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Improving Outcomes of Acute Coronary Syndrome Patients Through Disease Specific Care Certification

Terri Ginn Lemon
University of Southern Mississippi

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IMPROVING OUTCOMES OF ACUTE CORONARY SYNDROME
PATIENTS THROUGH DISEASE SPECIFIC CARE CERTIFICATION

by

Terri Ginn Lemon

Abstract of a Capstone Project
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Nursing Practice

August 2012
ABSTRACT

IMPROVING OUTCOMES OF ACUTE CORONARY SYNDROME PATIENTS THROUGH DISEASE SPECIFIC CARE CERTIFICATION

by Terri Ginn Lemon

August 2012

Cardiovascular disease remains the number one killer of Americans, accounting for over 800,000 deaths in 2008. Improving a hospital’s performance by obtaining and maintaining The Joint Commission Disease-Specific Care Certification is one method of impacting acute coronary syndrome patient outcomes. The purpose of this capstone project was to provide consultation services to ready the cardiology division of a large community hospital in south Mississippi for the process of obtaining Joint Commission Disease-Specific Care Certification in the area of acute coronary syndrome. The activities of the consultation included facilitating an examination of the current organization of ACS patient care; reviewing core and performance measure data collected by the hospital for ACS patients; identifying variances in care and practice; and selecting performance measures to support the certification process. The consultation results included creating performance improvement plans to correct variances in care and practice; developing a more comprehensive staff, patient, and community education process; and addressing each component of The Joint Commission Disease-Specific Care Certification requirements and site review. The consultation was conducted with the Outcomes Coordinator of the study hospital’s cardiology division.
ACKNOWLEDGMENTS

The writer would like to thank the capstone chair, Dr. Sandra Bishop, and the other committee member, Dr. Mary Coyne, for their advice and support throughout the duration of this project. Special thanks also to Ruth Bishop for her gracious gift of time serving as my clinical preceptor.
The University of Southern Mississippi

IMPROVING OUTCOMES OF ACUTE CORONARY SYNDROME PATIENTS THROUGH DISEASE SPECIFIC CARE CERTIFICATION

by

Terri Ginn Lemon

A Capstone Project
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Nursing Practice

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August 2012
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<tbody>
<tr>
<td>AACN</td>
<td>American Association of Colleges of Nursing</td>
</tr>
<tr>
<td>ACC</td>
<td>American College of Cardiologists</td>
</tr>
<tr>
<td>ACS</td>
<td>Acute Coronary Syndrome</td>
</tr>
<tr>
<td>AHA</td>
<td>American Heart Association</td>
</tr>
<tr>
<td>CAD</td>
<td>Coronary Artery Disease</td>
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<tr>
<td>CDC</td>
<td>Centers for Disease Control</td>
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<tr>
<td>CHD</td>
<td>Coronary Heart Disease</td>
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<td>CMS</td>
<td>Centers for Medicare and Medicaid Services</td>
</tr>
<tr>
<td>CVD</td>
<td>Cardiovascular Disease</td>
</tr>
<tr>
<td>D2B</td>
<td>Door to Balloon</td>
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<tr>
<td>DNP</td>
<td>Doctor of Nursing Practice</td>
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<tr>
<td>EBP</td>
<td>Evidence Based Practice</td>
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<tr>
<td>ECG</td>
<td>Electrocardiogram</td>
</tr>
<tr>
<td>ED</td>
<td>Emergency Department</td>
</tr>
<tr>
<td>EMS</td>
<td>Emergency Medical Services</td>
</tr>
<tr>
<td>HDL</td>
<td>High Density Lipoprotein</td>
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<tr>
<td>ICSI</td>
<td>Institute for Clinical Systems Improvement</td>
</tr>
<tr>
<td>IOM</td>
<td>Institute of Medicine</td>
</tr>
<tr>
<td>IRB</td>
<td>Institutional Review Board</td>
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<tr>
<td>LDL</td>
<td>Low Density Lipoprotein</td>
</tr>
<tr>
<td>MI</td>
<td>Myocardial infarction</td>
</tr>
<tr>
<td>NIH</td>
<td>National Institute of Health</td>
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</table>
$NSTEMI$  non-ST-segment elevation myocardial infarction

$PCI$  Percutaneous Coronary Intervention

$STEMI$  ST-segment elevation myocardial infarction

$U.S$  United States
CHAPTER I

INTRODUCTION AND DESCRIPTION OF CAPSTONE PROJECT

Worldwide ischemic heart disease is the leading cause of death (World Health Organization, 2011) and despite declining mortality rates since the 1960s (Centers for Disease Control and Prevention, 2011), cardiovascular disease (CVD) remains the leading cause of death in the United States (U.S.). Along with being the major cause of disability, lost productivity, and reduced quality of life in adults (Bahr, 2000), CVD is also the most costly disease (Mensah & Brown, 2007), accounting for 17% of national health care expenditures (Heidenriech et al., 2011). With the elderly population the country’s fastest growing age group (U.S. Census Bureau, 2011), it is estimated that the prevalence of CVD will increase by approximately 10% over the next 20 years, affecting over 40% of U.S. adults, some 116 million people. The associated costs of treatment are expected to triple (Heidenriech et al., 2011).

As a strategy to place controls on the anticipated numbers of patients with chronic illness and the associated costs involved, disease management programs have been created. Such programs “typically refer to multidisciplinary efforts to improve the quality and cost-effectiveness of care for select patients with chronic illness. These programs involve interventions designed to improve adherence to scientific guidelines and treatment plans” (Faxon et al., 2004, p. 2652). Research has shown that disease management programs centered around performance measures resulting from evidence based practice (EBP) can have a positive impact on patient care and outcomes (Heidenriech et al., 2011). For this reason, The Joint Commission, the nation’s largest healthcare certifying body, established in 2002 the Disease-Specific Care Certification
program. Designation as such a facility is based on health care treatment which is “disease-specific, evidence based clinical practice guidelines to reduce unwarranted variability in the delivery of care” (Mowll, 2003, p. 546).

The purpose of this Doctor of Nursing Practice (DNP) Capstone Project was to provide consultation services to ready the cardiology services of a large community hospital located in south Mississippi for the process of obtaining Joint Commission Disease-Specific Care Certification in the area of acute coronary syndrome (ACS), the major form of CVD (CDC, 2012). For the past 25 years, the hospital has been one of the largest providers of cardiovascular care to the lower six counties of Mississippi. With 28 cardiovascular specialists on staff, the hospital provided 66,574 cardiac procedures in 2011. The cardiac program is supported by a clinical staff with dedicated coronary care and observation units, a state of the art intervention laboratory, and a certified cardiac rehabilitation center. As the following discussion will demonstrate, disease-specific certification in ACS will increase the quality of patient care by reducing variation in clinical processes, allowing for better utilization of effective data-driven performance improvement, and promoting a culture of excellence within the hospital, which will ultimately improve the outcomes of the ACS patient population.

The activities of the consultation, detailed in Chapter III, included facilitating an examination of the current organization of ACS patient care; reviewing core and performance measure data collected by the hospital for ACS patients; identifying variances in care and practice; creating performance improvement plans to correct those variances; and selecting performance measures to support the certification process. The consultation results, outlined in Chapter IV, included creating performance improvement plans to correct variances in care and practice; developing a more comprehensive staff,
patient, and community education process; and reviewing each of the 28 standards (Appendix A) of The Joint Commission Disease-Specific Care Certification requirements and site review. As the following discussion will detail, there has never been a more pressing time of need, nor place, for the pursuit of improved ACS disease specific care.

Scope of the Problem

With the prevalence and incidence of chronic diseases, such as CVD, expected to increase over the next 20 years, disease management programs are becoming an important healthcare tool (Martin et al., 2007) and are “changing the way in which basic medical care is provided to a significant percentage of the U.S. population” (Goldstein, 2006, p. 312). The primary goal of disease management programs is to improve patient outcomes. This is accomplished through elements such as “support for the practitioner-patient relationship and care plan; utilization of evidence-based practice guidelines and patient empowerment to prevent disease exacerbations and complications; and ongoing evaluation of clinical, economic, and humanistic outcomes to improve overall health” (Care Continuum Alliance, 2012, para. 2). Such programs generally focus on a specific disease and place emphasis on the role of multidisciplinary teams functioning in a comprehensive, concerted effort (Gilbert, Staley, Lydall-Smith, & Castle, 2008) to promote high-quality, evidence based patient care, defined by Sackett (1996) as the “conscientious, explicit, and judicious use of current best evidence in making decisions about the care of the individual patient. It means integrating individual clinical expertise with the best available external clinical evidence from systematic research" (p. 71). Such care is aimed at closing the gaps that occur when hospital treatment is variable and core performance opportunities are missed (Fonarow et al., 2010).

The ultimate goal of disease management programs is to improve clinical
outcomes by improving the continuity and coordination of care by “placing the patient in a central position in the process of health care delivery” (Ouwens, Wollersheim, Hermens, Hulscher, & Grol, 2005, p. 143). Research studies have indicated that disease management programs, such as The Joint Commission’s Disease-Specific Care Certification, “can yield significant improvement in the physical and mental quality of life in patients suffering from CAD and heart disease” (Martin et al., 2007, p. 177). A literature review conducted by Mattke, Seid, and Ma (2007) reports that “there is consistent evidence that disease management can improve processes of care” (p. 673) which included advancements in the care of coronary artery disease (CAD). LaBresh, Ellrodt, Gliklich, Liljestrand, and Peto (2004) examined two studies where organized, evidence based interventions were implemented in the care of CAD patients and found “better patient outcomes, including reductions in mortality” (p. 207). Disease management programs such as The Joint Commission’s ACS Disease-Specific Care Certification increase the consistent use of American Heart Association and American College of Cardiologists (AHA/ACC) recommended therapies and promote evidence-based care. The requirements for obtaining and maintaining certification ensure that clinical practice guidelines of diagnosis and treatment dictate the care of ACS patients and “this comprehensive evaluation of ACS treatment will help guide efforts designed to promote evidence based care and ultimately determine the effect of widespread implementation of practice guidelines on clinical outcomes” (Roe et al., 2003, p. 605). Certification is only granted, and renewed, if a “facility demonstrates compliance with national standards, clinical practice guidelines, and performance measurement and improvement activities” (Fonarow, et al., 2010, p. 2463). Currently there are only 15 facilities in the U.S. with ACS disease-specific certification (Joint Commission, 2012a).
Significance of Project

One consequence of an increasing aged population is a rise in the rate of chronic conditions. In 2010, 42% percent of the American population, 125 million people, suffered from at least one chronic medical condition (Agency for Healthcare Research and Quality, 2010). It is estimated that by the year 2020 nearly half of all Americans will have more than one disease (Anderson & Horvath, 2004). The majority of U.S. health care dollars are already being spent on the care of chronic disease as in 2009 it accounted “for more than 75 cents of every dollar spent on healthcare in this country” (Majestic, 2009, p. 4). With this growing burden in mind, the Institute of Medicine (IOM) in 2001 published Crossing the Quality Chasm: A New Health System for the 21st Century. The report offered an agenda for improving health care by increasing the quality of the care given. The IOM’s report determined that increased quality would lead to improvement in patient outcomes and this in turn would result in greater patient satisfaction and lowered healthcare costs (Sipkoff, 2004).

Among the recommendations of the IOM (2001) came six aims for improvement, which together are known by the acronym STEEEP:

1. Patients should not be harmed by the care that is intended to help them (safe)
2. Care should be based on sound scientific knowledge (effective)
3. Care should be responsive to individual preferences, needs, and values (patient-centered)
4. Unnecessary waits and harmful delays should be reduced (timely)
5. Care should not be wasteful (efficient)
6. Care should not vary in quality because of patient characteristics (equitable)

(p. 42).
From these six aims the IOM (2001) created 10 basic rules, each reflecting a STEEEP standard for improvement. The rules are intended to serve as a guide to the redesign of the current American healthcare system. The 10 basic rules include:

1. Care based on continuous healing relationships.
2. Customization based on patient needs and values.
3. The patient as the source of control.
4. Shared knowledge and the free flow of information.
5. Evidence-based decision making.
6. Safety as a system property.
7. The need for transparency.
8. Anticipation of needs.
10. Cooperation among clinicians (p. 67).

Responding to the IOM’s challenge for fundamental change in the care of patients with chronic illness, The Joint Commission, the nation’s largest healthcare certifying body, established in 2002 the Disease-Specific Care Certification program. Designation as such a facility is based on health care treatment, which is “disease-specific, evidence-based clinical practice guidelines to reduce unwarranted variability in the delivery of care” (Mowll, 2003, p. 546). The objectives of the disease-specific care program are to:

- enhance the standardization and comparability of process and outcome measures and measures of patient satisfaction and utilization of services;
- provide a credible, objective and independent review of disease specific care programs to determine their compliance with national standards and
performance measurement expectations that payers, purchasers, and the public find of value and will rely on;

- provide understandable and meaningful information to the public to assist them in choosing the selection of disease specific care services that have met The Joint Commission’s national quality standards;

- reduce the variation in clinical practice in the care of patients with certain chronic disease, thereby contributing to improved health outcomes (Mowll, 2003, p. 547).

Disease-specific care certification designation demonstrates a facility’s dedication to the highest standard of care (Joint Commission, 2012b). Other benefits of obtaining disease-specific care certification by The Joint Commission include strengthening a community’s confidence in the quality of service a facility has to offer; providing an organization with a competitive edge in the marketplace; improving risk management and risk reduction; providing education for good practice; offering enhanced staff education; and serving as a tool to attract and retain quality staff. As an added benefit, many insurers and other third parties recognize this designation (Joint Commission, 2012b). Additionally, organizations that have achieved Joint Commission disease-specific care certification have reported improved patient outcomes (Mowll, 2003).

There are three components to the disease-specific care certification program: standards, clinical practice guidelines, and performance measurement. The standards include 28 items (Appendix A) which address the structure and framework of a disease management program. These standards are not disease-specific, but are items that address the generalities of a program, such as how staff members are educated, what patient teaching methods are used, and identification of a performance improvement
methodology (Joint Commission, 2012b). The clinical practice guidelines component introduces the disease specific segment of the program. The guidelines chosen are not mandated but may come from the “universe of guidelines” (Joint Commission, 2012b, p. PI-1) These guidelines provide the evidence base for the protocols, which support the disease specific care certification program. Finally, each disease-specific care certified program must monitor processes and outcomes through ongoing data collection and analysis. Four particular measurements must be selected, which will be the basis for performance improvement activities and a major focus of the site visit (Joint Commission, 2012b).

With the number of Americans living with chronic disease on the rise, certification of a facility’s commitment and ability to manage disease within a structured, evidence based, patient focused system of care is a move towards answering the challenge of improving health care put forth by the IOM.

Purpose of Project

The purpose of this DNP Capstone Project was to provide consultation services to ready the cardiology division of a large community hospital located in south Mississippi for the process of obtaining Joint Commission Disease-Specific Care Certification in the area of ACS, the major form of CVD. As research shows that disease management programs based on evidence based practice improve patient outcomes, it is the belief of the hospital’s cardiology division that receiving ACS specific care certification will result in a higher quality of healthcare delivery to the population served.

The DNP as Consultant

Casteldine (2002) defines a consultant as “a person one seeks out for advice, expertise, counseling, or specialist input into a problem” (p. 506). According to Berragan
consulting is a process in which “the help of a specialist is sought to identify ways of handling work problems involving the planning and implementation of programs” (p. 139). While consulting is a profession in and of itself, a DNP who possesses the terminal degree of nursing practice is in a pivotal position to offer direction in improving quality of care for better outcomes for patients. As a clinical expert, the DNP is qualified to advise on the organizational changes required to facilitate the strategic planning necessary to assist the study hospital in reaching its goal of becoming ACS disease-specific certified by The Joint Commission.

In establishing the requirements for the DNP, the American Association of Colleges of Nursing (AACN) in 2006 mandated that those pursuing the degree possess expertise in clinical practice and be educated in a curriculum that “emphasizes leadership, evidence-based practice, healthcare policy, information technology, and interprofessional collaboration” (Chism, 2009, p. 291). As the education of a DNP offers a balance between theory and practical applications (Stichler, 2002), Cronenwett et al. (2011) contend that DNPs are qualified to offer healthcare consultation as “nurses prepared at the doctoral level with a blend of clinical, organization, economic, health care improvement, and leadership skills are most likely to be able to design and continuously improve systems of care delivery based on best evidence” (p. 11). The study hospital’s Outcomes Coordinator (the consultee) determined that a consultant with the practice focused educational background of a DNP, coupled with work credibility and clinical experience as a cardiac nurse, would possess an appropriate “external vision unprejudiced by preconceived notions” (Stichler, 2002, p.56) to objectively access the hospital’s level of preparedness for certification. As the education of a DNP focuses around evaluation and implementation of evidence based practice (Chism, 2009), consulting on the process
of preparing for certification is congruent with the intentions of the terminal degree and support all of the AACN’s Essentials of Doctoral Education for Advance Nursing Practice (AACN, 2006) (Appendix B), which serve as the guideline for the development of DNP programs.

Consultation Process

It is the responsibility of the consultant to ensure that the client’s vision of what is desired fits with reality (Stichler, 2002). Therefore, the scope of the consultation project involved providing a step by step guide to the process of leading the cardiology department from its current status to the aspired outcome of meeting the criteria of The Joint Commission’s Disease- Specific Care Certification. While more specific details of the process are outlined in Chapters III and IV, the work followed the traditional skills of the nurse consultant outlined by Stichler (2002): “analyzing (assessing the strengths, needs, resources, and opportunities within an organization), planning (developing a strategy to accomplish the desired outcome), and organizing (creating a formal structure to accomplish the plan)” (p. 53). The project also incorporated the four key functions of a nurse consultant outlined by Fontaine (2007): “clinical (helping to develop expert practice), strategic (providing professional leadership), educational (developing staff training), and evaluative (integrating research with practice and service development)” (p. 14).

The activities of the consultation included facilitating an examination of the current organization of ACS patient care; reviewing core and performance measure data collected by the hospital for ACS patients; identifying variances in care and practice; and selecting performance measures to support the certification process. The consultation results included creating performance improvement plans to correct variances in care and
practice; developing a more comprehensive staff, patient, and community education process; and addressing each component of The Joint Commission Disease-Specific Care Certification standards and site review. The recommendations and/or outcomes of each step of the consultation process are described in detail in Chapter IV. Throughout the entire process of implementing a plan of action to meet the criteria for certification, the ultimate goal was that each step of caring for the ACS patient must “ensure maintenance of clinical excellence” (Chummun & Tiran, 2008, p. 330). It was therefore necessary to conduct a search for the current best evidence relative to each activity involved in the consultation, most especially in the selection of the performance measures which would provide the foundation for the certification effort and support the improvement in the quality of patient care.

Implications for DNP Practice

As the DNP is a relatively new degree entering the national healthcare environment it is yet to be highly defined, nor are its functions explicit. As such it is up to DNPs to craft the role. As expert clinicians grounded in clinical practice, the role functions of the DNP are intended to meet the current needs of healthcare delivery and society (Chism, 2009). Higgins (2003) states “the ultimate purpose of consultant nurses is to improve the quality of care” (p. 28). By description this makes DNPs uniquely prepared to serve as consultants and “contribute to the improvement of healthcare delivery” (Chism, 2009, p. 294).

In this time of considerable national healthcare challenges, Cronenwett et al. (2011) state “society looks to nursing to play a crucial role in advancement of the health of the public” (p. 10). By the nature of its competencies, a DNP working as a consultant can “offer unique contribution to the improvement of patient care” (Fontaine, 2007, p.
14). As nurses have historically been the advocate of the patient, with the skill in 
evaluation and implementation of evidence based practice, the DNP can now be the 
advocate for high quality healthcare, be part of the system improvements called for by the 
IOM, and offer leadership in the change to advance the health of the nation (Chism, 
2009).

Setting of Project

The study facility is a 465 bed non-profit hospital that services the lower six 
counties of Mississippi. The hospital has been a leading cardiovascular center in the area 
for 25 years and has already received Joint Commission Disease-Specific Care 
Certification in stroke care. The hospital is one of the largest providers of cardiovascular 
care in south Mississippi. The cardiac program is supported by a clinical staff with 
dedicated coronary care and observation units, a state of the art intervention laboratory, 
and a certified cardiac rehabilitation center which provided 66,574 cardiac procedures in 
2011.
CHAPTER II
REVIEW OF THE LITERATURE

Introduction

The purpose of this capstone project was to provide consultation services to ready the cardiology division of a large community hospital in south Mississippi for the process of obtaining Joint Commission Disease-Specific Care Certification in the area of ACS. A comprehensive literature review was done using the Cumulative Index of Nursing and Allied Health Literature (CINAHL), PUBMED, MEDical Literature Analysis and Retrieval Systems Online (MEDLINE) databases, Google Scholar, and other Internet resources. The review of literature represents a summary of evidenced based and conceptual articles related to ACS and treatments of the disease. The presentation of this review is organized into the following sections: (a) the prevalence of CVD; (b) the pathophysiology of ACS; (c) risk factors of the disease; (d) evidence based guidelines of treatment; and (e) improving patient outcomes through evidence based disease management.

Prevalence of Cardiovascular Disease

Mortality rates for CVD have been declining for over 10 years, yet the “burden of the disease still remains high” (AHA, 2012, p. e3), accounting for one of every three deaths in 2008 (Figure 1). The AHA (2012) reports that in the U.S. more than 2,200 people die from CVD each day, with a death occurring every 39 seconds. Of the 811,940 CVD deaths, which occurred in 2008, nearly 150,000 were less than 65 years of age, and 33% of the total deaths occurred before the age of 75 years, which is under the current average American life expectancy of 77.9 years (AHA, 2012).
The term CVD encompasses the diseases of hypertension, heart disease, stroke, peripheral artery disease, and diseases of the veins. Of these conditions, coronary heart disease (CHD) claims the majority of lives (Figure 2). Data from 2007 shows that CHD is the cause of approximately every one in six deaths in the U.S., and is the “largest major killer of American males and females” (Roger et al., 2011, p. 53). Coronary events are so widespread in the U.S. that one occurs approximately every 25 seconds, with a death resulting approximately every minute. Statistics show that without medical attention the consequences of a coronary event are severe, as the percentage of out of hospital deaths in 2007 was 70% (Roger et al., 2011).
Along with claiming the most lives, CVD is also responsible for the highest morbidity rates. More than six million hospitalizations occur each year due to heart disease (Alliance for Aging Research, 2012) (Figure 3).

Statistics from the year 2010 show CVD prevalence greater among men at 7.8%, compared to 4.6% for women (CDC, 2012). While men have a greater occurrence of the disease, CVD shows no bias in its impact as, previously stated, it is the leading cause of death for both men and women. In spite of women believing their greatest fear of dying...
is from breast cancer, one in four American women die of heart disease, while breast cancer takes a mortality toll of one in 30. (National Institute of Health, 2007). While men face greater risk of CVD at younger ages, once a woman reaches menopause her chances of developing the disease match that of a man (NIH, 2007) (Figure 4).

![Figure 4. Prevalence of cardiovascular disease in adults ≥ 20 years of age by age and sex. Source: “AHA Statistical Update”, American Heart Association, 2012, Circulation, 125, p. e45. Copyright 2012 by the American Heart Association.](image)

Along with the human burden of the disease, CVD takes an enormous economic toll on the U.S. healthcare system as it is the most costly of diseases “constituting 17% of overall national health expenditures” (Heidenreich et al., 2011, p. 934). According to the AHA (2012) “the estimated direct and indirect cost of CVD for 2008 was $297.7 billion” (p. e27). In 2006, payments to Medicare for patients with the diagnosis of CVD were $32.7 billion, an average of $10,201 per discharge (AHA, 2012). In 2010, CHD alone cost $108.9 billion.

Expenditures for CVD come from not only the direct medical costs of treating the disease, but also from two indirect costs attached to the price tag: lost productivity from (1) morbidity and (2) premature mortality (Heidenreich et al., 2011). Loss from morbidity includes work loss among the employed, home productivity loss, and work loss
among individuals too sick to work. Loss from mortality is the value of forfeited earnings from premature death attributed to CVD (Heidenreich et al., 2011).

As with the projections for an increase in the prevalence of CVD, the costs associated with the disease are expected to increase as well. “Between 2010 and 2030, real total direct medical costs of CVD are projected to triple, from $272.5 billion to $818.1 billion while real indirect costs for all CVDs are estimated to increase from $171.7 billion in 2010 to $275.8 billion in 2030, an increase of 61%” (Heidenreich et al., 2011, p. 935) (Figure 5).

![Figure 5](image-url) *Figure 5. Projected direct and indirect costs of all CVD, years 2010 to 2030. Source: “Forecasting the Future of Cardiovascular Disease in the United States”, American Heart Association, 2011, *Circulation*, 123, p. 936. Copyright 2011 by the American Heart Association.*

As the risk of developing CVD increases with age, the impact the disease will have in the future looks indeed bleak. In 2009, 12.9% of the U.S. population, one in every eight person, was over the age of 65 (Majestic, 2009). As the baby boomer generation moves into the ranks of the older generation, government statistics estimate this age group will grow to 19% of the population by the year 2030, some 72.1 million people, more than double the size of this population demographic in the year 2000. And in 2030, one in every five person in the U.S. will be over the age of 65. “Between 2010
and 2050, the U.S. elderly population is projected to grow from 310 million to 439 million, an increase of 42%” (Vincent & Velkoff, 2010, para. 5). The increase in the number of elderly people will result in a decrease in the number of workers contributing to the economy. In 2009 there were 3.3 workers for every Medicare beneficiary, by 2030 that number is expected to decline to 2.2 workers per beneficiary (Majestic, 2009).

The future burden of CVD can be measured in both human and economic terms. According to the Alliance for Aging Research (2012), the ACC predict heart disease cases will increase by over 40% between the years 2003 and 2023, and by 2050, the number of cases will be double what they were in the year 2000. Economically, it is estimated the cost of treating CVD could rise by 64% to 84% by the year 2025 (Alliance for Aging Research, 2012). The increase in the incidence of CVD over the next decades is expected to produce wide-ranging implications and challenges for the U.S. healthcare system.

_Cardiiovascular Disease in Mississippi_

While CVD and the economic burden it carries is a national issue, the evidence of the problem is even more vivid regionally as death rates attributable to heart disease are highest in Mississippi than any other state in the nation (CDC, 2012) (Figures 6 and 7). A 2009 National Vital Statistics Report stated that more than one out of every four deaths in Mississippi is due to heart disease (CDC, 2011). The consequences of these statistics equate to a lower life span for Mississippians, 74.9 years compared to a national average of 78.6, with males living an average of seven years less and females an average of three years less (World Heart Federation, 2012).
**Figure 7.** Mississippi’s leading causes of death for the year 2007.  

The explanation for why Mississippians suffer a higher consequence of CVD lies in the risk factors associated with the disease (Figure 8). While certain risk factors are uncontrollable, i.e. age, gender, family history, race and ethnicity, global research indicates there are many modifiable risk factors associated with the disease. These risks factors include being overweight or obese, physical inactivity, abnormal blood lipid levels, hypertension, tobacco use, type 2 diabetes, and a diet high in saturated fat.

According to the CDC (2011), Mississippians carry a higher percentage of these risk factors than the national average. America’s Health Rankings 2011, an annual report published by the United Health Foundation (2011), considered Mississippi the “capital of cardiovascular disease” (Caputo, 2012, para. 1) as statistics reveal it is the least healthy state, as it has been in the last 10 years. Along with the highest death rate from CVD, it also has the highest rate of diabetes in the nation (12% of the state population); the
The highest prevalence of obesity (one-third of the state population); the highest percent of adults who do not participate in physical activities (fewer than 70%); and the number of people who smoke in the state increased between the years 2001 and 2011 (from 486,000 to 506,000).

Figure 8. Age-adjusted prevalence of CHD risk factors among U.S. adults in 2010.
Table 1

*CVD Risk Factors: Mississippi Compared with U.S.*

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Mississippi %</th>
<th>Nationwide %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight or obese</td>
<td>68.1</td>
<td>62.9</td>
</tr>
<tr>
<td>No physical activity</td>
<td>60.4</td>
<td>50.5</td>
</tr>
<tr>
<td>High total blood cholesterol</td>
<td>38.5</td>
<td>37.6</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>33.7</td>
<td>27.8</td>
</tr>
<tr>
<td>Cigarette smoking</td>
<td>23.9</td>
<td>19.8</td>
</tr>
<tr>
<td>Diabetes</td>
<td>11.1</td>
<td>8.0</td>
</tr>
</tbody>
</table>

*Note:* (Centers for Disease Control, 2011).

The economic burden of CVD could not be inflicted on a state less able to manage it than Mississippi, as it ranks lowest in the nation in median annual income: $36,650 per year as compared to the U.S. national average of $49,945 (World Heart Federation, 2012). Of the 818 billion dollars expected to be spent on CVD in 2030, 1.8 billion is estimated to be spent in Mississippi (Mississippi State Department of Health, 2010).

**Pathophysiology of Acute Coronary Syndrome**

ACS is an umbrella term that encompasses the conditions of ST-segment elevation myocardial infarction (STEMI), non-ST-segment elevation myocardial infarction (NSTEMI), and unstable angina (Coven, 2011). It is the leading form of CVD. In 2008 ACS accounted for nearly half of the CVD deaths (405,309) and was responsible
for approximately one of every six deaths in the U.S. (AHA, 2012). The AHA (2012) estimates that a coronary event occurs every 25 seconds in this country, and that every minute someone will die of one.

While ACS is the number one killer of Americans, it is not unique to the modern world, as atherosclerotic lesions have been discovered in mummies from 1500 BC (Char, 2005). The primary cause of ACS is atherosclerosis, defined as the build-up of plaque within the arteries (Coven, 2011). Plaque, which hardens and narrows the arteries over time, consists of fat, cholesterol, calcium, and other substances found within the blood (National Heart, Lung, and Blood Institute, 2011). It is the rupture of the plaque that leads to an acute event as the inflammatory process begins with platelets activating and aggregating at the site of the rupture to form a thrombus that occludes myocardial perfusion (Overbaugh, 2009). According to Char (2005), systemic changes in the body such as “altered increased coagulability, increased systemic inflammation and recurrent infections” (p. 3), along with local changes in the plaque itself are responsible for the rupture and resulting thrombus. The process follows a continuum as “symptoms occur when there is an abrupt imbalance between oxygen supply and demand influenced by extrinsic (exercise) and intrinsic (flow) factors” (Char, 2005, p. 4).

The extent of the obstruction, the volume of the heart muscle involved, the intensity of the demand, and the ability of the myocardium to compensate determine a patient’s presentation and outcome (Coven, 2011). With partial or recurrent occlusion to a coronary artery resulting from an oxygen mismatch of decreased perfusion and increased demand, unstable angina will result. The heart is stressed, but will recover (Char, 2005; Overbaugh, 2009). Unstable angina “has a high risk of progression to myocardial infarction (MI) or death; however, it also offers the opportunity to intercede
and minimize, or even avoid, progression to an MI” (Bahr, 2000, p. 101). A decrease in
the perfusion of the heart brought on by continuing occlusion or vasospasm results in a
NSTEMI. While a more severe event than unstable angina, during a NSTEMI attack,
“spontaneous thrombolysis, resolution of vasoconstriction, or flow from collateral
sources limit the resulting ischemic injury” (Char, 2005, p. 4). However, a coronary
artery completely occluded by a thrombus or plaque disruption is a STEMI, in which,
without intervention, ischemia and necrosis of the myocardium occurs (Char, 2005;
Overbaugh, 2009).

Risk Factors of Acute Coronary Syndrome

As mentioned previously, risk factors of ACS are segmented into modifiable and
non-modifiable, or those which can be improved upon and those which cannot be
changed. The non-modifiable factors include:

- age - simply getting older increases the risk of heart disease;

- family history – anyone with a first-degree male or female relative who
developed CAD before age 55 or 65, respectively;

- ethnicity or race – African or Asian ancestry carries a higher risk;

- sex – men are at greater risk until a woman reaches menopause (World
Heart Federation, 2012).

The major modifiable risks factors include:

- hypertension – defined by the AHA (2012) as blood pressure of 140/90 or
higher; 33.5% of U.S. adults, or 76.4 million people suffer from hypertension;

- abnormal blood lipid levels – high total cholesterol, elevated triglycerides, high
levels of low-density lipoprotein (LDL) or low levels of high-density lipoproteins
(HDL); an estimated 33.6 million adults have total serum cholesterol levels \( \geq 240 \) mg/dL;

- saturated fat in the diet – estimated to cause about 31% of CHD;
- sedentary lifestyle – increases the risk by 50%;
- obesity or being overweight – the current estimated prevalence in U.S. adults is 149.3 million, with 23.5 million children being overweight or obese and 12.6 million being obese;
- type 2 diabetes – makes one twice as likely to develop CVD; 8% of the adult population, or 18.3 million Americans, have diagnosed diabetes; the disease cancels the protective estrogen effect of pre-menopausal women and increases risk significantly;
- alcohol consumption – one to two drinks daily may reduce risk by 30% but any use above this level will damage the heart;
- tobacco use – both smoking and chewing tobacco increase the risks of CVD with the risks even greater for those who started smoking at a young age, smoke heavily, or are female; passive smoking also carries risk for developing CVD;
- other risks – being poor, a chronically stressful life, social isolation, anxiety and depression all increase the risk of CHD and CVD (AHA, 2012; World Heart Federation, 2012).

Having a risk factor does not destine one to developing CVD. However, the more risk factors present, the greater the likelihood of developing the disease unless specific action is taken to modify lifestyle habits that contribute to those risks.

Evidence Based Guidelines of Treatment
When the need for quality improvement in healthcare was recognized, guidelines and performance measures began to be developed (Groce, 2007). Since then, measures for CVD supported by EBP have been generated by numerous sources including the AHA, the ACC, the NIH, the American College of Emergency Physicians, the Society of Chest Pain Centers, and the Society of Hospital Medicine. Even more organizations support and endorse the measures. The Joint Commission has tied several of these measures, known as core measures, with their accreditation process by requiring a certain level of compliance. In addition, core measure data is publically reported on The Joint Commission website (Heidenreich et al., 2011, p. 938). The Centers for Medicare and Medicaid Services (CMS) also require hospitals to collect and report quality measure data (Institute for Healthcare Improvement, 2011). By definition core measures are “standardized sets of disease or condition-specific performance measures with precisely defined specifications with data collection protocols that meet established evaluation criteria” (Joint Commission, 2005, para. 4). Core measures are standards of care with supporting evidence “so strong that every patient should be receiving the treatment” (Krumholz et al., 2008, p. 14). According to The Joint Commission and CMS, seven core measures should be provided to all ACS patients suffering a STEMI or NSTEMI in the effort to reduce morbidity and mortality, unless a clear contraindication exists. The expectation is 100% compliance (Berkovitz, 2011). The seven core measures are:

1. Aspirin at arrival
2. Aspirin prescribed at discharge
3. Beta-blocker prescribed at discharge
4. ACE inhibitor or angiotensin receptor blocker (ARB) at discharge for patients with left systolic dysfunction
5. Timely initiation of reperfusion (30 minutes for thrombolysis or 90 minutes for percutaneous intervention)

6. Smoking cessation counseling

7. HMG Co-A reductase inhibitors or statin prescribed at discharge (Joint Commission, 2010).

In addition to the core measures, the AHA, ACC, and Institute for Clinical Systems Improvement (ICSI) also recommend performance measures for the management of ACS. According to the AHA and ACC (O’Riordan, 2008), performance measures “identify aspects of care for which the failure to provide a particular process of care is judged as poor clinical performance. The performance measures indicate that if things are not done a certain way, then proper care is not provided” (para. 4). The performance measures recommended by the AHA and ACC (O’Riordan, 2008) are:

1. EKG within 10 minutes of arrival in emergency department
2. Clopidogrel (Plavix) administered and prescribed on discharge
3. Cardiac rehabilitation ordered before discharge
4. Evaluation of LDL cholesterol during hospitalization

Along with being a benchmark for quality care and impacting a hospital’s accreditation success, these evidence based measures are also being attached to pay for performance and reimbursement by CMS and insurance companies (Groce, 2007).

Improving Patient Outcomes Through
Evidence Based Disease Management

Findings indicate that core and performance measures improve the quality of care patients receive. “Compliance with core measures has been shown to standardize ACS care and improve patient outcomes” (Berkovitz, 2011, para. 3), and hospitals providing
care based on core and performance measures “have better patient survival rates than hospitals not performing at the highest level” (Heidenreich et al., 2011, p. 938). These measures will play a fundamental role in reducing the future human and economic burden of CVD.

Multinational observational studies have shown that adoption of the measures “has been accompanied by significant decreases in the rates of in-hospital death, cardiogenic shock, and new MI among patients with NSTEMI ACS. The use of evidence based therapies and percutaneous interventions (PCI) increased in the STEMI population. This increase was matched with a statistically significant decrease in the rate of death, cardiogenic shock, and heart failure or pulmonary edema” (Roger et al., 2011, p. e60). A study by Fox et al. (2007) of over 44,000 ACS patients between the years of 1999 and 2006 found that both evidence based pharmacy and mechanical treatment contributed to improved outcomes with a 45% mortality reduction in those with diagnosed STEMIs (8.4% to 4.6%, P < 0.001). The study also showed a 53% reduction in heart failure in NSTEMI patients (13% to 6.1%, P < 0.001).

From the years 2006 through 2010, quality of care measures reported to the Get With the Guidelines ACS, a national unified registry that tracks care and outcomes for ACS patients, show improvement in nearly all of the core measure indicators (Roger et al., 2011). In another study of hospitals participating in the Get with the Guidelines registry, Birtcher et al. (2010) assessed over 170,000 ACS patients from 418 hospitals and found that adherence with the performance and quality measures was associated with sustained improvement in the cardiac care patients received.

With the creation of core and performance measures and expert support of the national guidelines, improvement in the care of ACS patients has occurred, but, “a
significant treatment gap exists between expectations for care…and actual care delivery in clinical practice (Flynn, Cararelli, Petrakos, & Christophersen, 2007, p. 166). The ICSI in 2011 reported that, of 350 U.S. hospitals studied, only 74% were following the AHA/ACC guidelines. A 2012 update of heart disease and stroke statistics by the AHA finds that lost opportunities of applying the recommended care is significantly linked to in-hospital mortality (Roger et al., 2011) and estimates that “80,000 lives could be saved annually by closing the treatment gap for patients with CVD and stroke” (Flynn et al., 2007, p. 167). Explanations for this treatment gap are such barriers as knowledge deficits, lack of acceptance of the theory of guidelines, and lack of resources for implementation of systems change (LaBresh et al., 2007).

In spite of the evidence supporting the effectiveness of the ACS core and performance measures, “there remains…more work to be done to achieve the goal of providing the right treatment for every cardiovascular patient, every time” (LaBresh et al., 2007, p. 104). The Joint Commission Disease-Specific Care Certification centers on achieving this goal.
CHAPTER III

JOINT COMMISSION DISEASE-SPECIFIC CARE CERTIFICATION

The purpose of this DNP Capstone Project was to provide consultation services to ready the cardiology services of a large community hospital located in south Mississippi for the process of obtaining Joint Commission Disease-Specific Care Certification in the area of ACS. The activities of the consultation included facilitating an examination of the current organization of ACS patient care; reviewing core and performance measure data collected by the hospital for ACS patients; identifying variances in care and practice; and selecting performance measures to support the certification process. The consultation results (outlined in Chapter IV) included creating performance improvement plans to correct variances in care and practice; developing a more comprehensive staff, patient, and community education process; and addressing each component of The Joint Commission Disease-Specific Care Certification standards and site review. The consultation was conducted with the Outcomes Coordinator of the hospital’s cardiology division. Prior to beginning the capstone project application was made to the Institutional Review Board (IRB) of the University of Southern Mississippi. As no patient contact was involved in the project, it was determined by the IRB representative that approval was not required (Appendix C).

The goal of disease specific certification is to provide patient care based on EBP, the foundation of the ACS core and performance measures. The challenge for healthcare facilities is to utilize these measures in offering consistent, standardized care. As such, the first step in the consultation project was to examine the hospital’s current process of ACS patient management and compare it to national recommended standards of care.
Current Organization of ACS Patient Care

The hospital is a STEMI-receiving facility, that is, a hospital which has the expertise and equipment to administer PCI (AHA, 2012). It is one of three STEMI-receiving hospitals in south Mississippi, the other two located 25 to 50 miles away in an adjacent county. These two facilities comprise one hospital system. PCI involves mechanical reperfusion by non-surgically opening narrowed coronary arteries (Davis, 2011) and has become the preferred therapy for STEMI (Bradley et al., 2007). The effectiveness of the therapy is based on its timeliness. This time threshold is referred to as door to balloon time (D2B) (Bradley et al., 2007). In 2006, the ACC and the AHA set a goal for hospitals to reduce the D2B time to less than 90 minutes (Berkovitz, 2011) after many studies showed that when performed within 90 minutes of hospital arrival, PCI is superior to fibrinolysis “in combined end points of death, stroke, and reinfarction” (Rivera-Bou & Brown, 2011, para. 4). To overcome the logistical complications that may arise in minimizing delays in achieving this goal, the ACC (Bradley et al., 2007, para. 4) recommends the following strategies:

- pre-hospital electrocardiograms (ECGs) – evaluation of suspected STEMIs by emergency medical services (EMS);
- catheterization laboratory activation - emergency medicine physicians rather than a cardiologist notifies the catheterization laboratory utilizing a single call through a central paging system;
- catheterization team arrival – interventional cardiologist and catheterization staff are expected to arrive within 20 to 30 minutes of being paged;
• prompt data feedback – detailed monitoring and feedback of each intervention to cardiologists, catheterization laboratory staff, and emergency department (ED) staff;

• senior management commitment and team-based approach – visible senior management support and a shared goal within an organizational culture that fosters resilience (para. 4).

Of the ACC recommendations, a review of the hospital’s current process of ACS care found that the first four components are in place. EMS not only obtains the ECG but also electronically transmits it to the ED. ECGs can also be sent directly to cardiologists if so requested. The ED physician activates the catheterization laboratory upon diagnosis of a STEMI, though not by utilizing a single call method as the current paging system does not allow for this. Each staff member is paged separately and issues a return response. Call staff members are expected to be in place within 30 minutes, but documentation indicates a consistent arrival time of less than this. According to records, the call staff is often in place before the patient arrives at the hospital. After discussion with the Outcomes Coordinator, it was determined that not all of the departments involved in the care of ACS patients had the same level of commitment to excellence. If disease specific certification is to be successful, a culture of change will be necessary to develop a collaborative team focused on improving the quality of patient care.

Review of Core and Performance Measure Data

As previously stated, core measure compliance must be submitted to The Joint Commission and CMS. Hospital data on all ACS patients is retrospectively collected and reported. Taking the core measure data that had been reported to The Joint Commission and the performance measure data that was reported to the ACTION-Get with the
Guidelines registry, a gap analysis was conducted to identify weaknesses in the application of optimal care. These variances in standard of care provide opportunities for improvement and aided in the selection of the four performance measures that would be the focus of the disease-specific care certification effort.

Identifying Variances of Care and Practice

Variances of care from data extraction are verified for accuracy by the Outcomes Coordinator. Table 2 illustrates how the study hospital compares with other hospitals in the nation and state in compliance of core measures. Table 3 compares the study hospital’s compliance with the other, previously mentioned, STEMI receiving south Mississippi hospital system. Table 4 identifies the study hospital’s weakest areas of core and performance measure compliance.
### Table 2

*ACS Core Measure Compliance July 2010 through June 2011*

<table>
<thead>
<tr>
<th>Core Measure</th>
<th>National Average %</th>
<th>Mississippi Average %</th>
<th>Study Hospital Average %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Aspirin at arrival</td>
<td>99</td>
<td>99</td>
<td>99</td>
</tr>
<tr>
<td>2. Aspirin at discharge</td>
<td>99</td>
<td>99</td>
<td>99</td>
</tr>
<tr>
<td>3. ACE or ARB for LVD</td>
<td>97</td>
<td>97</td>
<td>96</td>
</tr>
<tr>
<td>4. Smoking Cessation Advice/ Counseling</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>5. Beta-blocker at discharge</td>
<td>99</td>
<td>98</td>
<td>97</td>
</tr>
<tr>
<td>6. D2B within 90 minutes</td>
<td>93</td>
<td>93</td>
<td>88</td>
</tr>
<tr>
<td>7. Statin at discharge (data has not been collected for one year)</td>
<td>97</td>
<td>Not Available</td>
<td>94</td>
</tr>
</tbody>
</table>

*Note:* (Joint Commission, 2012c)
Table 3

ACS Core Measure Compliance April 2010 through March 2011

<table>
<thead>
<tr>
<th>Core Measure</th>
<th>Study Hospital Average %</th>
<th>Other Hospital System Average %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Aspirin at arrival</td>
<td>98</td>
<td>100</td>
</tr>
<tr>
<td>2. Aspirin at discharge</td>
<td>98</td>
<td>99</td>
</tr>
<tr>
<td>3. ACE or ARB for LVD</td>
<td>92</td>
<td>100</td>
</tr>
<tr>
<td>4. Smoking Cessation</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>5. Beta-blocker at discharge</td>
<td>97</td>
<td>99</td>
</tr>
<tr>
<td>6. D2B within 90 minutes</td>
<td>81</td>
<td>96</td>
</tr>
<tr>
<td>7. Statin at discharge</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>(data has not been collected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for one year)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: (Joint Commission, 2012c).

Data provided to the ACTION-Get with the Guideline registry is not made public, however, an analysis of the study hospital’s compliance rate compared with the national average in this data base showed the weakest areas to be: beta-blocker prescribed at discharge with the hospital falling in the less than 50th percentile; statin at discharge, less than 25th percentile; and cardiac rehabilitation referral prior to discharge, less than 10th percentile. Armed with this data, it was decided that these measures, along with D2B
time \leq 90 \text{ minutes}, \text{ would be the four performance measures on which to focus the}
disease-specific care certification effort.

Table 4

*Study Hospital’s Weakest Areas of Core and Performance Measure Compliance*

*July 2010 through June 2011*

<table>
<thead>
<tr>
<th>Core or Performance Compliance</th>
<th>Joint Commission Core Measure Compliance</th>
<th>Action-Get with the Guidelines Registry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nat’l Ave.</td>
<td>Study Hospital</td>
<td>Study Hospital</td>
</tr>
<tr>
<td>1. D2B</td>
<td>93%</td>
<td>88%</td>
</tr>
<tr>
<td>2. Beta blocker at discharge</td>
<td>99%</td>
<td>97%</td>
</tr>
<tr>
<td>3. Statin at discharge</td>
<td>97%</td>
<td>94%</td>
</tr>
<tr>
<td>4. Cardiac rehab referral prior to discharge</td>
<td>97%</td>
<td>94%</td>
</tr>
</tbody>
</table>

Selection of Performance Measures

According to the AHA and ACC, a performance measure “serves as a vehicle to accelerate appropriate translation of scientific evidence into clinical practice” (Drozda et al., 2011, p. 250). It is a quantitative tool which allows a facility to gauge the quality of the care it offers, “the underlying premise being that organizations and clinicians can only improve what they can measure” (Koss, Hanold, & Loeb, 2002, p. 82). The performance measures allow organizations to “know how they are doing, become aware of their weak
and strong performance areas, and know whether their performance improvement efforts are achieving the desired results” (Koss et al., 2002, p. 82). As stated, the Joint Commission Disease Specific Care Certification requires a facility to select four performance measures. At least two of the measures must be clinical in nature (Joint Commission, 2012b). Based on the variances identified in the examination of performance data, the following performance measures were selected: D2B, beta-blocker at discharge, statin at discharge, and cardiac rehabilitation referral prior to discharge.

**D2B**

For patients suffering a STEMI, acute reperfusion therapy significantly reduces the risk of death, especially if therapy is provided promptly (Krumholz et al., 2008). “Shortening the interval between onset of symptoms and initiation of treatment correlates directly with smaller infarct size, reduced complications, and ultimately higher survival” (Bahr, 2000, p. 101) As “time to reperfusion of the occluded artery is found to be synonymous with improved survival rates” (Berkovitz, 2011), there will always be an effort to decrease the D2B time. As previously stated, in an effort to reach the national benchmark of ≤ 90 minutes (Berkovitz, 2011), the hospital has already implemented ACC recommended strategies to reduce D2B time such as pre-hospital ECG diagnosis and ED activation of the catheterization laboratory with a 20 to 30 minute PCI staff arrival time. With a call team always in place, PCI treatment is available at the facility 24 hours per day and seven days per week. The hospital is never on diversion for STEMI and stroke, regardless of bed availability. Other supportive guidelines or secondary measures to reduce D2B include 12-lead ECG provided within 10 minutes of arrival to the ED and rapid evaluation for reperfusion therapy (Krumholz et al., 2008).

The greatest challenge in accomplishing D2B ≤ 90 minutes occurs when a patient
first presents to a non-PCI facility. There are three such hospitals within the area. Should a patient with a strong suspicion of STEMI activate EMS with a 911 call, these hospitals are bypassed. However, should the patient present to the ED of one of these non-PCI facilities, the goal is to transfer within 30 minutes. Collaboration with the hospitals is an ongoing process. A STEMI transfer protocol was recently created by the cardiology department and is due to be enacted within the month. While there is open communication with both the transferring hospitals and EMS, there is currently no consistent feedback given to these facilities regarding reaching benchmarks of care, either successes or failures. To promote standardization of care and optimize the transfer process, regular scheduled meetings should occur between the PCI hospital and the transferring facilities (Kaiser, 2010).

**Beta-blocker at Discharge**

Prescription of a beta-blocker at discharge is a core measure from The Joint Commission. Studies have shown that beta-blockers, when administered chronically (Krumholz et al., 2008), reduce mortality, arrhythmic death, readmission, and reinfarction for both CAD and heart failure and should be prescribed whenever possible. In more than 30 trials with over 18,000 post MI subjects, results show mortality reduction between 25% and 36% (Hjalmarson, 2006). Patients who cannot tolerate beta-blockers during hospitalization should be reconsidered after discharge (ICSI, 2011). Because all data on ACS patients is collected retrospectively, and due to the fact that there are no standardized discharge orders, there is no safety net in place to ensure compliance with this core measure.

**Statin at Discharge**

There is continuing evidence that “statin therapy specifically results in a relatively
constant relative risk reduction that is clinically important in a high-risk population, such as those with established CAD” (Drozda et al., 2011, p. 259). Clinical trials have proven that statins decrease the risk of death and recurrent cardiovascular events in patients who have suffered a STEMI. The benefit of statins match or exceed the benefits of other ACS preventive medications such as aspirin, beta-blockers, and ace inhibitors (CMS, 2010), while there is an absence of data to support the benefit of nonstatin lipid reduction medications. Therefore, prescription of a statin at discharge was added to the core measures in 2010, and data collection was required to start in January 2011 (CMS, 2010). The measure is intended for patients with a LDL of $\geq 100$mg/dL (Krumholz et al., 2008, section 15). Again, with retrospective data collection and the absence of standardized discharge orders, this measure is at risk of being overlooked.

**Cardiac Rehabilitation Referral Prior to Discharge**

The AHA defines cardiac rehabilitation services as “comprehensive, long-term programs involving medical evaluation, prescribed exercise, cardiac risk factor modification, education, and counseling. These programs are designed to limit the physiologic and psychological effects of cardiac illness, reduce the risk for sudden death or re-infarction, control cardiac symptoms, stabilize or reverse the atherosclerotic process, and enhance the psychosocial and vocational status of selected patients” (Krumholz et al., 2008, p. 40 section 15). Unless there is a long-term effort of encouragement, most patients will revert to previous sedentary activities and “home exercise lacks the value of education and group interaction” (ICSI, 2011, p. l41).

Cardiac rehabilitation referral prior to discharge is a performance measure recommended by the AHA and ACC and states that all patients hospitalized with AMI should be referred to an outpatient program (Krumholz et al., 2008, section 15).
Research shows that a cardiac rehabilitation program based on regular exercise and education focused on risk factor reduction is both efficient and effective in altering the course of CHD. “Patients transitioning from the inpatient to the outpatient setting are often at risk for lapses in appropriate medical care, in part because healthcare information does not move seamlessly between settings” (Fonarow et al., 2010, p. 2464).

Randomized clinical trials demonstrate a 20% to 30% reduction in total mortality and a 30% reduction in cardiac mortality (Krumholz et al., 2008) and seven out of 10 trials reported health-related quality of life improvement with exercise-based rehabilitation than without (Heran et al., 2011). Furthermore, meta-analysis of 47 studies with 10,794 patients indicates that “exercise-based cardiac rehab improves the cardiovascular risk factor profile, decreases hospital readmissions, and reduces all-cause and cardiovascular mortality rates” (ICSI, 2011, p. 67). Improved cardio-respiratory fitness through cardiac rehabilitation reduces cardiovascular-associated morbidity and mortality by multiple mechanisms – including “antiatherosclerotic, anti-ischemic, antiarrhythmic and antithrombotic effects” (ICSI, 2011, p. 141).

“Cardiac rehabilitation should begin as soon as the patient is stable and pain-free” (ICSI, 2011, p. 38) but data shows that it “is underutilized, despite evidence that it improves quality of life, reduces modifiable cardiovascular risk factors, enhances adherence to preventive medications, and lowers the risks of morbidity and mortality” (Drozda et al., 2011, p. 258). According to Leon et al. (2005), only 10% to 20% of the greater than two million eligible patients utilized cardiac rehabilitation. This underuse is accounted for by low patient referral rate; poor patient motivation; inadequate third-party reimbursements; geographic limitations to accessibility of sites; and lack of visibility and recognition by the public of the importance (O’Riordan, 2008). “A key component to
outpatient cardiac rehab program utilization is the appropriate and timely referral of patients. Generally, the most important time for this referral to take place is while the patient is hospitalized for a qualifying event/diagnosis. Identification of patients requires a timely, accurate, and effective system be in place…and represents a potential challenge” (Krumholz et al., 2008, p. 39). A performance measure gap exists because patients are not approached by the cardiac rehabilitation department prior to discharge within the study hospital’s ACS care. With a compliance percentage at less than 10%, cardiac rehabilitation referral before discharge represents an opportunity for improvement.
CHAPTER IV
CONSULTATION RESULTS

In an effort to ready the study hospital for the process of obtaining Joint Commission Disease-Specific Care Certification in the area of ACS, the consultation activities outlined in Chapter III were conducted which included facilitating an examination of the current organization of ACS patient care; reviewing core and performance measure data collected by the hospital for ACS patients; identifying variances in care and practice; and selecting performance measures to support the certification process. The consultation results included creating performance improvement plans to correct variances in care and practice; developing a more comprehensive staff, patient, and community education process; and addressing each component of The Joint Commission Disease-Specific Care Certification standards and site review.

Performance Improvement Plans

*Standardized orders and clinical pathways*

The study hospital has in place pre-printed standardized admission orders for ACS patients which are utilized in the ED. Patients are discharged from the catheterization laboratory with standardized, pre-printed orders as well. From there however, care is not conducted in a standardized manner and analysis shows that is where treatment gaps occur. The ICSI (2011) recommends the use of standardized orders for admission and discharge.
Standing orders improve quality of care measures such as D2B time, optimize patient triage, prevent underutilization of recommended medications, ensure appropriate use of proven medications and treatments, facilitate communication between specialist physicians and primary care physicians during hospitalization and after discharge, enhance patient compliance and outcomes, reduce the potential for medical errors, reduce costs by limiting length of stay and unnecessary tests, and improve compliance with national standards (Cannon, 2008, p. 228).

As time of discharge “is a critical time for prescribing evidence based medications” (Lahoud, 2012, p. 159), providing standardized discharge orders with core and performance measures pre-printed, including the ones applicable to the disease-specific care certification, will involve everyone’s participation and oversight - nursing, case management, and physician - and will provide an opportunity for prospective data collection rather than retrospective collection. La Bresh et al. (2004) report that beginning secondary prevention for CAD patients before discharge is important as it provides two advantages: “first, at time of discharge, patients are motivated to begin and maintain interventions that lower their risk; second, failure to initiate therapy early is believed to be one of the causes of a large treatment gap because outpatient follow-up may be less consistent” (p. 206). To identify and address such gaps “at the point of care before the patient leaves the hospital” (Flynn et al., 2007, p. 172) it was recommended that standardized orders be created which would prescribe beta-blocker and statin medications at discharge and provide for referral of cardiac rehabilitation. Examples of pre-printed standing discharge orders were provided to the Clinical Outcomes Coordinator for ACS patients (see Appendix D).
In addition to standing orders the ICSI (2011) also recommends that hospitals develop clinical pathways for the care of ACS patients. Clinical pathways ensure that “current core and performance measures are followed which detail essential steps in the care of patients with a specific clinical problem and describe the patient’s expected clinical course” (Ouwens et al., 2005, p. 145). These pathways promote adherence to current practice guidelines and accepted standards of care. “Implementation of clinical pathways has been shown to improve quality of care and patient outcomes” (Cannon, 2008, p. 230). Coons and Fera (2007) describe clinical pathways as “key tools needed to facilitate interventions” (p. 1275). With clinical pathways use, appropriate medical therapies can begin prior to discharge. This practice is associated with decreased cardiac events and improved survival during 60 month and one year follow-up studies (Flynn et al., 2007). Therefore, it was recommended that clinical pathways be developed and utilized for the care of STEMI, NSTEMI, and unstable angina patients. Examples of such pathways for the care of ACS patients were provided to the Outcomes Coordinator (See Appendix E).

It is believed that both pre-printed discharge orders and the use of clinical pathways will facilitate greater compliance with the performance measures of beta-blocker and statin at discharge, and cardiac rehabilitation referral prior to discharge.

Forming a Multidisciplinary Team

Creating a culture that promotes safe high-quality care for ACS patients requires a joint effort of all those who participate in the treatment of those individuals. Forming the team, those individuals who will design and implement the disease-specific care program, is one of the first steps required in the process. The team is multi-disciplinary in its make-up, employs system approaches (Ouwens et al., 2005) and includes personnel who
have a direct impact on the care of the ACS patient. It was recommended to the consultee that the team consists of the cardiology director, the cardiology clinical outcomes coordinator, EMS representatives, managers from the cardiac nursing units, the intensive care unit manager, managers and physicians from the ED, data and quality improvement representatives, the catheterization laboratory manager, a nutritional representative, the cardiac rehabilitation manager, educators, coordinators and clinical nurse specialists from the pertinent departments, a representative from pharmacy, and ACS case managers. Regularly scheduled meetings of the ACS team should occur with review of a core and performance measures dashboard which tracks month to month progress (Kaiser, 2010). The pivotal members which lead the team include a physician champion and a program coordinator.

**Physician Champion**

A physician champion is one that is willing to take an active leadership role in the improvement of patient care. According to Flynn et al. (2007) “selecting a strong physician champion is critical” (p. 173) to the success of a disease-specific care program. The individual needs to have leadership qualities, communication skills, an approachable manner, be a clinical expert to motivate the team, and “act as a catalyst for change” (Flynn et al., 2007, p. 173). Hoekstra et al. (2002) cited strong leadership from physician champions as one characteristic associated with improved evidence based guideline compliance for STEMI patients and LaBresh, et al. (2004) report that quality improvement initiatives led by physician champions and their teams can “successfully change the process of care” (p. 206). The physician champion is the guiding force with a clear vision, the one who can draw team members into a shared mission of developing
processes for quality improvement (Ouwens et al., 2005). The culture of excellence required for optimal patient care begins with this individual.

ACS Clinical Coordinator

The clinical coordinator is the person who manages the disease-specific care certification on a daily basis. According to Flynn et al., (2007) this individual must demonstrate “high-level communication skills and the ability to collaborate effectively with physicians and nursing colleagues and be recognized as a clinical expert” (p. 70). The coordinator not only follows and monitors the data, but is actively involved with the care of the patients. By making daily rounds on all ACS patients, and aided by the use of clinical pathways and a patient tracking sheet (Appendix F), the coordinator can ensure that each core and performance measurement is being utilized. The coordinator is also a liaison to outside entities which play an important role in the care of the ACS patient, such as the transferring hospitals and EMS providers. Meeting with personnel from these facilities ensures that communication on the status of ACS care is current and ongoing. It is this communication which will work to decrease the D2B time of transferring patients. This will be the integral part of the action plan to improve this performance measure.

The clinical coordinator is also an important link with the nursing staff as bedside nurses play a critical role in the success of the program and the consultation that occurs between the bedside nurse and the coordinator “promotes the type of communication and collaboration needed to individualize the plan of care and promotes the continuity of care” (Flynn et al., 2007, p. 172). The coordinator assumes the majority of the responsibility for patient and family teaching regarding health promotion and secondary
prevention and thus “decreases the time demand on the bedside nurse as the hospital length of stay continues to decrease” (Flynn et al., 2007, p. 172).

Education

Staff Education

As a “thorough staff education is essential to ensure standardized care” (Pecinka, Hennessy, Suter, & Haizlip, 2009, p. 88) it was determined that one weakness of the ACS care provided by the study hospital was the lack of mandatory education provided to the staff nurses. Currently the only cardiovascular specific education the nurses are required to have is a one day ECG rhythms class and required rhythm testing during annual competencies. As previously stated, staff nurses play an important role, not only in the care of ACS patients, but also in the success of the disease-specific care program as “many chronic disease strategies are nurse driven” (Gilbert et al., 2008, p. 387). Evidence of staff training is a requirement in the certification process as according to The Joint Commission Disease-Specific Certification Care Manual (2012) “practitioners are qualified and competent” (p. PM4) and standards require that “ongoing in-service and other education and training activities are relevant to the program’s needs” (p. PM6). Nursing staff are frequently interviewed during the site review, thus it is important that personnel be trained in core competencies. The overall goal of staff education is to “achieve through unit-specific orientation pathways, individualized education and training plans for new nurses, bedside mentoring, role modeling best practice, and providing ongoing continuing education to existing staff” (Daniels, Johnson, & Mackovjak, 2011, p. 78). It was therefore recommended that a formal continuing education program be designed and implemented (Behring, 2004). To facilitate this
education process, an ACS education module was provided which will serve as a mandatory self-study module for all new hires and will be reviewed by all staff nurses who care for cardiology patients during annual competencies. An ACS case study which focuses on acute MI core and performance measures was also provided for staff review during annual competencies. It was recommended that monthly newsletters be distributed to nursing staff which would provide updates on ACS science, offer suggestions for patient teaching, advertise web based teleconferences available on the subject of cardiology care, and provide statistics on the hospital’s compliance with core and performance measures.

To ensure that staff was adequately prepared for the care of telemetry patients, it was recommended that a two-day 12 Lead ECG class also be available to nurses twice yearly. It was also suggested that current cardiac care journal articles be posted on the hospital’s cardiology intranet site for the staff to review for continuing education credit. In an effort to foster team spirit, and following the lead of the hospital’s stroke program, it was suggested that an ACS Employee of the Month be selected with each winner’s picture posted on the particular unit where he or she works, and the award be reported in the monthly newsletter.

As a way to encourage continuing education and growth, it was recommended that the ACS Care Coordinator periodically conduct multidisciplinary rounds (MDR) with the staff involved in the care of ACS patients. Ellrodt et al. (2007) describe MDR as a patient-centered approach to “enhance communication and coordination between those providing care at the bedside. The patient is “surrounded” by multiple informed providers focused on improving care” (p. 108). The authors furthermore state that MDR is a flexible and efficient vehicle to bring about, not just a structural change, but also a
culture change approach to clinical improvement. In addition, the education provided during these encounters leads to increased “staff empowerment” (Higgins, 2003, p. 23) and ultimately better patient care.

Patient Education

As LaBresh et al. (2004) state, “guidelines do not implement themselves” (p. 207). The ultimate goal of patient education is to “increase patients’ knowledge and control over their disease” (Ouwens et al., 2005, p. 144). In support of these observations the ICSI (2011) ACS Treatment Guideline recommends that a process be in place to educate patient and family. This process should include “face-to-face interactions as well as teaching tools in written form” (ICSI, 2011, p. 63) as it is important to develop education techniques that can “change a patient’s behavior, not just impart information” (Pecinka et al., 2009, p. 88). Medication teaching is a “critical aspect of self-care and management of chronic illness” (Goldstein, 2006, p. 311) and education should empower the patient to manage his or her health. “With shortened length of stay, teachable moments may be limited” (ICSI, 2011, p. 38) and currently there are no formal tools or processes for patient education within the study hospital’s cardiology department. Appropriate ACS patient management includes medication teaching and “adequate counseling for risk factor modification” (LaBresh et al., 2004, p. 204). Therefore, as part of the consultation process, a prototype patient education folder for both angina and acute MI was created as it was believed that consistent standardized information “will allow the bedside nurse to focus on reinforcing important teaching points during direct patient care activities and provide ongoing evaluation and feedback concerning the patient’s understanding and motivation to adopt health promotion behaviors in the face of a chronic disease state” (Flynn et al., 2007, p. 172). Furthermore, standardized teaching
materials can ensure that “all patients receive the same evidence-based education” (Pecinka et al., 2009, p. 87). As patient education must be completed and documented prior to discharge, it was recommended that an individual ACS Patient Education tab be created in the electronic charting as a time saving measure for the nurses.

Community Education

“Although heart disease is one of the most costly and widespread health problems in the U.S., it is among the most preventable” (AHA, 2012, p.e4). Kahn, Robertson, Smith and Eddy (2008) named 11 recommended prevention interventions which, if aggressively practiced, could prevent 63% of the myocardial infarctions expected to occur in the next 30 years, from approximately 43 million to 160 million. Participating in these activities could increase life expectancy and provide for a higher quality of life.

“Of the specific prevention activities, the greatest benefits to the U.S. population come from controlling pre-diabetes, weight reduction in obese individuals, lowering blood pressure in people with diabetes, and lowering LDL cholesterol in people with existing CAD” (Kahn et al., 2008, p. 576). Community outreach programs are needed for early symptom awareness and secondary prevention measures (Behring, 2004). The study hospital currently televises a daily commercial during the local evening news telecast which focuses on a health topic, usually in the form of a physician interview. It is recommended that previous commercials which focus on heart health be re-broadcast. In response to the need for programs to educate the public on how to identify early ACS symptoms and to respond quickly to those symptoms (Bahr, 2000), to “seek help when chest pain first occurs” (p. 103), it was suggested that a new commercial focusing on the signs and symptoms of MI be produced, with an emphasis on the importance of calling 911 for assistance at the onset of symptoms. “Community education is a critical factor in
reducing morbidity and mortality since the ‘heart’ of the heart attack problem is in the community” (Bahr, 2000, p. 103). As delay in treatment raises the mortality rate four-fold, the community must learn that heart attacks “need not kill, and even may be avoided” (Bahr, 2000, p.106).

The hospital was also encouraged to increase its visibility in the annual Go Red for Women conference and to more vigorously promote its public health fairs. Additionally, a heart healthy community information column was recommended for inclusion in the hospital’s daily brochure which is placed on dining tables in the food court.

Disease-Specific Care Certification Standards

The final aspect of the consultation project was to review each certification standards in The Joint Commission 2012 Disease-Specific Certification Manual. An excel document was created which listed each standard and element of performance required in the review. Each item was surveyed with the Clinical Outcomes Coordinator to identify gaps in the study hospital’s readiness for a site review.

Conclusion

While mortality rates for CVD have declined over the past two decades, it still remains the leading cause of death in this country (Peterson et al., 2010) “despite the understanding of underlying risk factors, extensively well-tolerated drug therapy options, and the availability of published practice guidelines” (LaBresh et al., 2004, p. 203). Over six million people in the U.S. present to emergency departments each year with symptoms of possible ACS (Lipetz, 2012). Of those, more than one million will suffer a coronary event, the results being an AMI or death (Flynn et al., 2007). In its reports, the IOM stated the importance of improving the quality of care and defined it as “the degree
to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge” (AHA, 2012, p.e60). As chronic diseases have become “the major non-communicable disease problem of this century” (Gilbert et al., 2008, p. 381) there is an increasing awareness that healthcare in the U.S. requires improvement. Data from The Joint Commission, CMS, and national quality improvement registries indicate that hospital care based on core measures and performance measures are improving the care and outcomes for ACS patients. The disease specific care certification process revolves around the delivery of care supported by EBP. The certification also requires that care is safe and effective, patient-centered, and standardized (AHA, 2012). Research shows that hospitals which seek disease specific certification are associated with levels of higher core and performance measure compliance (Ross, 2008). Yet while compliance percentages are high, the focus is more “improvement-orientated rather than compliance driven” (Behring, 2004, p. 5).

As the U.S. population continues to live to an older age, chronic disease management supported by evidence based science will continue to become a more important focus of reigning in a healthcare system burdened by chronic disease and its economic impact. Disease management programs such The Joint Commission’s Disease-Specific Care Certification “will always strive to improve care and patient outcomes” (Mattke et al., 2007, p. 671) and this process may help to reduce the treatment variability from one hospital to another, ultimately “reducing the morbidity, mortality, and economic cost associated with hospitalizations for CVD” (Fonarow et al., 2010, p. 2464). “The true measure of any health intervention is whether patients are better off having received the service or care provided (Faxon et al., 2004, p. 2653) and the move of one south
Mississippi hospital to raise the bar of performance by embarking on the effort to become disease-specific certified is a method of reducing the burden of ACS. For the residents of south Mississippi, this quality initiative, the culture of improvement it establishes, and the “continuing evolution of treatment is heartening” (Berkovitz, 2011, para. 7).

The purpose of this DNP Capstone Project was to lead, through consultation, a south Mississippi hospital to providing a level of care for ACS patients which would meet the standards of excellence required for Joint Commission Disease-Specific Certification. The project fulfilled the Eight DNP Essentials established by the AACN (2006), and supported the IOM’s (2001) agenda for improvement in the quality of healthcare. Berragan (1998) states that “the ultimate goal of consultation is learning, change, and growth” (p. 130) and it is fundamentally the act of helping. The act of helping has always been the ultimate goal of nursing as well. The addition of the special knowledge and skills provided by the DNP degree, coupled with clinical expertise in nursing, allows for the development of new solutions to best meet the changing healthcare needs of individual patients, families, and communities. The final impact of the project will be determined by the results of the facility’s efforts in improving the quality of the heart health care it provides.
APPENDIX A

JOINT COMMISSION DISEASE-SPECIFIC CARE STANDARDS LIST

Delivering or facilitating clinical care

* Practitioners are qualified and competent.
* A standard process originating in clinical practice guidelines or evidence-based practice is used to deliver or facilitate the delivery of clinical care.
* The standardized process is tailored to meet the participant's needs.
* Concurrently occurring conditions are managed, or the information necessary for their management is communicated to the appropriate practitioners.
* The standardized process is revised or improved through the ongoing collection and evaluation of data regarding variance from the clinical practice guidelines.

Performance measurement and improvement

* The program has an organized, comprehensive approach to performance improvement.
* Participant perception of care quality is evaluated.
* Data quality and integrity are maintained.

Supporting self-management

* The program involves participants in making decisions about managing their disease or condition.
* The program addresses lifestyle changes that support self-management regimens.
* The program addresses participants' education needs.

Program management

* Leadership roles in the program are clearly defined.
* The program is relevant for the targeted population and/or healthcare services areas.
* The scope and level of care, treatment, and services offered by the program are provided to participants.

* Eligible patients have access to care, treatment, and services provided by the program.

* The scope and level of care, treatment, and services provided are comparable for individuals with the same acuity and type of condition.

* The program complies with applicable laws and regulations.

* The program follows a code of ethics.

* Facilities where participants receive care are safe and physically accessible.

* The program has reference and resource materials readily available.

* The process for identifying, reporting, managing, and tracking sentinel events is defined and implemented.

Clinical information management

* The confidentiality and security of participant information are preserved.

* The program gathers information about the participant's disease or condition from practitioners and settings across the continuum of care.

* The program shares information about the participant's disease or condition across the entire continuum of care to any relevant setting or practitioner.

* Information management process meets the program's internal and external information needs.

* The program initiates, maintains, and makes accessible a health or medical record for every participant.
APPENDIX B

AACN ESSENTIALS OF DOCTORAL EDUCATION FOR
ADVANCED PRACTICE NURSING

Essential I: Scientific Underpinnings for Practice

Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care

Essential V: Health Care Policy for Advocacy in Health Care

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes

Essential VII: Clinical Prevention and Population Health for Improving the Nation’s Health

Essential VIII: Advanced Nursing Practice
-----Original Message-----
From: Betty Morgan 
Sent: Tuesday, March 20, 2012 9:25 AM 
To: Sandra Bishop 
Cc: Terri Lemon 
Subject: RE: IRB Application 

Hello Terri and Sandra,

Your research project, "Improving Outcomes of Acute Coronary Syndrome Patients Through Disease Specific Care Certification", has been reviewed by the Nursing IRB representative and it was determined that your project does not include participation by human subjects, therefore, is exempt from IRB approval requirements.

Good luck with your study.

Thank you,

Betty Ann Morgan 
The University of Southern Mississippi 
Institutional Review Board 
118 College Drive #5147 
Hattiesburg, MS 39406-0001 
Phone: 601-266-6820 
Fax: 601-266-4377

Betty.Morgan@usm.edu
**APPENDIX D**

**PREPRINTED STANDING DISCHARGE ORDER**

**STAT PHARMACY ORDER**
(Place X in Box)

DOCTOR: PLEASE USE BALL POINT PEN - PRESS FIRMLY

<table>
<thead>
<tr>
<th>DATE/TIME</th>
<th>DOCTOR’S ORDERS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SUPPLEMENTAL DISCHARGE ORDERS: ACUTE MYOCARDIAL INFARCTION</td>
</tr>
<tr>
<td></td>
<td>1. Discharge patient:</td>
</tr>
<tr>
<td></td>
<td>2. Cardiac rehab for outpatient phase II:</td>
</tr>
<tr>
<td></td>
<td>3. Smoking counseling by Cardiac Rehab</td>
</tr>
<tr>
<td></td>
<td>4. Give patient discharge instructions from Micromedix: Acute Myocardial Infarction or Acute Coronary Syndrome to patient</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>ORDERED</th>
<th>NOT indicated or Contraindicated</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASA</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>Beta Blocker</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>ACEI OR ARB</td>
<td>G</td>
<td>G</td>
</tr>
<tr>
<td>Statin</td>
<td>G</td>
<td>G</td>
</tr>
</tbody>
</table>

Physician’s Signature ________________________  I.D. #____________________
## APPENDIX E

### SAMPLE CLINICAL PATHWAY

### Acute Coronary Syndrome

**CLINICAL PATHWAY**

<table>
<thead>
<tr>
<th>Date: Day 1</th>
<th>AM</th>
<th>PM</th>
<th>ND</th>
<th>Comments</th>
</tr>
</thead>
</table>

#### CNS
- Patient alert
- Patient free of chest pain

#### CVS
- Continuous cardiac monitoring
- ECG daily and with chest pain
- TPR and BP 4/24
- Patient haemodynamically stable

#### LABS
- Fasting Chol, Trigs, HDLs, Glucose & U&E
- 6/24 Troponins for 24/24, or until peak demonstrated
- Na & K* as per diabetic protocol
- APTT as per protocol if having heparin infusion

#### MEDS
- Medications given as per MR10
- ACE inhibitor commenced unless contraindicated *(circle)*
- Beta blocker commenced unless contraindicated *(circle)*
- Statin commenced unless contraindicated *(circle)*
- Medications reviewed by pharmacist
- SaO₂ >95% on continuous O₂ therapy
- Chest clear / no deterioration
- Skin assessed to be in good condition
- Shower with assistance if stable
- IV Site(s) checked t.d.s. Site(s) clean and dry
- Dietitian assessment completed *(weekdays)*
- Cardiac diet and fluids as tolerated *(after pathology taken)*
- FBC maintained
- Bowels open
- Urinary output satisfactory
- IV Insulin therapy and BSL as per Diabetes / AMI protocol
- Insulin subcutaneous - ordered for Day 2
- BGL 7-10 mmol / L
- Discuss plan of care with patient / family
- Identify concerns/emotional status of patient & family
- Patient given AMI package. Stage 2 / education plan provided
- SOOB and short walk b.d.
- Physiotherapist assessment completed
APPENDIX F

PATIENT TRACKING SHEET

ATHEROSCLEROSIS PATIENT TRACKING SHEET

Review the following information with your doctor and nurse:

**Life Saving Medications**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
<th>If not, why not</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beta blocker</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACE inhibitor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statin</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Lifestyle Changes:**

Your goal

**Exercise:** minimum of 30-60 minutes, 3-4 times a week

Cardiac rehabilitation program: yes no

**Diet:** AHA diet low in fat and cholesterol. Maintain healthy weigh of _______

Smoking: Stop completely. Nicotine replacement: yes no  Zyban: yes no

**Essential Values:**

Your starting values

Your goal

LDL-cholesterol LDL < 100 mg/dl

HDL-cholesterol HDL > 45 mg/dl

Blood pressure BP < 140/90 mmHg
REFERENCES


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Martin, M., Blaisdell-Gross, B., Fortin, E., Maruish, M., Manocchia, M., Sun, X., . . .


doi: 10.1136/hrt.2010.200261


doi: 10.1161/CIR.0b013e3182009701


