

## **Outcomes of Chest Pain ER versus Routine Care**

### *Abstract:*

“Diagnosing a heart attack - and deciding how to treat it - is not an exact science” (Computer, 1999). In this capacity, there are generally two paths in which a patient can take when they first seek out medical treatment for chest pain. One variable is the emergency room care structure and the other is the routine care structure. This work will analyze the efficiency and dynamics associated with each structure and determine which one produces the most positive outcomes for patients.

The research selected includes original medical research from selected journals, newspaper case studies, and carefully evaluated Internet sources. From these informational constructs, six sources were selected for the features in which they add to the discourse. Preliminary results suggest that chest pain that is a result of a heart attack is best treated in the emergency room due to time constraints and success rates backed with research. On the other hand, preventative measures and general treatment is perhaps best suited for the routine care demographic.

### *Background:*

The Society of Chest Pain Center cites an article from the Journal of Cardiology that explains, “acute myocardial infarction (AMI) is the leading cause of death in the adult population in the United States. Each year, more than five million Americans enter the hospital with chest pain. Of those, 1.25 million will present cardiac distress symptoms and 600,000 will die of heart disease” (2006). As a result, the identification and treatment

of chest pain on any medical level is of the utmost importance. Patients entering either the emergency room or routine care facilities exhibiting chest pain symptoms immediately necessitate attention. This study examines the thoroughness of this examinations and the effectiveness of those methodologies. The sheer magnitude and scope of individuals affected by chest pain makes this clinical question extremely significant.

*Objectives:*

The objective of the research collection is to identify those factors that influence the outcomes of patients visiting the emergency room and routine health care facilities with chest pain. By looking at those factors, judgments and assessments can be made regarding which treatment is more efficient and which has the better track record. Rather than pitting one against the other; however, the point of this research is to evaluate when it is more suitable to use one over the other, as they are both necessary components in the health care model. Essentially, it can be accurately stated that the methodology for assessing this question will include analysis of the selected sources with a critical comparison of their results and conclusions.

*Methods:*

The strategy employed for finding suitable sources for this study first included a critical break down of the dynamics associated with the clinical problem selected. In this capacity, the following key words or sub contexts were identified: emergency room care, routine care, and chest pain. Studies that actually compare the two structures were few and far between, as a result, finding suitable sources was best accomplished through

looking at chest pain from a routine care and emergency care perspective separately. This style of research collection left the comparison aspect up to the discretion of the research gatherer. No clear conclusion based elements were offered for the specific research question by the research; however, the statistics and information presented clearly inferred and reflected elements that could be used to logically access the outcomes necessary for completion of the study.

*Search Strategies Employed:*

To search out for suitable articles, the research sought out was a culmination of scholarly data bases and routine Internet searches. Most of the material was gathered through the Questia database and Proquest data base. In terms of the Internet searches, scholarly articles and reputable websites can be found, however, the exclusionary process necessitates a critical eye to pass over sources that are not of the utmost reliability. In general, sources that were blatantly slanted, did not come from confirmed data bases or that were generally introducing unrelated demographics to the study were excluded in favor of the six selected sources.

*Description of Studies Table Format:*

Research/Articles	Methods	Description
Morreim, E. (1995). "Lifestyles of the risky and infamous." <i>The Hastings Center Report</i> . Vol. 25, pg 5 – 7.  Scholarly Journal Article Review Located: Questia	The methods of this study are focal on one particular situation where questions of routine care efficiency are brought into play. From a litigation standpoint, the patient's family felt that the treatment was sub par and the doctors	This work analyzes the role of a routine care organization in the death of a man reporting chest pain. Essentially, the work chronicles a malpractice suit that occurred even though the patient refused all instructions given by

	<p>feel that they did the best in dealing with a patient who took no active role in prevention.</p>	<p>the doctor including when to seek emergency medical care.</p>
<p>“About.” (2006). <i>Society of Chest Pain Centers</i>. Retrieved April 11, 2007 from <a href="http://www.sccpc.org/about/index.html">http://www.sccpc.org/about/index.html</a></p> <p>Established Reputable Internet Source Located: Internet Search</p>	<p>The article draws on a plethora of preexisting research to arrive at several hypotheses rather than conducting a singular new study.</p> <p>Among those sources cited include: The American Journal of Cardiology.</p> <p>The strength of this work is its broad statistical analysis. In contrast, the weakness of the work is lack of new research and specificity.</p>	<p>Each year, more than five million Americans enter the hospital with chest pain. Of those, 1.25 million will present cardiac distress symptoms and 600,000 will die of heart disease.</p> <p>This article uses statistics like the one above to trace the current state of medical care and how it relates to chest pain.</p>
<p>“Computer Analyzes Cause of Chest Pain.” (1996). <i>USA Today</i>. Vol. 125.</p> <p>Newspaper Article and Study Examination Located: Questia</p>	<p>The methods utilized in this article quantitative and qualitative measures that examine the effectiveness of a particular software that helps gage chest pain severity and causation.</p> <p>The article sites the actual studies</p>	<p>This article examines how ERs are using a new software to help diagnose chest pain issues effectively on the emergency level. The availability of this software is helping the efficiency of ER’s however; it is still</p>

	<p>conducted by the company prior to its introduction on to the market.</p> <p>Though it can be stated that the company's statistics could be less than reliable, the introduction of the product in to ERs and its acceptance by the medical community demonstrates a positive degree of reliability.</p>	<p>widely unavailable to routine care facilities.</p>
<p>“Waiting for care with an average ER visit topping three hours, hospitals are beginning to find ways to treat patients faster.” (2006). <i>Daily Herald</i>. Arlington Heights, IL.</p> <p>Newspaper Article and Study Examination Located: Questia</p>	<p>This article examines several case studies where long ER visits were detrimental to patients with a variety of ailments.</p> <p>In the case of Chest pain, a woman actually died waiting for care.</p> <p>While many of the articles generally agree that ER treatment for Chest Pain is more reliable than routine care, ERs are far from infallible.</p>	<p>This article chronicles a woman that entered the ER with chest pain that was forced to wait over two hours for treatment. In the time she was waiting, she actually collapsed and died of a massive heart attack.</p>
<p>Gorenberg, M. A. Marmor and H. Rotstein. (2005). “Detection of chest pain of non-cardiac origin a the emergency room by new non invasive device avoiding unnecessary admission to hospital.” <i>Emergency Med</i>. Retrieved April 11, 2007 from <a href="http://emj.bmj.com/cgi/content/abstract/22/7/486">http://emj.bmj.com/cgi/content/abstract/22/7/486</a></p>	<p>This original experimental research followed 85 patients entering the ER with chest pain to assess the process in which the individuals underwent as a result of their symptoms.</p>	<p>The Article found that “Preliminary findings suggest that nearly 40% of patients presenting with acute chest pain could be spared the risks and costs of unnecessary hospital admission and</p>

<p>Scholarly Journal Study on the Internet Located: Internet Search</p>	<p>In addition, it makes value based judgments on the effectiveness of the process.</p> <p>This also points out the widespread availability of the application in which they are suggesting to reduce misdiagnosis or lengthy diagnosis times.</p>	<p>more invasive cardiac testing by simply adding a easy to use, immediately obtained, test to the diagnostic protocol, and using a threshold of <math>dP/dt_{ejc} &gt; 150</math> to rule out heart attack”</p>
<p>Gottfried, J. and F. Sloan. (2002). “The quality of managed care: evidence from medical literature.” <i>Law and Contemporary Problems</i>, Vol. 65. p. 103-107.</p> <p>Scholarly Journal Article Review. Located: Questia</p>	<p>This particular study analyzes a number of routine care facilities in which they divide into 3 distinct categories.</p> <p>The analysis looks at the relation between cost, and medical insurance and how those factors play into health care treatment.</p> <p>In all capacities, the work is fairly unbiased and makes logical conclusions based on the information found and presented.</p>	<p>This study found that routine care facilities, based on their reliance on HMO’s and other dynamics are not created equal even among their own delineations.</p> <p>In addition, the extra steps necessary for the care in situations like chest pain, actually make their inherent make up more problematic for treating problems where time is of the essence.</p>

*Overall Study Results:*

The general results of the overall material gathered made several critical findings. Specifically, these findings can be identified as: a greater success rate for heart attack related chest pains in the ER setting, a high propensity for misdiagnosis in both settings,

new measures being found to increase diagnosis success rates and fallible conditions that exist in both circumstances. To break down these generalities it is best to examine each one within their respective contexts.

E. Morreim's *Hastings Center Report*, titled "Lifestyles of the Risky and Infamous," analyzes a case study that pits prevention and routine care against a family that feels their member was not cared for adequately for his chest pains. Malpractice suits are generally of a high propensity in cases of chest pain diagnosis. The doctor, in this particular malpractice suit alleges that "this patient had effectively committed suicide, based on his years of refusal to take his medications, eat properly, exercise, and quit smoking" (Morreim, 1995, p. 5). This research article essentially illustrates the items that are outside of the physicians control in the routine medical capacity.

The Society of Chest Pain Centers provides an all-encompassing report on chest pain care that cites various reputable studying sources to provide a good overall illustration of the entire dynamic of the research question. This study finds that recent advancements in medicine in general have greatly reduced the mortality and successful treatment of chest pain that is actually acute myocardial infarction (AMI) (Society, 2007). Time is of the essence, however, and generally patients wait too long to seek medical care. If a patient is treated within 70 minutes, damage to the heart can be minimized (Society, 2007). As a result, going straight to the ER takes a critical step out of the treatment process in chest pain scenario that is a result of AMI. The study also reports that chest pain is one of the most common complaints of patients entering the ER, however, only 10% -15% with chest pain actually have AMI. Of these, only 4% -13% are released from the ER with

false reassurance (Society, 2007).

The USA today article, “Computer Analyzes Cause of Chest Pain,” discusses a new software application for better diagnosing chest pains in a clinical setting. According to the study, about 3% of ER room patients who are having heart attacks are misdiagnosed and sent home (USA, 1996). In this capacity, software that works with an electrocardiograph may help lower that already low percentage. According to the study, “The computations of the Acute Cardiac Ischemia Time-Insensitive Predictive Instrument (ACI-TIPI), based on analysis of more than 2,000 ER patients, have been tested several times, including a national trial with 10,785 patients in 10 hospitals” (USA, 1996). In this capacity, the software is a proven commodity for lowering misdiagnosis results.

As the second of two newspaper articles used, the Daily Herald study on emergency room waiting times makes a startling discovery. According to the work, the average ER visit in the United States is three hours (Daily, 2006). While many individuals would like to think that this is only in situations that staff has declared a “non emergency,” this is not the case. The article sites a circumstance where a woman entered the ER with chest pains. After being told to wait, two hours later she had a massive heart attack and died while waiting for help (Daily, 2006). Though the other articles report a low misdiagnosis rate for ER’s, the long waits make them not an infallible structure.

The Gorenberg, Marmor and Rotstein study analyzes the detection of chest pain of non-cardiac origin in their analysis of ER procedure. The researchers followed 85 patients checking into the ER with chest pains. In 72 patients, after 24 hours of admission AMI was ruled out in their cases. Specifically, their study suggests that nearly 40% of



patients presenting with acute chest pain could be spared the risks and costs of unnecessary hospital admission by simply adding easy to use diagnostic tools and protocol (Gorenber, Marmor & Rotstein, 2005). It is important to note that the researchers conclude that these “diagnostic tools and protocol” are widely available for ER and routine care applications.

The study by Gottfried and Sloan examined problematic occurrences in routine care facilities and rated them according to three separate demographics of routine care facilities. This work, like that of Gorenberg, Marmor and Rotstein is the second component of original research experimentation utilized in the review of literature. Essentially, the work found that routine health care facilities, based on their reliance on HMO’s and other dynamics are not created equal even their own delineations. Matters like chest pain, as a result of payment considerations verses necessary speed make these facilities less equipped to handle potential problematic chest pain scenarios than their ER counterparts (Gottfried and Sloan, 2002).

In terms of new research for the analytical study, the Gottfried and Sloan experiment and the Gorenberg, Marmor and Rotstein add important components to the research in terms of originality. In these two studies, however, their results are limited to situational aspects that they analyze to make their conclusions. Some of the other studies included that rely on comprehensive analysis of preexisting research offer more multi dimensional perspectives. While this can be positive in some regards, the information can also have been selected with bias or a preconceived conclusion in mind that would not be present in the original research. In terms of selecting the research, a fundamental mix was chosen to

lessen potential problems with validity issues.

*Conclusions:*

In terms of a direct comparison, for chest pain scenarios that are a result of AMI, the ER is a more efficient demographic for effectively treating the problem. On the other hand, in cases where AMI is not present, which is most scenarios, either the ER or routine care facility would be sufficient. On the other hand, only a qualified physician can make such an assessment and a patient going to routine care first could actually be wasting valuable time as a result of the afore mention dynamics associated with routine care payment considerations. Specifically, within the context of the ER, misdiagnosis is rare, however, it continually needs to be minimized for most efficient practice. In addition, the long waits can have adverse affects as in the case of the woman actually dying while waiting for treatment.

In terms of the research collected, the results of each study add an element towards these conclusions. In terms of conflict, there is little or no conflict between the general findings of the studies. In terms of quantitative variables, there is some fluctuation, however, it is not enough to influence the results or the conclusion leanings. Essentially, the results of the research do indicated a necessity for some practice changes.

*Recommendations for Practice Change:*

Essentially, the practices that need changed in regards to chest pain evaluations for ERs and routine care facilities are reduced frequencies of misdiagnosis and more speed in terms of care. These two dynamics are universal for both facilities and both of the demographics have indicated a need for improvement in these areas based on the research

presented. In terms of reducing the frequency of misdiagnosis, the research has already indicated that employing software and methods that are available to the medical community can greatly aid in proper diagnosis.

In this capacity, it would be easy to evaluate whether or not facilities are equipped with this technology and to see whether or not they are using these strategies. Checking on the implementation of these procedures four times a year in selected ER and routine care facilities could be a strong tool for evaluating whether or not improvement is occurring. For the ERs specifically, quick and accurate diagnosis will also reduce waiting times inadvertently. Fixing the “Red tape” related problems of pricing and routine health care could also reduce waiting times in ERs because many non-emergency patients go to the ER when they are unable to pay a routine health care official. This problem, however, needs to be fixed on a legislative level and fully attacking this problem is beyond the means and disposal of ER units or routine health care facilities.

*References*

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