



Emergency Preparedness Training Perceptions of K-12 School Personnel: A Quantitative Cross- Sectional Study of Two Illinois School Districts

A Dissertation Defense by Robert J. Leahy, Jr.
July 30, 2019

| | |
|---------------------|-------------------------|
| Dissertation Chair: | Tiffany Hamlett, Ph.D. |
| Committee Member: | Donald DeMoulin, Ed.D. |
| Program Chair: | Crystal Neumann, D.B.A. |
| Assistant Provost: | Jerry Ausburn, Ed.D. |

I am Robert J. Leahy, Jr.

Welcome to the presentation and defense of the dissertation Emergency Preparedness Training Perceptions of K-12 School Personnel: A Quantitative Cross-Sectional Study of Two Illinois School Districts.



Introduction

- | | |
|--|--|
| <ul style="list-style-type: none">• September 10, 2017<ul style="list-style-type: none">○ Hurricane Irma○ Schools closed beforehand○ Schools used as evacuation centers and shelters○ Some school personnel remained as shelter volunteers | <ul style="list-style-type: none">• September 19, 2017<ul style="list-style-type: none">○ Earthquake centered around Puebla, Mexico○ Two teachers and 20 children died○ Improperly supported floors added to school over the years buckled○ Owner of school charged with manslaughter |
| <ul style="list-style-type: none">• September 14, 2017<ul style="list-style-type: none">○ Deliberate fire at school○ Two teachers and 21 children dead○ Seven suspects, ages 11 to 18, were former students○ Building was not approved for school | <ul style="list-style-type: none">• September 20, 2017<ul style="list-style-type: none">○ School shooting in Mattoon, IL○ Student was shooter○ Two students wounded○ A teacher disarmed the student and stopped the shooting |

Headlines regarding various types of disasters affecting schools are becoming disturbingly familiar. During the development of the concept paper for this study, seven different occurrences of disasters involving schools and school personnel were discovered the first three weeks of September 2017. The four incidents presented here occurred within a 10-day period.

The state of Florida had several days warning before Hurricane Irma made landfall on September 10. Schools were closed and evacuated two days before the hurricane would reach land. However, a number of schools were used as evacuation centers and shelters. Some school personnel remained as volunteers at these shelters.

An international incident occurred on September 14. In this case, it was not a disaster of natural causes. At an Islamic Religious School in Kuala Lumpur, Malaysia, a fire broke out in which two teachers and 21 children were killed. The windows of the building were barred and the exits were blocked. Seven suspects ages 11 to 18, all former students, were arrested for setting the fire and blocking the exits. In addition, it was discovered that the building had not been approved for use as a school.

Another international incident occurred on September 19. A 7.1 magnitude earthquake struck in Puebla, Mexico lasting about 20 seconds. Nearby in Mexico City, the Enrique Rébsamen School collapsed killing two teachers and 20 students. It was a multi-floored building which was discovered afterwards to have improperly supported floors not to building code. The owner of the building was charged with manslaughter.

An active shooter incident occurred on September 20, at Mattoon High School in Mattoon, Illinois. A student entered the school cafeteria and fired shots wounding two fellow students. A nearby teacher disarmed the student before any further injuries or deaths could occur.



Natural Disaster

- May 20, 2013
- Enhanced Fujita 5 (EF5) tornado
- Approximately 16 minutes warning
- Seven children killed at Plaza Towers Elementary School



Figure 1: Tornado destroys Plaza Towers Elementary School, Moore, OK ([CNN, 2013](#))

In all but one of the disastrous events in September 2017, injuries and lives lost included school personnel and students and occurred when school was in session.

When exploring school emergency preparedness, it is important to define the three categories of disasters that may affect a school and its personnel.

Natural disaster:

Any catastrophe triggered by natural incidents which causes, or which may cause, considerable damage or harm to civilian property or persons. The incidents are not human-induced, and are weather-related or geology-related. The incidents include, but are not limited to, hurricanes, tornadoes, storms, floods, high or wind-driven water, tidal waves, tsunamis, earthquakes, volcanic eruptions, landslides, mudslides, snowstorms, droughts, and fires (The Public Health and Welfare, 2016).

On May 20, 2013, an Enhanced Fujita 5 (EF5) tornado struck Moore, Oklahoma just before 3:00 pm with only 16 minutes warning. The Plaza Towers Elementary and Briarwood Elementary Schools were demolished while teachers and students were present. Seven children were killed at Plaza Towers Elementary School when the wall they had been seated against, while bracing for the tornado, collapsed on them.



Technological Disaster

- April 17, 2013
- West Fertilizer Company explosion and fire
- 150 buildings including two school destroyed
- Incident occurred when students and school personnel were gone for the day



Figure 2: Explosion destroys West Intermediate School, West TX ([KXAN, 2013](#))

Technological disaster: A catastrophic incident caused by an error in the control of, or a malfunction of, technology which may cause death, destruction, pollution, and environmental damage. Incidents may be a result of an accidental or deliberate human act, or are a result of being triggered by natural events (FEMA, 1993; Gunn, 1990).

Of the example shown, what is fortunate about the April 17, 2013 West Fertilizer Company explosion is that it occurred at 7:51 p.m. when students and school personnel were gone for the day, and no evening activities were scheduled. Two of the 150 buildings destroyed included the West Intermediate School and West High School. The farming community of 2,800 people suffered over 200 injured residents. Ten first responders and two volunteers were among those killed while fighting the initial blaze.



Intentional Disaster

- February 14, 2018
- Active Shooter
- Shooter was expelled student
- Three school staff and 14 students killed
- The School Resource Officer is facing criminal charges
- Two more Broward County Deputies have been fired for inaction



Figure 3: Active shooter incident at Marjory Stoneman Douglas High School, Parkland, FL ([CNN, 2018](#))

Intentional disaster: Deliberate actions on the parts of individuals or groups against persons or society in general and include war, acts of aggression, and acts of terrorism. The actions can include the use of conventional weapons such as firearms or explosives. The use of unconventional weapons includes the application of chemical, biological, radiological, or nuclear materials (FEMA, 2011).

One of the most identifiable of intentional disasters is that of active shooters. A recent incident, still in the news a year later, is the February 14, 2018 shooting by an expelled student at the Marjory Stoneman Douglas High School in Parkland, Florida. In this shooting, three school staff and 14 students were killed. The former school resource officer was arrested on June 4, 2019 and is facing criminal charges for inaction during the incident. On June 26, 2019, two Broward County Sheriff deputies who responded to the mass shooting were terminated for neglect of duty.



Problem

Determine the level of preparedness K–12 school personnel perceive is necessary to be equipped and organized to handle various emergency situations.



Figure 4: Teachers at Yorba Linda High receive disaster preparedness training (pylusd.org, 2016)

The problem associated with this study is determining the level of preparedness K–12 school personnel perceive is necessary to be equipped and organized to handle various emergency situations.



Purpose

- Two school districts
- Administrations, staffs, and faculties
- Perceptions of
 - School emergency preparedness
 - Personal emergency preparedness
 - School-related emergency preparedness training offered, received and desired



The purpose of this study was to discover how the administrations, staffs, and faculties of two Illinois school districts perceive the state of emergency preparedness in their schools, their personal emergency preparedness, and the school-related emergency preparedness training offered, received and desired.



Research Question and Hypothesis

What are the differences in perceptions of emergency preparedness between K–6, 7–8 and 9–12 grade-level school personnel in two northeastern Illinois school districts?

Ho: There are no significant differences in perceptions of emergency preparedness between the K–6, 7–8 and 9–12 grade-level school personnel in two northeastern Illinois school districts.

Ha: There are significant differences in perceptions of emergency preparedness between the K–6, 7–8 and 9–12 grade-level school personnel in two northeastern Illinois school districts.

The research question driving this study is: What are the differences in perceptions of emergency preparedness between K–6, 7–8 and 9–12 grade-level school personnel in two northeastern Illinois school districts?

The null hypothesis is there are no significant differences in perceptions.

The alternate hypothesis is there are significant differences in perceptions of emergency preparedness.



Literature Search Strategy

- State and federal emergency preparedness policies, procedures and guidelines
- School Districts' published programs, policies, procedures and Emergency Operations and Crisis Response Plans
- Scholarly articles and studies related to schools and emergency management, preparedness and training

The literature search strategy included an in-depth review of emergency preparedness policies, procedures and guidelines from state and federal sources. Also reviewed were published information of the two studied school districts regarding their current programs, policies and procedures concerning emergency preparedness and emergency preparedness training along with each districts' Emergency Operations and Crisis Response Plan. A review of scholarly articles and studies related to schools and emergency management, preparedness and training was also conducted.



Theoretical Framework

Maslow's hierarchy of needs

- A reoccurring theory found in school emergency preparedness studies
- Maslow's second level is satisfying the need for safety

Comprehensive School Safety Framework

- Pillar 1: Safe Learning Facilities – not addressed
- Pillar 2: School Disaster Management Responsibilities
- Pillar 3: Risk Reduction and Resilience Education

Within this study, Maslow's (1943) hierarchy of needs is the theoretical framework considered along with the Comprehensive School Safety Framework (Cortez, 2017) as a model.

The second level of Maslow's hierarchy of needs is satisfying the need for safety. This is a reoccurring theory found in a number of recent school emergency preparedness studies. Within the various studies discovered, the majority approached safety needs as it relates to a particular segment of the school personnel population such as principles, teachers or school nurses. Three studies were discovered to address the level of safety as a relation to students and student learning.

This particular study approaches safety needs as they relate to all school personnel, but not students.

The organization known as the Global Alliance for Disaster Risk Reduction and Resilience in the Education Sector is part of the United Nations Office for Disaster Risk Reduction. The Comprehensive School Safety Framework (GADRRRES, 2017) is a result of this organization and presents an all-inclusive methodology to reduce risks from all hazards to the education sector. This is accomplished by addressing three pillars of school safety: Safe Learning Facilities; School Disaster Management; and Risk Reduction and Resilience Education. The first pillar deals with facilities and those who design, build and manage them. This pillar and the key actors involved with this pillar are not addressed in this study. Pillars 2 and 3 key actors include school administrations, staffs and faculties. The two pillars and key actors were taken into consideration in the review of each of the school district's Emergency Operations and Crisis Response Plans and in the development of the survey instrument.



Literature Review

Scholarly Articles and Studies

- Limited subsection of school personnel studied
 - Principles
 - Teachers
 - Counselors
 - School Nurses
- Limited in type of disaster
 - Active shooter
 - Student Behavioral Threat Assessment

Other Literature

- Federal and State emergency preparedness training
- Federal and State emergency preparedness information
 - Disjointed coordination
 - Broken links
 - Outdated information

A review of the literature was conducted to gain a better understanding of the topic of school emergency preparedness. During the review, gaps in various areas were discovered. In the review of scholarly articles and emergency preparedness studies, the limitation to a specific subsection of school personnel was evident. No information was located where all school personnel were part of the study or article. The studies and articles also had specific focus on one type of disaster such as an active shooter.

Other literature reviewed included federal and state school-related emergency preparedness codes and public acts, training, programs, guides and informational websites. Though relevant information was discovered, several issues were noticed. There is disjointed coordination between agencies and levels of government. Websites contain reference links that are broken and have been so for a considerable length of time. Some information is outdated and web pages are not being updated. Some official Illinois government websites do not even have a last revised date.



Methodology

- Quantitative cross-sectional research design
- Survey tool to collect data
- Target population is the administrations, staffs, and faculties of schools within two school districts (K-8 and 9-12)
- Coordination with districts
- E-mail invitations and reminders

Figure 5: Screenshot of School Personnel Emergency Preparedness Survey first page

This study involved a quantitative cross-sectional research design using a survey tool to collect data. The cross-sectional design involved the collection of data on a sample population of school personnel servicing Grades K–6 (elementary school), 7–8 (junior high school), and 9–12 (high school) in two school districts.

Coordination with the districts' leadership included getting permission to use the districts within the study, conduct a pilot study to evaluate the developed survey instrument, and the dissemination of the survey to the target audience by means of e-mail invitations and reminders.

The survey instrument design utilized the features and functions of SurveyMonkey.



Participants

Table 6

Response of School Personnel by Gender, Assignment Category, and School Grade Level

| Personnel (<i>n</i> = 72) | Grade level of school | | | |
|----------------------------|--------------------------------|---------------------------------------|---------------------------------|---------------------------|
| | Elementary K–6 (15 schools) | Junior high school 7–8 (4 schools) | High school 9–12 (5 schools) | Unidentified (skipped) |
| Female (<i>n</i> = 51) | | | | |
| Administration | 11 | 2 | 1 | 1 |
| Staff | 15 | 6 | 1 | 0 |
| Faculty | 10 | 1 | 2 | 1 |
| Male (<i>n</i> = 21) | | | | |
| Administration | 4 | 2 | 6 | 0 |
| Staff | 0 | 2 | 1 | 0 |
| Faculty | 2 | 0 | 3 | 0 |
| Unidentified position | 0 | 0 | 1 | 0 |

Figure 6: Image of Table 6 from study

Shown is Table 6 from the study which includes demographic information of the participants. The demographic variables include gender, assignment category of administration, staff, or faculty, and the grade level of the school where they are located.

A total of 76 respondents of the targeted audience answered the invitation and accessed the survey. Four respondents were eliminated due to incompleteness in answering > 70% of the questions. In one case, no questions were answered after consenting to participate. The end result is a total of 72 respondents.



Data Analysis

- Identification, examination, and interpretation of trends and frequencies
- IBM SPSS Data Preparation 25
- Descriptive statistics
- Crosstabs
- Cronbach's alpha used to determine the internal consistency reliability of the survey
- Kruskal–Wallis test
 - Personnel, location, opinion on leadership commitment
 - Personnel, location, opinion on new training

The analysis of data involved the identification, examination, and interpretation of trends and frequencies of the data based on survey categories.

Statistical analysis of the data utilized IBM SPSS Data Preparation version 25 software.

Descriptive statistics were performed on demographic variables to identify individual group characteristics and on all study variables.

Crosstabs were performed to determine associations between variables and the strength of association.

Cronbach's alpha was used to determine the internal consistency reliability of the survey. Testing of the pilot study determined the reliability to be good at .70. Testing determined the actual survey reliability be .856 indicating a high level of internal consistency.

Kruskal–Wallis tests were conducted to understand if there are differences between school personnel, based on assignment location and position, and the personnel's opinion on leadership commitment to improving school emergency preparedness and personnel's interest in new emergency preparedness training designed specifically for the school environment.



Results

Table 11
Combined Perceptions of Preparedness

| Disaster category | Location preparedness | | Personal preparedness | |
|-----------------------------|-----------------------|----------------------|-----------------------|----------------------|
| | Less than prepared % | Prepared or better % | Less than prepared % | Prepared or better % |
| Natural | | | | |
| All schools (n = 70) | 6.94 | 93.06 | 8.33 | 91.67 |
| Elementary school (n = 42) | 9.52 | 90.18 | 11.90 | 88.10 |
| Junior high school (n = 13) | 0.00 | 100.00 | 0.00 | 100.00 |
| High school (n = 15) | 6.67 | 93.33 | 6.67 | 93.33 |
| Technological | | | | |
| All schools (n = 70) | 47.22 | 52.78 | 48.61 | 51.39 |
| Elementary school (n = 42) | 42.85 | 57.15 | 47.62 | 52.38 |
| Junior high school (n = 13) | 61.54 | 38.46 | 69.23 | 30.77 |
| High school (n = 15) | 46.66 | 53.34 | 40.00 | 60.00 |
| Intentional | | | | |
| All schools (n = 70) | 6.94 | 93.06 | 8.33 | 91.67 |
| Elementary school (n = 42) | 4.67 | 95.24 | 11.90 | 88.10 |
| Junior high school (n = 13) | 7.69 | 92.31 | 7.70 | 92.30 |
| High school (n = 15) | 0.00 | 100.00 | 0.00 | 100.00 |

Figure 7: Image of Table 11 from study

After the analysis of the data, the results indicated a failure to reject the null hypothesis. The results indicated there are no significant differences in perceptions of emergency preparedness between the K–6, 7–8 and 9–12 grade-level school personnel studied.

Shown is Table 11 of the study which was a combination of previous tables. The 5-point Likert scales of the previous tables were reduced to 2-points. The two points are Less than prepared (the lowest opinions previously levels 1 and 2 combined) and Prepared or better (the middle and highest opinion levels 3, 4 and 5 combined). The resulting data shows the greatest majority consider themselves and the schools prepared or better for Natural and Intentional disasters.

The outstanding results were the almost even division of opinion of the individual or school being prepared for Technological disasters. With such a large percentage of personnel feeling less than prepared for a Technological disaster, this may be considered an area that needs more attention and training.



Results (Continued)

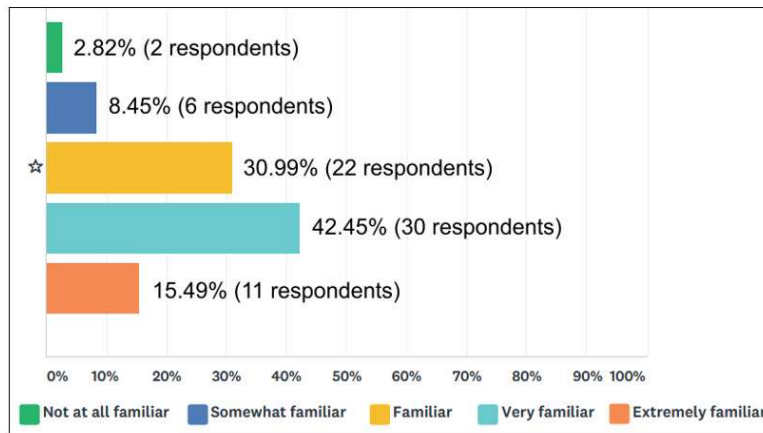


Figure 8: Familiarity with Emergency Operations and Crisis Response Plan

Shown is Figure 2 from the study which displays the familiarity of the personnel with the districts' Emergency Operations and Crisis Response Plans. The majority of the respondents indicated they are familiar to extremely familiar with the plan. This is encouraging as this plan plays an important part in emergency preparedness and training in schools. However, approximately 11% indicated they are less than familiar with the plan. Though a low percentage, this still may be an indicator of the need for additional or enhanced emergency preparedness training.



Results (Continued)

Table 17

Question 27: Interest in Emergency Preparedness Training Designed Specifically for the School Environment

| Answer choice | <i>n</i> | % |
|---------------|----------|-------|
| Yes | 62 | 86.11 |
| No | 2 | 2.78 |
| I do not know | 8 | 11.11 |

Figure 9: Image of Table 17 from study

Shown is Table 17 from the study which indicates an overall interest by school personnel in emergency preparedness training specifically designed for the school environment and school personnel.



Conclusions and Recommendations

Conclusions

- Illinois school emergency preparedness knowledge is extended
- All school personnel in the studied districts had the opportunity to participate and have their perceptions and opinions revealed
- The perceptions of the personnel in the three grade levels (K-6, 7-8, and 9-12) were not significantly different
- Majority of school personnel are open to enhanced emergency preparedness training

Overall findings in this study appear to extend knowledge of emergency preparedness perceptions and emergency preparedness training for Illinois school personnel.

Knowledge is extended in the study where all school personnel of the studied Illinois districts had the opportunity to have perceptions and opinions examined, and not just a subset of the personnel found within a school.

It was discovered there is not a significant difference in the overall perceptions of emergency preparedness between the three school grade levels. How school personnel responded to the different topics and disaster categories can be a catalyst as part of a training needs assessment and an indication of areas of self-efficacy which may need to be raised.

The majority of school personnel are open to enhanced emergency preparedness training.



Conclusions and Recommendations

Recommendations

- Future studies
 - Do not limit to one subset of school personnel
 - Repeat study with the immediate neighboring elementary and high school districts and then compare and contrast results
 - Repeat study and expand to include more Illinois districts and schools
- Consider the study a training needs analysis or use it as a starting point for new TNA

Future emergency preparedness studies might be conducted that do not limit which school personnel are studied to get an overall picture of the school environment.

Some of the communities within this study are shared between different elementary and high school districts. This study could be repeated with the neighboring elementary and high school districts so all schools in the communities are represented. Information from the two studies could then be compared and contrasted.

This study might be repeated with a wider geographic area to include several elementary and high school districts.

The results of this study might be considered a training needs analysis, to be further explored and offered to school personnel.



Growth as a Leader

- No experience as a leader in public/private formal education institutions
- Experience as an education leader in government and volunteer organizations
 - US Army (Training Officer)
 - Lake County Sheriff's Reserve Deputy Unit (Training Officer)
 - Palatine Emergency Management Agency (Training Coordinator)
- Have held many different leadership positions over the past 46 years
- Currently an acting lead for Technical Writers at the US Department of Veterans Affairs

I came to this doctoral program with no experience as a leader in formal public or private education institutions. I have, however, been an education leader during my time in the US Army, in law enforcement and in a suburban emergency management agency. I have held many different leadership positions in the past 46 years. My recent leadership position has been that of an acting lead for a Technical Writer group at the US Department of Veterans Affairs.



Growth as a Leader (Continued)

- Contributing factor to all leadership positions received and held in all careers
- No intention of seeking an education leadership position
- Door remains open for the right position

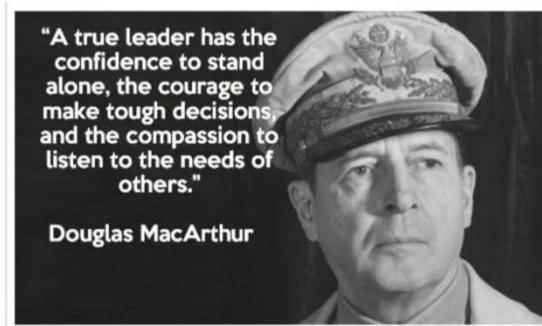


Figure 10: Douglas MacArthur leadership quotation
(Palmisano, 2011, p. 25)

General Douglas MacArthur was quoted as saying "A true leader has the confidence to stand alone, the courage to make tough decisions, and the compassion to listen to the needs of others. He does not set out to be a leader, but becomes one by the equality of his actions and the integrity of his intent."

I believe this quote describes my growth as a leader as I have found myself to have adhered to these principles and qualities for many years. It may be the major contributing factor of all the promotions and positions I received in my military and civilian careers.

I have no intention of seeking an education leadership position at this stage of life as I enter semi-retirement. However I cannot discount the idea that something may come along and change my plans. After all, at one time I had no intention of getting my doctorate.



Questions

Emergency Preparedness Training Perceptions of K-12 School Personnel: A Quantitative Cross-Sectional Study of Two Illinois School District

This concludes my presentation. What questions may I answer for you?



References

- CNN. (2013). Tornado destroys Plaza Towers Elementary School, Moore, OK [Image]. Retrieved from <https://www.cnn.com/2013/05/21/us/oklahoma-tornado-school/index.html>.
- CNN. (2018). Active shooter incident at Marjory Stoneman Douglas High School, Parkland, FL [Image]. Retrieved from <https://www.cnn.com/videos/us/2018/02/14/marjory-stoneman-douglas-high-school-florida-shooting-death-toll.cnn>
- Cortez, F. R. (2017). Roadmap for safer schools. Retrieved from <http://documents.worldbank.org/curated/en/473931494931274888/Roadmap-for-safer-schools>
- Federal Emergency Management Agency. (1993, April). *Principal threats facing communities and local emergency management coordinators*. Retrieved from https://www.fema.gov/media-library-data/20130726-1545-20490-2423/mhira_te.pdf



References (Continued)

- Federal Emergency Management Agency. (2011, January). *CERT basic training: Instructor guide—Unit 1: Disaster preparedness*. Retrieved from https://www.fema.gov/media-library-data/1445974873202fc8c70a600fd9ed8c6b26c197d0adafb/Section_4_BT_IG_Unit_1_508.pdf
- GADRRRES. (2017a). *Comprehensive school safety—A global framework in support of the Global Alliance for Disaster Risk Reduction and Resilience in the Education Sector and the Worldwide Initiative for Safe Schools*. Retrieved from <https://s3.amazonaws.com/inee-gadrrres/resouces/CSSFramework2017.pdf?mtime=20180730152450>
- Gunn, S. W. A. (1990). The language of disasters. *Prehospital and Disaster Medicine*, 5, 373–376. <https://doi.org/10.1017/S1049023X00027138>
- KXAN. (2013). Explosion destroys West Intermediate School, West TX [Image]. Retrieved from <https://www.youtube.com/watch?v=ah2B0EE8-nE>



References (Continued)

- Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50, 370–396. <https://doi.org/10.1037/h0054346>
- Palmisano, D. J. (2011). *On leadership: Essential principles for business, political, and personal success*. New York, NY: Skyhorse Pub.
- pylusd.org. (2016). Teachers at Yorba Linda High receive disaster preparedness training [Image]. Retrieved from <http://goodnews.pylusd.org/?p=2947>
- The Public Health and Welfare, 42 U.S.C. § 5195a (2017). Retrieved from <https://www.govinfo.gov/content/pkg/USCODE-2017-title42/pdf/USCODE-2017-title42-chap68-subchapIV-B-sec5195a.pdf>