Applying Pressure to a Bleeding Wound:

Part 4 of "Stop the Bleed" Training

Illinois CTE Endorsement Area:

Health Science Technology & Human Services

Remote Learning Edition

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Converted to Format by Karen Aldworth

Current Phase of Lesson: Phase 3 of 5

Illinois State Board of Education

Illinois State University

Illinois' first public university

Overview:

Mass casualty is an unfortunate experience we have all heard about in recent years. "Stop the Bleed" is a nationwide initiative to educate the public on what to do in the case of life-threatening bleeding. Although the formation of the "Stop the Bleed" program was prompted by public events, the information included in this lesson has value for accidents occurring in homes and at accident sites. Students will learn how to apply pressure to a simple small bleeding wound and a large life-threatening bleeding arterial wound. How long should I hold the pressure? Is there a different timeline for small or large wounds? These questions will be answered during this lesson. Students will design a public service announcement (PSA) poster about this basic first aid technique. Students will display their PSA posters in your classroom or the school's hallways to inform students of this potentially life-saving procedure.

Classes or Discipline:

- All Health Science Technology classes
- Health & Human Services classes

Career Cluster:

- Health Science
- Human Services

Illinois CTE Endorsement Area:

- Health Science
- Human Services

Grade Level(s):

- Grades 5-8 (may require some modification to assure content is appropriate)
- Secondary schools
- Postsecondary schools

Suggested Days/Minutes: 2 hours

Learning Objectives:

- Recognize why it is necessary to apply pressure to a variety of bleeding wounds.
- Demonstrate how to correctly apply pressure to a variety of bleeding wounds.

Standards Addressed:

- National Health Science Standards
  - 7.1.2b Standard Precautions: handwashing and gloving.
  - 7.5.2 Apply principles of basic emergency response (911, wound pressure).
  - 10.1.2 Obtain training &/or certification in Stop the Bleed (lesson focus is on the wound pressure piece of Stop the Bleed training).

- Illinois Priority Learning Standards
  - Health Standards
    - 22.A.4c Demonstrate basic procedures in injury prevention and emergency care that can be used in the home, workplace, and community (i.e. first aid, CPR).

- **Common Core ELA Standards:**
  - CC.11-12.R.I.7 Integration of knowledge & ideas: Integrate and evaluate multiple sources of information presented in different media or formats, as well as, in words to address a question or solve a problem.

  - CC.11-12.W.2 Text types and purposes: Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

Enduring Understandings:

- Simply applying direct steady pressure over a bleeding wound or an appropriate pressure point can potentially stop dangerous life-threatening bleeding.
- Pressure needs to remain constant for a minimum of 3-5 minutes for small bleeding wounds & until EMS arrives for larger bleeding arterial wounds.

Resources and References:

1. Web MD article: Bleeding Cuts or Wounds
2. Mayo Clinic article: Severe bleeding: First aid
3. Harvard Health Publishing article Emergencies and First Aid - Direct Pressure to Stop Bleeding
4. Videos:
   How to Take a Radial Pulse
   Finding the Brachial Artery
   Applying Pressure to a Bleeding Wound Medical Course
   Live Rescue: Drive-By Victim Shot in Leg,
5. Kahoot! Stop the Bleed: Applying wound pressure
6. Computer with internet connectivity
7. Individual devices capable of internet connectivity
8. Poster material (your choice of size)

9. Colored markers, pens, pencils or crayons
10. Gloves non-latex disposable (if you are going to provide disposable gloves to each student) in sizes Sm-Med-Large-XL
11. Pool noodles
12. Wound cubes or mannequins
13. You will need approximately six empty 2-liter bottles filled with red colored water for each session that you teach (ask your students to start saving them for you) The use of "RED" coloring is entirely up to you however it may stain.

Essential Employability Skills:

There are four essential employability skills

- Personal Ethic: integrity, respect, perseverance, positive attitude
- Work Ethic: dependability, professionalism
- Teamwork: critical thinking, effective and cooperative work
- Communication: active listening, clear communication

The focus of this lesson is on professionalism, critical thinking and clear communication; verbal and non-verbal.

Skill	How it is addressed:
Professionalism	Students will demonstrate on each other how to stop a small bleeding wound. Students will demonstrate how to locate pressure points to control bleeding. They will demonstrate how to approach large bleeding wounds professionally and competently. Explore Part I: Step 8 & 9 Explore Part III: Step 6 Explore Part III: Steps 11 & 14
Critical Thinking	Students will demonstrate their ability to critically think through differentiation of small and large bleeding wound needs.
Clear Communication	Students will demonstrate clear written communication in the content and design of their posters. Students will demonstrate clear verbal communication in the presentations of posters to the class. Elaborate Part II: Steps 2-7

Suggested Differentiation Strategies:

- All groups will be diverse in student learning styles (assigned by the teacher for inclusion).

  When assigning students into breakout rooms, be sure that there is diversity within each group.

- Research reading recommendations for all levels of readers.
- Hands on practice (kinesthetic learners) can be modified to accommodate all levels of learning.

  Hands on practice at home will allow students at all levels of learning to practice and perform these skills on their own, taking whatever time they require.

- Lesson can be modified to allow for additional time for learners at all levels.
- Creative opportunities for the visual learner.
- Gaming opportunities for visual and auditory learners.

Throughout this lesson the teacher notes and comments are in red.

Throughout this lesson the on-line suggestions are in green text.

1. Engage: (20 minutes)

Part 1

1. Your teacher will set up a Kahoot! game. Click here and wait for your game code.
   Play Kahoot!: Stop the Bleed: Applying wound pressure
   Teacher will allow students to use whatever electronic device they have with internet connectivity.

Project the Kahoot! game onto your shared screen. Provide students with the game's pin number. Carefully watch how many questions your students can answer as a pre-lesson knowledge assessment.

If your students completed the activity below (step #2) in the Stop the Bleed: Wound Packing lesson, it is your choice whether or not to repeat the activity.

If you decide to repeat this activity, it can easily be accomplished at home. Ask students to save a 2-liter plastic bottle and fill with water. (Caution: if they are using red coloring to make it more realistic to look like blood, it will stain their clothes). Instruct students to carefully put a hole near the bottom of the bottle. Ask someone at home to "time" and "record" the student applying pressure over the hole to stop the flow of the blood (water). Have students measure how much water, if any, remains in their bottle.

Have students send you:

a) Their videos for your review
b) The amount of time it took to stop the bleeding (if they were able to stop the bleeding).
c) The amount of water remaining in the bottle.
d) If their victim survived.

After you have received their videos & information, set up a group meeting on Zoom, Google Meets or MS Team and assign students to breakout rooms to discuss their answers to questions a-e in step 5 below.

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2. In small groups (3-4) fill a 2-liter plastic bottle with red water (this represents about ½ of the amount of blood in a human adult) The loss of 40-50% of blood volume typically results in the victim dying from blood loss.
   It will be your choice if you want students to color the water "red." Red coloring typically stains.

3. Your teacher will poke a hole near the bottom with a sharp object that can puncture the plastic bottle.
   Be sure the hole is "large" enough for the red or clear water liquid to seep out

easily.

4. Have someone in your group "time" how long it takes each group member to stop the bleeding by applying direct pressure to the wound. Be sure to measure how much blood is still in the bottle after each group member "stops" the bleeding.
   Provide a measuring cup or graduated cylinder to measure the amount of fluid remaining in the bottle.

5. Refill the bottle until each group member has had a chance to stop the bleeding. Your group should be taking notes in order to answer the questions below.
   a. How much pressure did everyone have to apply?
   b. As a group, compare "your average time" needed to stop the bleeding.
   c. How much blood (water) leaked out for each person?
   d. Did any of your victims survive?
   e. Do you have "blood" on your hands?

2. Explore: (45 minutes)

Send video link in step 1 to your students to watch. Be sure to caution them that there is blood/bleeding in this video. Suggest they take notes during the video.

Ask students to be prepared after watching this video to answer questions 2, 3, 4, 5 & 6. If they do not find the answers in this video, ask them to do research online to find the answers.

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1. Watch this YouTube video on how to stop bleeding: CAUTION: there is blood / bleeding in this video. Applying Pressure to a Bleeding Wound Medical Course
   This video is graphic and may not be suitable for all students.

2. Name 2 things that the doctor in this video did to stop the bleeding.
   Used gauze or T-shirt and applied pressure right on the wound.

3. If you don't have gauze, look around the classroom for something that you can use to stop bleeding.
   T-shirt, hoodie, rags.

4. Conduct research to determine how long to hold pressure on a bleeding arterial wound.
   Until relieved by emergency personnel.

5. Conduct research of non-life-threatening bleeding. How long should you hold pressure on the wound?
   A minimum of 3-5 minutes.

6. If you don't have gloves, look around the classroom for something that you can use to protect yourself.

plastic zipper lock bags, plastic garbage bags, etc.

7. In your same small groups, study these 4 pictures and discuss with your group what is happening in each picture. Write down your descriptions for each.
   a. Gauze on wound, b. rag/t-shirt or sock on wound, c. pressure applied to wound, arm (extremity elevated) and d. snugly wrapped bandage. Are they all wearing gloves?

Send these 4 pictures to your students? This can be done individually or in breakout rooms, ask students to describe what they see in each picture.
Ask students to practice all 4 techniques at home with a "volunteer." Or, they can use their 2-liter bottle again. Ask students what was different when they practice each technique. Did they have a preference? If yes, which one and why? If not, why not?

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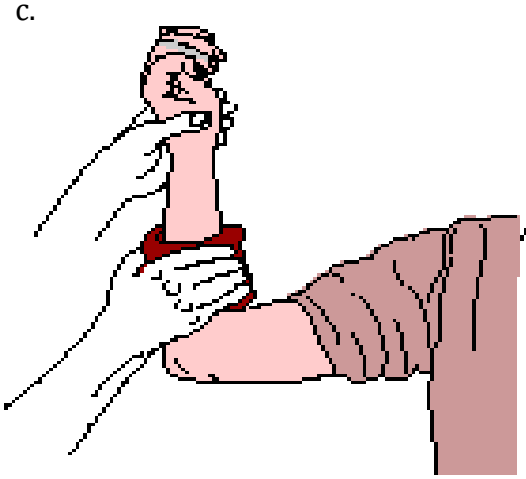
a.

b.

c.



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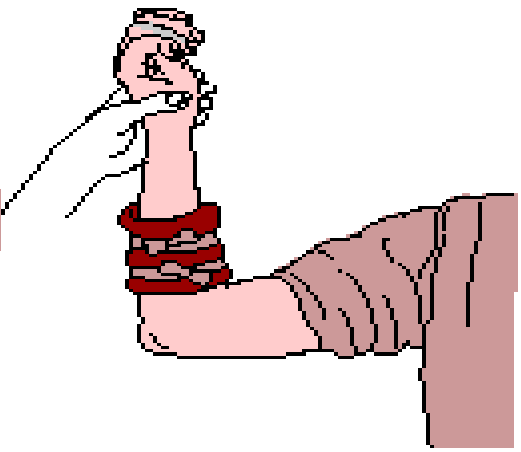

8. Get with a partner and practice the different techniques on each other. Be sure to change places!

Part II

Ask students to do online research to answer questions 1a & b.

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1. Research wound pressure information in greater depth and answer the following questions:

    a. What should you do if the wound keeps bleeding?
    Do not remove the gauze or shirt, apply another cloth directly over the 1st cloth and relocate the fingers to apply the pressure more directly if bleeding continues.

    b. If you have visible blood on your hands, what are the next 3 steps?
    Handwashing for a minimum of 20-30 seconds, complete a blood exposure report and contact your MD.

2. Your teacher will now demonstrate how to apply pressure to a small wound. Be prepared to answer questions after his/her demonstration. Did you see any difference in the teacher's technique when compared to yours
    Use 2-3 fingers to apply direct pressure to a "small wound".

Have students record themselves (using a phone or Flipgrid) demonstrating all 4 wound pressure techniques. During a group meeting platform share the videos. Be sure they are narrating their techniques when demonstrating. Ask your students to identify anything that you did differently than they tried! You can also demonstrate correct handwashing following a blood exposure.

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3. With your partner, practice wound pressure on a small wound again using the teacher's technique this time.

Ask students to again practice the 4 techniques following your instruction. Have them record themselves practicing on their victim or 2-liter bottle. Have students submit their videos to you for review on techniques. Ask students to identify any difference in their initial video and after they watched your video. What were the differences?

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4. Were there any major differences in your initial technique and your teacher's technique?

Part III

1. In small groups discuss how wound pressure to a large severely bleeding arterial wound is different from a small wound. You may need to conduct additional research. Be prepared to share your findings with the class regarding questions 2, 3 & 4 below. The following articles may be helpful in your research.

Web MD article: Bleeding Cuts or Wounds
Mayo Clinic article: Severe bleeding: First aid
Harvard Health Publishing article:
Emergencies and First Aid - Direct Pressure to Stop Bleeding

Ask students to watch and take notes from the 3 videos. Let students know that you want them to find the answers to questions 2, 3 & 4 below.

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2. What, if anything, is done differently for a large bleeding arterial wound?
   Potentially will need additional material placed to the bleeding site and apply deeper pressure and locate the pressure point.

3. What is a pressure point and how do you think it is related to wound bleeding?
   A point where an artery can be pressed against a bone to inhibit bleeding.

4. Your teacher will show you how to find the radial, brachial, femoral and popliteal pressure points.

Record yourself identifying and applying pressure to the radial and brachial pressure points. Narrate each step in your procedures for finding and applying pressure.

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5. How do you know if you have found a pressure point?
   Students will be able to feel a pulse or the beating of the heart.

6. With a partner, practice finding the radial and brachial pulses (pressure points).
   These short videos at the following links will illustrate how to find the radial and brachial pulse.
   How to Take a Radial Pulse
   Finding the Brachial Artery

Ask students to find a volunteer at home that will allow them to practice identifying and applying pressure to the radial & brachial pressure points. During a group meeting, have students report their success or difficulty in identifying and applying pressure to those two pressure points. This can be an opportunity to remediate if necessary.

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7. If pressure on the wound does not stop the bleeding, what would be your next step?
   While applying pressure directly on the wound with one hand, use the other hand to apply pressure directly on an arterial pressure point above the wound (closer to the heart)

8. Can you stop applying pressure and look underneath the cloth to be sure that you stopped the bleeding?
   No, easier to judge your effectiveness by observing the amount of blood still flowing.

9. How long should you hold the pressure on the wound?
   For larger bleeding arterial wounds, it is recommended that pressure be held until rescue personnel have been relieved by emergency medical personnel.

10. Why should you elevate the extremity (arm or leg) above heart level?
    The basic concept for raising the arm or leg above heart level is it may aid in decreasing blood flow to the wound.

Ask students to be prepared to answer questions 7 – 10 above. During an online group meeting, assign students into breakout rooms to discuss their findings.

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11. Using mannequins & wound cubes (if available) or pool noodles, demonstrate how you would apply pressure to a large bleeding arterial wound.
    If using pool noodles, be sure to indicate arm or leg and possible pressure points for each. Using a Sharpie, make different size wounds on the pool noodles (make some straight, round, jagged etc.)

You will probably need to omit 11 & 12. The students may not have those items at home.

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12. What if anything, did you do differently when you practiced pressure on a small wound?

13. Your teacher will now demonstrate how to apply pressure to a large bleeding arterial wound. Take notes on anything she/he did differently from your practice.

Record yourself applying pressure to a large wound. As a suggestion, take an empty 2-liter bottle and cut a 3-inch-long by 2 inch wide slit in the middle of the bottle. Identify your bottle as an arm and indicate where the radial & brachial pressure points are found.
Narrate as you demonstrate how to apply pressure to a larger bleeding wound AND find the pressure point and apply pressure.
Your students can do the same activity with modifications (carefully) to their 2-liter bottle. Have the students record themselves applying pressure to the wound and pressure point, narrating as they perform their demonstration.

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14. Using your mannequins, wound cubes or pool noodles, try it again with your partner being sure to use the technique demonstrated by your teacher this time.

You can either omit #14 or allow your students to do a repeat recording of themselves applying pressure to a large wound and then finding the pressure point and applying pressure. You can use this as part of their evaluation of learning from this lesson.

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3. Explain: (10 minutes)

Using a shared document, ask students to individually be ready to answer the following questions.

1. How long should you apply pressure to stop the bleeding of a small & large wound?
   For small wounds, 3-5 minutes of constant direct pressure. For larger wounds, applying direct pressure and pressure point pressure if needed, should be held until relieved by emergency personnel.

2. List 2 different materials that can be used to help stop the bleeding.
   Rag, T-shirt, hoodie, sock (any handy cloth item).

3. If the blood soaks through the cloth you are using, what is your next step?
   Apply a 2nd cloth directly over the 1st cloth – DO NOT REMOVE the FIRST CLOTH or LOOK UNDERNEATH. Consider holding direct pressure to the wound and apply direct pressure to a pressure point ABOVE the wound.

4. Where is the "pressure" point to stop bleeding from a wound on the forearm?
   Always apply pressure directly, but if bleeding does not stop, apply pressure above the wound (closer to the heart) so in this case it would be the brachial pressure point.

4. Elaborate/Extend (45 Minutes)

Part 1

1. Watch this short YouTube Video, Live Rescue: Drive-By Victim Shot in Leg, which shows a live rescue of a shooting victim. Caution, there are scenes where you will see blood. The rescuer used rolled gauze. Take Notes!
   The video Live Rescue: Drive-By Victim Shot in Leg is graphic and may not be appropriate for all students.

   You have 2 options. Send this link to your students to watch on their own or show this video. during a shared meeting platform, you can share your screen with your students Encourage them to take notes!
   Ask them to be prepared to answer questions 2 – 7 below.

2. What sticks out in your mind?

3. How did it affect you to see a bleeding victim with blood everywhere?

4. What could you use if you didn't have rolled gauze?
   Rags, t-shirts, socks, etc.

5. Was the paramedic talking to the victim? If yes, why? If no, why not?
   Yes, to attempt to calm and reassure the victim that they are there to help and to gain her cooperation so that the wound did not worsen.

6. Did the wound pressure cause the victim any pain?
   Yes, she was complaining of pain.

7. Were you affected by the sight of blood?

Part II

The poster can be an individual project rather than a group project. The instructions will remain the same for steps 2-6 below. The rubric to evaluate this piece of the lesson remains the same.

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1. In a group of 4, design a poster for your classroom or school hallway with appropriate pictures and the steps for controlling bleeding with the application of direct pressure.
   Be sure each group has diverse learners.

   a) Be creative.
   b) Be colorful.

2. The process illustrated must be accurate, factual, and presented in a logical order. Also, be sure to indicate if there is any difference between stopping a small wound that is bleeding as compared to stopping a large life-threatening wound involving arterial bleeding.

   Hopefully students will hit most of these steps in a logical sequence demonstrating to you their knowledge from the lesson.
   a) Call 911
   b) Locate the area that is bleeding
   c) Find anything that you can use to protect yourself if no gloves are available
   d) Using any cloth material, apply on top of the wound
   e) Apply direct pressure on the wound
   f) Elevate the arm or leg
   g) If bleeding continues, apply a 2nd cloth over the 1st cloth
   h) Apply direct pressure to a "pressure point" directly above the wound site
   i) For small wounds, apply pressure for 3-5 minutes
   j) For larger wounds, hold direct pressure until relieved by emergency personnel
   k) Handwashing after the blood exposure
   l) Blood incident report after exposure

3. Present your poster to the entire class before placing on display.
   Display posters around the classroom for everyone to see.

During a group meeting platform, ask all students to be prepared to display and explain their creation. Ask students to save their work for classroom display when face to face school resumes.

5. Evaluate

To evaluate 1, 2 & 3, students can record themselves applying pressure to a small and large wound using a family member as their "patient" or use an empty 2-liter bottle. They can use their phone or Flipgrid to send you their video for evaluation

Your teacher may use the following criteria to evaluate your comprehension of the information presented in the lesson.

1. Individual demonstration of applying pressure to small wounds.
2. Individual demonstration of applying pressure to large / arterial wounds.
3. Individual demonstration on how to find the pressure point for a forearm wound.
   Brachial pressure point
4. Post-lesson Kahoot! Stop the Bleed: Applying wound pressure with improvement in the number of questions answered correctly.

   Using a group meeting platform, share your screen with everyone. Be sure to give your students the pin number for the Kahoot! game. Determine if your students answered more questions correctly following your lesson.

5. Evaluation of group poster
   Rubric for group poster
   5-6 points - student is knowledgeable of the essentials of this lesson
   4 points - student is has not grasped the important parts of this lesson

   This will become an individual project rather than a group project

Category	3 points	2 points	1 point
Knowledge of the lesson: Applying pressure to a small & large bleeding wound	Poster accurately identifies steps (in proper order) that need to be taken when applying pressure to stop bleeding from wounds (could be small, large, or life-threatening wounds).	Poster has a few inaccuracies in identifying when & how to apply pressure to stop bleeding from wounds of various sizes. Order of steps is not correct, but is somewhat logical	Poster has a several inaccuracies in identifying when & how to apply pressure to stop bleeding from wounds of various sizes. Order of steps is not logical and there are 3 or more

	The order of steps is logical and does not omit any of the essential steps. Content displays student's knowledge of this lesson.	and there are 1-2 essential steps missing or out of order. Content indicates that student is somewhat confused.	essential steps missing or out of order. Content fails to display students' knowledge of the essentials for this lesson.
Creativity and eye-catching appeal of the poster	Demonstrates use of picture(s) which are appropriate for all audiences and creative design is appealing to all viewers.	Picture(s) are appropriate to all audiences. Poster is designed to be eye catching and creative.	Picture(s) are not appropriate for all audiences. Poster is not eye catching &/or creative in design.

Notes:

All ILCTE lessons are vetted by Curriculum Leader, Dr. Brad Christensen.

To see a review of this lesson by previous users, click here.

We invite users of this lesson to click here to leave follow up information and rating.

We would like to publish pictures / videos of your students using this lesson. Please send to Rod McQuality at: rdmcquality@ilstu.edu. By sending pictures, you have met all the picture / video release for your school.

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