EVALUATION OF STROKE AND CHEST PAIN CERTIFICATION

FOR HOSPITALS CONSIDERING CERTIFICATION

DIXIE L. COPELAND

Washburn University, Fall 2018

A PROJECT

SUBMITTED TO THE DEPARTMENT OF ALLIED HEALTH

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Abstract

Certification of hospitals was examined in the specific areas of stroke and chest pain. Specifications of what defines the different types of stroke and myocardial infarctions (heart attacks) were also examined in detail. The mandatory certification and medical staff education requirements were reviewed from The Joint Commission and The American College of Cardiology. The findings suggest that patient outcomes are improved and team work among care givers is enhanced from hospitals that have implemented certification. Certification gives hospitals the tools such as specific work organization, staffing, checklists, and evidence-based treatment plans that help guide the physicians and medical staff in the care of stroke and chest pain patients. Analysis of the research suggests hospitals should become certified in stroke and chest pain in order to improve patient outcomes.

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Definitions

EHAC: Early Heart Attack Care (atgprod.heart.org/HEARTORG, 2018).

Electrocardiogram (ECG): A type of reading from a special machine that records the heart's electrical activity from the atrium to the ventricles in the heart, these recording are then viewable on the ECG machine for the physician to see and determine if a patient is having a heart attack (American College of Cardiology & American Heart Associate Task Force, 2017).

Evidence Based Practice: Utilizing the best research evidence for making decisions in patients care along with incorporating clinical experts to give optimal care to the patients while keeping in mind the patient's values and preferences (www.cdc.gov, 2018).

Myocardial infarct: More commonly known as a heart attack, which happens when there is blockage to a coronary artery that causes blood to stop flowing to the heart, this in turn causes the muscle of the heart to no longer have enough oxygen supply (atgprod.heart.org/HEARTORG, 2018).

Performance measures: A measurement of outcomes and results which show the effectiveness and efficiency of a program, usually used to describe the performance of a group or organization (www.cms.gov, 2018).

Quality measures: Sometimes referred to as clinical quality measures (CQM) it is the data gathered to show patient outcomes, processes or patient perception (www.cms.gov, 2018).

rTPA: Recombinant Tissues Plasminogen Activator, most recognizably known as "TPA" is a medication used for stroke patients to break up blood clots that are blocking blood vessels (Moradiya et al., 2013

One way to demonstrate quality and improved patient outcomes in a hospital is through certification. Through certification hospitals can provide enhanced patient care due to the additional training in specialized evidence-based treatment protocols. Certification also assists facilities with advertising their success in becoming certified and maintaining a level of quality. Certification shows the community that the hospital is committed to providing excellent patient care. Furthermore, in order for hospitals and medical personnel to continue offering the most up to date treatment options they must continue educating physicians and medical staff on changes to treatment protocols. This means that certified hospitals are also better prepared to care for their patients because they are using scientifically proven, evidence-based practices. The evidence-based practices are kept up to date by the certifying agencies which gives the physicians the knowledge of clinical decision making that is up to date. This in turn helps physicians deliver a higher quality of care to the patients with stroke and chest pain symptoms.

Despite sharing some similarities-i.e., both giving formal recognition and both normally being a voluntary process the terms accreditation and certification have different meanings and should not be used interchangeably (Alkhenizan & Shaw, 2011). Accreditation is a process by which a group of peers reviews a healthcare facility using a specific set of preset quality performance measures and then compares those to the organizations existing performance (Alkhenizan & Shaw, 2011). Accreditation evaluates the overall quality and safety of an entire organization. Facilities are usually certified for two years between site visits. Often hospitals resubmit large volumes of data before the two years lapse in order to continue maintaining accreditation.

Certification, meanwhile, is defined as evaluating the scope of a specific area or certain individuals and then determining if the personnel and facility meet the guidelines and standardized performance measures set forth by the accrediting agency (jointcommission.org/certification, 2018). When a facility becomes certified the authorizing agency has reviewed either an individual or an area on specific criteria and determined that the set of performance measures are met. For the purpose of this paper the term certification will be used when discussing stroke and chest pain because these are both specific areas along with specific healthcare individuals that are being evaluated and certified.

Purpose

Having already provided definitions for accreditation and certification this project will review the specific certification requirements for stroke and chest pain, list sites in Kansas with certification, review certification standard patient evidence based treatment protocols, discuss education requirements of the healthcare workers along with patient's education upon discharge, review the advantages and disadvantages of certification, and draw conclusions about whether it is beneficial for hospitals to pursue such certification. First, however is a review of the different types of strokes and heart attacks (chest pain) which will provide a better foundation from which to understand both the treatment protocols and standards for certification in stroke and chest pain.

Types of strokes. There are three types of strokes. The first type of stroke is the hemorrhagic stroke and it is caused when a blood vessel ruptures and then blood leaks out into the surrounding area of the brain, tissue or the meninges (space between the brain and skull) (stroke.imedpub.com, 2018). The hemorrhagic stroke is then broken down into yet another more specific type of brain bleed:

A). Intracerebral stroke is caused when bleeding occurs in the brain. These patients can be unconscious, have facial paralysis, permanent physical and/or mental impairment. The intracerebral stroke can cause immediate death. These hemorrhagic types of stroke patients are not candidates for Tissues Plasminogen Activator (TPA) because the blood vessel or vessels have already burst and there is no need for declotting the blood (stroke.imedpub.com, 2018). In reality, it would be fatal or even more brain debilitating for these patients to receive TPA (stroke.imedpub.com, 2018).

B). Subarachnoid hemorrhage is a less common type of stroke and it usually occurs or is caused because of an injury or trauma to the patient's head. This type of stroke is described by patients as "The worst headache they have ever had" (stroke.imedpub.com, 2018). The bleeding in a subarachnoid hemorrhage type of stroke occurs in the meninges (the space between the patient's brain and skull) (stroke.imedpub.com, 2018).

The second type of stroke is the ischemic stroke and it happens when a blood vessel is obstructed by a blood clot. The ischemic stroke is the only type of stroke that physicians consider utilizing TPA for treatment. The ischemic stroke patients may benefit from the use of TPA if they are diagnosed within the set window of time of stroke to treatment and have no contraindications (stroke.imedpub.com, 2018). Contraindications included if the patient still has active bleeding, uncontrolled hypertension, high blood pressure, a previous stroke in last three months or a brain neoplasm which could be either benign or malignant (Fugate & Rabinstein, 2015). The TPA medication is utilized to dissolve the blood clot (stroke.imedpub.com, 2018). The medication needs to be administered intra venous within three and a half to four- and one-half hours of onset of stroke symptoms (stroke.imedpub.com, 2018).

The third type of stroke is a transient ischemic attack (TIA) which is a very small clot that occurs in a blood vessel of the brain but resolves itself or the blood flow to that particular vessel is rerouted (stroke.imedpub.com, 2018). The TIAs usually resolve themselves within 15 minutes or less than 24 hours (stroke.imedpub.com, 2018). A TIA can also be a precursor to a major stroke occurring or even occur often after a major stroke occurs (stroke.imedpub.com, 2018).

According to the Centers for Disease Control and Prevention (CDC) stroke was the fifth leading cause of death in the United States. Strokes are the cause of over 128,000 deaths per year and are a leading cause of long-term disability (atgprod.heart.org/HEARTORG, 2018). Stroke certification is under the Disease Specific Care Certification section under The Joint Commission which began in 2002 (Joint Commission Disease Specific Care Certification Review Process Guide, 2018). Stroke certification has been around 16 years and continues to see progressive changes each year. Currently the Joint Commission is the only accrediting body for stroke certification. Since 2013 Stroke certification through The Joint Commission has found that facilities with neurology residence physicians have improved timely use of TPA as opposed to the centers that are nonteaching or other specialty teaching institutions (Moradiya & Valsamis, 2013). The product TPA is used to break up a blood clot that is blocking a blood vessel in the brain. TPA is the standard medication used and is approved by the United States Food and Drug Administration (FDA) to treat ischemic strokes (Moradiya et al., 2013).

Types of Myocardial Infarctions. Patients that present to the hospital with chest pain and end up having a positive electrocardiogram (ECG) finding are usually categorized as a certain type of heart attack. The heart attack will either be an ST-elevation myocardial infarction (STEMI) OR Non-ST myocardial infarction (Non-STEMI) patient (American College of Cardiology &

American Heart Associate Task Force, 2017). In the emergency room the physician may refer to the heart patient as either a STEMI or NON-STEMI heart patient. The ST wave stands for the segment seen on an ECG. An ECG records the electrical activity from the atrium to the ventricles in the heart: these are then recorded on an ECG machine paper read out for the physician to review and determine if the patient is having or had a heart attack (American College of Cardiology & American Heart Associate Task Force, 2017). A STEMI heart attack is usually seen as the worst type of heart attack because the patient will usually have a coronary artery that is completely blocked (American College of Cardiology & American Heart Associate Task Force, 2017). A Non-STEMI heart attack patient may only have an artery that is partially blocked and causing the blood to not flow properly to and from the heart (American College of Cardiology & American Heart Associate Task Force, 2017). The Non-STEMI patient is serious but it is not usually as deadly as the STEMI patient's heart attack (American College of Cardiology & American Heart Associate Task Force, 2017).

Significance of the Project

Individuals may not see the benefit in acquiring certification in stroke or chest pain. However, the quality of patient care and patient outcomes are improved when hospitals choose to become certified in stroke and chest pain (Alkhenizan & Shaw, 2011). With certification, patients know that the physicians and other medical staff have all been trained on the same proven evidence-based medicine for caring for a patient that has either had a stroke or myocardial infarction. When a certified hospital is using clinical decision-making processes that are scientifically proven to be effective in diagnosing and treating diseases like stroke and myocardial infarcts (heart attack) all patients benefit. Stroke care alone in the United States equates to approximately 34 billion dollars each year and myocardial infarctions cost is around

200 billion (www.cdc.gov, 2018) Because of the exorbitant amount of money and having defined guidelines in best practices for provider care it is beneficial for the medical staff, physicians, hospitals, and insurance companies to consider hospitals becoming certified in both stroke and chest pain. Improved patient outcomes equates to saving money.

Project Objectives

The purpose of this project includes defining what certification involves and understanding the difference between that and accreditation. Along with understanding the various types of strokes and myocardial infarctions. Be able to identify the specific requirements needed in order to become certified in stroke or chest pain. Recognizing the benefits of stroke and chest pain certification. Ultimately utilizing this knowledge to determine if certification in stroke and chest pain is beneficial to the patient, medical staff and hospital.

Background of the Problem

Physicians in emergency rooms have a variety of patients with afflictions ranging from the minor to critical. This wide range of patient problems means that determining what testing to perform and what treatment to provide can almost be impossible if not enough time is available. For patients with extremely time sensitive afflictions, such as stroke or chest pain, any delay puts the patient at a higher risk of serious complications. These patients have a much higher chance of survival if evidence-based practice processes are followed because the testing and interpretation of test results follow a standard process instead of relying on the judgment of individual providers. Not having certification can thus adversely affect patient outcomes because physicians have personal preferences on how they can choose to treat patients' symptoms and those may not always be the correct decision.

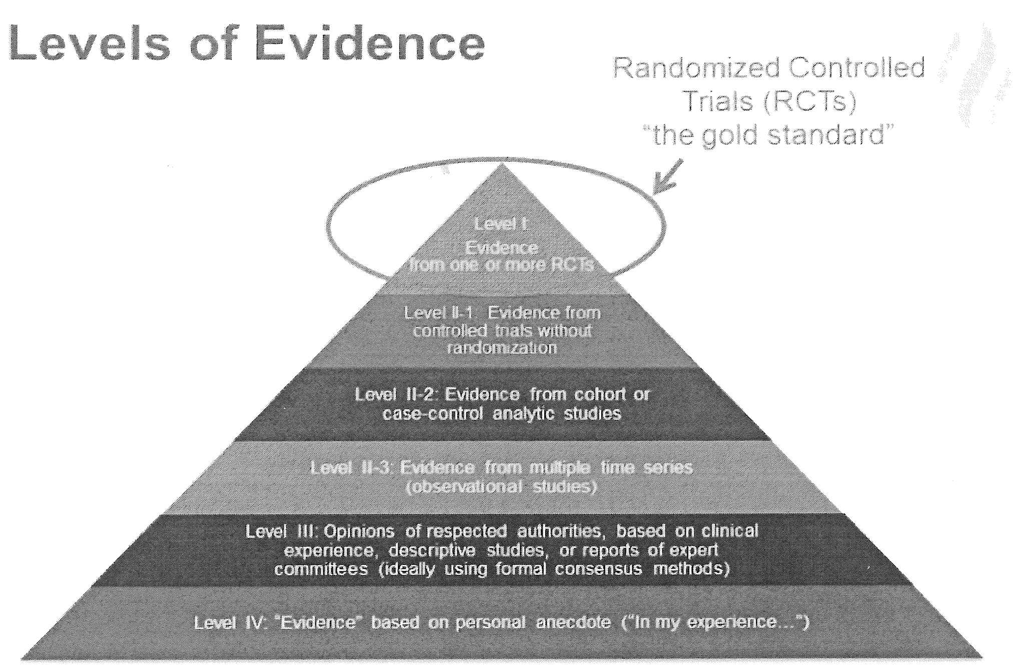
Certification has hospitals evaluating and monitoring areas that might not normally be checked on, such as the turn-around time from the instance a patient presents to the emergency room to treatment for stroke or heart attack. Indeed, looking at each individual patient's outcomes after their visit or admission to the hospital for stroke or myocardial infarction are good measures of how the patient treatment process worked. Certification sets medical facilities at a level that causes them to meet certain criteria: Statistically those facilities are operating at a higher level of patient care. Those patients that are at the mean level are usually researched and evaluated to see what happened and how can those patients be moved above the mean. Facilities that are not certified may be less likely to track patient outcomes and could have patient treatments falling below the mean level. These hospitals would normally have no idea of the seriousness of this because they are not tracking the patient treatment times or outcomes. "When patients get evidence-based care, they have 28 percent better outcomes. That's a big deal." (Gallagher-Ford, 2016). The hospitals that lack the use of a set protocol to follow may be missing a patient's deadly symptoms and end up with a higher percentage of patients with poor outcomes. (Melnyk & Gallagher-Ford, 2016)

Theoretical Framework

Hospitals are always working to make improvements in patient treatment along with improving their public image. One way to accomplish that is through becoming Joint Commission stroke or chest pain certified. There are logical reasons for choosing certification. It shows the designation of quality and excellence, it helps create a group of healthcare physicians and providers working together with the same goals, it helps the hospital have consistent patient care protocols, it helps to streamline care with little variation in processes and ultimately shows commitment to high standards of patient care (www.cms.gov., Stroke Accreditation, 2018 & accreditation.acc.org, 2018).

One of the main issues with hospitals that are not certified is that the physicians often treat patients utilizing their personal training experience and are not utilizing evidence or statistical data (Haughom, 2018). Review of the pyramid levels of evidence shows that the lowest level of evidence is based on physician's personal experience, while the highest level of evidence comes from Randomized Controlled Trials (RCTs). Those RCTs are considered the gold standard in patient treatment (Haughom, 2018). The Joint Commission and The American College of Cardiology continually do the work in studying the RCTs literature and determine if those processes will be put into the stroke and chest pain certification programs.

Table A - Levels of Evidence Pyramid 1



Note: 5 Reasons the Practice of Evidence-Based Medicine Is a Hot Topic, (Haughom, 2018)

Checklists and proper workflow models help care givers provide a consistent, high quality of care, to every patient every time. Emergency situations can be stressful and making decisions on what testing and the interpretation of test results can be challenging to the physicians. This can be exacerbated when healthcare givers are under extreme pressure. Physicians can be multi-tasking between patients and reviewing a large volume of tests results. The physician may not always know what to order next or miss viewing a critical lab result, which ultimately affects the patient and could cause poor patient outcomes. With certification the physician and all healthcare givers treating the patient are familiar with the specific workflow processes. All the medical staff involved with the patient's care are monitoring what needs to happen next in the treatment process along with checking specific test results and time recommendations in order to meet the certification requirements. Certification requires hospitals to perform quality and performance improvement in order to better meet the guidelines set forth by the certifying agency. The education piece that is required in both stroke and chest pain certification keeps all medical staff that come into contact with this particular population of patients competent and prepared to treat those patients by following set protocol guidelines. Education of all staff is the key to success in implementing and maintaining stroke and chest pain certification.

The disadvantages to stroke and chest pain certification are the expensive yearly costs associated with achieving and maintaining certification. The additional cost required is manpower to keep up with making sure all medical staff are familiar with their responsibilities, certification goals, tracking of statistical data and any changes that occur with certification. It usually requires a full-time person to oversee and maintain the certification along with a vast number of healthcare physicians and ancillary associates that also spend quality time tracking and monitoring treatment times and patient outcomes. One medical staff member that is the stroke or chest pain coordinator, being paid full time hours and fulltime benefits could cost the hospital on an average $90,000.00 dollars a year (Stroke and Chest Pain Program Coordinator, www.indeed.com, 2018). This does not include all the other ancillary areas that have other individuals that are working on statistical data that must be maintained. The additional time required for the large group of ancillary individuals that are also involved in the treatment and care of patients with stroke and/or chest pain patients takes additional time and man hours which equates to dollars. It can be challenging to oversee the treatment plans that are being received from the entire organizations for stroke and chest pain. Each individual involved in the patient's care must be familiar with the certification guidelines and know their part in order for the organization to be successful. All the education time spent is also dollars spent. The hospital must have detailed and dedicated people to make the program a success. The process will not happen by itself and must be continually monitored and modified when quality measures are not being met. Even with these additional costs, certification still may be worthwhile because it improves the diagnosis, treatment, and outcomes of the stroke and chest pain patients.

Literature Review

The Joint Commission is one of the pre-eminent names in certification (Evans, 2017). The Joint Commission's seal is recognized both nationally and internationally and indicates a high-level of quality at certified institutions (Evans, 2017). There are a variety of third-party certification agencies available to provide certification in specialty areas in hospitals. Most hospitals in the state of Kansas select The Joint Commission or the American College of Cardiology for certification in stroke and chest pain. Certification can fall under a variety of accrediting agencies, usually the type of business determines the type of accrediting agency that is chosen (Smith, 2018). There are a variety of other organizations that healthcare facilities can choose to utilize as a certifying body. These other certifying agencies are recognized by The Centers for Medicare and Medicaid Services (CMS) for financial reimbursement (www.cms.gov, 2018). Hospitals have choices on the particular certifying agency they select to use, depending on the cost and the hospital preferences.

In order to become certified in chest pain and stroke, hospitals must follow a list of requirements that are set forth by the certifying agency, such as The Joint Commission or the American College of Cardiology. The requirements for certification are ongoing and continually changing with new proven scientific data. Certifying agencies determine when updates are needed and the scientific evidence supports the change. Having certification allows for hospitals to continually be up to date on the latest evidence based proven literature. Chest pain and stroke certification are awarded for two years (jointcommission.org/certification). During this time hospitals continue to submit data to the certifying body so progress can be monitored closely by the hospital and the certification agency. The patient care data is then used to extrapolate quality measures that can be shared with the public.

Stroke Certification

The Joint Commission has four different stroke certifications that a facility can apply for (jointcommission.org. ,2018) Hospitals must determine which certification they are going to apply for and be able to prove their eligibility and skill set. There are guidelines shown in Table B set forth by The Joint Commission for each certification. Once the hospital determines the specific certification, they must be able to meet those guidelines in order to become certified in that particular specialty for stroke.

Table B - TJC Stroke Certification Guide 1

The Joint Commission Stroke Certification Program Concept Guidelines

Type of Stroke Certification	Eligibility
Acute Stroke Ready Hospital (ASRH)	Standardize method of deliver care centered on evidence-based guideline
Primary Stroke Center (PSC)	Standardize method of deliver care centered on evidence-based guidelines
Comprehensive Stroke Center (CSC)	Standardize method of deliver care centered on evidence-based guidelines along with performing at least 15 mechanical thrombectomy procedures and post care
Thrombectomy-Capable Stroke Center (TSC)	Standardize method of deliver care centered on evidence-based guidelines along with performing at least 15 endovascular coiling or microsurgical clipping procedures

Note: The Joint Commission Center Program-Program Concept Comparison, 2018

There is also a supplemental type of certification that only hospitals that perform thrombectomy procedures can apply for. The Advanced DSC -Thrombectomy Capable Stroke Center Certification Supplement, has a long list of requirements set forth by the Joint Commission to hold the TSC distinction (Joint Commission Disease Specific Care Certification Review Process Guide 2018). A two-day inspection is also performed for acquiring Advanced DSC Thrombectomy Capable Stroke Center Certification. Hospitals that have TSC accreditation must have performed a minimum 15 mechanical thrombectomy procedures in the year (jointcommission.org., 2018) Currently, no site in Kansas has performed that volume of thrombectomy procedures in 2018 (jointcommission.org., 2018).

The four main steps required for certification by The Joint Commission for Stroke certification are as follows:

Steps to stroke certification

There are specific steps required for hospitals to progress through The Joint Commission certification process. For the first initial hospital stroke certification the site is given a 30-day notice by The Joint Commission to get prepared for the on-site visit (Joint Commission Disease Specific Care Certification Review Process Guide, 2018). For re-certification the site is given a seven-day notice (Joint Commission Disease Specific Care Certification Review Process Guide, 2018). The first step in the process is termed organization review. This stage involves information gathering by the medical staff and prepares members of the stroke team for the onsite inspection. There are specific document criteria given to the hospital that can requested by the inspectors for review during the site visit (Joint Commission Disease Specific Care Certification Review Process Guide, 2018).

The next stage in the process is termed review of competence assessment and is done prior to the onsite visit. It involves gathering and reviewing credentialing of the medical staff and the hospital (Joint Commission Disease Specific Care Certification Review Process Guide, 2018).

The final stage in certification is credentialing and is performed during the two-day site visit which involves review of the hospital and the staff along with review of specific stroke patient medical records. The inspectors review charts of patients that have progressed through the facility's stroke program. The stroke patient record must be from the day of the site visit or up to four months back and will assess how well the hospital followed stroke protocol (Joint Commission Disease Specific Care Certification Review Process Guide, 2018). The hospital may also be requested to provide specific items for review such as medical staff credentials, policy and procedures, staff job descriptions, staff orientation material, employee education, any required business license etc. (Joint Commission Disease Specific Care Certification Review Process Guide, 2018).

At the end of the two-day visit there will be a program exit interview where all the findings from the visit are shared and reviewed (jointcommission.org/certification, 2018). Recommendations and suggestions are discussed at that time with the hospital team of healthcare providers and hospital administration (jointcommission.org/certification, 2018).

There are 1,109 Primary and Comprehensive Stroke Centers in the United States, thirteen Advanced Thrombectomy Capable Stroke Centers, Seventy Acute Stroke Ready Hospitals and

184 Stroke Rehabilitation Centers (National Stroke Association, 2018). There are twelve hospitals in Kansas that currently hold the Advanced PSC stroke certification currently. See the list below.

Table C - KS Advanced Stroke Centers 1

Organization Name	City	State	Effective Date
Via Christi Hospitals Wichita, Inc.	Wichita	KS	02/07/2018
The University of Kansas Hospital	Kansas City	KS	09/10/2016
Lawrence Memorial Hospital	Lawrence	KS	12/09/2016
St. Catherine Hospital	Garden City	KS	12/17/2016
Providence Medical Center	Kansas City	KS	02/16/2018
Wesley Medical Center, LLC	Wichita	KS	11/14/2017
Olathe Medical Center, Inc.	Olathe	KS	05/23/2018
Overland Park Regional Medical Center	Overland Park	KS	10/04/2016
Shawnee Mission Medical Center	Shawnee Mission	KS	05/24/2018
Topeka Hospital, LLC (UKHSSFC)	Topeka	KS	03/08/2017
Stormont-Vail HealthCare, Inc.	Topeka	KS	10/29/2016
Hutchinson Regional Medical Center, Inc.	Hutchison	KS	10/27/2016

Note. This data was retrieved from the Joint Commission website October 5, 2018.

Joint Commission treatment standards for stroke patients

Evidence based treatment standards are the basis for certification. Each hospital that is stroke certified follow these guidelines as the best practice model for identifying and treating stroke patients.

The first medical contact with a possible stroke patient requires the facility to immediately initiate action once a possible stroke patient is identified. There is a common saying in medicine, time lost is brain loss. Upon arrival of a possible stroke patient an electronic page is sent out to all medical staff that will be involved in caring for the stroke patient. If a Computed Tomography (CT) non-contrast head scan is required or blood work is needed all specialized staff will be ready to perform their duties. The time criteria set forth by Joint Commission for the CT scan of the patient's head is to be completed within 25 minutes or less from the time the patient presents to the emergency room. The final report from the CT non-contrast head scan must be communicated to the ordering physician in 45 minutes or less. A chest x-ray and laboratory blood work ordered on stroke patients must be completed in 45 minutes or less to meet the guidelines set forth by The Joint Commission. Once the type of stroke is determined the patient may be a candidate for the TPA medication. The goal is to have the TPA administered intravenously within 60 minutes or less once the ischemic stroke is diagnosed and no patient contraindications exist for the medication (jointcommission.org/certification, 2018). The core measures reported to The Joint Commission are; what medications were given, is the patient discharged taking a thrombolytic therapy medication, was patient given statin medication to take regularly or was the patient assessed for rehabilitation because they did not recover completely at the time of discharge from the stroke (jointcommission.org/stroke certification, 2018).

Hospital stroke education requirements

The education requirements are also evidence-based practices identified as the key to keeping medical staff up to date on education of stroke. The medical team and nurses that care for stroke patients must receive at least eight hours of education annually along with the Medical Director (jointcommission.org/certification, 2018). Emergency Department nurses must do an additional two hours annually on cerebrovascular disease (jointcommission.org/certification, 2018). All other healthcare providers such as technicians, nurse practitioners, respiratory therapists and radiologic technologists must have two full hours of education annually on cerebrovascular disease (jointcommission.org/certification, 2018). Everyone working in a certified stroke hospital should be familiar with the acronym FAST for stroke symptoms and response:

Facial drooping

Arm weakness,

Speech difficulty

Time to call 9-1-1

Education specifications are determined by the type of stroke certification held by the hospital and are listed below. As the hospital progresses to a higher certification the education requirements for medical staff also increase.

Acute Stroke Ready Hospital (ASRH) education requirements:

- Emergency Room staff must have a minimum of twice a year education

- The core stroke team must have at least four hours annually (jointcommission.org/certification).

Primary Stroke Center (PS) education requirements:

- Emergency Room staff must have a minimum of twice a year education
- The core stroke team must have at least eight hours annually (jointcommission.org/certification).

Thrombectomy-Capable Stroke Center (TSC) education requirements:

- Nurses and Emergency Room staff must have two hours annually along with stroke nurses
- The core stroke team having eight hours completed annually (jointcommission.org/certification).

Comprehensive Stroke Center (CSC) education requirements:

- Nurses and Emergency Room staff must have two hours annually
- Stroke nurses and the core stroke team must have eight hours completed annually (jointcommission.org/certification).

Stroke patient discharge education

The final key to success in the treatment of stroke is giving the patient the tools and knowledge needed to keep them healthy and out of the hospital. If the patient is discharged on thrombolytic therapy, the patient is educated on how to take the medication and what to monitor as far as physical symptoms (jointcommission.org/stroke certification, 2018). The patient is given instructions if discharged on a statin medication with the timeline for patient blood draws.

These lab tests are performed in order to monitor the patient's kidney function (jointcommission.org/stroke certification, 2018). Statin medications are given to help a patient lower their cholesterol along with helping to prevent further atherosclerosis, which is plaque that can build up in an individual's arteries. Patients and their families are instructed to monitor the patient for any stroke symptoms and to follow the acronym FAST (jointcommission.org/stroke certification, 2018). Patients along with their families are encouraged to take an active role in the patient's personal health and care so that the patient may have the best possible recovery results (jointcommission.org/stroke certification, 2018). With these tools put into place the patient should be able to avoid a second hospitalization if they follow their care plan and adhere to their medication protocol.

Chest pain certification

According to the Center for Disease Control and Prevention (CDC) heart disease was the number one leading cause of death for Kansans. Chest Pain Certification first began in 2003 and the accrediting bodies have been able to streamline processes across healthcare facilities that are helping save the lives of heart attack victims (Breuckmann et al., 2015). In the United States more than eight million patients visit the emergency room every year for chest pain or angina related symptoms (American Heart Associate, 2018). Since 2014 there are approximately 825 certified chest pain center or units across the United State and that number continues to grow (Breuckmann et al., 2015). The chance of someone having a myocardial infarction, better known as a heart attack, can happen every 42 seconds in the United States alone (American College of Cardiology & American Heart Associate Task Force, 2017). Every year in the United States 790,000 persons have a heart attack and out of that number for 580,000 it is their first heart attack (http://www.cdc.gov., 2018).

The American College of Cardiology and American Heart Association formed a task force in summer of 2015 to update and review the current care of patients with myocardial infarctions and decided to make improvements to the current set of standards that are followed when a patient presents to an emergency room with chest pain. These improvements resulted in a timely, systematic, well researched set of clinical guidelines that is used on each patient that presents to an emergency room that is certified in chest pain (American College of Cardiology & American Heart Associate Task Force, 2017).

Steps to chest pain certification

There are three main components to chest pain certification; following the guidelines for consensus based national standards for treating chest pain patients, utilizing evidence-based practice guidelines for acute myocardial infarction treatment and collecting and analyzing performance measures specific to chest pain population. Each of these components have specific detailed guidelines to follow in order to be granted certification for two years (American College of Cardiology, ACC Accreditation Services, 2018).

CHEST PAIN TREATMENT STANDARDS

Many emergency rooms utilize evidence-based risk stratification tools along with lab testing to determine what to do with patients that have low risk factors and may not warrant an admission into the hospital. These evidence-based practices are what is key to the success of identifying, treating and discharging the patients.

Patient Assessment is performed using the HEART score, the factors are listed below (Mahler & Alley, 2015):

History from Patient-Location of the patient's pain along with symptoms and pain time line.

ECG-What is the patient's ST elevation on the ECG

Age of the patient

Risk Factors of the Patient such as family history or smoking

Troponin lab results

Each of these factors has a weighted number, zero through two, giving the physician the patient's HEART score (Mahler & Alley, 2015). Depending on the patient's HEART score they may fall into low (0-3), moderate (4-6) or high risk (7-10) (Mahler & Alley, 2015). Patients that are low risk will most often be discharged to follow up with a physician at a later date. The moderate risk patients are usually admitted for observation or after the troponin lab work results may be scheduled for an out-patient stress test to be done in radiology, the Nuclear Medicine department. Patient with a high-risk HEART score are admitted with an immediate cardiology consult (Mahler & Alley 2015). All these decisions are made because of scientific evidence. They are utilized to keep the patients safe and help to not miss those patients that may have symptoms that are not typical of heart attack. It also helps to reduce the length of stay in the hospital and even reduces readmission, which helps to reduce medical costs in the hospital. Medicare and Medicaid are government health insurance plans for individuals of a certain age or income (cms.gov, 2018). Medicare covers persons over the age of 65 and Medicaid is for individuals younger than 65 years of age that are low income (cms.gov, 2018). Medicare has a program called Hospital Readmission Reduction Program (HRRP) that is a value-based purchasing program focused on reducing readmission into the hospital (cms.gov, 2018). The way the program works is the re-admission ratios (ERR) are calculated for all hospitals that treat specific disease processes like acute myocardial infarctions (cms.gov, 2018). Readmission within thirty days is reviewed and then calculated, if it is found to be in excess of the Medicare and Medicaid thresholds the hospitals reimbursement is decreased by a certain percentage of funds (cms.gov, 2018).

The troponin blood lab tests determine the amount of protein in the blood. This happens when the heart muscle is damaged and about seventy percent of patients having a heart attack will show positive lab results on their first blood draw (Joy, 2015). Troponin lab results greater than or equal to 0.40 (ng/ml) is a probable sign of a heart attack (Joy, 2015).

Joint Commission chest pain certification was introduced after the American College of Cardiology (ACC) certification so that may be why some sites in Kansas have certification with the ACC. The American College of Cardiology has 49000 members (American College of Cardiology, 2018). In 2015 there were approximately 1206 sites certified by the American College of Cardiology (American College of Cardiology, 2018). Certification that is offered by a group of cardiologists makes the most logical sense because they are the experts in heart disease.

Table D - TJC Chest Pain Centers in KS 1

Organization Name	City	State
Via Christi Hospitals Wichita, Inc.	Wichita	KS
Menorah Medical Center	Overland Park	KS
Lawrence Memorial Hospital	Lawrence	KS
Olathe Medical Center Inc.	Olathe	KS
Overland Park Regional Medical Center	Overland Park	KS
Stormont-Vail Healthcare, Inc.	Topeka	KS
Wesley Medical Center, LLC	Wichita	KS

Note. This data was retrieved from the Joint Commission website October 5, 2018.

Table E - ACC Chest Pain sites in Kansas 1

Organization Name	City	State
Hays Medical	Hays	KS
Salina Regional Health Center	Salina	KS
Providence Medical Center	Kansas City	KS
UKHS St. Francis Campus	Topeka	KS
Western Plains Medical Complex	Dodge City	KS

Note. This data was retrieved from the American College of Cardiology website October 5, 2018.

Hospital education for chest certification

Annual staff education requirements for chest pain certification related to low-risk patients is different than that which is required for high risk chest pain patients. Education must have all of the elements of Early Heart Attack Care (EHAC) to meet the requirements. Staff education must be set up so that the organization is able to track and monitor each individual's personnel education file (accreditation.acc.org., 2018). The medical director of the chest pain program will be responsible for designing and instructing the educational programs for physicians along with mid-level providers regarding the low risk NON-STEMI patients (accreditation.acc.org., 2018). Every new employee is required to receive Chest Pain Center and Early Heart Attack Care (EHAC) information within 90 days of their employment (accreditation.acc.org., 2018). Anytime a facility offers Basic Life Saving or Acute Care Life Saving curriculum they must also include Early Heart Attack Care (EHAC) training that contains these elements (accreditation.acc.org., 2018):

- Risk Factors
- Signs and symptoms of heart attack
- Atypical presentations
- Early warning signs
- Importance of calling 911
- Differences in female presentation versus male presentation

Nursing staff that provide clinical care for low-risk NON-STEMI patients and acute coronary syndrome patient are required elements of training listed below (accreditation.acc.org., 2018):

- Signs and symptoms of heart attack

- Process for seeking assistance for cardiac emergencies
- Identification of major dysrhythmias on ECGs
- Nursing staff must be able to perform 12-lead ECG appropriate to available equipment
- Nursing stuff must be able to perform right-sided ECG appropriate to available equipment
- American College of Cardiology/American Heart Association guidelines must be followed for stress testing that is performed in the Nuclear Medicine Department
- Atypical presentations must also be able to be identified by nursing staff
- Pathophysiology and treatment of heart attack
- Goals and purposes of the Chest Pain Center Program as a resource must be made available to the nursing staff.

All other facility personnel either clinical or non-clinical must receive annual education on the following items regarding Chest Pain Certification (accreditation.acc.org., 2018):

- Signs and symptoms of heart attack
- Early Heart Attack Care (EHAC)
- Process of seeking assistance for cardiac emergencies
- Gender and age-related differences in the symptoms of heart attack
- Atypical presentations of possible heart attack need to be identifiable by the staff

Not only is education required for the physicians and medical staff it is also required for the patient and their family upon discharge. The patients will receive education as it relates to their health history about smoking cessation, diabetes teaching, heart failure disease management, and understanding of the medication they have been prescribed (heart.org., 2018)

Heart attack patient discharge information

Patient discharge instructions include these items from the American College of Cardiology The key to success for the heart attack patients is knowing what is needed to do to improve their health, keeping them making healthy choices in their diet, exercise and medication management (accreditation.acc.org, society of cardiovascular patient care, 2018).

- Tobacco cessation education
- Patient education is vital upon discharge to help patients in their recovery process.
- Heart healthy nutrition education
- Exercise, transitioning to cardiac rehabilitation prevention program- focus on strengthening the cardiovascular system
- Medications to avoid such as vitamin supplements, estrogen plus progestin
- Risk reduction education such as appropriate aspirin therapy, blood pressure control, and cholesterol management
- Signs and symptoms of heart attack review
- Scheduling follow up visits
- Hands-only Cardiopulmonary Resuscitation (CPR) education material given at admission and discharge

Outcomes and Summary of the Project

All hospital groups that are certified in areas such as stroke and chest pain have made improvements in their internal working relationships between physicians and healthcare workers (jointcommission.org/certification, 2018). Because the group of healthcare workers all have the same shared goals of caring for the patient. Certification helps hospitals identify areas that need additional improvements in the set guidelines. For example, if a facility was not meeting the core measures of treatment report turnaround time on non-contrast Computed tomography (CT) head scans the facility may want to revisit their processes and make changes to improve their turn around times. The solution to a change may be to bring the stroke patients directly from the emergency room to the CT scan suite without delay. Another example could be the turnaround time of identifying an ischemic stroke patient and having the TPA administered within the four-and half-hour window. The facility may choose to administer the TPA medication while the patient is still in the CT imaging suite in order to not lose precious time during transportation of the patient back to the emergency room. The use of certification will continue to grow and change in medicine because hospitals and the public want quality proven patient care.

By utilizing the steps of evidence-based medicine physicians better understand the steps required such as asking the right clinical questions, acquiring the best evidence, appraising the evidence, applying the evidence and assessing the performance from utilizing the evidence-based data (Haughom, 2018). More research needs to be done as to how certification programs can help hospitals implement certification and the use of evidence-based practices for treatment of patients with stroke or chest pain symptoms. The future of medicine is changing and certification programs that utilize evidence-based medicine will help improve the care and safety of patients

When not following the guidelines for treatment of patients with stroke and chest pain the hospital could have patients that are being readmitted sooner than 30 days from the first hospital discharge and that second stay will not be covered completely by Medicare or Medicaid. Hospitals need to follow the guidelines for discharging so that the patients have the proper recovery tools along with family and friend support to assist in the recovery process. Harvard Health Publishing in September of 2016 found that patients that had a heart attack were at a higher risk for the first year of having another heart attack or stroke. This shows how important patient education is for healthy life style changes such as eating right, exercising and taking the prescribed medications in order to keep the patient healthy and out of the hospital.

Conclusion

Certification validates improved patient outcomes and enhanced medical staff collaboration so it is imperative that hospitals choose the best methods be utilized to treat patients for stroke and chest pain. Certification proves to be good for patients that present to a hospital with stroke or chest pain. There is evidence-based proof that exists between nursing care and improved patient outcomes (https://www.aacn.org/certification/value-of-certification-resources, 2015). Less time in the hospital equates to less care needed for patients that are treated and discharged home. Patients that are able to return home and to work show the greatest outcomes achieved from certification. It is very important for the patient's physical and mental wellness to know they will be able to return to their independence and things they enjoy. Those improved patient outcomes are a good selling point for hospitals to choose to do certification. Hospitals across the United States that are certified in stroke and chest pain are able to advertise this expertise to the public. This works well because the public hears and sees these positive attributes about the hospital and makes the connection of where the best choice of care is. Through certification, hospital administrators will see improvements across a range of patient outcome metrics.

Certification is also good for the medical staff because they know what to do for treatment of stroke and chest pain which saves time and reduces stress. Another key reason certification works well for the medical staff is that it attracts some of the best physicians and healthcare workers that will be providing superior patient care (American Heart Association, 2018). There are additional valid reasons why certification works for medical staff, it aids physicians in keeping current on the best proven practices available to treat stroke and chest pain patients, the electronic medical record allows for the real time patient tests results availability for physicians to view and make treatment decisions quickly, improves safe quality care at an affordable cost, and show improved care because the best treatment being utilized improves patient outcomes (Haughom, 2016).

Based on the research, certification results in better patient outcomes (jointcommission.org/certification, 2018). Certification has hospitals monitoring areas that might otherwise be overlooked like patient outcomes. Hospitals with certification are responsible for performance improvement programs that are looking at ways to keep making advances in the care and treatment of stroke and chest pain patients.

Finally, certification is good for all stakeholders from the patients to the hospital administrators. When hospitals are counting solely on the physicians and medical staff training alone to guide the care of the stroke and chest pain patient the risk of missing critical symptoms is a concern because of the time crisis. Time is of essence when physicians and medical staff are treating stroke and chest pain patients. Medical staff need to follow set protocols in order to attain the best outcomes in a time critical situation. These improved patient outcomes help to reinforce why certification works. Hospitals can advertise their certification and know that it is not only good for patient care, but it also makes good business sense.

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