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Barriers to Pediatric Triage Guideline Compliance: A Survey of Nebraska Emergency Departments

Jonathon J. Gruba
University of Nebraska Medical Center

BARRIERS TO PEDIATRIC TRIAGE GUIDELINE COMPLIANCE: A SURVEY OF NEBRASKA EMERGENCY DEPARTMENTS.

by

Jonathon Gruba

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Advisory Committee:
Sharon J. Medcalf, Ph.D. Theodore Cieslak, M.D.
Philip W. Smith, M.D.

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BARRIERS TO PEDIATRTIC TRIAGE GUIDELINE COMPLIANCE: A SURVEY OF NEBRASKA HOSPITALS

Jonathon J. Gruba, M.S.

University of Nebraska Medical Center, 2016

Advisor: Sharon J. Medcalf, Ph.D.

Nebraska emergency departments may be underprepared for a mass casualty event involving a large number of children, as indicated by the results from the 2013 Emergency Medical Services for Children's (EMSC) Pediatric Readiness Project (PRP) report. This was primarily evident by the lack of existence of a pediatric triage policy among Nebraska emergency departments. Utilizing a survey, this study attempted to identify the emergency departments in Nebraska that followed the EMSC guideline of having a pediatric triage policy, as well as to identify possible barriers to guideline adherence among those that did not have the policy.

It was found that Critical Access Hospitals (CAHs) were statistically less likely to have a pediatric triage policy. Furthermore, there was a statistically significant correlation between awareness of the policy and existence of the policy. Among hospitals that did not have a pediatric triage policy, lack of staff time and limited knowledge of pediatric triage were the most often indicated barriers, while financial limitations were less frequently indicated.

It is our anticipation that the results of this study will be used by EMSC and Nebraskan hospitals to increase pediatric triage guideline adherence in emergency departments.

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Introduction

Crises that affect large numbers of people and go beyond regular activities in hospital emergency departments (EDs) have the potential to stress and possibly overwhelm resources and staff. A rapid increase of patients creates an environment where prompt identification of multiple immediate needs, and required treatment, is critical. In such instances, triage may be instituted to fit the needs of the situation (Ramesh & Kumar, 2010).

Children, (defined here as those persons under the age of 18 years), who make up around one-fourth of the US population, are often disproportionality affected in disasters, and can account for almost half of the population who are impaired by disasters (Ablah, Tinius, & Konda, 2009). Due to their particular physiological and cognitive characteristics, the strain on an ED responding to a disaster can be felt even more acutely when children are part of the affected population.

There are characteristics specific to children that make them more susceptible to the negative effects of disasters than the adults. The most obvious, is that they are smaller, making them less resistant to crush injuries and hindering their ability to run or escape from disaster (Markenson, Reynolds, American Academy of Pediatrics Committee on Pediatric Emergency Medicine, & Task Force on Terrorism, 2006). However, there are many less recognizable physiognomies that contribute to their vulnerability during disasters. For instance, they have a smaller amount of blood circulating in their bodies, predisposing them to any affects felt from cold (e.g. cold

water decontamination). Also, relative to their body mass, they have a larger surface area, which places them at greater risk of evaporative heat loss and rapid decline in body temperature in cold temperatures (AAP, 2016). This unbalanced body mass to surface ratio also creates a disproportionately smaller threshold for chemical exposure tolerance, especially for the extremely young (< 1 year), as their skin is also thinner and less-well keratinized. This makes it more likely that dermally-active toxins could penetrate the skin and similarly renders children more prone to transdermal heat loss.(Markenson et al., 2006) Children have a higher respiration rate than adults, creating a critical handicap for children in disaster involving agents that can be inhaled (radiological, chemical). Cognitively, children are much less likely to make rational decisions for self-preservation in the event of a disaster and are also at higher risk for developing post-traumatic stress disorder. (Markenson et al., 2006). These differences between children and adults require additional attention when planning for disaster response in hospital emergency departments.

According to Burke et al., in order to increase the success rate of treating children in an event resulting in mass casualties, the specific attributes and susceptibilities of children must be fully accounted for (2010). Children (especially the very young) may not be able to respond or articulate their degree of injury or sickness during triage. Also, triage based on pulse rates and respiratory activity must account for variability among children of different ages. These are some of the many differences that must be considered when triaging pediatric patients. Algorithms have been created for the purpose of assessing children during triage. For instance, the JumpSTART pediatric

triage algorithm provides assessment criteria (including respiratory rate) to assign children to the appropriate triage category (U.S Department of Health & Human Resources, 2011). To these points, some authors have concluded these specific triage algorithms should be in emergency room departments in order to account for the physiologic differences found in children (Ablah et al., 2009; Lynch & Thomas, 2004). Given this information, it stands to reason that a specific pediatric triage policy in emergency departments would be quintessential to proper preparedness planning, across all types of hospitals.

The notion that special considerations are needed for children in disasters is not an entirely new concept. Well before the increased emphasis on preparedness activities following the two significant events of the September 11th, 2001 terrorist attacks, and Hurricane Katrina (2005), organizations had recognized that children were uniquely affected by disasters and specific guidelines were needed to accommodate for these differences. In 1998, a joint effort by the American Academy of Pediatrics, American College of Emergency Medicine, and the Maternal and Child Health Bureau was launched to establish a consensus on proposed guidelines that could be used by Emergency Departments for pediatric disaster preparedness (Gausche-Hill, Schmitz, & Lewis, 2007). In 2001, this collaborative effort led to the publication "Care of Children in the Emergency Department: Guidelines for Preparedness,", which set the framework for current pediatric preparedness in the United States. Outlined in this publication were specific guidelines for EDs to attain the defined benchmarks of pediatric preparedness. These requirements included special clinical equipment, dedicated staff with proper

knowledge and training, as well as the development of specific plans for a sudden surge of pediatric patients that may be seen in the event of a disaster or terrorist attack (American Academy of Pediatrics, Committee on Pediatric Emergency Medicine and American College of Emergency Physicians, and Pediatric Committee, 2001).

The above mentioned and additional organizations continued to take the initiative to refine and direct guidelines for emergency departments. In 2009, the American College of Emergency Physicians, along with the American Academy of Pediatrics Board of Directors and the Emergency Nurses Association released a revised manuscript, entitled "Guidelines for Care of Children in the Emergency Department", which remains the most accepted set of guidelines currently used to drive policy in regards to pediatric preparedness (American College of Emergency Physicians, 2009). The Emergency Medical Services for Children (EMSC), supported by the Health Resources and Services Administration (HRSA), began a systematic effort in 2012 to assess the level of pediatric preparedness across the United States, based on these guidelines. One such endeavor sponsored by EMSC, the National Pediatric Preparedness Project (PRP), generates feedback from EDs on a statewide basis, assigning them a score (1-100) and comparing the score to the national average. The areas assessed are:

1. *Guidelines for Administration and Coordination*
2. *Physicians, Nurses, and Other Health Care Providers Who Staff the Emergency Department (ED)*
3. *Guidelines for QI/PI in the ED*
4. *Guidelines for Improving Pediatric Patient Safety in the ED*

5. *Guidelines for Policies, Procedures, and Protocols for the ED*
6. *Guidelines for Equipment, Supplies, and Medications for the Care of Pediatric Patents in the ED*

(PRP, 2013)

Of particular concern for this investigation, is the PRP report's *Guidelines for Policies, Procedures and protocols for the ED,* or more specifically, the subsection: *Triage Policy that specifically addresses ill and injured children*. This section of the PRP inquires as to whether an ED has a triage policy in place, specific for children. It does not assess or measure the functionality of the triage policy. Simply put, having any sort of pediatric triage plan in place satisfies the requirements of the PRP (PRP, 2013). In the 2013 PRP report of Nebraska Emergency Departments, which evaluated 87 different hospitals across the state, a discrepancy was found between the score of Nebraska and that of the national average.

In terms of overall pediatric preparedness, which is scored by evaluating an Emergency Department on the level of adherence to all the guidelines mentioned above (including the pediatric triage policy), Nebraska EDs demonstrated relatively poorer pediatric preparedness, scoring a 61 compared to the national average of 69 (out of a 100). In regards to the pediatric triage specific policy, only 33.3% (29) of Nebraska Emergency Departments surveyed (87) had this policy in place, compared to the national average of 57.7% (PRP, 2013). While only 33.3% of Nebraska hospitals having a pediatric triage policy is comparatively low, the national average of only 57.7% having this policy in place is also a cause for concern.

When considering the implication of this report, one must bear in mind that the state of Nebraska is primarily rural. Outside of the larger urban centers of Omaha and Lincoln, hospitals are almost entirely comprised of small *critical access* hospitals (<25 beds). In fact, as outlined by the PRP report, of the 87 hospital assessed, 70 (80%) of the hospitals were identified as low volume (<1800 pediatric patients yearly). Additionally, upon examination of low-volume (i.e. critical access hospitals) at the national level, the PRP National Score of all pediatric preparedness activities is similar to Nebraska, dropping from 69 to 61 (PRP, 2013).

Based on this information, we may make the assumption that it is largely critical access hospitals that do not have a pediatric specific triage policy. Subsequently, speculations can be proposed regarding the reasons why these hospitals do not have the recommended triage plans. For instance, critical access hospitals may have such a low pediatric patient volume that having a specific triage policy is thought to be impractical, or perhaps hospital emergency departments believe that their current triage capabilities will suffice for children as well as adults. Another possibility is that they do not have the resources, or more specifically, staff, with the particular knowledge to form a pediatric triage plan. To elicit a real understanding of the barriers contributing to the low percentage of hospitals having a triage plan, a survey of hospital personnel is an ideal form of generating data on this subject.

Significance of the Study

As outlined earlier, children have a number of physiological and cognitive differences that require special consideration in emergencies, this includes triage activities by hospital emergency departments.

In the United States, there are 5,627 total hospitals, with 1,332 designated as critical access hospitals by the Centers for Medicare and Medicaid Services (CMS). Critical access hospitals account for almost a fourth (23%) of our primary healthcare servers (CMS, 2016). These hospitals provide services for over 62 million Americans, including children, in rural areas (NRHA, 2013). As evidenced by the PRP report, critical access hospitals are much less likely to have a pediatric triage policy in place, despite the EMSC guidelines being no different for critical access vs larger hospitals.

As demonstrated in Figure 1, critical access hospitals are disproportionately distributed in the Midwest. A wide variety of disasters, which would affect adults as well as a large number of children, may occur within any one of these regions. Even if a hospital is very small, and considered by definition “critical access”, it as likely to be the to be the primary point of care in the aftermath of a disaster, as EMS and survivors will generally transport (or self-transport) to the closest known hospital or facility with which they are familiar (Zaritsky, French, Schafermeyer, & Morton, 1994).

Figure 1 - Critical Access Hospitals in the U.S. (RHI, 2015)

The significance of this study bears weight not only for Nebraska, but for regions across the United States that are covered primarily by critical access hospitals. By not having pediatric-specific triage policies in place, critical access emergency departments risk compromising optimal care of children in disasters. To this end, our study hopes to assess barriers at the state level by utilizing a sample taken from Nebraska healthcare providers. The information gained from this study is meant to supplement knowledge of potential barriers of multiple types of hospitals, including critical access hospitals, across the county. Understanding the barriers to guideline observance is the first step to increasing adherence and in turn raising the level of pediatric preparedness. It is our anticipation that such knowledge will be considered by both policy makers, as well as hospital leadership in creating and adhering to the pediatric triage policy guideline.

Research Question:

Our research goal can be defined by the questions: What types of hospitals do not follow the guideline of having pediatric triage policy in place? What are their barriers to observing this guideline? More specifically, we want to examine if it is lack of knowledge of pediatric specific guidelines and their components, lack of external resources, an uncertain interpretation of the benefits of adherence to the guideline or a lack of pediatric preparedness knowledge.

Research Objectives

To examine perceived barriers to pediatric triage policy guideline adherence of hospitals in Nebraska by:

- Identifying those hospitals that lack a pediatric triage policy
- Eliciting opinions from healthcare workers about their respective hospitals, and the barriers faced in the context of pediatric triage policies.
- Identifying key themes and consistent barriers across hospitals and document findings.
- Use findings to provide knowledge intended to supplement decision-making on pediatric triage policy for hospitals across the Nebraska.

Definition of Terms

Critical Access Hospitals – A hospital is considered critical access if it has 25 or fewer acute care inpatient beds; is located more than a 35-mile drive from another hospital; maintains an annual average length of stay of 96 hours or less for acute care patients and provides 24/7 emergency care services (RHI, 2015)

Triage – Sorting based on symptoms, signs and pertinent medical history to assist in the identification of patients with high risk but treatable conditions, so that they may receive the most timely, efficient care (NPR, 2012).

Children – In this study, all individuals aged <18 are considered a child, excluding neo-nates (< 1 month old).

Literature Review

Prior to administering the survey, a literature review was conducted to provide background information on the subject of healthcare pediatric preparedness. The main thematic areas of literature examined were centered on pediatric emergency preparedness, previous, related surveys and assessments of hospitals, and barriers to healthcare guideline compliance. When compared to other areas of research in public health, available literature on healthcare pediatric preparedness, and specifically barriers to pediatric preparedness in hospitals, is limited. The proposed study will be the first to evaluate barriers to the development and promulgation of pediatric triage policy in emergency departments.

PubMed and Google Scholar were the search engines used for the literature review. Key search terms were developed in order to outline the scope of the literature to include in the review. These terms included combinations of the following keywords, “pediatric”, “children” “hospital”, “healthcare”, “preparedness”, “triage”, “emergency department”, “assessment”, “barriers”, “guideline” and “adherence”. Significance of literature was assessed by the extent in which healthcare personnel knowledge and training in pediatric preparedness were evaluated, as well as the amount of detail

describing barriers to guideline compliance in healthcare settings. Literature that evaluated only the physical components to pediatric preparedness (i.e. equipment), or that examined barriers to policies in non-healthcare settings, was excluded. In the literature review, 16 documents were found to be relevant to the purpose of our study. Eleven of these pertained primarily to pediatric preparedness and barriers to preparedness. Five documents were found and used to review and assess barriers to policy adherence in healthcare settings. Of the 11 studies regarding pediatric preparedness, six were surveys, while the other five used a variety of methods to assess different aspects of pediatric preparedness in hospital emergency departments. Of the literature reviewed, three of the pediatric surveys and three studies regarding barriers to policy adherence in health care were considered the most significant and were examined and thoroughly documented.

Largely, the results from the selected literature found agreement in that the majority of hospitals are lacking in many forms of pediatric preparedness, including triage. These studies also offered insight into why a lack of preparedness may be occurring, including possible barriers. For instance, Athey et. al., found a significant lack of pediatric expertise in non-pediatric hospitals (Athey, Dean, Ball, Wiebe, & Melese-d'Hospital, 2001). In fact, only 23% of surveyed hospitals had a pediatric emergency physician in house or on call for 24 hours a day. This is despite that a majority of these hospitals (76%) received children in their ED (Athey et al., 2001). While this survey was administered well before the PRP identified the need for a pediatric specific triage, and thus triage was not a focus of the study, the authors cite that such data was highly needed in regards to children entering the healthcare system and triage. In fact, the authors took

the stance that hospitals lacking the available expertise would need to transfer children in an emergency, stating "there are several reasons to believe that critically ill infants and children should be triaged, stabilized, and transferred to facilities with pediatric expertise"(Athey et al., 2001). This statement is indicative of the importance of having a pediatric triage policy in these otherwise underprepared facilities. The rationality of having pediatric triage components in place at all hospitals, regardless of their day to day pediatric volume, is substantiated. This concept is a logical approach to preparedness, even if the main treatment, post-event, will take place at a more specialized hospital.

In another, related study, Martin et. al., submitted a survey to all residency programs in pediatric, family practice, and medicine. This survey assessed the degree of terrorism response training within these programs, with special focus given to pediatric-victim response training. The authors followed up with a second survey to discern barriers to training. It was found that not only were many programs lacking in pediatric specific training (50%), but participants also reported more barriers associated to pediatric specific training than other terrorism response training (Martin, Bush, & Lynch, 2006). Barriers reported (in order of most common) were: "1. Availability of education/time for subject, 2. Funding, 3. Access to subject matter experts or educators, 4. Availability of training material, 5. Lack of interest or need for training, and 6. Other" (Martin et al., 2006). These barriers were considered and incorporated into the design of the survey in our study.

In assessing the level of adherence to guidelines in pediatric preparedness, (Gausche-Hill et al., 2007) found that although many hospitals were lacking in adequate

pediatric specific medical supplies in their ED, of the 1,383 respondents, 1,196 (86%) followed an "illness and injury triage" guideline for children (2007). Half of the respondents identified as rural or remote, and did not see very many children per day (<6) (Gausche-Hill et al., 2007). These statistics contradict what was seen in the PRP 2013 report, as we would expect a much lower adherence to triage guideline adherence in the Gausche-Hill study due to the mentioned rural demographics of the hospitals. We would also expect a higher degree of readiness now (almost 10 years later) and were surprised by the seeming decline of pediatric preparedness. Of note, however, the study also queried EDs as to whether they had a "disaster plan" that addressed the needs of children, in which only 75% of respondents reported having the plan (Gausche-Hill et al., 2007). This percentage is much closer to the results of the PRP report. A possibility is that there is a difference in the semantics and interpretation of these terms between studies, leading to a variance in the number of those who report having the policy. The definitions or components of the terms "illness and triage" and "disaster plan" were not given by the authors (Gausche-Hill et al., 2007).

Gausche-Hill et. al. also discussed possible barriers to guideline observance. According to the authors, barriers to adherence can be seen in three distinctive domains of: knowledge, attitudes and behavior (Gausche-Hill et al., 2007) as cited by a previous study (Cabana et al., 1999).

The barriers to healthcare guideline adherence are not always straightforward or obvious. Barriers can go beyond simply a lack of resources or funding, and can, at times, involve a problem with perceptions of the importance of the guideline. Or as (Cabana et

al., 1999) describes, barriers to guideline adherence can often be attributed to lack of: awareness, knowledge or familiarity, agreement, self-efficacy, outcome expectancy, attitudes, (which includes disbelief in the efficacy of the policy or lack of motivation to subscribe) as well as behavior and external factors (1999) (See Figure 2). Cabana et al.'s focus was on physician adherence to guidelines. In our study, these barriers were applied at the organizational level to identify barriers of pediatric policy in emergency departments.

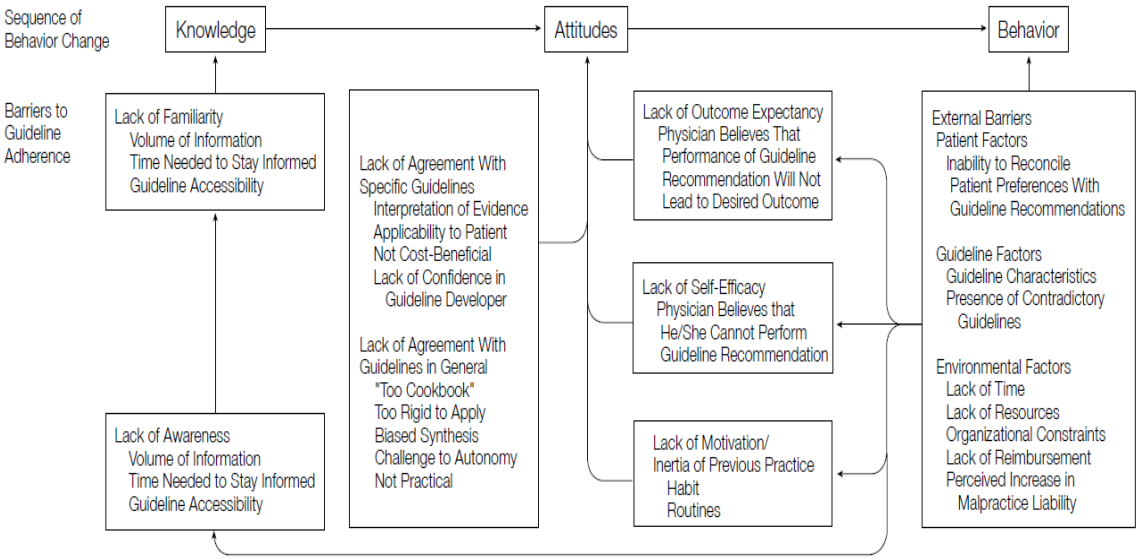
The authors of the Cabana et al. study postulate that the first barrier (awareness), may be due to a lack of awareness of guideline existence (1999). The second barrier described by the authors is a lack of familiarity. This theory stipulates that, although there may be awareness, if there is not familiarity with concepts of the guidelines, the level of adherence may suffer (Cabana et al., 1999). Ascribing to a guideline that one does not fully or scarcely understands, is not practical.

While there may be both awareness and familiarity, a lack of agreement with the guideline can also contribute to a lack of compliance. Moreover, even if there is agreement with the policy, there may be uncertainty with how to properly form and implement this policy in one's respective healthcare setting, or what the authors describe as "lack of self-efficacy" (Cabana et al., 1999).

Another barrier described by the authors is "lack of outcome expectancy", or when the perceived outcome is not improved by guideline adherence. This barrier was considered very common by the authors in their review of literature (Cabana et al., 1999). Many times, a barrier may evolve around the belief that current policy or practice is

thought to be sufficient, or that change is difficult to promote. Cabana et. al, labels this barrier as “inertial of previous practice”, and suggest that although this particular barrier has not been widely examined, it may have a larger impact than is currently realized (1999).

Figure 2 – Categories of Barriers as defined by Cabana et al., (1999)



The former barriers mentioned by the authors are predominantly internally focused, in that they are associated with a lack of change due to internal process and perceptions. The authors also examined external barriers, or barriers that may be out of the control of individuals who are in position to synthesize guideline into practice. Time limitations, non-user friendly guidelines, lack of budget or resources and lack of staff are some mentioned (Cabana et al., 1999).

The barriers described by Cabana et. al. were examined by three other studies, in which two substantiated the findings (Arts, Voncken, Medlock, Abu-Hanna, & van Weert, 2016; Lugtenberg, Burgers, Besters, Han, & Westert, 2011). A third study, claims

that these barriers are not always an accurate framework in discerning reasons for policy non-adherence (Ward et al., 2002). Overall, however, the framework set forth by Cabana et. al. is widely accepted, and was adopted for our study's survey tool.

Methodology

Survey Topic

We first identified possible areas for improvement of pediatric preparedness in emergency departments by inspecting the 2013 Pediatric Preparedness Readiness Project report of Nebraska for any discrepancies. In our review of the report, we found a significant difference between the scores of Nebraska emergency departments and the national average, particularly in regards to the existence of a pediatric triage policy. At the national level, we found that small volume (e.g. critical access) hospitals scored lower in pediatric preparedness.

The information from the PRP led to our research questions: 'What types of hospitals do not have pediatric triage policies? What are their barriers to developing these policies?'. The focus of our survey was built upon the premise of these research questions. No questionnaires exist in peer reviewed literature to answer the research questions in this study, so a survey tool was developed.

Survey Sample

This survey was administered to all hospitals in the state of Nebraska, excluding Children's Hospital and Medical Center (the only children's hospital in Nebraska). The

contact list for our study was obtained through the state EMSC coordinator. Utilizing the most recent contact list available through the Nebraska EMSC coordinator, our survey was sent to the same personnel that completed the PRP report. (i.e. emergency department nurse managers, nurse supervisors, and directors). There were a total of 86 hospitals in Nebraska who received the survey.

Survey Instrument

Our survey questions were formed by examination of relevant literature. Through the literature, we identified thematic areas, or areas of concern, and applied them to the scope and intention of our study. The thematic areas extracted from the literature resulted in survey questions about: demographics (urban vs rural, size of hospital, patients seen annually etc), opinions of pediatric preparedness in general, awareness or knowledge of the pediatric triage policy, perceptions and opinions in regards to the policy, perceived efficacy of having the policy, and external barriers (including staff time and training constraints). An array of both dichotomous (yes or no), as well as Likert scaled questions were included in the survey. The close-ended survey design was chosen to provide strictly quantitative data for analysis. There were 20 questions, with five questions pertaining to demographics, and the remainder were knowledge or opinion based.

Survey Monkey was used to collect responses. The link to the survey was sent electronically via email to all non-children's hospitals in Nebraska by the EMSC state coordinator. The respondents were also sent a hard copy (via file attachment) of the survey if they wished to complete the survey through a different means (i.e. not through Survey Monkey). Those who preferred this method were instructed to email or fax the

completed survey to either the EMSC coordinator or the investigator of this study and responses were manually entered into the Survey Monkey database. The survey was open for two weeks, with a reminder sent at one week after the first email to increase response rate. Only one person per facility received the survey. This was done in order to eliminate multiple responses to the survey from the same hospital. All recipients of the survey were notified that all answers will be kept confidential.

Results

Descriptive Analysis

Statistical Software for Social Sciences (SPSS) software was employed in the analysis of response data. Of the 86 Nebraskan hospitals sent the survey, 35 respondents completed the survey (41% response rate). Descriptive statistics were used to examine frequency of hospital responses to all survey questions.

In regards to geographical setting, 45.7% hospitals were rural, 45.7% hospitals were from a town with a population of 2,500 to 50,000 and only 8.6% hospitals were from an urban area of more than 50,000 people (See Figure 3).

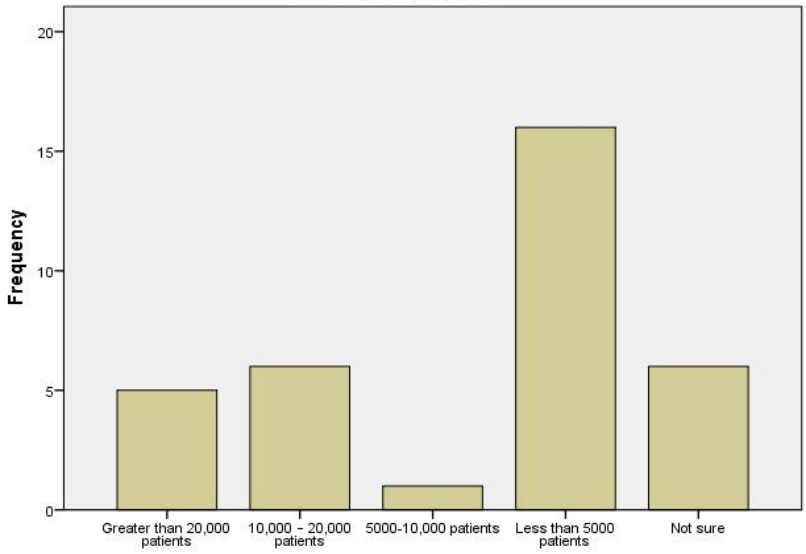
Figure 3 – Hospital Demographics

Is your hospital:	Frequency	Percent
Urban (in a city with a population of at least 50,000)?	3	8.57
In a town of 2,500-50,000 people?	16	45.71
Rural	16	45.71
Total	35	100.0

Two types of patient volume were considered as possible predictors of guidline adherence; patient volume of all ages, and pediatric-only volume. In regards to patient volume of all ages, five reported having an annual patient volume of

over 20,000 patients, six reported an annual patient volume of 10,000-20,000 patients, and one reported having 5,000-10,000 patients annually. The majority reported less than 5,000 annual patients, with 16 reporting within this range (See Figure 3). Six were unsure of their annual patient volume. When asked about their annual pediatric volume, 26 hospitals reported a low pediatric volume (<1,800/yearly), and six reported a medium volume of pediatric patients (1,800-4,999/yearly). None of those surveyed reported a medium high annual pediatric volume (10,000-20,000/yearly) or high volume (>20,000/yearly).

Figure 4 – Frequencies of Patient Volume (of all ages)



Pertaining to awareness of the organization Emergency Medical Services for Children (EMCS), 16 were aware and 19 were unaware of the organization. Eight of the 16 that were aware of EMSC participated in EMSC practices (i.e. following guidelines, communication with EMSC).

Figure 5 - Critical Access & Policy Comparison

(P-Value = .029)		Triage Policy		
		Yes	No	Total
Critical Access Hospital	Yes	3	21	24
	No	4	3	7
	Total	7	24	31

The remaining hospitals either did not participate or were unsure of their participation in EMSC activities. Nineteen hospitals were aware of the National Pediatric Preparedness Project (NRP) guidelines regarding the need for pediatric triage policy. Fifteen were unaware and one respondent skipped the question.

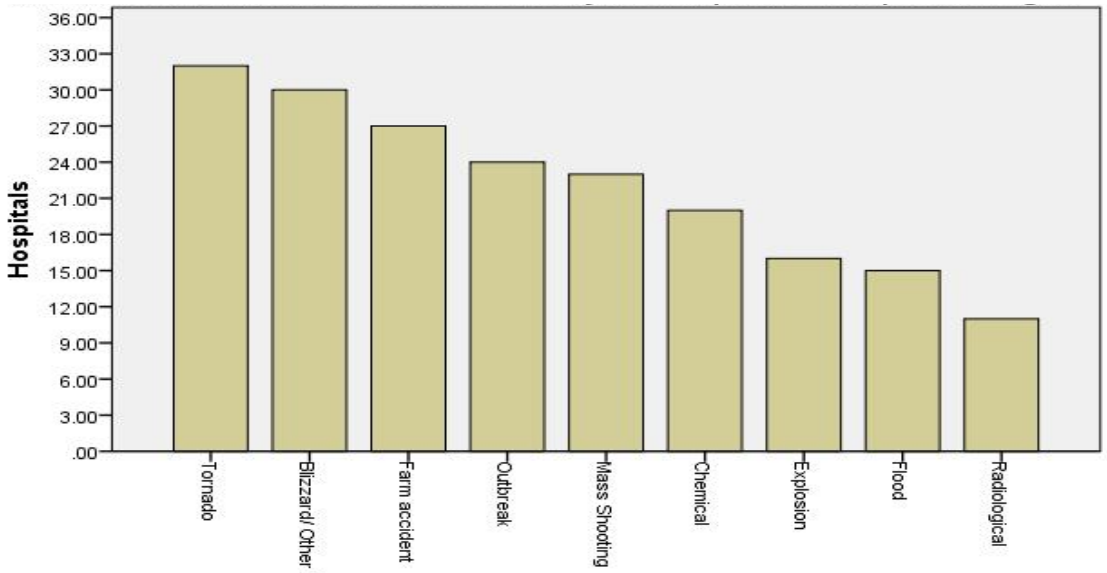
In order to identify and compare barriers to triage compliance, the pediatric-specific triage policy status of surveyed hospitals was examined. Only seven emergency departments (EDs) had a pediatric triage policy, while 25 did not. Two were unsure if their Emergency Department had a policy. Because there was a disproportionate amount of hospitals that did not have a pediatric triage policy, comparison data between hospitals of different policy status was limited.

Of the hospitals 35 who completed the survey, 24 were Critical Access Hospitals (CAHs), seven were not (2 did not respond to this question). Of the 24 CAHs, only three had a pediatric policy in their emergency department (see figure 5), two respondents were unsure if they had a pediatric policy.

All respondents either strongly agreed or agreed that an event involving a large number of children could take place in their respective areas. Following this question, participants were then asked to select specific disasters that could affect a large number of children in their area. (see figure 6).

The most common events listed were “Tornadoes” and “Blizzards or other extreme weather” (32 and 30, respectively). Next was “Farming accidents” (27), followed by “Infectious disease outbreaks” (24), “Mass shootings” (23), and “Chemical disasters, including terrorism” (21). Those listed as least likely to occur were “Explosive trauma, including terrorism” (17), “Floods (16) and “Radiological disasters, including terrorism”, with only ten listing this as a possible scenario in their region.

Figure 6 - Disasters Considered Possible to Occur by NE Hospitals in Respective Region.



The attitudes of hospital personnel in regards to the effectiveness of the concerned policy was also explored in this study. Accordingly, participants were asked if they believed that pediatric preparedness is an essential component of any hospital, regardless of its size or number of children it cares for. Participants were also asked if they believed that children require a pediatric specific triage policy in the event of a mass casualty scenario. All either listed that they strongly agreed (21) or agreed (12) that pediatric preparedness is essential for any hospital. All but one participant agreed that children require a specific triage policy (see figure 6).

A main component of this study was to identify patterns of perceived barriers among those who do not have a pediatric triage policy. Opinions regarding pediatric triage policy were asked explicitly of hospital personnel who did not have the policy in their EDs. As stated earlier, 25 hospitals fit this criteria, with two being unsure if their ED had a policy. Most (18) either agreed or strongly agreed that lack of staff time was limiting their hospital's ability to create a pediatric triage policy, seven disagreed that time was the issue. The majority (18) also agreed that lack of staff familiarity with pediatric triage was a limiting factor, while nine either strongly disagreed or disagreed with this statement. When asked if they were uncertain of who would be responsible for the creation of the policy in their facility, nine hospital personnel were in agreement, while the majority (16) disagreed. Only four respondents agreed to the statement that "resources would be better spent in other areas of hospital activities", 20 disagreed with this statement. Seven agreed that lack of financial support was a factor of policy creation, while 17 disagreed that this was the issue. Hospital personnel were asked if they believed their current triage policy was sufficient for children, and 20 agreed that it was. Fifteen agreed that a pediatric triage policy would change the outcome of children's health in the event of a disaster, eight disagreed to this statement. Of note, those who agreed with the statement that pediatric specific policy would change the outcome of children's health (15), half agreed that their non-pediatric policy was sufficient for children.

Figure 7 - Counts and Percentages of Variables of Interest

Contingency Table -- Opinions

	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
All Participants (35)					
Disaster could occur in my area	11 (34.4%)	20 (57.1%)	0	1(2.9%)	0

Pediatric preparedness is essential	21 (63.6%)	12 (34.4%)	0	0	0
Children require specific triage policy	13 (37.1%)	17 (48.6%)	0	1(3.2%)	0
Do Not have pediatric specific triage (25)					
Policy would change outcome	2 (8.7%)	13 (56.5%)	0	7 (20.0%)	1 (4.2%)
My current triage is sufficient	0	14 (40.0%)	2 (5.7%)	7 (20.0%)	1(4.2%)
Aware of Specific Components	1 (4.2%)	6 (17.1%)	0	16 (66.7%)	1 (4.2%)
Aware of Pediatric Triage Tools	4 (16.7%)	5 (20.8%)	0	11 (45.8%)	4 (16.7%)
Lack of Time	5 (20.0%)	13 (52.0%)	0	6 (24.0%)	1 (4.0%)
Lack of Familiarity	3 (12.5%)	12 (50.0%)	0	7 (29.2%)	2 (8.3%)
Lack of Financial Resources	0	7 (29.2%)	0	14 (58.3%)	3(12.5%)
Unsure who is responsible for implementation	2 (5.7%)	7 (28.0%)	0	12 (48.0%)	4 (16.0%)
Resources are Better Spent Elsewhere	0	4 (16.7%)	0	20 (83.3%)	0
Policy Will Change the Outcome of Children's Health	2 (8.7%)	13 (56.5%)	0	7 (30.4%)	1 (4.2%)
Welcome EMSC Help	10 (40.0 %)	13 (52.0%)	0	2 (8.0%)	0

Bivariate Analysis

Statistical analysis utilizing the Chi-Square and Fishers Exact tests was used to identify correlations between independent variables and pediatric triage policy existence (dependent variable). A p-value of .05 or less was considered significant (two sided). As

the expected counts were less than five in some comparison cells due to a relatively small sample size, Fischer's Exact Test was used to measure possible correlations between variables when considered appropriate. In order to use Fischer's Exact Test, the two responses of "I am unsure if my facility has a pediatric triage policy" in the pediatric triage policy variable of were removed for analysis. Regression analysis for predictor variables was not performed due to the low counts in non-critical access hospitals and pediatric triage adherence categories.

There was a statistically significant correlation between hospitals classified as Critical Access, and the existence of a pediatric triage policy therein. There was also a statistically significant correlation between hospitals that indicated an awareness of a pediatric policy and the existence of pediatric policy therein (see figure 8).

Figure 8 – Statistical Correlation of all Variables to Pediatric Policy Status

Independent Variables	**Have a Pediatric Triage Policy (Dependent Variable)**
Demographics and Awareness of Hospitals	**P-Value (α = .05)**
Setting (Urban, Town etc.)	.422
Critical Access Status	.029^*
Patient volume (all ages)	.264
Pediatric patient volume	1.00^
Awareness of EMSC	1.00^
EMSC participation	.069
Awareness of triage policy	.025^*
Opinions of Hospitals	
Pediatric preparedness is an essential component of any hospital	.409
Children require specific triage policy	.357^

^ Indicates Fischer's Exact Test was used.
*** Indicates statistically significant correlation.**

Discussion

The results from this study indicate a number of factors contributing to lack of policy in Nebraska emergency departments. We can speculate about these results to further reveal their importance as barriers to guideline adherence. It is our anticipation that the results and discourse of this study will provide guidance for future decision making, and is a first step in a complex process of increasing adherence to the policy.

This survey asked hospital personnel specifically about their perception of possible disasters that may affect their area. These questions offered insight into what disasters respondents thought could occur in their area. All of the disasters specified in the survey were considered as possible occurrences in the Midwest regions of the U.S, in both rural and urban settings. Other disasters, such as earthquakes, tsunamis, or hurricanes were not administered in this survey and not considered a risk due to the geographic placement of Nebraska. Responses to this question could vary to depending on the knowledge of the Hazard Vulnerability Assessment (HVA) done in their respective region, town or city.

Tornadoes, blizzards and other extreme weather events were the most frequently identified disasters, followed closely by farming accidents. Tornadoes, blizzards and other extreme weather, have the propensity to cause large scale damage, injury or loss of life. In Nebraska, there is an annual average of 57 tornados (National Oceanic and Atmospheric Administration, 2010). In recent decades, the number of blizzards annually has increased, doubling in incidence from 1960 to 2000, with the most likely states to be affected being North Dakota, South Dakota, and Nebraska. (Schwarts, Robert M., Schmidlin, Thomas W., 2001). According to a report issued by the Center for Disease

Control (CDC), severe weather was the cause of 10,649 deaths during 2006-2010 (approximately 2,000 deaths per year) (Berko, Ingram, Saha, & Parker, 2014). The significance of severe weather as a threat to children was demonstrated in March of 2013, when a tornado struck the town of Moore, Oklahoma, and devastated an elementary school. Reports claim there were over 200 injuries, including 70 children. Among the 24 confirmed casualties, nine were children (Fernandez & Healy, 2013). In this study, the agreement among the majority of hospitals that these events could endanger the health of a large amount of children is credible and should be included when considering relevant emergency department policies in Nebraska.

The next most common events listed were infectious disease outbreak and mass shootings. Infectious disease outbreaks have continued to be a cause of concern for public health and healthcare organizations worldwide. The global incidence of outbreaks has increased by threefold in the past three decades (Smith et al., 2014). This includes emerging infectious and novel diseases, (i.e. those that have not been previously seen in human populations) (Smith et. al, 2014). The elderly, as well as children have been found to be at higher risk for complications due to infectious diseases that affect the respiratory system, including viral diseases such as influenza (Hector et. al, 2000). Influenza viruses are often undergoing continuous change due to genetic recombination, and reach almost all populations globally, making them a ubiquitous threat across all regions (Hector et. al, 2000). The results indicate that most surveyed hospitals agree that an infectious disease outbreak may pose a significant threat to children's health. Subsequently, one would expect infectious diseases to be considered when completing preparedness plans, including specific preparedness plans for children in Nebraska.

Recently, the incidence of mass shootings in the U.S. have risen, including attacks specifically aimed at children, such as the Sandy Hook Elementary shooting in 2012, which took the lives of 20 students (ages 6-8) and six adults (Wilson, 2016). It is surprising that not all hospitals consider a mass shooting as a possible event in their area. Where and when such an event will occur is difficult, if not impossible to predict. In a study documenting active shooter events between the years 2000 and 2013, the Federal Bureau of Investigation (FBI) found there were 160 active shooter incidents during this 13-year period. These incidents were most likely to occur in commercial districts, followed by educational districts (PreKindergarten-12th grade), and could occur in rural areas as well urban (Blair, J. Pete, Shweit, , Katherine W., 2014). Not all hospitals considered mass shootings a threat to their area, and one could speculate that some hospitals may believe that their rural location may insulate them against a mass shooting. Evidence indicates that not only do these events take place in rural areas, but also are likely to occur in educational settings, where the primary population is children. We believe that this evidence should provide a strong incentive to raising preparedness in all areas of pediatric focused planning and response, specifically in emergency departments. While the majority of hospital personnel agree that this is a possible scenario, most do not have a pediatric specific policy. Therefore, it can be surmised that those hospitals who feel a mass shooting is a possible scenario, but still do not have a pediatric policy in their emergency department, must have other reasons for not having one.

The events listed by surveyed hospitals as the least likely to occur were flooding, chemical exposure (including terrorism), explosive trauma (terrorism), and radiological exposure (including terrorism). A majority of Nebraskan hospitals do not consider

flooding as a threat, which is substantiated by the fact that most of Nebraska is outside of possible flood zones (U.S. Geological Survey, 2016). However, in certain regions of Nebraska, flooding has led to loss of life, and caused significant structural damage. In August of 2011, a major disaster declaration was issued in Nebraska due to flooding (Federal Emergency Management Agency [FEMA], 2011). The impact of the flooding was felt along the Missouri River, which affected populated areas including Omaha, Nebraska and Sioux City, Iowa. Total, the flooding caused hundreds of millions in damages, and resulted in 5 deaths (Bartels & Spencer, 2012). Across the U.S., flooding causes a higher mortality rate among rural residents than urban, and indiscriminately affects all ages of the population in flood zones, including children (Berko et al., 2014). As such, Nebraskan hospitals serving communities in possible flood zones should include pediatric preparedness in their emergency plans.

Chemical, radiological and explosive events are man-made disasters that are either accidental or purposeful in nature (i.e. terrorism). The results of this survey indicate that many hospitals in Nebraska do not consider accidental causation of these disasters as likely to occur. Results also suggest that most respondents do not consider it likely that a chemical, radiological or explosive terrorist attack, affecting a large number of children, will occur in Nebraska. This perception may be influenced by the notion that terrorism attacks of this nature are often focused in larger metropolitan areas. Nevertheless, rural regions are also vulnerable to terrorism of this nature (Cliff, 2007), and the threat of terrorist organizations targeting rural areas should not be disregarded. An additional reason may be the belief that the terrorist attacks utilizing chemical, radiological and explosive materials primarily target settings where adults make up the

main population (e.g. the 9/11 World Trade Center Attacks, Oklahoma City Bombing) (Redlener, 2005). Yet, children are still casualties of these types of terrorist attacks, even if they are not the primary target. For instance, in the Oklahoma City Bombing in 1995, the primary target was the Alfred P. Murrah Federal Building in Downtown Oklahoma City. One hundred and sixty-seven people lost their lives in the attack, including 19 children (Pfefferbaum et al., 1999). Furthermore, recent events have shown that children are becoming targets in countries such as Russia, Iraq, Nepal and Israel, where terrorist organizations have specifically targeted children (Redlener, 2005). Moreover, it is important to remember that children are more susceptible to the negative effects of radiological and chemical exposure (Markenson et al., 2006). Although the surveyed Nebraskan hospitals consider terrorism activity a low threat to children, the false sense of security may be built upon unfounded assumptions. Therefore, hospitals in Nebraska should consider the possibility of a large scale chemical, radiological or chemical terrorist attack when constructing pediatric preparedness plans.

The results of this section of the survey demonstrate the importance of a critical process in disaster planning; knowing the disasters that are most likely to affect your population, assessing their possible frequency and impact, and then implementing policy and plans to mitigate the disaster. The surveyed hospital personnel were aware that many disasters could occur in their area, potentially affecting a large number of children. They should take such concepts into consideration when they write or review their emergency department policies. It would be expected that they include a pediatric specific triage policy to mitigation these risks. However, the results of this survey indicate that most hospitals in rural areas of Nebraska do not have a policy in place. This may be due to

other barriers identified in this survey, including hospital perceptions of the pediatric triage policy guideline.

Since the inception of the Critical Access program in 1997, the number of hospitals designated as Critical Access has grown rapidly in the U.S. (Cliff, 2007). Critical Access Hospitals were statistically less likely to have a pediatric policy in our study. The resources available to rural healthcare facilities and Critical Access Hospitals may differ from larger hospitals; including staff, financial, and training availability (Office of Rural Health Policy, Health Resources and Services Administration, 2002). For instance, there is a difference in the ratio of physicians in rural hospitals compared to urban. Hing and Hsiao found that the physician to patient ratio in urban areas was 53.3 per 100,000 people, compared to a rural ratio of only 39.8 (Hing & Hsiao, 2014). This disproportionate ratio of healthcare providers is even more distinct with healthcare specialists, such as pediatricians, where the rural ratio per 100,000 is half of that found in urban settings (American Healthcare Association, 2014). Inherently, critical access hospitals are at a disadvantage when faced with an influx of patients, due to limited bed availability. A shortage of healthcare workers may further limit the ability to respond to crisis, and a small surge of patients could overwhelm staff capabilities. Rural and critical access hospitals also have more financial pressure to operate under normal conditions compared to other hospitals (American Healthcare Association, 2014) . Moreover, preparedness funding for rural and critical access hospitals may not be as available compared to metropolitan hospitals, further limiting preparedness (Cliff, 2007). The limited resources listed above may directly influence a lack of preparedness, including pediatric preparedness in rural and critical access hospitals. Nebraska is primarily a rural

state, and it has a disproportionately greater number of critical access hospitals. It would stand to reason that many Nebraskan hospitals face similar resource restraints.

Although limited to the state of Nebraska, this study provides a glimpse into different perceptions of the impact of disasters on children and how a pediatric policy may be viewed by hospital personnel. While it is interesting to evaluate the differences between hospitals that do have a pediatric policy and those that do not, the most important component of this study may be our discernment of the opinions and characteristics of the hospitals that do not have a pediatric triage policy. This study was designed to not only identify the types of hospitals that do not have a policy, but to also ascertain the barriers to policy adherence perceived by these hospitals.

When looking specifically at hospitals that do not have a pediatric policy, a pattern of perceptions regarding the policy emerged. This was most apparent in the categories of lack of time, familiarity and financial resources.

Most hospitals did not list financial limitations as a reason for noncompliance, but indicated time and pediatric familiarity as barriers. The perception by most hospitals that it is not a lack of financial resources, but rather a lack of time and familiarity contributing to a lack of a pediatric triage policy is an interesting observation. A time constraint could in fact mean a financial limitation, although it was not a perceived barrier by the surveyed hospital personnel. If the major barrier is a lack of time, one could speculate that the hospitals may be short staffed, possibly due the facility being unable to financially support new hires. Although financial restrictions are not directly related to the lack of a policy, it may indirectly influence a hospitals ability to have a policy due to staff

shortage. Another possible reason is a shortage of knowledgeable persons in the application field, and that a scarcity of appropriate professionals is an issue.

The second most common barriers identified were lack of familiarity with pediatric triage and lack of familiarity with the components of a pediatric triage policy. These findings correlate to past studies, which found a lack of pediatric training in non-pediatric specific hospitals. According to (Martin et al., 2006) a large portion of healthcare workers surveyed lacked knowledge in pediatric victim response, particularly for terrorism related events (2006). The authors went on to list lack of education and training as the number one issue regarding insufficient pediatric disaster preparedness (2006). Children who require care are likely to seek it at a pediatric focused facility. Because of this, most hospitals in rural settings may not staff a pediatrician, and the staffed clinicians may not see many children in their hospital, limiting the exposure of pediatric focused care. These factors may contribute to the lack of pediatric specific knowledge of surveyed hospitals in Nebraska. Lack of knowledge and familiarity with pediatric triage and associated resources creates an environment where compliance to pediatric guidelines is unlikely to occur. It would be difficult to create an appropriate pediatric triage policy without the associated knowledge. Similarly, a majority (15) of hospitals reported a lack of familiarity with pediatric triage tools, such as JumpSTART, Pediatric Emergency Severity Index and the Pediatric Assessment Triangle. A lack a familiarity with these tools would limit ones knowledge of the different triage practices between adults and children and perhaps limit a hospital's ability to create a triage policy specific for children. Lack of pediatric specific knowledge could also influence attitudes.

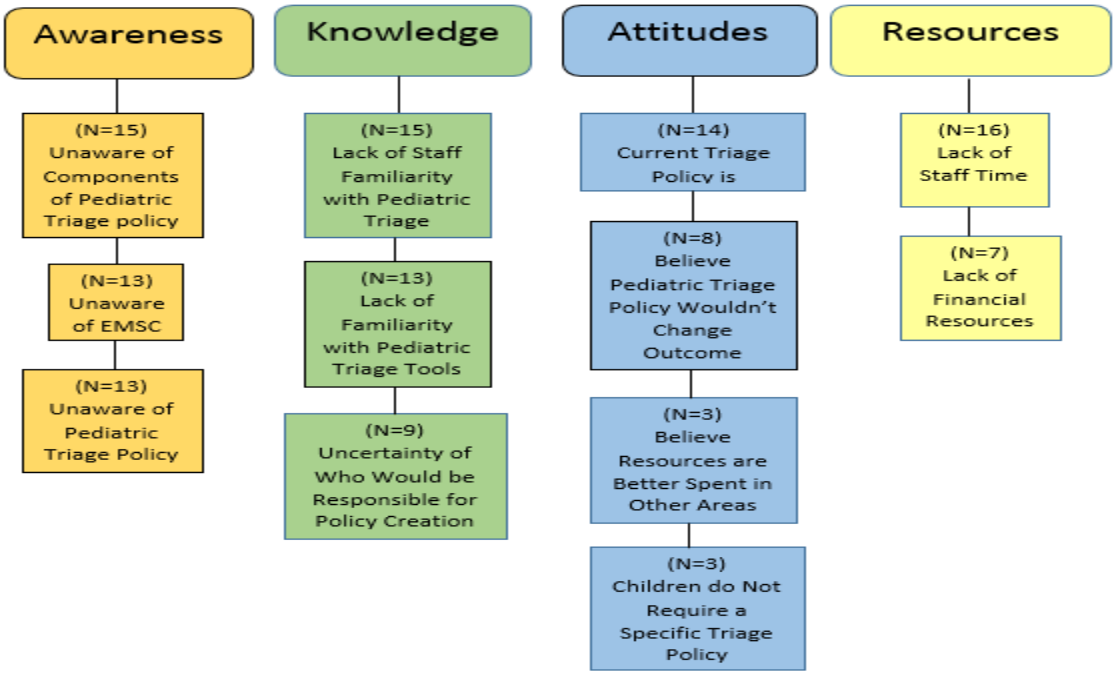
For instance, if there is a lack of knowledge about the differences between pediatric triage and adult triage, the assumption may be that the two are the same in practice.

Attitudes or perception of the effect of guideline also influence compliance. Over half of the hospital personnel surveyed that did not have a pediatric-specific triage policy in their facility assumed their current policy was adequate for both adults and children. All but one hospital agreed that "children require a specific triage policy". The responses to these two questions are conflicting. There may be a difference in the perception of polices on a large scale, or what one believes others need, and what hospitals believe is best for their own facility. In other words, while hospitals view that having a disaster policy in place is a good idea for hospitals in the aggregate, they retain the belief that their hospital can handle such situations without the policy. Cabana et al. describes this perspective as a "lack of outcome expectancy", or the perception that changing the current practices would not improve the outcome.

The perception that a policy would not change the outcome was expected as a barrier in this study. In turn, we included a question to clarify the opinions related to policy outcome. When asked if a pediatric disaster triage policy would change the outcome of children's health in the event of a disaster, almost two-thirds of hospitals responded that they believed it would (see figure 6). The results of this question contradicted that most hospitals believe their non-pediatric triage policy is sufficient for children in a disaster scenario. If this is in fact the case, why would some say they believe that having a policy will change the outcome, that it is necessary, but also believe that their current triage policy is adequate for children in a disaster scenario? Possibly, respondents were confused by these questions, leading to the contradicting answers.

The results of this study identify patterns of barriers to guideline adherence, and are easily integrated in the model proposed by (Cabana et al., 1999). When assessing the answers of all hospitals, we are able to categorize the survey questions into the three following categories: awareness, knowledge, and attitudes and resources. This model follows the Cabela et al. model, with the additional category of resources.

Figure 9 – Identified Barriers Listed in Categories by Significance



This survey provided a small view of hospital personnel perceptions about pediatric triage policy. By applying measures that produce systematic change, we may attain the desired outcome of more hospitals having a pediatric triage policy. The results of this study direct us where such measures should be focused by recognizing the obstacles faced by the majority of hospitals. A better understanding of the limitations faced by healthcare facilities to policy compliance allows for focused problem solving. By realizing the views of key stakeholders (i.e. hospital emergency rooms) in the important process of pediatric preparedness planning, we can also work towards

developing policies and plans that are mutually understood between policy maker and stakeholders.

Recommendations

Each of the identified barriers can influence the outcome of another, as outlined by Cabana et al. (2003). For instance, a significant correlation was found in a hospital's knowledge of the EMSC guideline for utilization of a pediatric specific triage policy and having a policy. An appropriate step would be for EMSC to increase outreach with a focus on informing Nebraska facilities of the guideline and its importance. Increasing awareness of a policy is a critical first step in promoting change and policy compliance. If more hospital personnel were familiar with and participated in EMSC activities, their knowledge and awareness in other aspects related to pediatric triage would increase. Participation may also change the attitudes of healthcare personnel, generating more interest in pediatric guideline adherence.

Likewise, if a hospital recognizes that attitudes of personnel are a contributing factor to policy noncompliance, focusing internally to create a more knowledgeable environment in pediatric aspects of disaster response may positively influence attitudes of pediatric preparedness. Many hospitals who did not have a pediatric triage policy believed that their current triage capabilities were sufficient for children in a disaster scenario. Thus, it would be a practical approach to provide evidence based learning materials about the differences between adult triage and pediatric triage to emergency department personnel. This could be done by eliciting the help EMSC for appropriate materials, as most hospital personnel agreed they would welcome EMSC assistance in creating a pediatric disaster policy.

Shortage of staff and lack of time were an issue, while there was a greater amount of financial resources available. A possible solution would be outsourcing the creation and implementation of a pediatric triage policy. A hospital may contract a professional in the field of pediatrics and disaster preparedness. The contracted professional could construct the policy and also educate hospital emergency department staff about pediatric preparedness and the importance of having a policy.

Limitations

The limited number of completed surveys constituted a limitation of this study. In this sample, only seven hospitals had a pediatric triage policy in place and only seven were non-critical access hospitals. Consequently, statistical analysis was somewhat limited and logistic regression unusable when comparing the existence of a pediatric policy in a facility to some of the independent variables (setting, patient volume etc.). Subsequently, many of the comparison variables found non-significant, might in fact be predictors of policy compliance, if administered on a larger scale.

The type of sample used could also be a limitation of this study. This survey was sent to hospital personnel in various roles of their emergency department. As much of this survey was based on opinions, it could be speculated that opinions may vary depending on who completed the survey, and may not reflect the overall attitude of the hospital.

As our study method was designed for strictly quantitative analysis, we limited the answer options. The only answers available to the recipients are those predetermined

by us to be relevant. By having a qualitative component to this study, we may have been able to identify additional barriers to pediatric guideline compliance.

Future Studies

It would be beneficial to implement this survey on a national scale, to a much larger number of hospitals of various types and sizes. Implementing this survey on a larger scale would not only refute or substantiate the findings of this study, but would provide more data on the nature of barriers to pediatric triage policy in emergency departments across the country. A nationally based survey would allow for increased understanding of barriers at regional or state level for a more focused approach to problem. The PRP report produced by EMSC in Nebraska is completed in all states of the U.S. Therefore, a national based survey could be done by collaborating with all state EMSC coordinators.

Additionally, a study utilizing both qualitative and quantitative data generation may be beneficial in identifying other barriers to policy compliance. Forming a committee of hospital personnel to gain a consensus of the most apparent obstacles would produce a more focused set of survey questions that could then be used for quantitative analysis. Such studies are effective when working with a population with a variety of circumstances and related opinions.

Conclusion

Guidelines and policies are only as effective as the degree of compliance. In Nebraska, a majority of hospitals do not follow the PRP guideline and do not have a pediatric-specific policy in place. This is despite the evidence that children are

disproportionately affected by most disasters and require special considerations during triage. Consequently, the health of children in Nebraska may be adversely affected in the event of a disaster. Nebraska is predominantly a rural state and preparedness is often difficult to implement, but remains critical when considering the health of is residents in a disaster scenario given that disasters do occur in rural settings. The consequences of these disasters could be further compounded by the lack of preparation by hospitals, specifically for children, in Nebraska. Working towards consistent pediatric preparedness despite obstacles is an endeavor worth considerable attention and should be implemented in all future preparedness activities in Nebraska and across the United States.

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Appendix A: Pediatric Triage Survey

Assessment on Barriers to Pediatric Disaster Triage Policy.

As a graduate student who will be using your responses to improve the health of Nebraskan communities, as well as to complete my thesis, I would like to thank you for taking the time to complete this assessment, it is most helpful and appreciated.

Is your hospital:

a. Urban (in a city with a population of at least 50,000)?
b. In a town of 2,500-50,000 people?
c. Rural (in a town or locale with a population less than 2,500)

Is your hospital considered a Critical Access Hospital (CAH)? *(A CAH must have 25 or fewer acute care inpatient beds; It must be located more than a 35 mile drive from another hospital. It must maintain an annual average length of stay of 96 hours or less for acute care patients. It must provide 24/7 emergency care services).*

a. Yes
b. No
c. Not sure

How many total patients (of all ages) does you hospital receive on an annual basis?

a. <5000 patients
b. 5000-10,000 patients
c. 10,000 – 20,000 patients
d. >20,000 patients
e. Not sure

How many pediatric patients does your hospital receive (in all settings: inpatient, outpatient, same-day surgery, etc.) on an annual basis?

a. Low (<1800 patients)
b. Medium (1800-4999 patients)
c. Medium High (5000-9999 patients)
d. High (>=10000 patients)
e. Not sure

Are you aware of the organization “Emergency Medical Services for Children” (EMCS)?

a. Yes
b. No

I. If yes, does your hospital participate in any EMCS sponsored programs?
   a. Yes
   b. No
   c. Not sure

Are you aware of the National Pediatric Readiness Project (NRP) guidelines regarding the need for a pediatric triage policy?

a. Yes
b. No

Does your hospital Emergency Department have a pediatric-specific triage policy in place?

a. Yes
b. No
c. Not sure

Opinions

These questions are intended to survey various opinions of the PRP pediatric triage policy.

An event/disaster may occur in your area that could affect a large number or children.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

I. Check all that Apply
- ☐ Blizzards and other extreme weather
- ☐ Chemical exposure (including terrorism)
- ☐ Explosive trauma (including terrorism)
- ☐ Farm machinery accidents
- ☐ Flood
- ☐ Infectious Disease Outbreaks
- ☐ Mass shooting
- ☐ Radiological exposure (including terrorism)
- ☐ Tornadoes

Pediatric preparedness as a whole is an essential component of any hospital, no matter its size or the number of children it cares for.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

Children require a specific triage plan in the event of mass-casualty scenario.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

If your facility has a Pediatric-Specific triage policy, you are finished with this survey. Thank you for your participation and assistance.

If your facility does NOT have a Pediatric triage policy please continue:

I am aware of the specific components of a pediatric triage policy.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

I am aware of the different pediatric triage tools available for use in an emergency department (e.g. JumpSTART, Pediatric Emergency Severity Index (ESI), Pediatric Assessment Triage ect.)

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

My hospital's current triage system is adequate for both adults and children in a mass-casualty situation.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree
e. This is not a reason for my facility's lack of pediatric triage policy.

It is a lack of financial resources that prevents my hospital from creating pediatric-specific triage policy.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

It is a lack staff familiarity with pediatric triage that prevents your hospital from creating a pediatric triage policy.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

It is a lack of staff time that prevents my hospital from creating a pediatric-specific triage policy.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

I am uncertain who would be responsible for the implementation of a triage-specific policy.

a. Strongly agree
b. Agree
c. Disagree

d. Strongly disagree

I believe that a triage-specific policy would change the outcome of children's health in the event of a disaster.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

I believe that resources and time are better spent in other areas of hospital activities.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

My hospital would welcome EMSC assistance in developing a Pediatric-specific triage policy.

a. Strongly agree
b. Agree
c. Disagree
d. Strongly disagree

You are finished with this survey. Thank you for your participation and assistance.