**SUPPLEMENTAL INFORMATION**

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| **Table S1. Reasons for Concert Venue EMS Difficulties** | | | | | |  |
| Factor | | Outcome | | | | |
| **Environmental** |  |  |  |  | |  |
| Loud and Disruptive Music | | Complicates verbal and radio communication | | | | |
| Darkness and Strobe Lighting | | Delays patient access and hinders team coordination | | | | |
| Dense Crowds |  | Obstructs venue navigation and patient location | | | |  |
| Multi-level Stadiums | | Complicates extrication and navigation | | | |  |
| Multiple, Simultaneous Patients | | Overuse of triage skills and delayed patient evaluations | | | | |
| **Patient Presentation** | |  |  |  | |  |
| Dehydration |  | Exacerbates medical emergencies | |  | |  |
| Alcohol/Substance Use | | Complicates patient-provider interactions | | | |  |
| Traumatic Injuries | | Increase in complex immobilization and extrication | | | |  |
| Patient Refusals and Minors | | Increased legal risk and documentation demand | | | |  |
| **Provider Education** | |  |  |  | |  |
| Lack of Initial MGE Education | | EMTs hired with no mass gathering medicine training | | | |  |
| Limited MGE Con-ed Courses | | Active EMTs cannot receive additional MGE training | | | |  |
| Insufficient On-site Training | | Novice EMTs forced to care for critical patients with little support | | | | |
| **Lack of Training Literature** | |  |  |  | |  |
| MGE Prediction Factors | | Assists MGE preparation, but does not improve provider training | | | | |
| MGE Checklists and Guidelines | | Provides necessities for MGE coverage, but no implementation schema | | | | |
| Key: Mass Gathering Event = MGE; Continuing Education = Con-ed   |  |  |  |  | | --- | --- | --- | --- | | **Table S2. Description of the Mass Gathering Medicine Training Program Components** | | | | | Activity | Objective | Dates / Length | Instructor: Participants | | | Orientation | Provide NA-EMTs with the basic skills and competency needed for their first large-venue shift | Sept. 2019  3 hours | 1 EMS Instructor : 6 Orientees | | | Mentorship Program | Provide every NA-EMT with tailored training, mentorship, and medical oversight during every patient interaction. | Sept -Dec. 2019  4 months | 1 AE-EMT : 1 NA-EMT | | | Large-Venue In-service | Provide all EMTs with LVEMS skills through a didactic lecture, simulated patient scenarios, and guided arena tour. | Jan. 2020  3.5 hours | 1 Instructor : All Students (Lecture)  1 AE-EMT : 5-6 Students (Scenarios)  3 AE-EMTs : 6 Students (Tour) | | | Key: AE-EMT = Arena Experienced EMT; NA-EMT = Novice Arena EMT; LVEMS = Large-Venue EMS | | | |  |  |  |  |  | | --- | --- | --- | --- | | **Table S3. Descriptive Summary of Participants** | | | | | Characteristic | Experienced EMTs | Novice and Non-Arena EMTs | All EMTs | | Total Sample | 12 (27.0) | 31 (72.0) | 43 (100) | | Identified Sex |  |  |  | | Female | 4 (33.3) | 24 (77.4) | 28 (65.1) | | Male | 8 (66.6) | 7 (22.5) | 15 (34.9) | | Year of Initial EMT Certification |  |  |  | | 2016 | 6 (50.0) | 1 (3.22) | 7 (16.3) | | 2017 | 4 (33.3) | 12 (38.7) | 16 (37.2) | | 2018 | 2 (16.7) | 13 (41.9) | 15 (34.9) | | 2019 | 0 (0.00) | 5 (16.1) | 5 (11.6) | | 2020 | 0 (0.00) | 0 (0.00) | 0 (0.00) | | Year Hired by BUEMS |  |  |  | | 2016 | 0 (0.00) | 0 (0.00) | 0 (0.00) | | 2017 | 7 (58.3) | 5 (16.1) | 12 (27.9) | | 2018 | 5 (41.7) | 13 (41.9) | 18 (41.9) | | 2019 | 0 (0.00) | 10 (32.3) | 10 (23.3) | | 2020 | 0 (0.00) | 3 (9.68) | 3 (6.98) | | Prior EMS Experience |  |  |  | | Yes | - | 3 (9.68) | - | | No | - | 28 (90.3) | - | | Felt Prepared for LVEMS at Hire |  |  |  | | Yes | 6 (50.0) | 10 (32.3) | 16 (37.2) | | No | 6 (50.0) | 21 (67.7) | 27 (62.8) | | EMT Class Sufficient for MGEs |  |  |  | | Yes | 5 (41.7) | 12 (38.7) | 17 (39.5) | | No | 7 (58.3) | 19 (61.3) | 26 (60.5) | | Variables are reported as n (%). Key: LVEMS = Large-Venue Emergency Medical Services; MGE = Mass Gathering Event | | | | | | | | |  |  |

**SUPPLEMENTARY TEXT 1: TRAINING PROGRAM DESCRIPTION**

*Arena Orientation and Initial Training*

In September 2019, all novice arena EMTs (NA-EMTs) were required to attend an orientation training session at Agganis Arena. NA-EMTs included both new hires and EMTs who had worked minimal arena events during prior semesters. The goal was to provide NA-EMTs with the basic skills and competency needed for their first large-venue shift. Like many MGEs, Agganis Arena is difficult to navigate, with numerous physical barriers across multiple levels.1,2 In an effort to reduce environmental delays typical of MGEs, NA-EMTs were given a tour of the arena, including optimal navigation routes and hidden hallways or elevator access.1 With oversight, NA-EMTs also practiced simulated extrication from the narrow and steep venue seating, utilizing arena equipment such as stair-chairs and scoop stretchers.

Additionally, NA-EMTs were given an overview of LVEMS protocols, including legal logistics and methods to approach common patient interactions, such as intoxication, substance use, and altered mental status.3 NA-EMTs were briefed regarding different treatment methods within the large-venue setting, as well as an overview of MGE specific transport protocols. Common medical emergencies often present differently within the large-venue setting, so this component aimed to help NA-EMTs adjust to the vastly different schema of mass gathering medicine.4

*Peer-Mentorship Program*

After the orientation, many NA-EMTs still reported apprehension working LVEMS and difficulty with general triage of patients during chaotic events without senior support. In response, Agganis Arena Experienced EMTs (AE-EMTs) were assigned a NA-EMT to mentor during each arena shift.

The goal of this program was to provide every NA-EMT with tailored training, mentorship, and medical oversight during each patient interaction. For every shift at Agganis Arena, at least two EMTs were present, one of whom always being an AE-EMT. If an event was anticipated to result in a large number of patient contacts, then two AE-EMTs were often paired with one NA-EMT. Following NAEMSP guidelines, pairs were stationed in specific locations across the venue, which allowed teams to divide calls (Figure 1).4 This also allowed for an extra AE-EMT to respond to an adjacent team if necessary, ensuring that no NA-EMT was left unsupported. Additionally, all providers were instructed to create cellular phone group-messages for each shift, which promoted greater communication of non-confidential information and a decrease in radio traffic within the loud environment. During shifts, the AE-EMT ensured that the NA-EMT felt comfortable working in the arena, answered any questions about protocols and patient care, and reviewed patient care reports. Through an adaptable educational approach, AE-EMTs provided specific training to each NA-EMT and focused on their particular strengths and weaknesses. In order to ensure that NA-EMTs were well trained, this individual support occurred on every shift during the entire Fall 2019 semester, spanning approximately four months.

Both NA-EMTs and AE-EMTs were required to complete evaluation surveys at the end of each shift. The AE-EMT would evaluate the NA-EMT's performance in a variety of different categories: ability to lead patient care, appropriate documentation, utilization of radio communication, knowledge of arena layout, and overall professionalism. The NA-EMT rated their respective AE-EMT’s ability to effectively teach and mentor the NA-EMT. This ensured two-way evaluation of the mentorship program and allowed EMS Supervisors to meet with NA-EMTs or AE-EMTs individually to rectify any issues. Each survey also had an open comments field where the EMTs could share specific suggestions for improvement, as well as personally address their fellow EMT regarding positive feedback and improvements for the next shift. All survey results were automatically sent to the EMS Supervisors for review.

*Large-Venue In-service*

Following the significant uptick in large-scale events during the Fall 2019 semester, an all-staff in-service was held in January 2020 focusing on large-venue emergencies and individual patient management. The in-service spanned 3.5 hours and included a lecture component, a hands-on scenario component, and a tour of Agganis Arena. This in-service was required for every member of BUEMS and was approved for continuing education credits by the Massachusetts Office of EMS (OEMS#1920-R4-08101-T2).

The lecture component was taught by a Massachusetts Certified EMS-Instructor/Coordinator (IC#897854) who was also an AE-EMT. The course curriculum included core components of LVEMS and highlighted the differences from conventional ambulance operations. The lecture spanned 90 minutes and included such topics as: the incident command system, radio and telephone communications, refusals and treat-and-release, extrication plans and equipment, and adapting the patient assessment to the large-venue environment (Supplementary Text 2)

Following the lecture, students were split into small groups to practice different patient care scenarios, which were based on actual arena events (Supplementary Text 3). Scenarios lasted 90 minutes and were proctored by multiple AE-EMTs, all of whom were also BUEMS-affiliated EMS Instructors. Students simultaneously managed three different simulated scenarios, which involved hands-on assessments, utilization of skills, and coordination among group members. Guided handouts created by the lead EMS Instructor-Coordinator were provided to additional instructors with scenarios including: the triage and treatment of two intoxicated patients of differing severities, a critical patient in respiratory arrest, and a seated patient with cardiac chest pain (Supplementary Text 4A-C). These scenarios were designed to improve the medical and operational management for the most common routine, emergent, and critical patients encountered within a concert. Mass gathering medical issues are inherently comprised of individual patients and to prevent morbidity and mortality of attendees, each patient must receive individualized care. With this concept in mind, we designed our scenarios to focus on the individual management of patients.

The Agganis Arena guided tour was given by AE-EMTs and conducted in small groups of roughly six students to three AE-EMTs. During the 30-minute tour, AE-EMTs led students around the venue, noting different locations where their particular patient encounters occurred. They also provided personal tips in navigating the venue, providing care within each section, and general team dynamics and operations.

**SUPPLEMENTARY TEXT 2: DIDACTIC LECTURES**

*The Incident Command System*

Prior to an event, it is vital to assign roles to each EMS provider.5 The incident commander should be the most experienced provider at the event and should be stationed in a central location that is quiet to allow for effective communication. In venues where all requests for EMS come on the same channel, the incident commander will be in charge of answering the request and dispatching the closest provider(s). Additionally, it is best practice to have a team of two providers assigned to strategic locations throughout the venue, with each team consisting of at least one senior experienced EMT.5

*Optimizing Communications*

Due to sensory distractions, it is difficult to rely solely on radio communication in the large-venue setting. Usage of cell phones, group messages, and landlines have proven especially effective in concert settings.6 Initially, the request for EMS should be acknowledged over the radio by the incident commander.5 The incident commander can then dispatch the closest provider team via radio and/or group message. The provider team must acknowledge the request and the location of the request via the same means as the incident commander dispatched them. Regardless of the type of communication device used, multiple links in communication are key.4,5

*Scene Size Up and Equipment*

It is recommended to utilize a robust first-in bag due to the often-vague nature of dispatches in the large venue.5 Boston University Agganis Arena, first-in bags include: airway adjuncts, manual suction device, oxygen equipment, basic trauma equipment, vitals equipment, and key medications (Aspirin, Epinephrine, Oral Glucose, and Narcan). This large first-in bag is often placed on a wheelchair along with an AED to allow easy transportation of equipment and patient extrication.

As most patients are stable enough for wheelchair extrication, one is typically brought to every call.7 However, it is crucial to have scoop stretchers and stair chairs readily available at strategic locations throughout the venue for more critical patients.7

Crowd control is another factor to consider during scene size up in the large-venue setting.1 The dense crowd creates challenges with the access and extrication of patients, and providers must be prepared to perform on-site treatment if necessary.2

*Altering the Patient Assessment*

Ambulance-based EMS operations often stress the importance of “load-and-go” for critically ill patients, and “stay-and-play” for less critical ones.8 However, this does not translate in large venue settings.9 Given the layout of an arena, if a patient were to go into cardiac or respiratory arrest on the floor of a concert, it could take many precious minutes to extricate them from a packed crowd, during which time it could be near impossible to perform effective CPR or ventilation. In our experience, it is more efficient to remove the crowd from the patient than remove the patient from the crowd.

For less critical patients, it is often better to move the patient to a more controlled environment.9 Chief complaints such as near-syncope or moderate intoxication are not immediately life threatening. To avoid distracting event goers and maintain patient privacy, it is better to extricate this patient via wheelchair away from the crowd.9

*Intoxicated Patients*

Venues need to have clear and well-established protocols for their providers to follow.4 At Agganis Arena, an intoxicated patient is only permitted to refuse transport should they meet all of the following criteria: over the age of 18, no signs of trauma, no active vomiting, ambulatory without assistance, can be released into the care of a responsible party, and no obvious life threats.9 For intoxicated minors, a good-faith attempt must be made to contact the parent/guardian. Should the parent/guardian wish to refuse transport on behalf of the minor, the parent/guardian must report to the arena to pick up their child. Otherwise, the patient should be released into the care of PD.4

*Refusals and Treat-and-Release*

At a large venue, a number of patrons will present to EMS for mild complaints, such as minor bleeding and rolled ankles. Patients such as these can often be treated and then released. Their encounters with EMS should be documented on a log sheet, but there is often no need for a formal PCR or the recommendation for ambulance transport.

For those patients who present with a complaint more serious than those above, ambulance transport should be recommended. However, it is important to be prepared for the fact that the majority of patients are often hesitant to accept ambulance transport from large venues. Should the provider feel that the patient has a potentially life-threatening condition, an ambulance should be called regardless of the patient’s request to not be transported.10 If the patient genuinely wants to refuse, they can refuse directly to the ambulance service in addition to the providers at the venue itself.

If the patient is under the age of 18, it is required for the provider to make a good faith attempt to contact the patient’s parent/guardian. A minor is never permitted to refuse care without parental or guardian consent. If the provider feels that the patient is critical and requires immediate transport, an ambulance should be called before the parent/guardian.4

*Extrication*

The lecture ended with a review of the different extrication equipment available to BUEMS. The scenarios following the lecture allowed the EMTs to practice hands-on with the extrication equipment.

**SUPPLEMENTARY TEXT 3: SIMULATED SCENARIO DESCRIPTIONS**

*Intoxicated Patients Triage*

In this scenario, students were presented with two patients simultaneously and had to decide how to appropriately triage. Students were given the following initial information: *“A 17-year-old female patient arrives at the arena first aid office with her friend. The patient’s friend reports that the patient is complaining of dizziness and nausea. The patient appears somewhat confused but alert. The friend tells you that they have both been drinking throughout the evening. As this patient enters the office, there is a call over the radio for a patient vomiting and possibly passed out in the bathroom.”*

This scenario forced students to rapidly triage and determine which providers needed to attend to which patient. In the case of only two providers being available, the more experienced one was indicated to attend to the potentially unresponsive patient with the less experienced one remaining with the walk-up intoxicated patient.

The portion of the scenario involving the teenage patient and her friend scenario allowed the EMTs to better understand the protocols surrounding the treatment of minors without their parent/guardian present.

The portion of the scenario dealing with the possibly unresponsive male vomiting allowed the EMTs to recognize how quickly intoxication can become a life threat. The EMTs were able to practice dealing with the logistics of working in an inconvenient location, having to call for crowd control, and working together to move the patient.

Additionally, the EMTs were able to practice suctioning mannequins, a crucial skill that does not come up in everyday large venue work.

*Respiratory Arrest Patient Located on Concert Floor*

In this scenario, students had to determine how to best extricate a patient in respiratory arrest while minimizing interruptions in ventilation. Students were given the following initial information: *“You and your partner are working on the stage-level of the arena during a large concert. An arena staff member flags you down and points towards a man in his 20s swaying towards the bottom of the stands. As you start to walk, he falls on his girlfriend who lowers him to the ground in the stands. The patient is found to be unresponsive with no chest movement”*

The purpose of this scenario was to allow the EMTs to practice working together to treat a critical patient in a dark and loud environment. The EMTs practiced recognizing a life threat as well as rapidly activating police and guest services for crowd control. After one minute of quality ventilation, the students were instructed to extricate the patient, as it was impractical to continue treatment in the compact stands. The students worked together to coordinate an extremity lift of the patient out of the stands and onto a scoop stretcher and into a more stable environment while minimizing interruptions to ventilations. Finally, the students had to practice their reassessment skills by ensuring ventilations were adequate and that Naloxone was appropriately administered at the correct dose.

The goal of this scenario was to insure not only that all EMTs were sufficient in their resuscitative skills, but also that they were able to apply those skills in a chaotic environment.

*Chest Pain Patient Seated in Stadium-Style Chair*

In this scenario, students were presented with a non-ambulatory and potentially critical patients requiring rapid extrication. Students were given the following initial information: *“You and your partner are working in the first aid office at the arena and are dispatched to a 57-year-old male seated in the stands with a distressed look. He is clutching his chest and has obvious work of breathing. He is AOx4 and reports a pressure in his chest and a feeling of impending doom”*

Based on the location and nature of the patient, the EMTs had to quickly recognize that they would need a stair chair, and most likely a lift assist. Unlike the previous scenario, the patient was in the middle of the stands with virtually no floor space. Despite the fact that this is a potentially critical patient, they need to be moved as soon as possible, as it would be impossible to ventilate or provide compressions at that location.

In addition to the logistical challenges of extrication, the EMTs also had to effectively treat a cardiac patient, an uncommon chief complaint in the college large-venue setting. After each EMT practiced with the stair chair, they talked through how they would medically treat this patient. Administration of basic life support cardiac medications and oxygenation to a level of 94% SpO2 were discussed.

**SUPPLEMENTARY TEXT 4A: SIMULATED SCENARIO BREAK-DOWN 1**

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| **Scenario #1** | ETOH Triage (Two Patients) |
| **Dispatch and General Impression** | **Dispatch:** You and your partner are working at Agganis. While working, a 17-year-old female patient arrives at the office with her friend. The patient friend reports that the patient has recently begun complaining of dizziness and nausea. The patient appears somewhat confused but alert. The friend tells you that they have both been drinking throughout the evening. As this pt enters the office, there is a call over the radio for a patient vomiting and possibly passed out in the bathroom.  **Triage**: Students should triage and determine which patient is more critical--They should describe which patient is more critical and why and which provider would go to which call  **Patient 1 (Critical):**  General Impression: Patient is a 20-year-old male lying in vomitus, prone next to the toilet. He is responsive to voice. GCS 3/4/6  Airway: Patient is lying prone with vomitus clearly in the airway. The patient needs to be turned on his side. Vomitus needs to be suctioned out of the airway.  Breathing: Normal, Regular, and Regular  Circulation: Skin is Pale, Dry, and Warm. Pulse is Rapid, Regular, and Regular  OPQRST: Friend states that friend began vomiting about 10 minutes ago. If students ask, the patient lowered himself to the floor and there are no signs of trauma.  SAMPLE: Patient is able to follow commands but is not able to provide a reliable medical history. Friend reports that he and his friend have been doing shots all night, and lost count. Friend does not know if the patient has any medical history  Vitals: BP 110/70, HR 120, RR 11, BGL 170, SpO2- 94% (Room Air)  Treatment/Transport: ALS ambulance should be activated upon finding an altered mental status and ABC issue. EMTs should continue to monitor the airway and ensure that breathing does not slow. EMTs should also consider their location of treatment. If the patient becomes more stable or if the bathroom cannot be closed to the public, students should consider moving to a more stable environment.  **Patient 2 (Non-Critical)**  General Impression: The patient is a 17-year-old female, who walks in and sits down. She tells you she feels fine and was just a little dizzy. Her friend reports that they have both been drinking throughout the night, and it is their first-time drinking alcohol. Patient is alert and following commands. However, she appears to be answering your questions slowly, and is slightly confused. Patient answers all AOx4 questions but gets the date and location wrong on the first try. GCS 4/4/6 or 4/5/6 (depending on the level of confusion)  Airway: Patent. Speech is clear but slow.  Breathing: Slightly Rapid, Regular, and Regular  Circulation: Pulse is Rapid, Regular, and Strong. Skin is Warm, Pink, and Dry.  OPQRST: Friend reports that about 10 minutes ago, pt began to complain of dizziness and nausea, and seemed increasingly confused and aggressive. Pt is initially reluctant to tell you what happened. If the students use strong communication techniques, they will get: Pt had 4 drinks and some marijuana about an hour ago and this was the pt first time really experimenting with drugs or alcohol  SAMPLE: Pt reported nausea and dizziness. You note that pt becomes increasingly anxious and aggressive as you continue to question her. Pt is again reluctant to share information about medications and history. Last oral intake was dinner about 2 hours ago. Good communication techniques will tell you: Pt takes Prozac and Vraylar regularly and has no other medical hx or medications. All other S/S are negative.  Vitals: BP 100/60, HR110, RR12, BGL 150, SpO2- 97% RA  Treatment/Transport: The patient does not have any apparent life threats, as the altered mental status can be attributed to the intoxication. However, a parent should be called at this time, and BLS transport should be encouraged. Ultimately, the parent refuses but agrees to come and pick up the patient |
| **Treatment and response (in order of priority)** | **Patient 1:**  -Airway (Turn on side and suction)  **Patient 2:**  -Obtain accurate history (to insure something else is not causing the change in mental status)  -Encourage parent to accept transport |
| **Equipment** | * Suction * First-in Bag * Vitals |
| **Teaching objectives and debrief points** | **Triage:** While the intoxicated minor appears to not be fully oriented, a quick history will tell you that this patient recently drank alcohol and smoked marijuana, and that the changes in mental status began acutely after that. There are no indications that the altered mental status is caused by another medical issue. The patient who is vomiting in the bathroom is possibly unresponsive, most likely has a critical airway problem, and needs immediate care. Additionally, the dispatch information does not provide a cause, so the vomiting could easily be caused by something medical.  **Transport**: For the bathroom patient, as soon as the students recognize a life threat (ABC issue), ALS ambulance transport should be initiated. Transport should not be initiated without parental consent for the other patient, as there is no obvious life threat (so no implied consent for transport)  **Lifting and Moving:** The bathroom patient can me moved via wheelchair (provided they can hold their head up or someone maintains the airway). A scoop could also be used. Could also wait for stretcher--depends on how controllable the scene is.  **Communication:** For minors, the parents should be called and briefed as to what is going on. If the pt is coherent and understands the situation, it is sometimes best to have them text/call the parent first. When talking to parents, it is important to be honest with them, and not present non-existent life threats. As with any pt who wants to refuse, you should thoroughly explain risks of refusal. Always encourage transport, but only present legitimate risks, such as that a drunk patient could pose a risk to themselves if allowed to leave, or that it is safer for the pt to be transported. If a parent wants to refuse, encourage them to come and pick up the pt  If you believe the pt cannot safely return to the event, call an ambulance and make a parent refuse them too. When talking with intoxicated patients, make sure that you make it clear you are not here to judge, get them in trouble… and that they understand you need to know what they did in order to make sure they are okay.  **Refusal:** Once the mother confirms the refusal, the pt is no longer EMS responsibility and needs to go with PD and wait outside of the office. Onsite police or security should sign as a witness and should be present for the speaker-phone refusal with the parent. Parent information and relation must also be recorded. |

**SUPPLEMENTARY TEXT 4B: SIMULATED SCENARIO BREAK-DOWN 2**

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| **Scenario #2** | Overdose on the Concert Floor |
| **Dispatch and General Impression** | General Impression: You and your partner are working on the floor of Agganis during a large concert. You are on the floor of section 113. An Agganis staff member flags you down and points towards a man in his 20s swaying towards the bottom of the stands. As you start to walk over, he falls on his girlfriend who lowers him to the ground. After checking for responsiveness, patient is found to be unresponsive, GCS 1/1/1. No chest rise or fall is seen while checking for responsiveness.  Circulation: A pulse is present and is weak and thready (hard to palpate but often rapid). Skin is pale (with cyanosis around the lips), cool, and dry. As soon as students determine there is a pulse, they should start ventilating. Emphasize the importance of a manual pulse check.  Airway: OPA is attempted but patient has a gag reflex. NPA is accepted. Note that NPA would work better in this scenario as patient may become responsive again and no longer accept an OPA.  Breathing: Controlled by BVM.  Lifting and Moving: Once patient has been ventilated for about 1 minute, students should coordinate moving the patient to a better location while minimizing delays in ventilations. See Teaching Objectives.  OPQRST: Patient collapsed just before patient contact. Girlfriend states that she doesn't know what happened, and that patient was fine just prior to this.  SAMPLE: Pt girlfriend reports that patient did not take any drugs, only drank some chardonnay. She reports he takes no medications. Pupils are pinpoint.  Vitals: BP 100/60, HR 100, RR controlled by BVM. BGL 110. SpO2- 95%  Treatment/Transport: ALS ambulance should be activated immediately upon determining patient was unresponsive. Ventilations should be continued throughout care, pausing only to administer Narcan and when the patient begins to spontaneously breathe. Students should talk through the administration of Narcan (2-4mg Nasally, indicated by pinpoint pupils and respiratory depression). |
| **Treatment and response (in order of priority)** | -BVM (Preferably with O2)  -OPA/NPA  -Manual Pulse Check every 2 minutes |
| **Equipment** | * O2 tank and BVM * OPA/NPA * First-in Bag * Vitals * Scoop (and sheet) |
| **Teaching objectives and debrief points** | **Two-Person Ventilation:** This is by no means a necessity. However, if there are enough providers available who are truly not doing anything else productive for patient care, they should help with ventilation. Two-person ventilation has been proven to result in better patient outcomes than one-person ventilation. However, the extra providers should keep their headsets on/be ready to leave and go on another call if one comes in.  **Lifting and Moving:** A scoop stretcher should be set up on the floor first. The pt should be lifted via an extremity lift maneuver (students should practice on each other) and placed on the scoop. Ventilation can momentarily stop during this initial move. Once on the scoop, ventilation should continue while the patient is secured. Once secured the patient should be lifted while ventilation continues. Students should practice coordinating lifting while ventilating, as that will require a lot of strong communication. If students come up with another efficient way to move the patient, that works as well.  **Narcan:** Students should quickly recognize that the patient is suffering from an opioid overdose and should administer Narcan. Students should understand that Narcan should not be given before the ABCs are treated. Students should understand that ventilations and compressions (if applicable) are the priority. Students should be aware that patient could become aggressive or violent and should be aware of the patient’s level of responsiveness as well as the airway as patient could begin vomiting |

**SUPPLEMENTARY TEXT 4C: SIMULATED SCENARIO BREAK-DOWN 3**

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| **Scenario #3** | Chest Pain in the Stands |
| **Dispatch and General Impression** | General Impression: You and your partner are working in the first aid office at Agganis and are dispatched to a 57-year-old male in the middle of section 102 with chest pain. Your patient is seated in the stands with a distressed look. He is clutching his chest and has obvious work of breathing. He is AOx4 and reports a pressure in his chest and reports that he feels like he is going to die.  Airway: Patent.  Breathing: Rapid, regular, and regular  Circulation: Pulse that is rapid, regular, and weak. Skin is cool, pale, and diaphoretic. Oxygen can be administered at this point.  Lifting and Moving: While preparing the necessary resources for a safe move (stair chair, EMS/FD/PD/Venue staff…), a history should be obtained. Ultimately, this patient should be extricated via stair chair. As soon as extrication is ready, patient should be moved because the severity of symptoms suggests patient is having an MI and could go into cardiac arrest if not treated.  OPQRST: Chest discomfort developed over the past few hours, and all of a sudden became a feeling of crushing pressure. Any significant movement worsens the pressure. Pt describes a crushing pressure with no radiation. Pressure is 8/10 and rapidly increased in severity ten minutes before your arrival.  SAMPLE: Pt reports chest pressure. Reports that if feels “hard to breathe” with pain upon inspiration and expiration. Pt is nauseous and experiencing FOID (Feel of Impending Doom). No other symptoms. Simvastatin and Lisinopril taken regularly. Has Nitroglycerin but has never used it. History of HTN and Hyperlipidemia. This is his first episode of chest discomfort/pressure.  Vitals: BP 124/70, HR 120, RR 20, BGL 100. SpO2- 91% RA (Room Air) and 98% on O2  Treatment/Transport: ALS ambulance should be activated immediately upon determining patient has cardiac chest pain. ASA should be administered after determining indications and contraindications. If students do not ask about allergies, have patient go into anaphylactic shock after ASA administration. Pt should be administered Nitro as well after discussing indications and contraindications. |
| **Treatment and response (in order of priority)** | -Oxygen  -ASA  -Nitro  -Rapid Extrication |
| **Equipment** | -Oxygen  -ASA and Nitro  -First-in Bag  -Stair Chair  -Sheet |
| **Teaching objectives and debrief points** | **Initial Assessment:** Students should quickly recognize the need for early ALS activation. Students should really take into account the patient’s physical appearance/general impression--He looks like a critical patient so students should be efficient in the assessment but should not hurry through it. Students should be efficient by delegating one EMT to gather history and another to gather vitals and administer medications. History questions should initially focus on the chief complaint and immediate life threats--Students can wait to ask questions like last oral intake and pertinent negatives like dizziness or headache until after fully assessing the chief complaints. If time, talk about how females sometimes present MIs differently  **Lifting and Moving:** With only 2 EMTs it will be hard to move the patient without additional resources, so students should activate additional resources as soon as they see where the patient is seated. Students should enter the scene with an exit strategy.  It is important to move this patient out of the stands, as chest pain and shortness of breath can progress to a full blockage, which can progress to a full cardiac arrest, and it would be impossible to provide high quality resuscitative care in the stands. Additionally, not moving the patient will further delay the patient’s critical definitive care. It has been proven significantly beneficial to limit on scene time for patients experiencing cardiac-related chest pain. Students should be hands-on with stair-chairs in this scenario. It is also important to note that without an ECG, students do not really know if this is a STEMI or another life-threatening cause of chest pain.  **Medication Administration**:  ASA: Four 81mg tablets should be administered. Talk through the indications (cardiac-related chest pain) and contraindications (allergy, GI bleed). Make sure to stress to students the importance of asking about allergies before administering medications. They should also tell the patient what medication they are giving as another check for contraindications. They should not just hand a patient 4 Aspirins with no explanation. If students give ASA without asking about allergies, have patient go into anaphylaxis.  Nitroglycerin: Talk through the indications (Per Massachusetts EMS protocols, systolic BP above 120, Pt prescription, experiencing cardiac-related chest pain) and contraindications (Recent head trauma, ED meds, pt is not prescribed it). Stress importance of vitals before and after. Students also need to be vigilant about checking the date--it is the patient’s medications and students do not know if it is current. If students attempt to give Nitro without taking a BP before and after, have the pt become hypotensive. |

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