

## **Implementing CPR Training in Schools**

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### Abstract

**Objective:** To evaluate the effectiveness of a 45-minute hands-only CPR training on middle school students as a solution to improving bystander CPR rates.

**Methods:** Students completed questionnaires that compared their knowledge-base, willingness, attitudes, and intentions towards helping others during a cardiac emergency before and after the CPR training.

**Results:** A total of 58 middle school students participated in the pilot study which included 17 sixth graders, 19 seventh graders, and 22 eighth graders. Significant progress in CPR knowledge was noted in sixth, seventh, and eighth graders after the 45-minute CPR training compared to before the CPR training. The mean score for the pre-test for the middle school students was 37.5 (SD = 15.18) and after the 45-minute CPR training the mean score was 85.12 (SD = 14.7). The results of the t-test indicate that there is a significant mean difference between the pre-test and the post-test for both the test ( $p < .001$ ) and the survey ( $p < .001$ ). One hundred percent of the students improved their score after the 45-minute CPR training. The total means for items gauging the willingness, attitudes, and intentions toward helping others during a cardiac emergency ranged between 3.12 and 3.74 prior to the training and 3.40 and 3.86 after the training which shows that the middle school students' willingness, attitudes, and intentions towards helping others during a cardiac event increased after the 45-minute hands only CPR training.

**Conclusion:** The findings from the study indicate that a single 45-minute Hands-Only CPR training can raise middle school students' level of CPR knowledge, as well as increase their willingness, and improve their attitudes and intentions towards helping others during a cardiac emergency.

**Keywords:** CPR, Hands-Only CPR training, Middle School Students

## **Implementing CPR Training in Schools**

Sudden cardiac arrest (SCA) occurs when the heart suddenly stops beating (Sudden Cardiac Arrest Foundation, 2018). It is a life-threatening emergency that can happen to people of all ages including teens and children (Sudden Cardiac Arrest Foundation, 2018). SCA is the third leading cause of death in the United States (Sudden Cardiac Arrest Foundation, 2018). According to the Sudden Cardiac Arrest Foundation, approximately 356,000 people experience SCA each year outside of hospital settings and nine out of ten of these people die (2018). There are only a small percentage of people in the United States that have been trained to perform CPR. With that being said, if schools would make CPR training a requirement prior to graduating, this would not only benefit the students but the community as a whole by increasing the confidence and the likelihood of bystander CPR.

### **Overview**

#### **Problem Description**

Bystander CPR success rates went up 50% in other countries that require CPR training in school curriculum (Aloush et al., 2019). There are currently 38 states who have made it a requirement to complete CPR training before graduating high school (AHA, 2018). Unfortunately, Nebraska is not one of those 38 states. When a person experiences SCA, every minute that passes by decreases that person's chance of survival by 10%. When bystanders initiate CPR immediately, the survival rates of these individuals can double or even triple (AHA, 2018). Sadly, less than half of individuals receive CPR until emergency medical services (EMS) arrive which is sometimes too late as sudden cardiac arrest can lead to death within minutes (AHA, 2018). Anyone can learn CPR but unfortunately, 70% feel confident enough to act

during a cardiac emergency because they either don't know how to administer CPR or because it has been a long time since they were last trained (AHA, 2020). Requiring CPR in middle school will not only benefit the middle school students but it will also impact the community as a whole by increasing the likelihood of bystander CPR.

The problem statement that guided this project was, in middle schoolers, how does CPR training compared to no CPR training affect their knowledge-base, willingness, attitudes, and intentions towards helping others during a cardiac emergency over one 45-minute class period? The data needed to determine the outcome of the pilot study came from the pre- and post-test as well as the pre-and post-survey. The students were expected to improve their scores on the post-test and the post survey.

## **Available Knowledge**

### ***Population***

The target population for this capstone project includes 6<sup>th</sup> – 8<sup>th</sup> grade middle schoolers. Aloush et al. (2019) stated that middle school students not only have the mental ability to understand CPR but also the physical ability to perform it. According to Aloush et al. (2019), 70% of Americans do not feel confident enough to act during a cardiac emergency either because they have never been trained to perform CPR or because it has been a long time since they were last trained. By training middle schoolers CPR, this will help reach a large portion of the community. Magid et al. (2018), found that trained middle school students to perform hands-only CPR and focused on the feasibility of training these students CPR by using the American Heart Association training kits and resources. According to Magid et al. (2018), 76% of students felt comfortable performing CPR after the training. Conversely, Iserbyt (2016) found that the willingness to perform CPR remains largely unaffected by a skill focused BLS course. About

half of the students reported that they would perform CPR on a family member or friend, and only about 12% stated they would be willing to perform CPR on a stranger (Iserbyt, 2016).

Rankin et al. (2020), found that the majority of participants who did not undergo CPR training during high school reported that they would have been willing to learn CPR if they have been provided with an opportunity by their school.

### ***Intervention***

In order to train the broader public, CPR education should be made part of a regular school curriculum. Abellsson and Nygårdh (2019), suggested that training may need to be repeated throughout the year in order to effectively teach middle school students the skills to perform CPR with good quality. Similarly, Pivač et al. (2020) suggested that CPR education should be conducted continuously, for several years from the time school children are 12 years of age and should be part of the mandatory school curricula. By doing so CPR outcomes in cardiac arrest victims could significantly improve in the future (Pivač et al., 2020).

### ***Barriers***

Common barriers that affect the implementation of CPR training in schools include teachers who lack knowledge, skill, and self-confidence in performing and teaching CPR education. Iserbyt (2016) found that 30% of Physical Education teachers state that they do not feel competent in teaching CPR education to their students. One way to help teachers feel confident in teaching CPR education to their students is by providing teachers with an instructional model and ready-to-use instructional tools (Iserbyt, 2016). The easy-to-use CPR in Schools Training Kit as well as the CPR Anywhere DVD are designed specifically for educational environments and can be facilitated by anyone (American Heart Association, 2020). Using the CPR in Schools Training Kit or the CPR Anywhere DVD might help overcome the

teacher's feelings of incompetence when it comes to educating their students. Jorge-Soto et al. (2019) suggested that it would be a good idea for teachers to have a BLS training during their academic education which will help improve their self-confidence and willingness to teach CPR education to their students.

### ***Outcomes***

Aloush et al. (2019) found that requiring CPR training in school curriculum would significantly increase bystander CPR success. The study included 110 middle schoolers who took a pretest which showed they had very little knowledge about basic life support guidelines but showed a significant improvement after taking the 45-minute CPR class (Aloush et al., 2019). In other countries, where CPR training is mandatory for middle school students, a 50% increase of bystander CPR success rates has been reported (Aloush et al., 2019).

In order to evaluate whether or not middle schoolers have increased their knowledge base from the CPR training it is important to provide them with a pretest and a posttest. A pretest before the CPR training will establish the student's baseline. After the CPR training the students will take a posttest to see how much they learned from the CPR training. Schmid et al. (2018), found that middle schoolers posttest scores doubled after CPR training and that the majority of the middle schoolers reported that they felt comfortable with performing CPR on an individual who had suffered a cardiac arrest. Kitamura et al. (2016) found that many of the students who did not have a positive attitude before CPR training had a positive attitude after the training.

### **Rationale**

The Plan-Do-Study-Act (PDSA), is four-stage problem-solving model that is used for improving a process or carrying out change (Minnesota Department of Health, 2020). Overview of this model includes developing a plan, implementing it, studying and evaluating the

implementation, and finally acting on it and carrying out change. Stage 1 is the planning process. During the planning process a recruitment team needs to be assembled that has the knowledge of the problem or opportunity for improvement (Minnesota Department of Health, 2020). In order to successfully make CPR training a requirement within school curriculums there needs to be a supportive team also known as stakeholders. The stakeholders include students, parents, teachers, coaches, firefighters, as well as the community.

Another part of the planning stage is brainstorming and identifying important questions that can be addressed through the evidence-based practice process. Questions to consider include: who will teach the CPR training class, what class will the CPR training occur in, and does the CPR training need to be repeated every year? Lastly, a problem statement needs to be written to clearly summarize the team's consensus on the problem. The problem statement that guided this project is, in middle schoolers, how does CPR training compared to no CPR training affect their attitudes towards emergency situations over a one-week period?

Stage two is to implement the action plan. A pilot program which is also called an experimental trial, is a short-term experiment that helps an organization learn how a large-scale project might work in practice (Rouse, 2013). For this project, a pilot of CPR training was implemented into a public middle school in Nebraska during the spring semester. The CPR training was held in 6<sup>th</sup>-8<sup>th</sup> grade physical education course.

Stage three is the study or the evaluation phase. The evaluation phase is focused on how effective the program was, what went well, or what can be done better. Evaluating the program allows changes to be made before implementing it district wide in stage four. There are four steps in the Plan-Do-Study-Act model. These are outlined in Figure 1 (Minnesota Department of Health, 2020).



**Figure 1***Plan Do Study Act***Purpose**

The purpose of this project is to pilot CPR training in middle schoolers at a rural public middle school in Nebraska to determine if CPR training affects their knowledge-base and attitudes towards cardiac emergency situations.

**Methods****Context**

The setting for the capstone project was focused on a rural public middle school in Nebraska. The rural public middle school is located in a town of 1,103 people. This rural public middle school serves 73 students in 6th - 8th grade with a student-teacher ratio of 18 to 1. The minority enrollment for this rural public middle school is 1% of the student body, which is lower than the Nebraska state average of 30%. The racial makeup of this school consists of 99% white, and 1% Hawaiian. Thirty percent of the students are eligible for free lunch and 14% of the students are eligible for reduced lunch. The rural public middle school is placed in the bottom

50% of all schools in Nebraska for overall test scores (math proficiency is bottom 50% and reading proficiency is bottom 50%). The participants involved in the pilot study were 6<sup>th</sup> – 8<sup>th</sup> graders ages 11 to 14 years old. The pilot study took place during a single 45-minute class.

### **Intervention(s)**

For this project, a pilot of CPR training was implemented into a rural Nebraska middle school curriculum during the spring semester. The CPR training focused on 6<sup>th</sup> – 8<sup>th</sup> graders during their physical education (PE) course. The doctoral student provided the CPR training to the students.

The PE teacher emailed a copy of an informed consent to all the students' parents explaining that this pilot is voluntary, and that student information will be kept anonymous. The PE teacher made sure to get a signed informed consent from each student prior to the start of the CPR training. A college in the metropolitan area agreed to let the rural middle school borrow manikins and educational DVD during the pilot.

The day of the pilot the doctoral student brought the manikins, DVD, lesson plan, pre/posttest, pre/post survey, hand sanitizer, and sanitizing wipes to the school. The PE teacher gathered supplies needed for the CPR training: TV, DVD player, and a space for the middle schoolers to practice hands-only CPR. The doctoral student taught the students the two simple steps of Hands-Only CPR and other lifesaving skills in a single class period. The doctoral student played the DVDs for the students, handed out materials, and answered any questions the students had. The doctoral student had a lesson plan to reference throughout the class (see Appendix A).

When the students first arrived to class the doctoral student passed out the paper and pencil pretest and presurvey for the students to fill out prior to receiving CPR training. The

students filled out the pretest and pre-survey individually under exam conditions to avoid influences from peers. The students did not write their names on the pre-posttest or the pre-post survey to ensure they be left anonymous. The pre-posttest and pre-post survey had a number assigned to them to ensure student responses can be compared individually while maintaining anonymity. The doctoral student then collected the pretest and pre-survey and placed them in a manilla folder.

After the pretest and pre-survey were collected the doctoral student then asked the students a series of six questions including: Who has heard the term cardiac arrest? What do you think that means? How would you know when someone has had a cardiac arrest? What is Hands-Only CPR? How much can CPR improve the chances of survival? Why do people not want to do CPR sometimes (see Appendix A).

After the doctoral student asked the questions, the doctoral student then played the DVD. The DVD educated the students about hands-only CPR and when to administer it. Towards the end of the DVD there was time for the students to practice hands-only CPR with the manikins. The students practiced hands-only CPR and after the DVD was finished, the doctoral student asked the students four more questions; those questions included: What are the two steps to do Hands-Only CPR? What does an automated defibrillator (AED) do? Where is the AED located in your school? Do you feel like you could do hands-only CPR if someone's heart stopped (see Appendix A).

The doctoral student then handed out a post-survey and post-test for the students to fill out. Once everyone is finished the doctoral student collected the posttest and post-survey and placed them in a manilla folder. In order to train all the PE teachers students CPR, the training was done over three different classes that day. Once the CPR training was completed, the

doctoral student gathered all the supplies as well as the manilla folder to analyze the data collected.

### **Study of the Intervention(s)**

The pre/post-survey and pre/posttest was collected and placed in a manilla folder which was then collected and analyzed by the doctoral student. The pre/post-survey had 4 Likert-scale questions (see Appendix B and C). The pre/posttest had eight multiple choice questions (see Appendix D and E).

The data was analyzed to see if the CPR training improved the student's confidence and attitudes towards acting during a cardiac emergency.

### **Measures**

Outcomes were measured by tracking the pre/posttest multiple choice questions as well as the pre/post-survey Likert-scales questions. Doing this enabled the doctoral student to see the percentage of students who indicated improved confidence and attitudes following the completion of the CPR training. The data was collected using an excel spreadsheet.

With the implementation of the CPR training the goal was to determine if the student's confidence and attitudes towards a cardiac emergency improved, decreased, or stayed the same after the 45-minute CPR training. The desired goal was to see a significant improvement in the student's confidence and attitudes towards a cardiac emergency by the end of the 45-minute CPR training. By increasing the student's attitude and confidence, they will be more likely to initiate CPR during a cardiac emergency.

### **Analysis**

The data from the pre-posttest and pre-post survey had a number assigned to them to ensure student responses could be compared individually while maintaining anonymity. The

data was analyzed using descriptive statistics to provide a summary about student responses specifically analyzing the responses based on the Likert-scale. Effectiveness of the training was measured by comparing the pre- and post-survey using a dependent samples t-test based on their attitude and confidence when acting during a cardiac emergency. A dependent samples t-test was also used when comparing the pre and posttest scores. This data shows if there is a significant difference between the pre- and post-test scores.

### **Ethical Considerations**

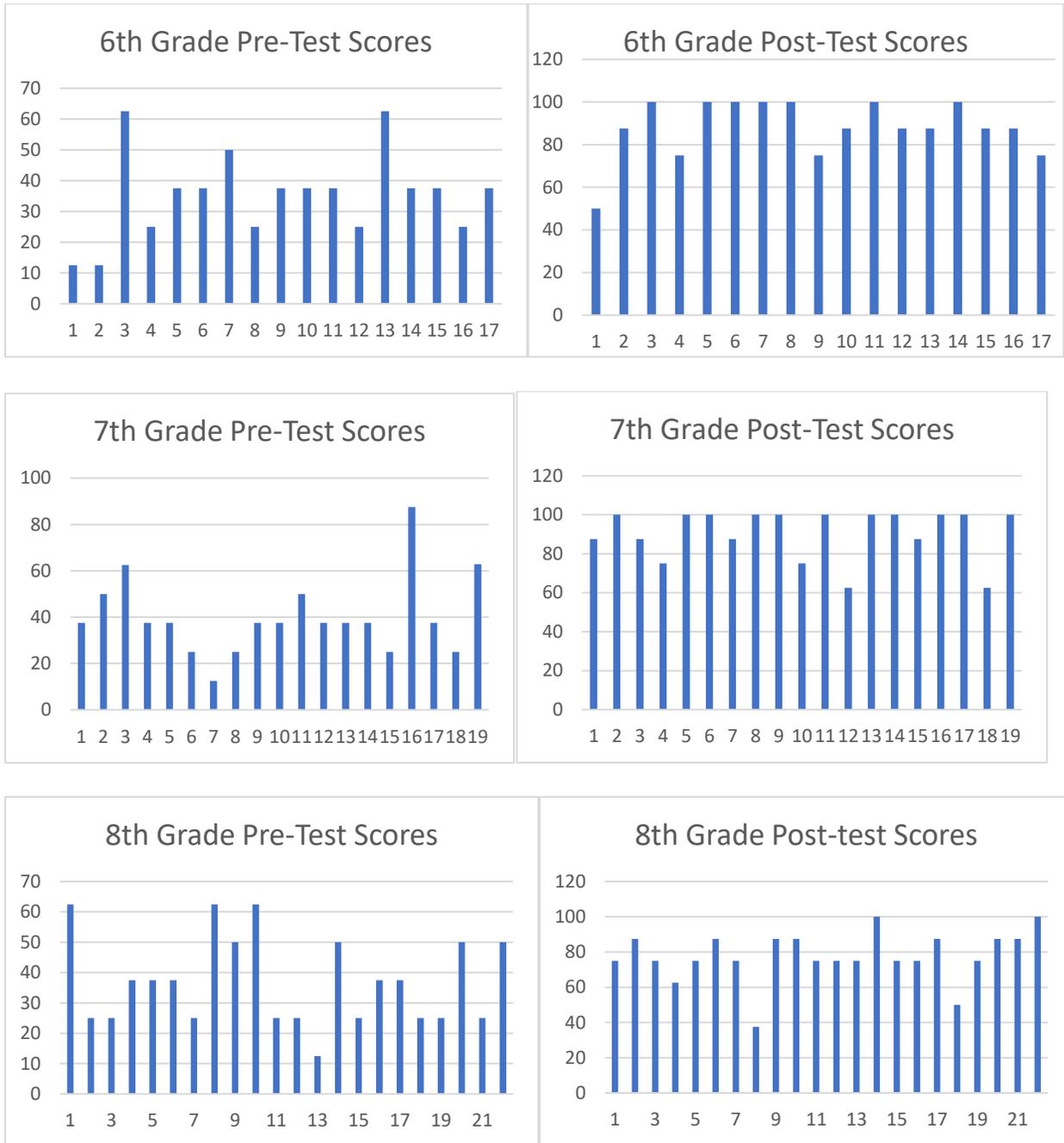
Before implementation the project was reviewed by Institutional Review Board (IRB). The study was implemented after approval from IRB. A written consent was obtained from the Nebraska rural middle school's PE teacher to conduct the capstone project within the school system. The participants of the study were given an informed consent form and was signed by a guardian prior to the CPR training. All participants in the capstone project were informed about the aim of the capstone project. Participation in the capstone project was completely voluntary and refusal to participate was without consequences. Results were kept anonymous and the only person who had access to the data was the doctoral student. The doctoral student completed the Collaborative Institutional Training Initiative (CITI) program course, Social Behavioral Research Investigators and Key Personnel, prior to the implementation of the capstone project. In order to maintain a healthy environment during the CPR training each student wore a mask and stayed six feet apart. Each student used hand sanitizer before doing the hands-on portion of the CPR training. After each student was finished using the manikin, they used a sanitizing wipe to wipe down the manikin before the next student used it.

### **Results**

Data was analyzed using Word Excel. Descriptive statistics were used to present the results of CPR knowledge test and the answers to the questions on the willingness, attitudes and intentions toward helping others, a dependent/paired samples t-test was run for the pre/post-test and pre-post survey, and a bar graph was used to analyze the differences in the percentage of correct answers on the knowledge test prior to and after CPR training. A total of 58 middle school students participated in the pilot study which included 17 sixth graders, 19 seventh graders, and 22 eighth graders. Among the 58 students, all completed the pre-test prior to taking CPR training and finished the post-test after participating in the CPR training. The results of the t-test indicate that there is a significant mean difference between the pre-test and the post-test for both the test ( $p < .001$ ) and the survey ( $p < .001$ ). Significant progress in CPR knowledge was noted in sixth, seventh, and eighth graders after the 45-minute CPR training compared to before the CPR training. The mean score for the pre-test for the middle school students was 37.5 (SD = 15.18) and after the 45-minute CPR training the mean score was 85.12 (SD = 14.7). 100% of the students improved their score after the 45-minute CPR training. Prior to the training, seventh graders had the highest level of knowledge (M = 40; SD = 16.98), followed by the eighth graders (M = 36.93; SD = 14.68), and the sixth graders (M = 35.29; SD = 14.14) behind by a point on average. After the CPR training, the level of knowledge increased in sixth graders (M = 88.24; SD = 13.6), seventh graders (M = 90.78; SD = 13.07), and eighth graders (M = 77.84; SD = 14.4) (Table 1).

**Table 1**

*Pre/Post-Test Scores*



After the CPR training, all age groups had a comparable level of CPR knowledge. However, sixth-graders achieved the largest absolute difference in knowledge level increase (from 35.29 to 88.24 points on average).

The survey was a 4-point Likert scale with 1 meaning strongly disagree and 4 meaning strongly agree. The survey had four items on it. The total means for items gauging the willingness, attitudes, and intentions toward helping others during a cardiac emergency ranged between 3.12 and 3.74 prior to the training and 3.40 and 3.86 after the training which shows that the middle school students' willingness, attitudes, and intentions towards helping others during a cardiac event increased after the 45-minute hands only CPR training. The mean score for the first item, "it is crucial to learn CPR in daily life" was 3.12 (SD = 0.86) prior to the training and 3.40 (SD = 0.86) after the training. The mean score for the second item, "if I have adequate knowledge and skills, I will perform CPR to the people in need" was 3.33 (SD = 0.60) prior to the training and 3.72 (SD = 0.46) after the training. The mean score for the third item "even if the victim is a stranger, I will have intent to perform CPR" was 3.24 (SD = 0.68) prior to the training and 3.53 (SD = 0.57) after the training. Finally, the mean score for the fourth item "if the victim is my family member, I will be more than willing to perform CPR" was 3.74 (SD = 0.64) and 3.86 (SD = 0.35) after the training. Ninety-three percent of students felt comfortable performing Hands-Only CPR if someone had a cardiac arrest after the 45-minute training while only 50% of the students felt comfortable performing Hands-Only CPR prior to the 45-minute training.

## **Discussion**

### **Summary**

The effects of implementing Hands-Only CPR training on the knowledge of middle school students and their willingness, attitudes, and intentions towards helping others during a cardiac emergency was investigated. The capstone project demonstrated an improvement in knowledge, attitudes, willingness, and intentions towards helping others during a cardiac



emergency after the Hands-Only CPR training. The findings from the capstone project indicate that a single 45-minute Hands-Only CPR training can raise middle school students' level of CPR knowledge, as well as increase their willingness, and improve their attitudes and intentions towards helping others during a cardiac emergency. Sixth graders made the greatest improvement which demonstrates the importance of implementing Hands-Only CPR training when students enter into 6<sup>th</sup> grade

### **Interpretation**

A study by Iserbyt (2016), found that about half of the students reported that they would perform CPR on a family member or friend, and only about 12% stated they would be willing to perform CPR on a stranger. Similarly, this study found that the middle school students are more likely to perform CPR on a victim who is a family member than a victim who is a stranger. Prior to the Hands-Only CPR training the knowledge was the highest from the students who were in seventh grade, while the students in eighth grade and sixth grade were less successful. After the Hands-Only CPR training the sixth graders made the greatest progress compared to the seventh and eighth graders because the sixth graders had the most knowledge to gain. Therefore, early introduction of CPR training is extremely important. Aloush et al. (2019) stated that middle school students not only have the mental ability to understand CPR but also the physical ability to perform it. Similarly, Pivač et al. (2020) suggested that CPR education should be conducted from the time school children are 12 years of age and should be part of the mandatory school curricula.

This capstone project found that the mean score of the middle school students more than doubled after the 45-minute Hands-Only CPR training. However, the level of the students' attitudes, willingness, and intentions towards helping others during a cardiac emergency only

increased by 8% after the training. Pivač et al. (2020) suggested that CPR education should be conducted continuously, for several years from the time school children are 12 years of age and should be part of the mandatory school curricula. By doing so CPR outcomes in cardiac arrest victims could significantly improve in the future (Pivač et al., 2020).

### **Limitations**

During this capstone project there were limitations. The first limitation in this capstone project the inclusion of middle school students from one geographical section, which might limit the generalizability of findings. Future studies should replicate this study with middle school students from different regions. Secondly, retention could not be measured due to time constraints. Future studies would benefit from measurement of retention of skill as well as measuring the willingness, attitudes, and intentions of helping others during a cardiac emergency after the CPR training is repeated year after year.

### **Conclusions**

The revised standards for quality improvement reporting excellence (SQUIRE 2.0) was used as a framework for reporting this project. The research findings from this capstone project will provide a basis for the decision-makers who are responsible for making CPR training a mandatory part of school curriculum. Middle schoolers as young as sixth grade have the ability to understand and retain information from the Hands-Only CPR training. The middle school students significantly improved their scores after the CPR training. Imagine how much their knowledge, willingness, and attitudes would change if they did this training every year. The CPR training should be done year after year starting in sixth grade thru twelfth grade. By doing so, we believe that bystander CPR rates will improve in the future.

CPR is a lifesaving skill that everyone should know how to do. Sudden cardiac arrest can occur at any age without warning. By implementing CPR training in schools, this would not only benefit the students but the community as a whole by increasing the confidence and likelihood of bystander CPR. Let's give all students the opportunity to learn CPR and create more qualified and confident lifesavers in our community.

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## Appendix A: Lesson Plan

**Lesson Plan****Beginning the class – approximately 5 minutes**

- Ask the students to sit down.
- Administer the pre-test and pre-survey. Make sure the students know not to write their names on the pre-test or pre-survey.
- Collect pre-test and pre-survey and place in a manilla folder.

**Introduction to CPR – approximately 5 minutes**

Discuss the following key points with students before the video lesson:

**Q: Who has heard the term cardiac arrest?**

**Q: What do you think that means?**

A: Cardiac arrest is when the heart malfunctions and suddenly stops beating.

**Q: How would you know when someone has had a cardiac arrest?**

A: When cardiac arrest occurs, the victim collapses and becomes unresponsive when you tap him and shout. The person stops breathing normally and may be gasping.

**Q: What is Hands-Only CPR?**

A: Hands-Only CPR consists of pushing hard and fast on the chest at a rate of 100 to 120 compressions per minute. It is the most important part of CPR. When you push on the chest, you pump blood to the brain and heart.

**Q: How much can CPR improve the chances of survival?**

A: CPR can double or even triple a person's chance of surviving.

**Q: What are some reasons people do not want to do CPR?**

A: Many don't know how to give CPR, or they're afraid to hurt the victim. But the truth is that you shouldn't be afraid, and your actions can only help. Doing CPR well is important to saving lives, but any CPR is better than no CPR.

**Play DVD – approximately 20 minutes**

Practice Hands only CPR

- Each student should practice pushing on the chest hard and fast, at a rate of 100 to 120 compressions per minute.
- The manikins will click when the right chest compression depth of 2 inches is reached

**Review - approximately 5 minutes**

**Q: What are the 2 steps to do Hands-Only CPR?**

A: (1) Call 9-1-1. (2) Push hard and fast in the center of the chest at a rate of 100 to 120 compressions per minute, pushing down at least 2 inches on the chest.

**Q: What is an AED?**

A: An automated external defibrillator, or AED, is a device that analyzes a heart rhythm and prompts the user to deliver an electric shock through the chest to the heart when necessary.

**Q: Where is the AED located in the school?**

A: The location will be different in each school.

**Q: Do you feel like you could do Hands-Only CPR if someone's heart stopped?**

**Post-test/Post-survey – approximately 5 minutes**

- Administer the post-test and post-survey. Remind the students not to write their names on the post-test and post-survey.
- Collect the post-test and post-survey and place in manilla folder.



## Appendix B: Pre-Survey

## Pre-survey

For each of the questions below, circle the response that best characterizes how you feel about the statement, where 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree.

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. It is crucial to learn CPR in daily life.	1	2	3	4
2. If I have adequate knowledge and skills, I will perform CPR to the people in need.	1	2	3	4
3. Even if the victim is a stranger, I will have intent to perform CPR.	1	2	3	4
4. If the victim is my family member, I will be more than willing to perform CPR.	1	2	3	4

Appendix C: Post-Survey

Post-survey

For each of the questions below, circle the response that best characterizes how you feel about the statement, where 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree.

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. It is crucial to learn CPR in daily life.	1	2	3	4
2. If I have adequate knowledge and skills, I will perform CPR to the people in need.	1	2	3	4
3. Even if the victim is a stranger, I will have intent to perform CPR.	1	2	3	4
4. If the victim is my family member, I will be more than willing to perform CPR.	1	2	3	4

## Appendix D: Pre-test

# CPR in Schools



## Pretest (fill out *before* CPR training)

Fill in the box for the **1 best answer** for each question. Do not make any other marks on this page.

### 1. During cardiac arrest, what happens to a person?

- The heart is still beating and pumping blood, and the person is still alive
- The heart stops beating, the person doesn't respond, and the person isn't breathing normally
- The heart is still beating, the person isn't breathing normally, and blood stops moving
- The heart is still beating and pumping blood, but the person isn't breathing normally

### 2. Which is the correct first step when you arrive at a scene where a person has collapsed?

- Tap and shout
- Phone 9-1-1 and get an AED (if available)
- Make sure the scene is safe
- Check for breathing

### 3. When you do Hands-Only CPR, how many chest compressions should you perform each minute?

- About 50
- 100 to 120
- 130 to 150
- 150 to 200

### 4. How deep should you push on the chest of an adult when you do Hands-Only CPR?

- At least 1 inch
- At least 2 inches
- At least 3 inches
- At least 4 inches

### 5. Once you shout for help, what are the next steps for providing Hands-Only CPR?

- Phone 9-1-1 and get an AED (if available), check for breathing, and begin compressions
- Begin compressions, check for breathing, and phone 9-1-1 and get an AED (if available)
- Phone 9-1-1 and get an AED (if available), begin compressions, and check for breathing
- Check for breathing, begin compressions, and phone 9-1-1 and get an AED (if available)

### 6. What does an AED do?

- Reads the heart rhythm and tells you if a shock is needed
- Automatically phones 9-1-1 and calls for help
- Tells you if a shock is needed and gives the heart rate
- Automatically phones 9-1-1 and tells you if a shock is needed

### 7. Do you know where the AED is located in your school?

- Yes
- No

### 8. Would you feel comfortable performing Hands-Only CPR if someone had a cardiac arrest?

- Yes
- No

### Optional Questions

### 9. Which is the correct first step to help a choking adult who stops responding?

- Shout for help
- Lay the person on the ground
- Phone 9-1-1 and get an AED (if available)
- Give 30 compressions

### 10. What is the most important thing to remember when performing CPR on a child?

- Children need breaths with compressions
- Child CPR is similar to adult CPR
- A child is 1 year or older but not a teenager
- Children usually have healthy hearts

### 11. What are the signs of a child who is choking?

- The child can speak and play
- The child can't speak but can cough
- The child can cough and laugh
- The child can't cough, speak, or breathe

### 12. When you perform CPR with breaths on an adult, how many breaths do you give after every 30 compressions?

- 2 breaths
- 4 breaths
- 6 breaths
- 8 breaths

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## Appendix E: Post-Test

# CPR in Schools



## Post-test (fill out *after* CPR training)

Fill in the box for the **1 best** answer for each question. Do not make any other marks on this page.

### 1. During cardiac arrest, what happens to a person?

- The heart is still beating and pumping blood, and the person is still alive
- The heart stops beating, the person doesn't respond, and the person isn't breathing normally
- The heart is still beating, the person isn't breathing normally, and blood stops moving
- The heart is still beating and pumping blood, but the person isn't breathing normally

### 2. Which is the correct first step when you arrive at a scene where a person has collapsed?

- Tap and shout
- Phone 9-1-1 and get an AED (if available)
- Make sure the scene is safe
- Check for breathing

### 3. When you do Hands-Only CPR, how many chest compressions should you perform each minute?

- About 50
- 100 to 120
- 130 to 150
- 150 to 200

### 4. How deep should you push on the chest of an adult when you do Hands-Only CPR?

- At least 1 inch
- At least 2 inches
- At least 3 inches
- At least 4 inches

### 5. Once you shout for help, what are the next steps for providing Hands-Only CPR?

- Phone 9-1-1 and get an AED (if available), check for breathing, and begin compressions
- Begin compressions, check for breathing, and phone 9-1-1 and get an AED (if available)
- Phone 9-1-1 and get an AED (if available), begin compressions, and check for breathing
- Check for breathing, begin compressions, and phone 9-1-1 and get an AED (if available)

### 6. What does an AED do?

- Reads the heart rhythm and tells you if a shock is needed
- Automatically phones 9-1-1 and calls for help
- Tells you if a shock is needed and gives the heart rate
- Automatically phones 9-1-1 and tells you if a shock is needed

### 7. Do you know where the AED is located in your school?

- Yes       No

### 8. Would you feel comfortable performing Hands-Only CPR if someone had a cardiac arrest?

- Yes       No

### Optional Questions

#### 9. Which is the correct first step to help a choking adult who stops responding?

- Shout for help
- Lay the person on the ground
- Phone 9-1-1 and get an AED (if available)
- Give 30 compressions

#### 10. What is the most important thing to remember when performing CPR on a child?

- Children need breaths with compressions
- Child CPR is similar to adult CPR
- A child is 1 year or older but not a teenager
- Children usually have healthy hearts

#### 11. What are the signs of a child who is choking?

- The child can speak and play
- The child can't speak but can cough
- The child can cough and laugh
- The child can't cough, speak, or breathe

#### 12. When you perform CPR with breaths on an adult, how many breaths do you give after every 30 compressions?

- 2 breaths
- 4 breaths
- 6 breaths
- 8 breaths

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