established healthcare competency directory. The questionnaire was developed from financial competencies statements in a healthcare specific directory that are relevant to middle managers.

Setting

UMMC is the only health science academic medical center in the state. UMMC serves three missions, healthcare education, research, and clinical care. The teaching hospitals at UMMC include adult medical/surgical, adult critical care, women's, and children's hospitals in addition to hospital-based ambulatory clinics.

Participants

The target population for this study was the middle managers of the teaching hospitals at UMMC. A middle manager was classified by the words "manager" or "assistant manager" in the job title, as in nurse manager. Furthermore, study participants had accountability for budget and/or personnel. The inclusion criteria considered all middle managers having or not having accounting unit responsibility, but do manage day-to-day operations within the teaching hospitals; thus, these individuals have great

influence on the financial success of the organization. The survey population included 128 middle managers.

UMMC management was excluded from the study if their job title includes chief, executive, administrator, director, lead, charge, or supervisor. These titles reflect organizational leaders above, or staff below, the targeted middle management level in the organizational hierarchy. Also excluded were the middle managers of the academic and research enterprises of UMMC, as the purpose of this study is limited to the teaching hospitals and competencies needed of middle managers in a hospital setting. Additionally, managers such as case managers and projects managers were excluded, as their roles do not include budget or personnel management.

Directors were initially considered for inclusion. In an AMC, as with most complex healthcare organizations, directors function in expanded management roles, including supervision of multiple managers and business units. Furthermore, in most cases, directors have demonstrated success at the middle manager level prior to promotion to director, typically after having demonstrated prior competency in the subject financial areas. Accordingly, directors were excluded from participation.

Instrument Development

The questionnaire was developed using financial competencies in the Healthcare Leadership Alliance Competency Directory (HLA, 2013a). The directory was developed from the collaboration of six major healthcare professional organizations (Garman & Johnson, 2006; HLA, 2010; Stefl, 2008). Subject matter experts representing the professional organizations, with the assistance of a psychometric testing firm, reviewed the competencies and KSAs of each to identify common competencies. The resulting directory consists of 802 competency statements (HLA, 2010, 2013a), organized in five domains (HLA, 2010; Stefl, 2008). The directory provides a common framework and terminology for managers across a range of positions and organizational types (ACHE, 2013a). The directory is an Excel database intended to serve as a reference tool, sortable by the user to identify relevant competencies (HLA, 2010, 2013a).

The focus of this survey was the Business Skills and Knowledge domain, which, as explained earlier, consists of topics such as financial management, strategic planning, and general management. The BSK domain is recognized as having particular relevance

to middle managers, especially those who were promoted because of technical or clinical performance (Garman et al., 2006). The BSK competencies have been used effectively and proactively to identify and correct competency gaps. By reviewing the BSK competencies in the HLA Competency Directory and using the filtering tool, 12 financial competencies were selected by the evaluator as most relevant for middle managers and are shown in Appendix B.

Questionnaire format. Qualtrics, available through a UMMC license agreement, was used to develop and distribute the survey, as well as to collect and tabulate responses. The questionnaire consisted of three sections (see Appendix C). The first section contained background, instructions, and informed consent. A participant's election to complete the study was considered to be consent to participate.

The second section requested demographic information. The questions included such data as: degree focus, management role, highest education level completed, number of years as a manager, and previous financial or accounting course in their education program. Additional demographic information, including age, race and gender, was also collected. Demographic information was descriptive, and no attempt was made to identify individual respondents.

The third section consisted of the financial competency self-assessment using the financial competencies detailed in Appendix B. The questionnaire used the Dreyfus model response scale. This model incorporates a 5-point scale ranging from the lowest of novice (1) to the highest of expert (5) (ACHE, 2013; Ennis, 2008; Stefl, 2008). Anticipated examples of possible responses follow. A new manager would typically be a novice (1) on the scale. An early career or less experienced manager would be a learner (2). A tenured manager would be expected to be competent (3). Senior managers would be expected to self-rate as proficient (4) or expert (5).

After completion of the survey, Respondents were thanked for their participation after completion of the survey.

Questionnaire distribution. A list of managers fitting the previously described definition of middle managers was obtained from UMMC Human Resources. Qualtrics, a web-based survey software tool available to UMMC students, was utilized to administer the questionnaire and compile data for analysis. Each invited participant was assigned a

unique identifier by Qualtrics. The unique identifier assured anonymity, concealing identity even from the evaluator, and limited participants to one response.

The survey process was introduced at a leadership meeting held by senior leaders of the teaching hospitals. An initial email was sent from Qualtrics to UMMC middle managers at the beginning of the four-week survey period to request participation in the web-based survey. Following the initial email on March 31, 2015, three reminders were sent from Qualtrics at one-week intervals over the thirty-day survey period to those managers who had responded. Two additional emails were sent in the final week of the survey. A total of six email communications were sent. The survey concluded April 27, 2015.

Data Sources

The following data sources were used:

1. UMMC information system to identify middle managers by job title.
2. Demographic information from the second section of the questionnaire including years as a manager, years in current role, education level, management classification, and previous financial training.
3. Financial competency self-ratings from the third section of the questionnaire.

Institutional Review Board

As this project involved human subjects, a study proposal was submitted to the UMMC IRB for approval prior to initiating the survey process. Notice of IRB approval was received March 10, 2015 (see Appendix A).

Data Collection and Analysis

Descriptive and inferential statistical analyses of all respondent demographic and self-assessed competency ratings were performed to understand the correlation between middle managers and the financial competencies evaluated. Data collected in this evaluation was tabulated and presented in both table format and narrative discussion. Data tables were formatted to contain the number of respondents (N), the self-rated percent competent, and the p value.

Descriptive statistics were used to summarize the data (Picardi & Masick, 2014). Computation of “percent competent” was based on the number of responses self-reported as competent or higher on the Dreyfus scale, with an aggregate self-rated response of

50% or higher indicating that middle managers were competent for a given competency statement. An aggregate response of less than 50% indicated a financial competency gap.

Inferential statistics were used to make inferences or generalizations regarding the study population (Leedy and Ormrod, 2013). The chi-square (χ^2) test was performed to determine whether the factors management role, education level, years of management experience, and having taken a finance or accounting course were associated with financial competency. From the chi-square test, a p value was calculated to determine statistical significance (Leedy & Ormrod, 2013; Picardi & Masick, 2014). Statistical calculations were performed using the SPSS (Version 22), with significance level set at $p < .05$.

The study questions were analyzed using the data presented in their respective tables. For example, the overall competency data table illustrates the absence or presence of any financial competency gaps reported by the study's middle manager participants. Each table highlights the lack or presence of reported gaps in financial competencies.

If cases where no gaps were identified through the survey, there was no need to address with competency-based learning interventions. Any gaps identified by the study supported the need to develop competency-based learning interventions so as to provide opportunities for healthcare middle managers to increase their financial knowledge, skills, and abilities.

Ethical and Legal Concerns

Respondents voluntarily and anonymously completed the questionnaire. Informed consent was built into the questionnaire. Data were presented in aggregate, factually and with no fabrication. Access to data in Qualtrics was by secure password, known only to the evaluator. Therefore, no significant ethical issues were anticipated.

The Healthcare Leadership Alliance Competency Directory (HLA, 2013a) is designed for use by the healthcare profession. The HLA Terms of Use/License Agreement permits use of the HLA Competency Directory without limitation for educational activities (HLA, 2013b). No legal issues are anticipated.

Validity

There is no standard definition for competencies (Garman & Johnson, 2006). To increase validity, an evaluator should, therefore, determine if the competency model

actually measures the intended competency. The HLA competency model is a compilation of the competencies from six healthcare professional associations that were vetted using psychometric and subject matter experts (Garman & Johnson, 2006; HLA, 2010; Stefl, 2008). The literature has shown the use of psychometric testing and subject matter experts to provide some assurance of validity and reliability (Cowin et al., 2008). Furthermore, as noted earlier, the competency statements in the HLA Directory are recognized as having particular relevance to middle managers, especially those who were promoted because of technical or clinical performance (Garman et al., 2006).

There could also be a concern regarding inter-rater reliability (Evans, 2008). Lack of self-awareness from the respondents could also pose a limitation (Helfand et al., 2005). Integral to the survey process is the assumption that respondents willingly respond to a survey in a truthful manner. In this study, each participant was encouraged to select the response that best reflected their competency and was assured that all responses would be anonymous. This assurance was important both to study findings and, as importantly, to participant and evaluator confidence in research integrity, as the evaluator is a member of senior leadership at UMMC.

Summary

The methods for this study were designed to evaluate the financial competency of middle managers in the teaching hospitals of an AMC. A recognized directory of healthcare financial competencies was used to develop the questionnaire. Data analyses of the participants' responses were expected to demonstrate any gaps in financial competency among middle managers in the aggregate, by management classification, education level, and years of experience.

FINDINGS

CHAPTER 4

FINDINGS

Introduction

The study's purpose was to evaluate the financial competencies of middle managers in the teaching hospitals of an AMC to determine if these middle managers report gaps in the financial competencies needed to perform their jobs successfully. Toward this objective, an anonymous questionnaire, designed for participant self-assessment of 12 relevant financial competency statements, was developed from an industry competency directory.

Of the 128 invitations sent to middle managers, 91 questionnaires were returned for analysis. Of these, 84 questionnaires were fully completed, for a 65.6% response rate, including the questionnaire of one middle manager who self-assessed all but one competency statement (on team education). Seven middle managers provided only partial demographic responses; therefore, their responses were excluded from the data analysis.

Demographics

In order to understand the surveyed population of middle managers, selected demographic data were collected (see Table 1).

More than half (60%) of respondents were under age 45. More females responded than males. 77% compared to 23%. Race was reported as 41% African-American, 58% Caucasian, and 1% Other.

Clinicians represented 48% of participants, with 40% responding as non-clinicians. For current management role, 36% reported managing clinical departments, 43% non-clinical departments, and 19% departments with both clinical and non-clinical tasks.

More than three quarters of middle managers had completed a college or higher degree, with 49% holding a bachelors degree and 30% a masters degree. No middle manager reported earning a doctorate. Over half of the managers reported taking a finance or accounting course as a student.

Table 1
Demographic Characteristics of Middle Managers

Characteristic	N	Percentage
Age		
< 45	50	60
≥ 45	34	40
Gender		
Male	19	23
Female	65	77
Race		
African-American	34	41
Caucasian	49	58
Other	1	1
Education level completed		
Less than Bachelor ^a	18	21
Bachelor	41	49
Master	25	30
Educational Focus		
Clinical	40	48
Non-clinical	34	40
Undetermined	10	12
Management Role		
Clinical	30	36
Non-clinical	36	43
Both clinical/non-clinical	16	19
Undetermined	2	2
Number of years as manager		
< 5	35	42
≥ 5 < 10	26	31
≥ 10	23	27
Years in current role		
< 5	50	60
≥ 5 < 10	27	32
≥ 10	7	8
Finance/accounting class		
Yes	46	55
No	35	41
Don't Recall/Not Sure	3	4

Note. N = 84.

^aResponses of high school, GED, some college, technical school, and community college were collapsed into and reported as Less than Bachelor degree.

A range of years in a management role was reported, with 42% having less than five years, while 27% reported ten or more years of management experience. In total, 73% of managers had less than ten years of total management experience. Most respondents reported occupying their current UMMC management role for less than 5

years; only 8% reported ten or more years in their present role. The vast majority (92%) of all responding managers reported having less than ten years of experience in their current role.

Financial Competency Findings

On the Dreyfus scale, a competent manager was posited to be represented by an individual manager's self-report of at least three for any competency statement (ACHE, 2013; Ennis, 2008; Stefl, 2008), with a gap in financial competency represented by a response of less than three. A gap in financial competency for the population of managers, likewise, was a mean response of less than three for one of the competency statements. However, the data distribution was found to be skewed (see Figures 1 and 2), so that relying on the mean would be misleading.

Aggregate data from the 84 middle managers that participated illustrate this phenomenon (see Table 2 and Figures 1 and 2).

Table 2

Overall financial competency results

Competency	Reporting Competent ^a		
	Number	Mean	Percent
Accounting principles	50	2.63	60
Read/interpret data	40	2.55	48
Productivity measures	48	2.81	57
Prepare/manage budgets	33	2.39	39
Financial stewardship	43	2.58	51
Articulate business models	28	2.18	33
Business plan development	28	2.18	33
Revenue cycle	35	2.39	42
Payment regulations	23	2.04	27
Supply chain	36	2.38	43
Team education ^a	45	2.52	54
Resource needs assessment	53	2.73	63

Note. Number and percent are those managers responding as competent, proficient, or expert.

^aN = 84 for all competency statements except team education, for which N = 83.

In Table 2, no competency statement has a mean equal to or greater than three; yet, the percent of respondents who self-rated as competent ranged from 27% (payment regulations) to 63% (resource needs assessment). Also, managers self-rated as competent (percent competent set at greater than 50%) for five of the 12 competency statements, despite the fact that the mean is less than three for each competency.

For team education and resource needs assessment, the mean competency reported was 2.52 and 2.73 respectively; the percent of managers who self-reported as competent in the corresponding areas was, respectively, 54% and 63%. Figures 1 and 2 display the response distribution for these two competencies, illustrating that most managers self-rated as competent. Figures 1 and 2 further illustrate a slight skew of the responses towards the lower ratings of novice and learner, resulting in a calculated mean that is less than the target rating of three (competent). Thus the descriptive statistic used for the remainder of this study was percent of managers self-rating at three or higher for each competency statement (percent competent). Distributions for the remaining ten competencies are shown in Appendix D.

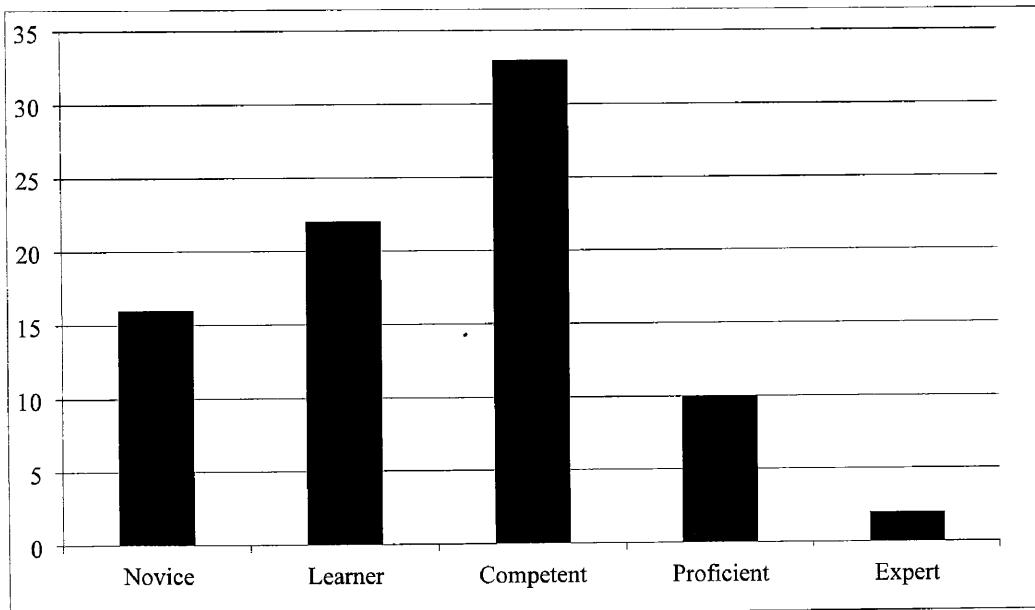


Figure 1. Aggregate Distribution for Team Education Competency. Mean = 2.52. Percent competent = 54%

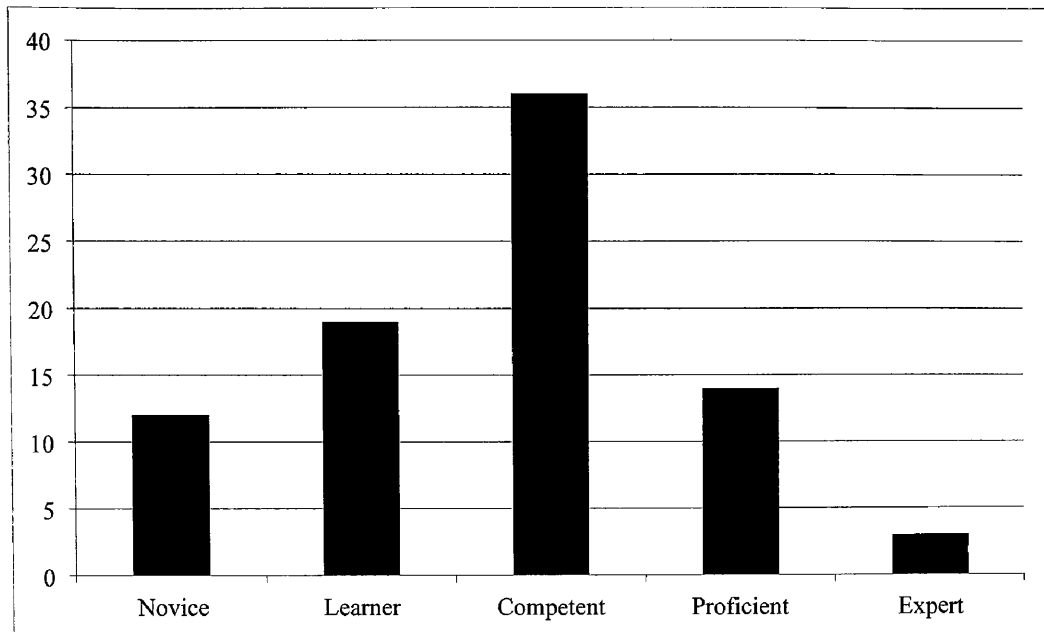


Figure 2. Aggregate Distribution for Resource Needs Assessment Competency. Mean = 2.73. Percent competent = 63%

Aggregate Competency

The first study question asks if differences exist in the financial competencies of middle managers. Middle managers self-rated highest for the competencies of resource needs assessment (63%) and accounting principles (60%) (see Table 2). For payment regulations, only 27% of managers self-rated as competent. Other competencies self-rated less than 50% were: articulate business models (33%), business plan development (33%), prepare/manage budgets (39%), revenue cycle operations (42%), supply chain (43%), and read/interpret data (48%). These aggregate results indicate managers did not consider themselves competent in seven of the 12 competencies, pointing to gaps in the financial competencies of middle managers.

Manager Background

The second study question asks if differences exist in the financial competencies of middle managers with clinical versus non-clinical backgrounds. Two differential areas of interest emerged: educational focus and management role.

Educational focus. Managers with clinical degrees assessed themselves as competent in four of 12 competencies, as shown in Table 3. For clinical managers, the

highest self-rated competencies were resource needs assessment (60%) and productivity measures (58%). Eight competencies were self-rated by these managers at a level below 50%: business plan development (18%), payment regulations (18%), articulate business models (20%), supply chain (33%), prepare/manage budgets (35%), revenue cycle (35%), read/interpret data (38%), and financial stewardship (48%).

Table 3

Percent Competent by Degree Focus

Competency	Percent by Degree Focus ^a			p value ^e
	Clinical ^b	Non-clinical ^c	Undetermined ^d	
Accounting principles	53	68	60	.186
Read/interpret data	38	53	50	.183
Productivity measures	58	53	70	.694
Prepare/manage budgets	35	38	60	.773
Financial stewardship	48	47	80	.970
Articulate business models	20	44	50	.025
Business plan development	18	50	40	.003
Revenue cycle	35	50	40	.192
Payment regulations	18	35	40	.003
Supply chain	33	53	50	.076
Team education ^a	55	53	50	.859
Resource needs assessment	60	62	80	.877

Note. % = percent responding as competent, proficient, or expert. $p < .05$ denotes significance. Bold numbers denotes competency rating below 50% or $p < .05$.

^aN = 84 for all competency statements except team education, for which N = 83. ^bN = 40. ^cN = 34. ^dN = 10. ^eUndetermined responses were excluded.

Managers with non-clinical degrees rated eight of 12 competencies at above 50% with the highest being accounting principles (68%) and resource needs assessment (62%). However, the respondents self-reported three competencies at below 50%: prepare/manage budgets (35%), payment regulations (35%), articulate business models (44%), and financial stewardship (47%).

Irrespective of degree, clinical or non-clinical, managers both reported ratings below 50% for prepare/manage budgets, financial stewardship, articulate business

models, and payment regulations. Both also reported ratings at or above 50% for accounting principles, productivity measures, team education, and resource needs assessment.

For ten study participants, no degree focus (clinical versus non-clinical) could be accurately determined; thus their responses were removed for all statistical analyses performed to identify differences based on this demographic characteristic. Chi-square analysis revealed that articulate business models [$\chi^2 = 4.990$; degrees of freedom (df) = 1; $p = .025$], business plan development ($\chi^2 = 8.858$; df = 1; $p = .003$), and payment regulations ($\chi^2 = 8.858$; df = 1; $p = .003$) were significantly different among those with clinical versus non-clinical educational backgrounds.

Management role. Study participants in clinical management roles rated themselves as competent in five of 12 competencies (see Table 4).

Table 4

Percent Competent by Management Role

Competency	Percent by Management Role ^a				p value ^f
	Clinical ^b	Non-Clinical ^c	Both ^d	Unsure ^e	
Accounting principles	60	64	50	50	.746
Read/interpret data	47	58	25	50	.344
Productivity measures	63	61	44	0	.853
Prepare/manage budgets	43	50	13	0	.589
Financial stewardship	53	56	44	0	.857
Articulate business models	23	47	25	0	.045
Business plan development	17	53	35	0	.002
Revenue cycle	30	58	31	0	.021
Payment regulations	13	36	38	0	.035
Supply chain	30	58	38	0	.021
Team education ^a	57	58	38	50	.891
Resource needs assessment	67	69	44	50	.809

Note. % = percent responding as competent, proficient, or expert. $p < .05$ denotes significance. Bold numbers denotes competency rating below 50% or $p < .05$.

^aN = 84 for all competency statements except team education, for which N = 83. ^bN = 30. ^cN = 36. ^dN = 16. These managers have departments with both a clinical and non-clinical tasks. ^eN = 2. ^fBoth and unsure responses were excluded.

Clinical managers rated highest in resource needs assessment (67%) and productivity measures (63%). By contrast, clinical managers self-rated less than 50% competency in payment regulations (13%), business plan development (17%), articulate business models (23%), revenue cycle (30%), supply chain (30%), prepare/manage budgets (43%), and read/interpret data (47%). These seven low-rated competencies by role overlap with seven of the competencies self-rated low by those with clinical degrees.

Also as illustrated in Table 4, middle managers with non-clinical roles rated themselves as competent in ten of 12 competencies, with the highest ratings at 69% for resource need assessment and 64% for accounting principles. The two competencies for which non-clinical managers rated their own competence at below 50% included articulate business models (47%) and payment regulations (36%), both also rated low (23% and 13%, respectively) by managers with clinical roles.

For 16 study participants reporting both a clinical and a non-clinical role, no degree focus (clinical versus non-clinical) could be accurately determined; thus their responses were removed for all statistical analyses performed to identify differences based on this demographic characteristic. Another two responses that self-reported as unsure as to whether their role was clinical or nonclinical were also excluded.

Chi-square analysis indicated a significant difference in five competencies: articulate business models ($\chi^2 = 4.036$; $df = 1$; $p = .045$), business plan development ($\chi^2 = 9.221$; $df = 1$; $p = .002$), revenue cycle ($\chi^2 = 5.298$; $df = 1$; $p = .021$), payment regulations ($\chi^2 = 4.440$; $df = 1$; $p = .035$), and supply chain ($\chi^2 = 5.298$; $df = 1$; $p = .021$).

Summary. The results indicate findings of financial competency gaps between clinical and non-clinical middle managers as illustrated in Tables 3 and 4. Considering both degree focus and management role, there are statistically significant differences shared between these two groups, where non-clinical managers self-rated higher than clinical managers in the competencies for articulating business models, business plan development, and payment regulations. Significant differences were also identified where clinical managers by management role self-rated lower in these additional competencies: revenue cycle and supply chain. The number of competency ratings less than 50% and the findings of statistical significance present opportunities for a competency-based educational intervention or educational reinforcement, particularly for clinical managers.

Level of Education

The third study question asked if differences in financial competencies exist by education level. After reviewing the data, two areas of interest regarding manager background emerged: differences based on highest education level completed and on having taken an accounting or finance course.

Highest education level. Managers with a bachelors degree self-rated as competent in four of 12 competencies (see Table 5).

Table 5

Percent Competent by Highest Education Level Completed

Competency	Percent by Highest Education Level ^a			p value ^e
	Less than Bachelor ^b	Bachelor ^c	Master ^d	
Accounting principles	61	56	56	.994
Read/interpret data	50	44	52	.523
Productivity measures	44	59	64	.659
Prepare/manage budgets	32	39	44	.690
Financial stewardship	39	46	64	.163
Articulate business models	39	29	36	.569
Business plan development	50	22	40	.116
Revenue cycle	50	37	44	.550
Payment regulations	33	22	32	.365
Supply chain	50	42	40	.907
Team education ^a	50	56	52	.746
Resource needs assessment	50	66	64	.878

Note. % = percent responding as competent, proficient, or expert. $p < .05$ denotes significance. Bold numbers denotes competency rating below 50% or $p < .05$.

^aN = 84 for all competency statements except team education, for which N = 83. ^bN=18.

Includes the responses high school, GED, some college, technical school and community college. ^cN=41. ^dN=25. ^eLess than Bachelor responses were excluded.

The competencies rated the highest were resource need assessment (66%) and productivity measures (59%). Eight competencies where clinical managers self-rated a low competency level included: business plan development (22%), payment regulations (22%), articulate business models (29%), revenue cycle (37%), prepare/manage budgets

(39%), supply chain (42%), read/interpret data (44%), and financial stewardship (46%). Managers with a masters degree rated themselves as competent in six of 12 competencies. The highest ratings were 64% for productivity measures, financial stewardship, and resource needs assessment. The six competencies where ratings were low included: prepare/manage budgets (44%), articulate business models (36%), business plan development (40%), revenue cycle (44%), and payment regulations (32%).

To determine if a statistically significant difference existed between managers with bachelor and master degrees, participant responses (18) reporting less than a bachelor degree were excluded from analysis for this characteristic. Chi-square analysis revealed no significant differences between those with bachelors and masters degrees.

Finance/accounting course taken. Managers who had not taken a course self-rated as competent in three of 12 competencies (see Table 6).

Table 6

Percent Competent by Finance or Accounting Course Completion

Competency	Took a Course ^a			p value ^e
	Yes ^b	No ^c	Unsure ^d	
Accounting principles	70	51	0	.096
Read/interpret data	59	37	0	.055
Productivity measures	65	49	33	.133
Prepare/manage budgets	52	26	0	.016
Financial stewardship	54	46	67	.441
Articulate business models	39	29	0	.322
Business plan development	41	26	0	.144
Revenue cycle	43	40	0	.753
Payment regulations	30	26	0	.641
Supply chain	48	40	0	.483
Team education ^a	57	54	0	.841
Resource needs assessment	70	60	0	.370

Note. % = percent responding as competent, proficient, or expert. $p < .05$ denotes significance. Bold numbers denotes competency rating below 50% or $p < .05$.

^aN = 84 for all competency statements except team education, for which N = 83. ^bN = 46. Yes means manager took a finance or accounting course. ^cN = 35. No means the manager did not take a finance or accounting course. ^dN = 3. ^eUnsure responses were excluded.

They rated as highest resource need assessment (60%) and team education (54%). In nine competencies, these managers gave a low self-assessment for nine competencies: prepare/manage budgets (26%), business plan development (26%), payment regulations (26%), articulate business models (29%), read/interpret data (37%), revenue cycle (40%), supply chain (40%), financial stewardship (46%), and productivity measures (49%).

Managers who had taken a course in finance or accounting rated themselves competent in seven of 12 competencies. The highest rating, at 70%, was for accounting principles and resource need assessment. The five competencies for which managers self-rated at a low competency level included: payment regulations (30%), articulate business models (39%), business plan development (41%), revenue cycle (43%), and supply chain (48%).

To determine if a statistically significant difference existed between managers having taken or not taken a finance or accounting course, participant responses (3) reporting as unsure were excluded from analysis for this characteristic. Chi-square analysis indicated a significant difference in one competency, prepare/manage budgets ($\chi^2 = 5.764$; $df = 1$; $p = .016$), with those who had taken a finance or accounting course self-rating as more competent.

Summary. The results indicate financial competency gaps among middle managers based on education level, as illustrated in Tables 5 and 6. There were no findings of statistically significant difference between managers with bachelors and masters degrees. There was, however, a statistically significant finding between managers who had taken a finance or accounting course compared to those who had not in the preparing and managing budgets competency.

Middle managers with a bachelor degree self-rated below 50% in more competencies than those with a masters degree. Managers who had taken a finance or accounting course self-rated above 50% for more competencies than did managers who had not. The number of competency ratings self-assessed at less than 50% indicates an opportunity for a competency-based educational intervention or educational reinforcement. Such opportunities appear particularly needed for managers without a finance or accounting course.

Other Emerging Factors

In review of the data, two other areas of investigation emerged: number of years as a manager and number of years in current management role at UMMC.

Years in management. Managers with less than five years of experience self-rated as competent in two of 12 competencies (see Table 7).

Table 7

Percent Competent by Years in Management

Competency	Years in Management ^a			p value ^e
	< 5 years ^b	≥5, <10 years ^c	≥10 years ^d	
Accounting principles	49	65	70	.191
Read/interpret data	29	65	57	.004
Productivity measures	46	69	61	.067
Prepare/manage budgets	23	54	48	.013
Financial stewardship	34	62	65	.035
Articulate business models	20	38	48	.112
Business plan development	20	38	48	.112
Revenue cycle	29	50	52	.088
Payment regulations	17	35	35	.117
Supply chain	37	54	39	.194
Team education ^a	51	58	52	.627
Resource needs assessment	54	73	65	.134

Note. % = percent responding as competent, proficient, or expert. $p < .05$ denotes significance. Bold numbers denotes competency rating below 50% or $p < .05$.

^aN = 84 for all competency statements except team education, for which N = 83. ^bN = 35.

^cN = 26. Five or more, but less than 10 years. ^dN=23. Ten or more years. ^eTen years or more responses were excluded.

The competencies rated the highest were team education (51%) and resource need assessment (54%). In the remaining 10 competencies, managers self-rated at a low competency level, or an aggregate response less than 50%. The self-ratings were: payment regulations (17%), articulate business models (20%), business plan development

(20%), prepare/manage budgets (23%), read/interpret data (29%), revenue cycle (29%), supply chain (37%), financial stewardship (34%), productivity measures (46%), and accounting principles (49%).

Managers with between five and 10 years of experience, rated themselves as competent in nine of 12 competencies. The highest ratings were 73% for resource needs assessment and 69% for productivity measures. The three competencies rated less than 50% included: payment regulation (35%), articulate business models (38%), and business plan development (38%).

To determine if a statistically significant difference existed between managers based on years of experience, participant responses (23) reporting ten or more years of experience were excluded. Chi-square analysis indicated a significant difference in three competencies: read/interpret data ($\chi^2 = 8.195$; $df = 1$; $p = .004$), prepare/manage budgets ($\chi^2 = 6.213$; $df = 1$; $p = .013$), and financial stewardship ($\chi^2 = 4.462$; $df = 1$; $p = .035$), with those having five to ten years of experience self-rated as more competent.

Years in current position. Managers who had served less than five years in their current roles rated themselves as competent in four of 12 competencies (see Table 8).

The competency rated the highest was again resource need assessment, at 58%. There were eight competencies for which managers self-rated as low, including: payment regulations (24%), articulate business models (28%), business plan development (28%), prepare/manage budgets (30%), revenue cycle (38%), supply chain (40%), read/interpret data (40%), and financial stewardship (44%).

Managers with five or more years in the current position, but less than 10 years assessed themselves competent in seven of 12 competencies. The highest rating was for resource need assessment (70%). The five competencies for which ratings were less than 50% included: articulate payment regulations (26%), business plan development (33%), articulate business models (41%), revenue cycle (41%), and supply chain (44%).

To determine if a statistically significant difference existed between managers based on years of experience in their current role, participant responses (7) responses reporting 10 or more years of experience were excluded from the analysis for this characteristic. Chi-square analysis of the data indicated no statistically significant differences between the two groups.

Table 8

Percent Competent by Years in Current Management Position

Competency	Years in Current Position ^a			p value ^e
	< 5 years ^b	≥5, <10 years ^c	≥10 years ^d	
Accounting principles	54	59	100	.657
Read/interpret data	40	52	86	.318
Productivity measures	54	59	71	.657
Prepare/manage budgets	30	52	57	.059
Financial stewardship	44	59	71	.201
Articulate business models	28	41	43	.255
Business plan development	28	33	71	.626
Revenue cycle	38	41	71	.814
Payment regulations	24	26	57	.852
Supply chain	40	44	57	.706
Team education ^a	54	52	57	.857
Resource needs assessment	58	70	71	.285

Note. $p < .05$ denotes significance. Bold numbers denotes competency rating below 50%. ^aN = 84 for all competency statements except team education, for which N = 83. ^bN = 50. ^cN = 27. More than or equal to 5 years, but less than 10 years. ^dN = 7. Greater than or equal to 10 years. ^eTen years or more responses were excluded.

Summary. The results indicate that differential financial competency gaps exist between managers based on management experience; these are illustrated in Tables 7 and 8. For total years of management experience, statistically significant differences were seen based on number of years in management. Managers with less than five years of experience self-rated lower in: read/interpret data, productivity measures, prepare/manage budgets, and financial stewardship. No findings of significant differences were based on the years in current management role.

The number of competency ratings below 50% for both years of experience and years in current role present an opportunity for a competency-based educational intervention or educational reinforcement, particularly for less experienced managers.

Summary

Eighty-four middle managers working in UMMC's teaching hospitals participated in a study self-rating 12 financial competencies for a 65.6% response rate, including the questionnaire of one middle manager who replied to all but the team education competency question. More than half of respondents were under age 45. More females than males responded, 73% compared to 23%. Clinicians represented 48% of participants and 40% responded as non-clinicians. The majority of middle managers had completed a college or higher degree with 49% holding a bachelors degree and 30% a masters degree. Over half of managers reported taking a finance or accounting course. In total, 57% of managers had less than 10 years of total management experience. Responding to years in the current UMMC management role, 60% reported less than 5 years while only 8% reported 10 or more years.

This evaluation identified areas of both competency gaps and areas of competency (see Tables 9 and 10). Competency gaps (self-rating of less than 50% competent) were found in all three areas evaluated: manager background (degree and role), manager education (highest degree and finance/accounting course), and years of experience (overall and in current role). The competencies rated below 50% for all areas evaluated were articulate business models and payment regulations (Table 10). Other areas consistently self-rated low were read/interpret data, prepare/manage budgets, business plan development, revenue cycle, and supply chain.

Competencies self-reported as competent for all areas evaluated include team education and resource needs assessment. Other competencies consistently self-reported as competent were accounting principles, productivity measures, and financial stewardship.

Statistically significant findings were found in four of the six areas reviewed: educational focus, management role, finance/accounting course taken, and years of management experience. No significant difference was found evaluating highest level of education or years in current management position.

For degree focus, significant differences were noted between clinical and non-clinical degrees in the competencies of articulate business models, business plan development, and payment regulations. For management role (clinical versus non-clinical), significant differences were found for articulate business models, business plan development, revenue cycle, payment regulations, and supply chain. In the area of finance/accounting course taken, a statistical difference was found for the preparing/managing budgets competency. Regarding number of years in management, statistically significant differences were found for the reading/interpreting data, preparing/managing budgets, and financial stewardship competencies.

This study supports, with the number of financial competencies self-assessed below 50% percent and the findings of significance, the premise advanced in the literature of a need to develop competencies of healthcare managers (Guo, 2003; Hudak et al., 2000; Krugman et al., 2002; Robbins et al., 2001; Wolf et al., 2006).

Table 9

Summary: 50% or Greater Competent with Statistical Significance^a

Competency	A ^b	Degree ^c		Role ^d		Education ^e		Course ^f		Experience ^g		Role ^h	
		C	NC	C	NC	B	M	Y	N	<5	≥5	<5	≥5
Accounting principles	X	X	X	X	X	X	X	X	X			X	X
Read/interpret Data			X		X		X	X			S		X
Productivity measures	X	X	X	X	X	X	X	X			X	X	X
Prepare/manage budgets					X			S			S		X
Financial stewardship	X			X	X		X	X			S		X
Articulate business models													
Business plan development			S		S								
Revenue Cycle			X		S						X		
Payment regulations													
Supply chain			X		S						X		
Team education ^a	X	X	X	X	X	X	X	X	X	X	X	X	X
Resource needs assessment	X	X	X	X	X	X	X	X	X	X	X	X	X

Note. X = 50% or more competent. S = Statistically significant and 50% or more competent. A = Aggregate. C = Clinical. NC = Non-clinical. B = Bachelor. M = Master. Y = Yes. N = No. < 5 = Less than five years. ≥ 5 = five or more but less than ten years.

^aN = 84 for all competency statements except team education, for which N = 83.

^bTable 2

^cTable 3

^dTable 4

^eTable 5

^fTable 6

^gTable 7

^hTable 8

Table 10

Summary: Less than 50% Competent with Statistical Significance^a

Competency	A ^b	Degree ^c		Role ^d		Education ^e		Course ^f		Experience ^g		Role ^h	
		C	NC	C	NC	B	M	Y	N	<5	≥5	<5	≥5
Accounting principles										X			
Read/interpret Data	X	X		X		X			X	S		X	
Productivity measures						X			X	X			
Prepare/manage budgets	X	X	X	X		X	X		S	S		X	
Financial stewardship		X	X			X			X	S		X	
Articulate business models	X	S	S	S	S	X	X	X	X	X	X	X	X
Business plan development	X	S		S		X	X	X	X	X	X	X	X
Revenue Cycle	X	X		S		X	X	X	X	X		X	X
Payment regulations	X	S	S	S	S	X	X	X	X	X	X	X	X
Supply chain	X	X		S		X	X	X	X	X		X	X
Team education ^a													
Resource needs assessment													

Note. X = less than 50%. S = Statistically significant and less than 50% competent.

A = Aggregate. C = Clinical. NC = Non-clinical. B = Bachelor. M = Master. Y = Yes. N = No. < 5 = Less than five years. ≥ 5 = five or more but less than ten years.

^aN = 84 for all competency statements except team education, for which N = 83.

^bTable 2

^cTable 3

^dTable 4

^eTable 5

^fTable 6

^gTable 7

^hTable 8

DISCUSSION

CHAPTER 5 DISCUSSION

Interpretation of the Findings

The purpose of this study was to evaluate the financial competencies of middle managers in the teaching hospitals of an academic medical center to determine if gaps in the financial competencies needed to perform their jobs exist. In order to understand the correlation between middle managers and the financial competencies, 128 middle managers working in UMMC's teaching hospitals were invited to participate in a questionnaire self-rating 12 financial competencies. Of those invited, 84 participated, for a 65.6% return rate.

This evaluation identified areas of both competency gaps and areas of competency among middle managers for 12 financial competencies (summarized in Tables 9 and 10). Competency gaps (self-rating of less than 50% competent) were found in all three areas evaluated: manager background (degree focus and role), manager education (highest degree and finance/accounting course), and years of experience (overall and in current role). Statistically significant findings were found in four of the six areas reviewed.

Implications for Practice

This study investigated whether or not middle managers have the financial competencies to perform their jobs. Study findings support the premise, argued in the literature, that a need exists for developing competencies among healthcare managers. The results indicate that a real need exists to create a competency-based learning intervention for the development of financial competencies in middle managers, particularly for managers with less than five years experience, managers with a clinical background, and managers without finance or accounting course. Based on findings summarized in Tables 9 and 10, the competencies identified as needing a competency-based intervention were as follows: articulate business models, business plan development, payment regulations, read/interpret data, prepare/manage budgets, revenue cycle, and supply chain.

The following steps are suggested for the development of a competency-based financial training program.

Develop of Training Program

1. Meet with UMMC's Chief Learning Officer to review the findings of the study
2. Identify subject matter experts in the competency areas identified for competency-based education
3. Establish timeframe to develop program
4. Develop specific competency-based modules for training based on identified competency gaps
5. Determine forum(s) and method(s) of delivery for competency-based training, i.e., classroom, self-study, or on-line
6. Establish budget for the education program and secure funding
7. Compile training materials
8. Develop pre-test and post-test. Determine time lapse between pre-test, training, and post-test, i.e., same day or multiple post-tests over time to determine retention

Implement Training

1. Establish number and frequency of classes needed for classroom training
2. Set schedule for classes (could vary based on different delivery methods)

Assess Training Effectiveness

1. Utilize post-test at conclusion of the competency-based training
2. Adjust the competency-based training, if needed, based on post-test results
3. Involve up-line leaders to determine retention of material learned particularly during monthly financial reviews and during annual budget development.

Strengths and Limitations

Strengths

There were two primary strengths for this study. One, it utilized an industry specific competency assessment tool. The questionnaire was developed using financial competencies in the HLA Competency Directory that was developed from a collaboration of six major healthcare professional organizations, subject matter experts, and a psychometric testing firm (Garman & Johnson, 2006; HLA, 2010, 2013a; Stefl, 2008). The directory provided a common framework and terminology for healthcare managers

across a range of positions and organizational types (ACHE, 2013). Additionally, the competency model is specific for healthcare management roles and the industry strengthening relevance to the participant and, therefore, more accurately measures the intended competency (Markus et al., 2005).

Two, the response rate of 65.6%. This is attributed to the both the communication strategy introducing the survey to middle managers as part of a leadership meeting as well as weekly email requests to participate and the convenience sample of middle managers in the teaching hospitals of the AMC where the evaluator was known to middle managers.

Limitations

In addition to the delimitations discussed in Chapter I, the format of the questionnaire was a self-assessment. While it is the most common form of competency assessment (Evans, 2008), there can be concerns related to self-reporting bias particularly among middle managers without self-awareness.

In selecting competency statements for the questionnaire, the statements derived from the HLA Competency Director were intentionally not modified. One of the 84 respondents assessed all competencies except the team education competency. The competency read as follows: “Participants to self-assess competence for the education of patient care team members on financial implications of patient care decisions” (HLA, 2013a). It is possible the wording caused confusion especially if a manager was not clinical. Middle managers may have benefited from additional explanation.

Recommendations for Future Study

The following recommendations are made in light of the findings of this inquiry and the limitations noted:

1. The design and implementation of a competency-based educational intervention, as described above, with a pre-test and post-test to determine effectiveness.
2. Expansion of the inquiry to include the four other domains of the HLA: Leadership, Communication and Relationship Management, Professionalism, and Knowledge of the Healthcare Environment (ACHE, 2013; HLA, 2010).

3. Expansion of the inquiry to include other middle managers in the research and education missions of UMMC.
4. Expansion of the inquiry to include senior and entry level managers at UMMC including directors, supervisors, and administrators.
5. Expansion of the inquiry to other healthcare organizations.
6. Expansion of the inquiry to include a 360-degree evaluation as the perceptions from supervisors, peers, and subordinates could enhance competency assessment and reduce self-awareness bias (Garman et al., 2004; Helfand et al., 2005).
7. Evaluate curriculum at the Schools of Health Related Professions, Nursing and Pharmacy to add or strengthen finance/accounting classes and increase financial knowledge.
8. Evaluate and implement if feasible competency-based evaluations tools for use in the recruitment process.

Conclusion

Middle managers within healthcare institutions function in the role of small business operators, directly influencing organizational financial success. Yet it remains common for middle managers to be selected for management positions without sufficient regard to the competencies or without the advantage of formal financial education necessary to manage successfully in complex healthcare organizations.

The purpose of this study was to evaluate the self-reported financial competencies of middle managers in the teaching hospitals of an academic medical center to determine any perceived gaps in the financial competencies needed to successfully perform their jobs. The literature review supported the importance of this study of self-assessed financial competencies among middle managers who daily face the complexities and financial challenges of the healthcare industry.

A survey instrument, developed from the HLA Competency Directory, permitted 84 participants of 128 middle managers invited (65.6% return rate) to self-assess 12 financial competency statements. Data were evaluated using descriptive and inferential statistics, with responses compared by manager background (education focus and role),

level of education (highest degree completed and finance/accounting course), and years of managerial experience (overall and in present position), as well as in the aggregate.

The data from the respondents indicated both competency strengths (aggregate self-ratings of 50% or more) and gaps (aggregate self-ratings less than 50%). Statistically significant findings were found in four of the six areas reviewed, particularly among newer managers (less than five years of experience), managers with a clinical background, and managers without a finance or accounting course in their education.

Identification of these gaps has provided the target organization and its middle managers with valuable information that could be used in its hospitals, schools, and staff educational programs to develop competency-based education programs able to increase the financial knowledge, skills, and abilities of current and future middle managers. Competency assessment, however, is for naught if the organization does not make available and/or the employee does not take advantage of training and developmental opportunities made available to address identified gaps (Ennis, 2008). Reducing or eliminating these competency gaps has the potential to benefit employees in their current role, to support a long-term career development plan for future roles, and to improve organizational performance.

APPENDICES

APPENDIX A
INSTITUTIONAL REVIEW BOARD APPROVAL

UNIVERSITY OF MISSISSIPPI MEDICAL CENTER

2500 North State Street
Jackson, Mississippi 39216-4505

Institutional Review Board
Telephone (601) 984-2815
Facsimile (601) 984-2961

DHHS FWA #00003830
IORG #0000043
IRB 1 Registration
#00000081
IRB 2 Registration
#00005033

**Approval Notice
Initial Application**

03/10/2015

Tonya Moore, PhD
School of Nursing
180 Stratford Place
Jackson, MS 39206

RE: IRB File #2015-0027

Financial Competency Evaluation of Middle Managers in the Teaching Hospitals of an Academic Medical Center

Your Initial Application was reviewed and approved by the Expedited Review process on 03/10/2015. You may begin this research.

Please note the following Information about your approved research protocol:

Protocol Approval Period: 03/10/2015 - 03/08/2016
Approved Enrollment #: 256
Participant Population: UMMC Employees
Performance Sites: University Hospital, Blair E. Batson Hospital for Children, University Medical Pavilion, Wallace C. Conerly Hospital for Critical Care and Winfred L. Wiser Hospital for Women and Infants

Expedited Review Category(ies):(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(2) and (b)(3). This listing refers only to research that is not exempt.);

Documents / Materials:

Type	Description	Version #	Date
Research Protocol	Grady IRB Study Proposal 1.23.15.docx	1	01/23/2015
Questionnaires/Survey	Grady Doctoral Project Questionnaire 1.23.15.docx	1	01/23/2015

Review History:

Date	Type	Decision
02/20/2015	Administrative Review	Revisions Required
03/10/2015	Expedited Review	Approved

Please remember to:

- Use the IRB file number (2015-0027) on all documents or correspondence with the IRB concerning your research protocol.

- Review and comply with all requirements on the enclosure, UMMC Investigator Responsibilities, Protection of Human Research Participants.

The IRB has the prerogative and authority to ask additional questions, request further information, require additional revisions, and monitor the conduct of your research and the consent process.

Please note, if this study involves an intervention (whether or not it involves a drug or device) you (or the "responsible party") must register the study before enrollment begins and report results within 12 months of study closure through Clinicaltrials.gov <http://www.clinicaltrials.gov>. Penalties for responsible parties who fail to register applicable clinical studies are significant and include civil monetary penalties and, for federally-funded studies, withholding or recovery of grant funds. For additional information please go to <http://irb.umc.edu/GuidanceInfo/ClinTrialRegistry.htm>.

We wish you the best as you conduct your research. If you have questions or need additional information, please contact the Human Research Office at (601) 984-2815.

IRB 1

Enclosure(s): (1) Investigator Responsibilities, Protection of Human Research Participants

cc: Sharon Lobert, Ph.D.
Office of Integrity and Compliance

APPENDIX B
FINANCIAL COMPETENCIES

The HLA Competency Directory, an Excel database providing a common terminology for healthcare managers that can be sorted to identify relevant competencies (ACHE, 2013; HLA, 2010; HLA, 2013a), was used to select 12 competencies relevant to middle managers:

1. “Describe general accounting principles and define basic accounting terms [Accounting principles]
2. Read and interpret benchmarking, financial and occupancy data [Read and interpret data]
3. Fundamental productivity measures (e.g., hours per patient day, cost per patient day, units of service per man hour) [Productivity measures]
4. Prepare and manage budgets, including annual operating budgets, project budgets and capital budgets [Prepare and manage budgets]
5. Provide stewardship of financial resources [Financial stewardship]
6. Articulate business models for healthcare organizations and fundamental concepts of economics [Articulate business models]
7. Manage financial resources by developing business plans [Business plan development]
8. Understanding the key components and functions within the organization's revenue cycle operations [Revenue cycle]
9. Articulate federal and state payment systems and regulations, as well as private insurance issues, which affect organization's finances [Payment regulations]
10. Understand key components and functions under the supply chain process in the organization [Supply chain]
11. Educate patient care team members on financial implications of patient care decisions [Team education]
12. Assess resource requirements (e.g., space, personnel, environmental, communication, productivity) [Resource needs assessment]”

[Information quoted directly from the HLA Competency Directory, (HLA, 2013a).

Brackets denote author additions.]

APPENDIX C
FINANCIAL COMPETENCY EVALUATION QUESTIONNAIRE

I am Phillip Grady, a graduate student in the Department of Health Administration at the University of Mississippi Medical Center (UMMC) working with Tonya Moore, PhD, Principal Investigator. You have been invited to participate in this study because you are a middle manager in UMMC's teaching hospitals. This questionnaire will assess information regarding financial competencies. The questionnaire is voluntary and you can choose to not participate in this study. The questionnaire is anonymous. The results of the study may be published, but your name will not be known. Completion of the questionnaire will be considered your consent to participate. Please respond to each item with the one answer that best represents you. Please complete all questions in this survey. If you have any questions concerning this research study, please call me at 4-4143 or email at pgrady@umc.edu.

Thank you,

Phillip L. Grady
Co-Investigator

Tonya Moore, PhD
Investigator

What is your gender?

- Male
- Female

How old are you?

- 18 to 24 years
- 25 to 34 years
- 35 to 44 years
- 45 to 54 years
- 55 to 64 years
- 65 or older

What is your race or origin?

- White
- Black or African American
- Asian
- Native Hawaiian or other Pacific Islander
- American Indian or Alaska Native
- Hispanic or Latino
- Middle Eastern or Arab
- Other
- Don't know / Not Sure

What is the highest grade level of education you have completed?

- High school graduate or GED
- Some college
- Technical school graduate
- Community college graduate
- College graduate
- Master degree
- Doctorate
- Other

Did you take finance or accounting courses at any time during your education?

- Yes
- No
- Don't recall / Not sure

What is the highest level of education required for entry-level in your field?

- High school graduate or GED
- Some college
- Technical school graduate
- Community college graduate
- College graduate
- Master degree
- Doctorate
- Don't know / Not sure

What was the focus of your entry-level degree?

- Nursing
- Pharmacy
- Physical or Occupational Therapy
- Respiratory Therapy
- Radiology Technology
- Health Information Management
- Other Health Related Professional Degree
- Business, Finance, or Accounting
- Psychology
- Liberal Arts
- Engineering
- Science
- General Studies
- Other non-clinical degree

If you earned a degree above the educational requirements for entry-level, what was the focus of that degree?

- Clinical degree
- Business or management degree
- Non-clinical degree

How would you classify your current management duties?

- Clinical department
- Non-clinical department
- Both clinical and non-clinical departments
- Other
- Don't know / Not sure

How many years have you been in a management role?

- Less than 5 years
- 5 or more years, but less than 10 years
- 10 or more years

How many years have you been in your current role?

- Less than 5 years
- 5 or more years, but less than 10 years
- 10 or more years

For each financial competency statement, please rate your current competency level:

	Novice (1)	Learner (2)	Competent (3)	Proficient (4)	Expert (5)
Describe general accounting principles and define basic accounting terms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Read and interpret benchmarking, financial, and occupancy data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

For each financial competency statement, please rate your current competency level:

	Novice (1)	Learner (2)	Competent (3)	Proficient (4)	Expert (5)
Fundamental productivity measures (e.g., hours per patient day, cost per patient day, units of service per man hour)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prepare and manage budgets including annual operating budgets, project budgets, and capital budgets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

For each financial competency statement, please rate your current competency level:

	Novice (1)	Learner (2)	Competent (3)	Proficient (4)	Expert (5)
Provide stewardship of financial resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Articulate business models for healthcare organizations and fundamental concepts of economics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

For each financial competency statement, please rate your current competency level:

	Novice (1)	Learner (2)	Competent (3)	Proficient (4)	Expert (5)
Manage financial resources by developing business plans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding the key financial components and functions within the organization's revenue cycle operations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

For each financial competency statement, please rate your current competency level:

	Novice (1)	Learner (2)	Competent (3)	Proficient (4)	Expert (5)
Articulate federal and state payment systems and regulations, as well as private insurance issues, which affect organization's finances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understand key components and functions under the supply chain process in the organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

For each financial competency statement, please rate your current competency level:

	Novice (1)	Learner (2)	Competent (3)	Proficient (4)	Expert (5)
Educate patient team members on financial implications of patient care decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess resource requirements (e.g., space, personnel, environmental, communication, productivity)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thank you for completing this survey! Your response has been recorded.

APPENDIX D
AGGREGATE COMPETENCY DISTRIBUTION GRAPHS

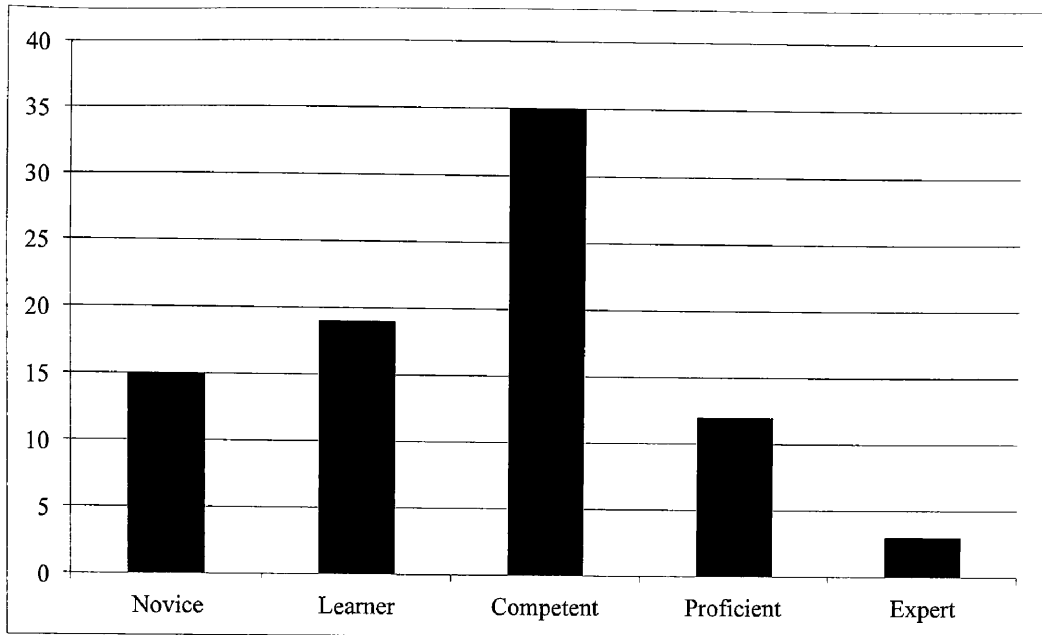


Figure D1. Aggregate Distribution for Accounting Principles Competency. Mean = 2.63. Percent competent = 60%.

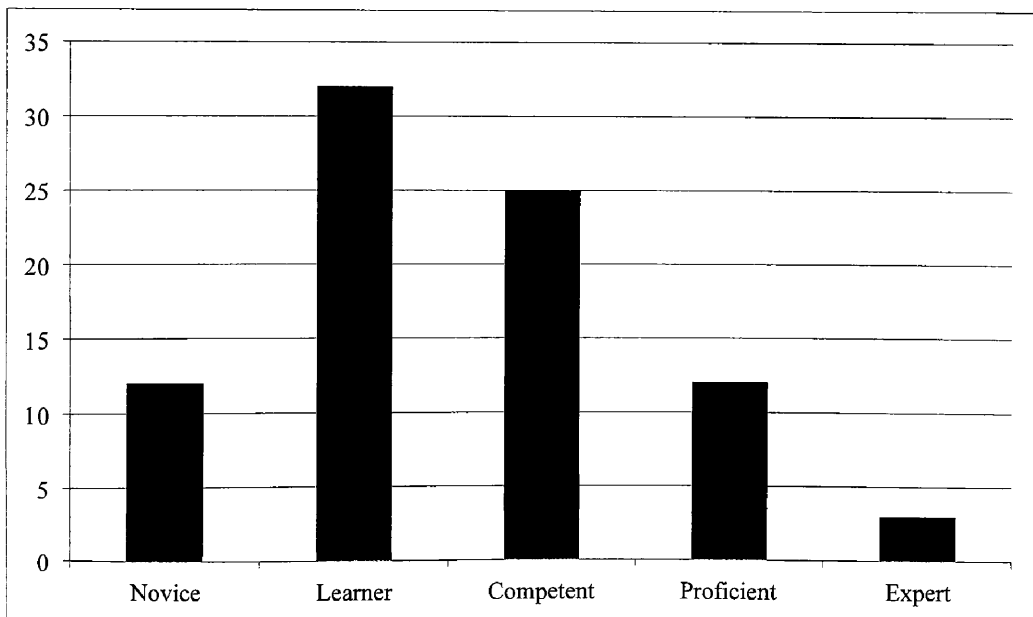


Figure D2. Aggregate Distribution for Read and Interpret Data Competency. Mean = 2.55. Percent competent = 48%.

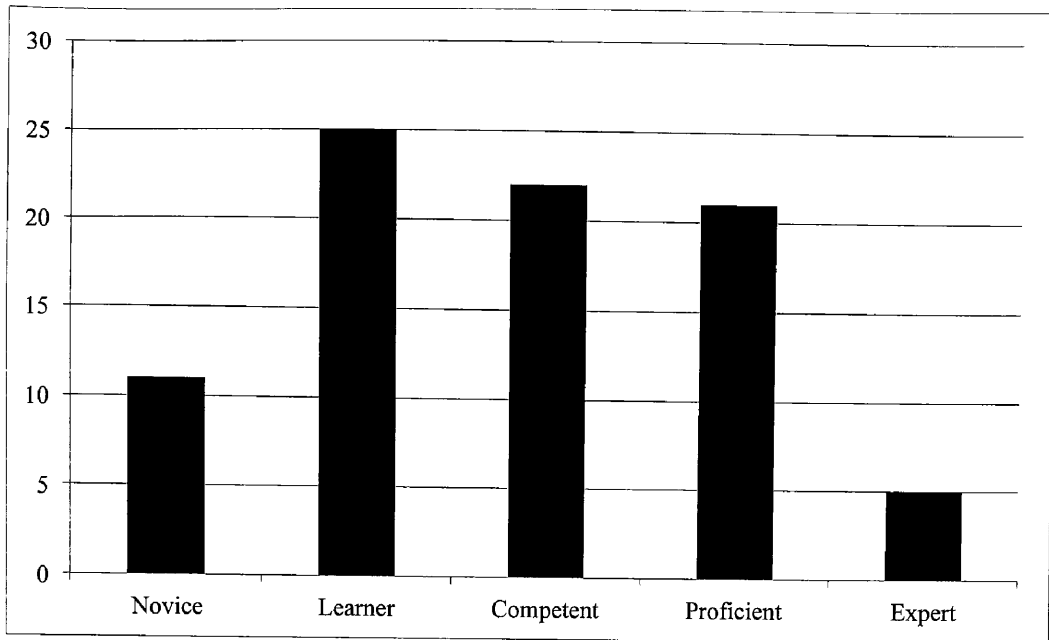


Figure D3. Aggregate Distribution for Productivity Measures Competency. Mean = 2.81. Percent competent = 57%.

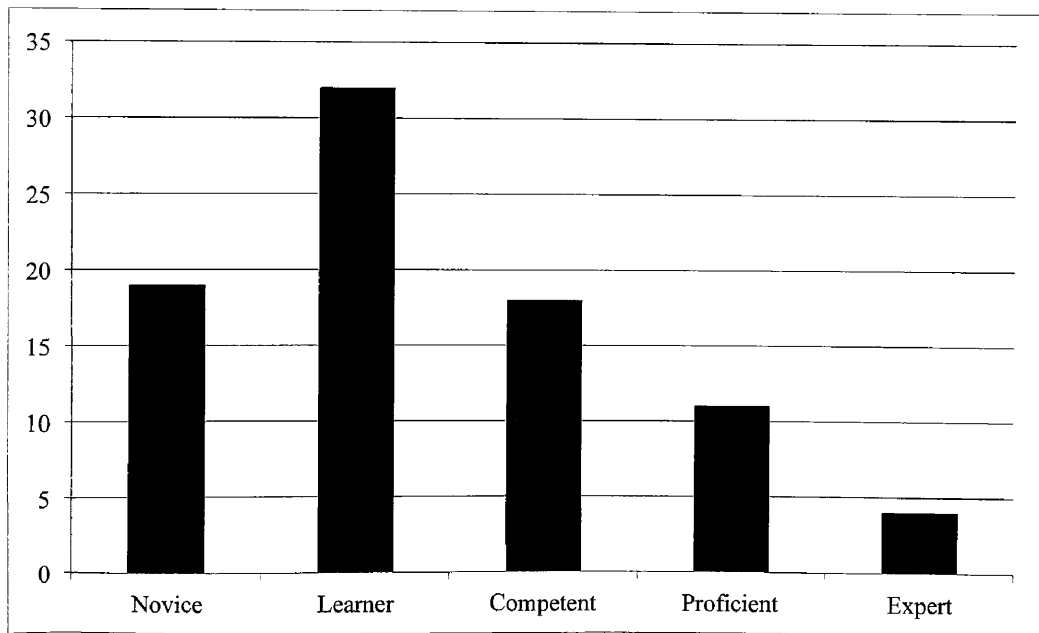


Figure D4. Aggregate Distribution for Prepare and Manage Budgets Competency. Mean = 2.39. Percent competent = 39%.

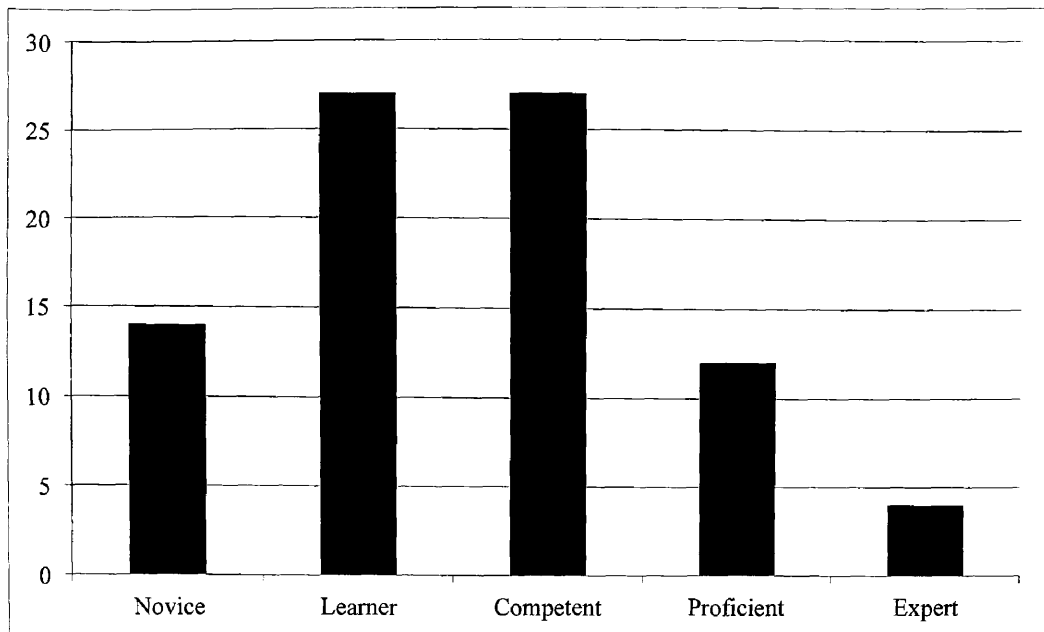


Figure D5. Aggregate Distribution for Financial Stewardship Competency. Mean = 2.58. Percent competent = 51%.

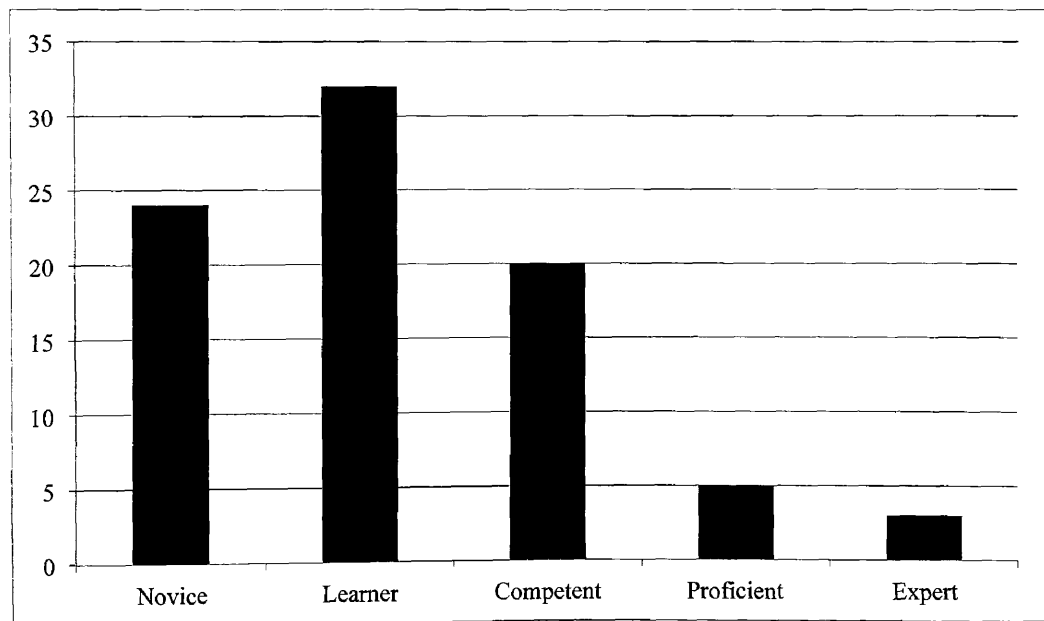


Figure D6. Aggregate Distribution for Articulate Business Models Competency. Mean = 2.18. Percent competent = 33%.

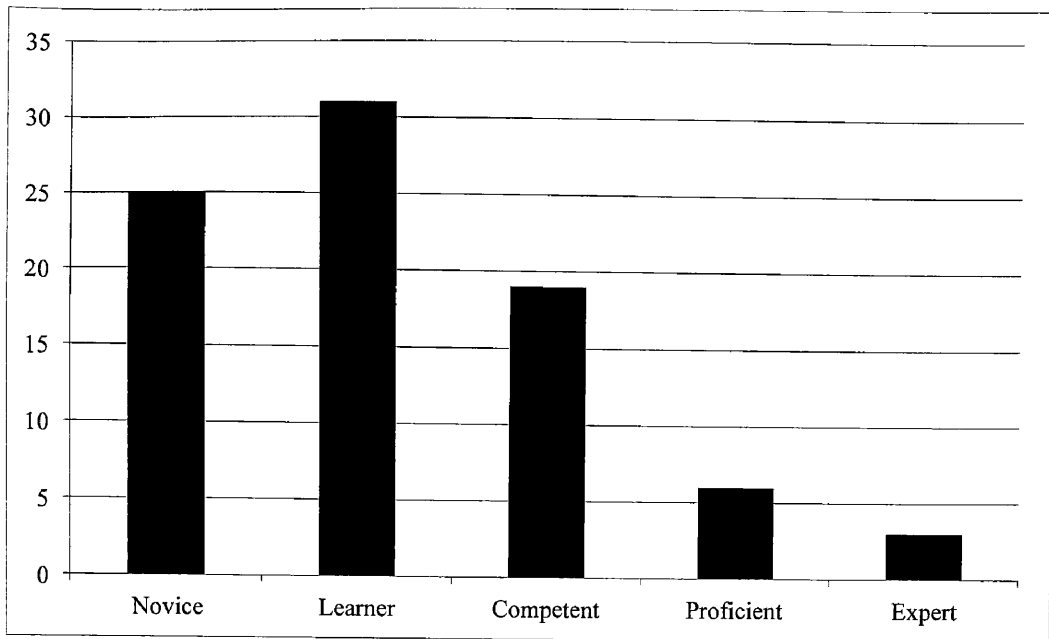


Figure D7. Aggregate Distribution for Developing Business Plans Competency. Mean = 2.18. Percent competent = 33%.

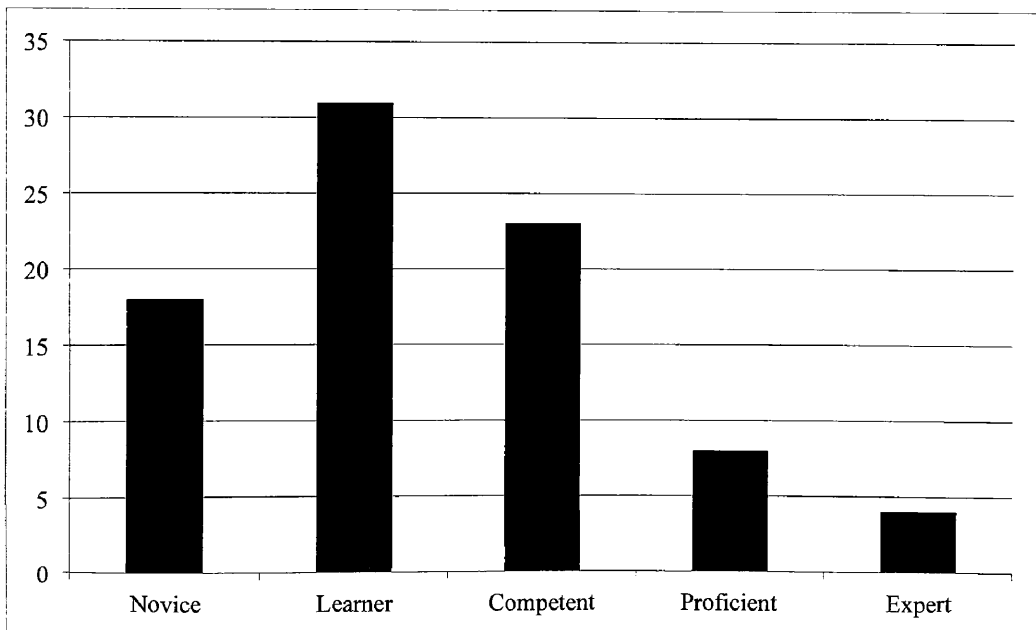


Figure D8. Aggregate Distribution for Developing Revenue Cycle Competency. Mean = 2.39. Percent competent = 42%.

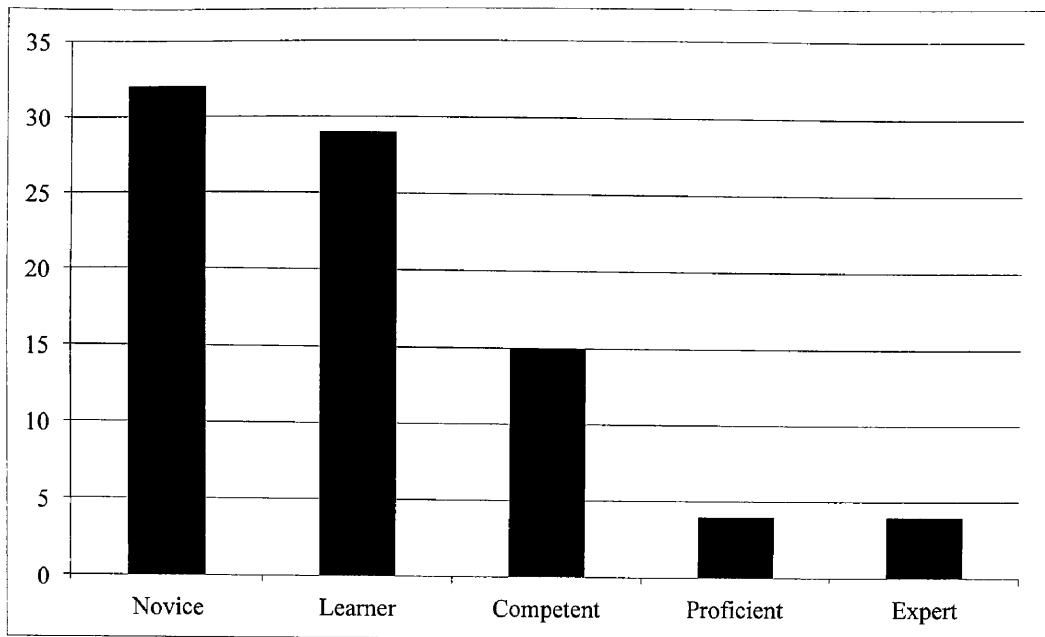


Figure D9. Aggregate Distribution for Payment Regulations Competency. Mean = 2.04. Percent competent = 27%.

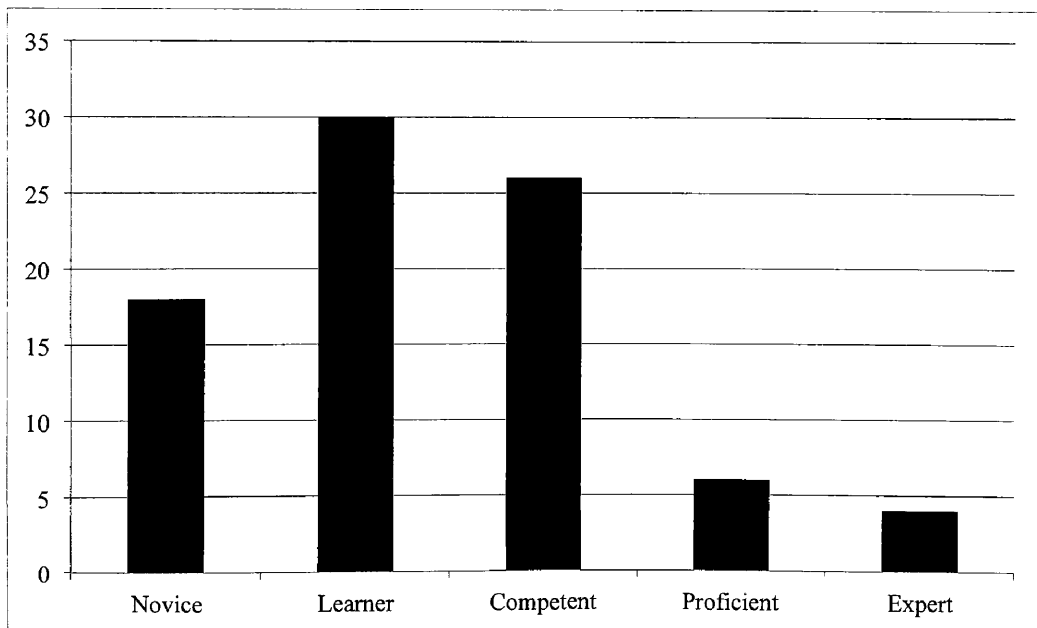


Figure D10. Aggregate Distribution for Supply Chain Competency. Mean = 2.38. Percent competent = 43%.

APPENDIX E
FAIR USE STATEMENT

The Doctor of Health Administration Advisory Committee for Phillip L. Grady has reviewed materials within this document and determined whether the materials are in the public domain, or are within fair use, or require permission.

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Robert Z. McElhoney

Robert McElhoney, Chair, Doctor of Health Administration Advisory Committee

8/11/2016

Date

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LITERATURE CITED

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