LifeNet, Inc. | 2017 Annual Report on
OUT-OF-HOSPITAL CARDIAC ARRESTS
**Definitions**

Asystole .................................................. The cession of all electrical activity in the heart.

Base Station Physician (BSP) .......................... On-duty hospital physician responding by radio, telephone, or cell phone contact.

Bystander CPR ............................................. Person who performs cardiopulmonary resuscitation on a cardiac arrest patient and is not a member of the organized emergency response system.

Call Response Interval ................................. From time call for help answered at the LifeNet communications center until paramedics arrived at scene. Also referred to as call received/receipt until at scene interval.

Cardiac Etiology .......................................... A cardiac arrest presumed related to heart disease.

Cardiopulmonary Resuscitation (CPR) ............. Widely used method of resuscitation utilizing a series of closed chest compressions and manually assisted respirations.

Computer Aided Dispatch (CAD) .................... All calls for an ambulance are transferred from a 911 call taking center to a single Ambulance Communications Center and automatically assigned an incident number and time stamped.

Death Determined at Scene (formerly dead on scene, DOS) . Circumstances in which the condition of a cardiac arrest victim is such that resuscitation attempts are determined to be futile.

First Responder Organization (FRO) ............... An identified organization of trained personnel used for rapid incident response.

Other Lethal Rhythm (OLR) ............................ Various non-arrest rhythms that will not sustain life.

Public Access Defibrillation (PAD) ................. The provision of defibrillation by non-traditional “first responders” such as security guards, lifeguards, etc.

Pulseless Electrical Activity ............................. An organized cardiac rhythm but no pulse/cardiac output is present.

Resuscitation Not Attempted ........................... Patients for whom paramedics do not attempt resuscitation on. The current LifeNet policy is that if a patient has evidence of being dead for a period of time where resuscitation attempts would have no hope of success the paramedics do not attempt resuscitation. Additionally, resuscitation is not attempted on patients with a Do Not Resuscitate (DNR) order.

Sudden Cardiac Arrest (SCA) ......................... The sudden collapse of victim found to be pulseless and breathless.

Unwitnessed Arrest ............................... The patient is found after the arrest has occurred

Utstein Criteria ........................................... Internationally agreed upon data template for reporting out-of-hospital cardiac arrest.

Ventricular Fibrillation / Ventricular Tachycardia (VF/VT) .... A state of disorganized electrical activity in the heart.

Witnessed Arrest ........................................ Patient collapse was seen or heard by a bystander.
Sudden Cardiac Arrest (SCA) is one of the leading causes of death and a major public health problem in the United States. Since 2005, LifeNet, Inc has been dedicated to measuring and reporting SCA statistics using the Utstein Style\(^1\) for reporting cardiac arrest data. As part of this process, LifeNet clinical staff review and report on every adult SCA patient whose arrest is deemed to be of a medical (non-traumatic) origin.

Patients experiencing SCA fall into two categories: Witnessed SCA and Not-Witnessed SCA. Patients who have an SCA event that is witnessed by another person generally have the best chance of survival because someone is present to summon EMS thus beginning the steps of the “Chain of Survival.”

Once a LifeNet medical crew makes contact with an SCA victim they must first determine if the patient has any reasonable chance of survival. When the Paramedics determine that a patient may have a chance to survive, and that no obvious reasons to withhold treatment are present, they then initiate an aggressive resuscitation attempt. This includes cardiopulmonary resuscitation (CPR) in which artificial ventilation and external chest compressions are performed. In addition, Paramedics will establish intravenous access and administer medications and manually defibrillate when necessary to attempt to stimulate the heart and achieve a Return of Spontaneous Circulation (ROSC). Generally, patients who achieve ROSC are then transported to the Emergency Department for further resuscitation and care. Patients who do not respond to prehospital resuscitative efforts are considered to be deceased and documented as a field termination.

In 2017, paramedics throughout the LifeNet system responded to 918 non-traumatic SCA events. ALS resuscitation was attempted on 379 (42%) of those SCA events. Of the 379 resuscitation attempts, 228 patients (61%) were transported to the hospital while 151 resuscitation attempts (39%) ended with field terminations. There were 49 patients (13%) who survived to hospital discharge. The national average in this overall survival category is 8% - 10%.

In the Texarkana Division resuscitation was attempted on 147 of the 451 patients who suffered SCA. These numbers include 70 transports and 77 field terminations. There were a total of 44 patients who had ROSC while 21 patients survived to discharge for a survival of 15%.

In the Hot Springs Division there were 377 victims of SCA and resuscitation was attempted on 174 patients. Included in these numbers were 128 transports and 46 field terminations. Sixty-one patients had ROSC and 22 (13%) reached discharge.

---

1. The Utstein Style is a set of guidelines for uniform reporting of cardiac arrest and was first proposed for emergency medical services in 1991. For more information: [https://en.wikipedia.org/wiki/Utstein_Style](https://en.wikipedia.org/wiki/Utstein_Style)
In the Payne County Division, LifeNet Paramedics responded to 90 SCA events. Resuscitation efforts were attempted on 58 patients, and 30 of those 58 were transported to the ED. Field termination was performed on 28 patients and 6 patients survived to hospital discharge bringing the over-all survival percentage for Payne County to 10%.

When comparing LifeNet’s SCA data with other EMS systems it is important to note that other systems report their survival percentages based on “Witnessed V-Fib” events only. For example, New York, NY reports a survival percentage of 2%-3%, while Seattle, WA reports in the range of 50%. LifeNet’s Witnessed,VF survival percentage for 2017 is 25%.

### TXK Division | 21 Survivors – 15%

<table>
<thead>
<tr>
<th>Non-Traumatic Arrests</th>
<th>451</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resuscitations Attempted</td>
<td>147</td>
</tr>
<tr>
<td>Witnessed Event ROSC</td>
<td>33%</td>
</tr>
<tr>
<td>Witnessed VF Survival</td>
<td>19%</td>
</tr>
</tbody>
</table>

### HS Division | 22 Survivors – 13%

<table>
<thead>
<tr>
<th>Non-Traumatic Arrests</th>
<th>377</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resuscitations Attempted</td>
<td>174</td>
</tr>
<tr>
<td>Witnessed Event ROSC</td>
<td>41%</td>
</tr>
<tr>
<td>Witnessed VF Survival</td>
<td>25%</td>
</tr>
</tbody>
</table>

### PC Division | 6 Survivors – 10%

<table>
<thead>
<tr>
<th>Non-Traumatic Arrests</th>
<th>90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resuscitations Attempted</td>
<td>58</td>
</tr>
<tr>
<td>Witnessed Event ROSC</td>
<td>62%</td>
</tr>
<tr>
<td>Witnessed VF Survival</td>
<td>50%</td>
</tr>
</tbody>
</table>

### LifeNet System

<table>
<thead>
<tr>
<th>Non-Traumatic Arrests</th>
<th>918</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resuscitations Attempted</td>
<td>379</td>
</tr>
<tr>
<td>Witnessed Event ROSC</td>
<td>40%</td>
</tr>
<tr>
<td>Witnessed VF Survival</td>
<td>25%</td>
</tr>
<tr>
<td>Survival to Discharge</td>
<td>49 (13%)</td>
</tr>
</tbody>
</table>
## Contents

Introduction. ................................................................. 7

Timing is Everything = Chain of Survival .......................... 8

Early Access .............................................................. 8

Early CPR. ............................................................... 9

Early Defibrillation .................................................... 9

How AEDs Work ....................................................... 10

Early Advanced Care ................................................ 10

Measuring CPR Efficiency .......................................... 11

Integrated Post-Cardiac Arrest Care .............................. 12

Measuring Success – Utstein Style. ............................... 12

Results ..................................................................... 13

ROSC .................................................................... 14

Medical Direction is the Key to LifeNet’s Success in the Field . . 17

Appendix: Cardiac Arrest Report: Texarkana, USA – Adult – Medical ........ xxii

Appendix: Cardiac Arrest Report: Texarkana, Texas – Adult – Medical. ........ xxii

Appendix: Cardiac Arrest Report: Texarkana Division – Adult – Medical . xxiii

Appendix: Cardiac Arrest Report: Hot Springs – Adult – Medical. ............ xxiii

Appendix: Cardiac Arrest Report: Hot Springs Division – Adult – Medical . xxiv

Appendix: Cardiac Arrest Report: Hot Springs Village – Adult – Medical . xxiv

Appendix: Cardiac Arrest Report: Malvern – Adult – Medical ................. xxv

Appendix: Cardiac Arrest Report: Payne County – Adult – Medical .......... xxv

Appendix: Cardiac Arrest Report LifeNet System Adult – Medical ............ xxvi

Appendix: LifeNet, Inc Cardiac Arrest Survivor Data. ....................... xxvii
Introduction

Every 29 seconds, someone in the United States suffers a heart attack and every minute someone dies from one. Sudden Cardiac Arrest (SCA) is one of the leading causes of death and a major public health problem, representing 30% of all non-traumatic and 50% of all coronary artery disease-related deaths. In the United States, approximately 300,000 to 400,000 sudden deaths occur annually and about two thirds of these victims are above the age of 65 years.

Dr. Richard Cummins, editor for the American Heart Association (AHA) textbook of Advanced Cardiac Life Support, stated that sudden cardiac arrest is “the most dramatic and emotional moment of a person’s life.” The majority of patients experiencing cardiac arrest will not survive.

In most cases this event occurs due to ventricular fibrillation, an abnormal heart rhythm that causes the heart muscle to fibrillate or quiver in a chaotic motion. If left untreated, this condition leaves the heart muscle unable to pump blood and death occurs within minutes. Because sudden cardiac arrest is one of the leading causes of death in our nation, it is a major public health problem. The emergency management of this devastating event remains one of the core purposes of any EMS system.

Survival from SCA depends on the interval between the patient’s collapse and the delivery of the first defibrillatory shock. This becomes remarkably time-dependent, where minutes and even seconds will determine whether one lives, dies, or becomes becoming neurologically impaired due to lack of oxygen being sufficiently supplied to a patient’s brain. Creating an optimal opportunity for a successful resuscitation includes very specific time-critical components: early recognition, early access to emergency medical services, early initiation of cardiopulmonary resuscitation (CPR), early access to defibrillation, a timely response and superior skill from the community’s EMS system, and focused post-arrest care in the event of Return of Spontaneous Circulation (ROSC).

According to the American Heart Association, clinical and epidemiological studies have confirmed two observations:

1. Almost every adult (over 90% in most studies) who survives sudden non-traumatic cardiac arrest was resuscitated from Ventricular Fibrillation (VF).
2. The success of defibrillation is remarkably time-dependent.

The probability of defibrillating (shocking) someone back to a perfusing heart beat declines about 7% to 10% per minute, starting with the estimated probability of 70% to 80% survival at time zero. These depressing statistics mean that if we have not managed to shock a patient within 10 minutes from their collapse, the probability of surviving the event approaches zero. More recent studies are demonstrating that CPR prior to defibrillation can significantly improve the likelihood of defibrillation success.

The cornerstone to providing optimized care to these patients is timely and effective interventions from the entire community (Chain of Survival). From the bystander or family member calling for help, to the provision of bystander CPR and use of an Automatic External Defibrillator (AED), until the arrival of a paramedic or emergency medical technician with a defibrillator, all must come together in team partnership to collectively achieve the highest survival of sudden cardiac arrest (SCA) possible.

Early Access

Early access means:

- Recognizing that a cardiovascular emergency exists
- Immediately phoning Emergency Medical Services (EMS)

In most communities, phoning 9-1-1 accesses the EMS system.

Elements that strengthen early access include:

Enhanced 9-1-1

This system automatically displays the caller’s address and phone number on the EMS dispatcher’s computer screen. This feature reduces response time and helps callers who speak foreign languages, can't speak, or don't know their location. Both LifeNet communication centers have enhanced 911.

Improved Addresses in Rural and Urban Areas

Many communities have delays in emergency response. Why? Because house numbers aren’t assigned or properly displayed. Designating clear addresses for all residents lets emergency personnel easily find them. To implement and use an enhanced 911 system, all locations in a community must have proper addresses and they must be properly displayed.

Qualified Emergency Medical Dispatchers (EMDs)

Properly trained dispatchers are more likely to send the right resources. But there's even more they can do. Often callers don’t know — or can’t remember — what to do in an emergency. Allowing dispatchers to give CPR (and other medical) instructions by phone enables callers to care for victims until help arrives. Without trained EMDs, victims may face delays that could mean the difference between life and death. Each of LifeNet's communication centers has at least one EMD qualified person on duty at all times.
Awareness of early warning signs

Early access only happens if the community knows who to call and when to call. Many people deny (or don’t know) the symptoms of a cardiovascular emergency. Instead of phoning 911 first, some people call loved ones or their own doctor. This wastes precious time. One of LifeNet’s primary awareness efforts is to assist the community in learning the warning signs and when to call 911 first.

Early CPR

Early CPR means giving CPR promptly and properly when it’s needed. When CPR is performed, rescue breathing and chest compressions circulate oxygen rich blood to vital organs. This buys time for the victim until defibrillation (the next link in the Chain of Survival) can be given. This Early CPR link is stronger when bystanders or callers know CPR and EMDs can give CPR instructions by phone.

LifeNet does not conduct in-house CPR for the public. When contacted, we direct people to either their local American Heart Association Training Site or the American Red Cross for the proper training. However, LifeNet has conducted numerous “Hands-only CPR” courses at a host of events throughout the service areas. Civic groups, health fairs, and community events are just a few of the type of events this training is provided.

Payne County has instituted a community CPR program in partnership with the City of Stillwater.

The graph to the right shows a breakdown of who was performing CPR on those calls in which CPR was being performed prior to EMS arrival. In 2017, CPR was performed prior to arrival of EMS on 276 (88%) of the arrests that LifeNet responded to.

Early Defibrillation

Early defibrillation means delivering an electric shock to the heart within minutes of a cardiac arrest. Defibrillation is performed with a device called a defibrillator. Automated external defibrillators (AEDs) are user-friendly, computerized defibrillators. They use voice prompts to lead a rescuer through the steps of defibrillation. Trained rescuers can use AEDs to give a potentially lifesaving electrical shock to a victim’s heart during cardiac arrest. Early defibrillation is often called the critical link in the adult Chain of Survival. That’s because it’s the best way to successfully treat most cardiac arrests.

In our communities, LifeNet personnel and first responders have traditionally provided defibrillation. However, quick EMS response isn’t

<table>
<thead>
<tr>
<th>CITY</th>
<th>Pct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texarkana, Texas</td>
<td>91.9%</td>
</tr>
<tr>
<td>Texarkana, Arkansas</td>
<td>90.2%</td>
</tr>
<tr>
<td>Hot Springs, Arkansas</td>
<td>96.2%</td>
</tr>
<tr>
<td>Hot Springs Village, Arkansas</td>
<td>91.7%</td>
</tr>
<tr>
<td>Malvern, Arkansas</td>
<td>92.0%</td>
</tr>
<tr>
<td>Stillwater, Oklahoma</td>
<td>96.9%</td>
</tr>
</tbody>
</table>
How AEDs Work

Highly sophisticated AEDs that are accurate, inexpensive and virtually maintenance-free enables their use in the home, workplace and public buildings. An AED is a device used to treat a patient with cardiac arrest whose heart is beating irregularly (fibrillating). If the heart does not return to a regular rhythm within 5-7 minutes, this fibrillation could be fatal. To stop the fibrillation, an AED is used to administer an external electric shock through the chest wall to the heart with the use of conductive adhesive pads. Built-in computers analyze the patient’s heart rhythm, and interpret the rhythms that require defibrillation shocks. Audible and/or visual prompts guide the user through the process. Most AEDs require an operator to initiate the delivery of the shock in some way, such as pushing a button.

In order to have AEDs available more quickly for the persons who need them, some facilities (such as hotels, airports, and schools) are purchasing these devices under what is called a Public Access Defibrillation (PAD) program. However, since AEDs are prescription devices and must be labeled with the prescription statement required by law (CFR 801.109), a physician who oversees the PAD program at a facility must write a prescription for the AED in order for the facility to purchase it.

always available. Even the best EMS systems are delayed by heavy traffic, secured buildings, and gated communities. Large building complexes and high-rises also pose problems.

In 2017, an AED was used (fired) thirteen (13) times in the Texarkana Division, thirteen (13) times in the Hot Springs Division and four (4) times in the Payne County Division.

In the urban areas, LifeNet’s average response time to deliver a paramedic to the emergency scene is about 6.5 minutes. Secondly, the delivery of our personnel’s defibrillation (shock) once at the “patient’s side” is most often within the first two minutes.

In some communities and facilities, LifeNet personnel or first responders with AEDs can’t reach cardiac arrest victims within the critical four minutes after collapse. For these situations, LifeNet has advocated establishing automated external defibrillator (AED) programs. AED programs equip lay rescuers with AEDs and train them to perform CPR and use AEDs. This helps ensure that the people most likely to arrive first at a medical emergency are equipped to help. These people include firefighters, law enforcement and security officers, industrial facility staff, and retirement community workers, among others.

In the last year, we visited area service clubs with AED presentations. Informational hand-outs were distributed at different health fairs and PR events. Several organizations have added AEDs for their facility. To date over 30 first responder groups are active inside our service area as well as the school districts and many of the churches.

Early Advanced Care

Early advanced care means having qualified paramedics, like LifeNet, respond to cardiac arrests and begin treating the victim as soon as possible. These professionals can stabilize people who suffer a cardiovascular emergency. Ideally, advanced cardiovascular care should be available within minutes of collapse or the onset of symptoms. This gives victims the greatest chance of long-term survival.

By providing an all Advanced Life Support (Paramedic) response system, LifeNet can place a trained paramedic on the scene of each SCA to help determine the appropriate action and care plan for each situation.
Measuring CPR Efficiency

As we learn more and more about resuscitation science, one thing has become abundantly clear: CPR quality is the key. Quality, high-performance CPR as practiced in the “Pit-Crew CPR” method has proven to save more lives. Therefore, capturing and monitoring CPR performance during the event is extremely important.

LifeNet utilizes the ZOLL X Series® Cardiac monitor/defibrillator which is equipped with the ability to provide real-time CPR quality feedback and record the data for review. Through various visual and audio prompts, the CPR feedback module is designed to help guide the rescuers to provide high quality CPR.

In order to facilitate this capability, LifeNet issues the feedback capable pads to all area responders to be used with their AEDs.

Once a cardiac arrest event has concluded, the LifeNet field crew can then view their performance via ZOLL’s RescueNet Code Review® software on their tablet PC. As a part of LifeNet’s ongoing quality improvement initiatives, the field crews will also receive feedback from the Quality Improvement department regarding their performance and compliance. An example of a CPR performance report graph is pictured above.

Often, there are other responders at the scene who are enlisted to help with compressions. In these events, LifeNet field staff are instructed to monitor the CPR performance to ensure quality CPR is delivered throughout the event. In order to keep all potential rescuers informed, LifeNet Educators from each division have performed numerous training events in 2015-2016 to stress the importance of high-quality CPR. In January 2016, LifeNet launched joint training initiatives with local Fire Departments to the Pit-Crew CPR method to ensure that quality CPR is delivered.

According to studies and guidelines published by the American Heart Association in 2015, chest compressions should be delivered at a rate of “100-120/min” and “at least 2 inches” in depth.

An evaluation of resuscitation performance on a number of cardiac arrest events in 2013-2016 revealed that there were some common issues that needed improvement. They are:

- Chest compressions being performed too fast
- Chest compressions too shallow
- Too much time off-chest during a SCA event
- Ventilations being performed too fast

These four items became the focus of the LifeNet Quality Improvement team and since that time, the clinical staff have been working together to improve the quality of care.
Integrated Post-Cardiac Arrest Care

By using medications designed to help a struggling heart pump more efficiently and in some cases, incorporating treatments such as Therapeutic Hypothermia, post arrest care is essentially a focused treatment plan designed to prevent a person who has been “clinically dead” from suffering the same fate again. While protocols for post arrest care vary from region to region, several treatments are considered to be the “standard of care.” Mainstays of this treatment plan include: appropriate oxygenation, vasopressor agents and glucose evaluation and control.

Currently, LifeNet personnel focus on obtaining a 12 lead ECG post arrest, along with vasopressor agents, ventilatory support, and dextrose evaluations in an effort to stabilize the patient.

Measuring Success - Utstein Style

Since 2005, LifeNet has classified all instances of SCA using the Utstein Style for uniform reporting of cardiac arrest. The Utstein Style was first proposed for emergency medical services in 1991 to provide a uniform method of collecting and reporting cardiac arrest statistics.

By using many of the same quality improvement strategies, we are able to measure our success nationally as well as using the information to assist in planning and education.

Data is collected using information from our Electronic Patient Care Reports (ePCRs) prepared by the paramedic. Clinical Managers extract the data from ePCRs used to document a SCA event and then sift through that data to discover the needed information. Additionally, each division’s Clinical Manager follows up on each patient that was transported to find out which ones survived to discharge.
Results

Company

System-wide, 918 adult patients (less than 1% of service area’s population of 288,020) were recorded in our database as having sudden death out of the hospital. This number includes all unresponsive, breathless, and pulseless adult patients that stimulated 911 activation.

In our system, resuscitation is not attempted on patients with obvious signs of death, patients with a valid Out-Of-Hospital DNR, or any patient that is believed to be not viable (no reasonable expectation of survival). When a patient is believed to be viable, aggressive resuscitation efforts are performed until the patient has ROSC and is transported, or the efforts are deemed futile and the resuscitative efforts are terminated.

Of the 918 SCA patients, resuscitations were attempted on 379 (41%) with 228 patients (60%) transported to the hospital while 151 patients (40%) ended with field terminations.
ROSC

Return of Spontaneous Circulation (ROSC) occurred in 130 patients (34%). Return of spontaneous circulation (ROSC) is resumption of sustained, perfusing cardiac activity after cardiac arrest. Signs of ROSC include breathing, coughing, or movement and a palpable pulse or a measurable blood pressure.

Forty-nine patients survived to discharge. The over-all survival percentage for LifeNet EMS in 2017 is (13%). LifeNet measures and reports its survival percentage based on all cardiac arrests. Other systems such as Seattle (see below) measure and report their survival percentage based on “witnessed - v-fib” arrests only. Using this format, LifeNet’s 2017 survival percentage is (25%).

As a comparison, Seattle, Washington, where CPR training is widespread and EMS response and time to defibrillation is short, the survival rate for witnessed VF cardiac arrest is about 50 percent. In New York City, where few victims receive bystander CPR and time to EMS response and defibrillation is longer, survival from sudden VF cardiac arrest averages 1–2 percent.

**Texarkana**

In Texarkana, Arkansas there were 99 SCA victims and 30 attempted resuscitations. Of these, eight patients survived to discharge. (27%)

In Texarkana, Texas resuscitation was attempted on 66 of the 205 patients who suffered SCA. These numbers include 32 transports and 34 field terminations. There were a total of 18 patients who had ROSC while eight patients, or 12%, survived to discharge.

**Hot Springs**

In Hot Springs, there were 152 victims of SCA and resuscitation was attempted on 73 patients. Of these, 24 had ROSC and nine (12%) reached discharge.

**Hot Springs Village**

Fifty-three residents of the Village were victims of SCA. Of these, resuscitation was attempted on 23. There were seven field terminations, six patients with ROSC, and there was one survivor. (.04%)

### Witnessed V-Fib Survival Percentage

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Texarkana, USA</td>
<td>27</td>
<td>20</td>
<td>33</td>
<td>17</td>
<td>28</td>
<td>29</td>
<td>42</td>
<td>32</td>
<td>21</td>
</tr>
<tr>
<td>Hot Springs, AR</td>
<td>23</td>
<td>22</td>
<td>40</td>
<td>27</td>
<td>57</td>
<td>50</td>
<td>47</td>
<td>27</td>
<td>22</td>
</tr>
<tr>
<td>Texarkana Division</td>
<td>21</td>
<td>20</td>
<td>29</td>
<td>24</td>
<td>27</td>
<td>40</td>
<td>31</td>
<td>30</td>
<td>19</td>
</tr>
<tr>
<td>Hot Springs Division</td>
<td>16</td>
<td>20</td>
<td>28</td>
<td>27</td>
<td>45</td>
<td>40</td>
<td>39</td>
<td>41</td>
<td>25</td>
</tr>
<tr>
<td>Payne County Division</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>50</td>
<td>27</td>
<td>50</td>
<td>0</td>
<td>57</td>
<td>50</td>
</tr>
<tr>
<td>LifeNet System</td>
<td>20</td>
<td>20</td>
<td>28</td>
<td>27</td>
<td>34</td>
<td>40</td>
<td>23</td>
<td>36</td>
<td>25</td>
</tr>
</tbody>
</table>
Malvern
There were 78 cardiac arrests recorded in Malvern. Resuscitation was attempted on 34 of the 78 patients with six (18%) surviving to discharge.

Payne County
In Payne County, resuscitation was attempted on 58 of the 90 patients who suffered SCA. These numbers include 30 transports and 28 field terminations. There were a total of 25 patients who had ROSC while 6 patients survived to discharge for a survival percentage 10%.

The graph to the right demonstrates the origin or “etiology” of the sudden cardiac arrest. This chart is based on the 918 SCA events that LifeNet Paramedics and EMTs responded to during 2017. This data also revealed that 550 of the patients were male and 368 were female. Further analysis reveals that 595 of the 918 events were “Not Witnessed” while 323 were witnessed by either a lay person bystander, family member, or other health care provider. The chart below shows the breakdown of this information.

Of the 323 witnessed SCA events in 2017, 96 were witnessed by a family member, 94 by a layperson bystander, 68 by EMS, and 65 by another healthcare provider. 595 SCA events were not witnessed.

### 2017 SCA Etiology
- Presumed Cardiac
- Respiratory
- Other

### 2017 SCA Witness Breakdown
- Family
- Bystander
- EMS
- HCP

### ROSC Neurological Outcome Results by Division

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>HS Div</th>
<th>TXK Div</th>
<th>PC Div</th>
<th>System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Patients Recorded</td>
<td>377</td>
<td>451</td>
<td>90</td>
<td>918</td>
</tr>
<tr>
<td>Total Resuscitations Attempted</td>
<td>174</td>
<td>147</td>
<td>58</td>
<td>379</td>
</tr>
<tr>
<td>Total Discharged from Hospital</td>
<td>22</td>
<td>21</td>
<td>6**</td>
<td>49**</td>
</tr>
<tr>
<td>Good Neurological Outcome</td>
<td>10</td>
<td>13</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>Fair Neurological Outcome</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Poor Neurological Outcome</td>
<td>6</td>
<td>7</td>
<td>2</td>
<td>15</td>
</tr>
</tbody>
</table>
Medical Direction is the Key to LifeNet’s Success in the Field

Clinical Oversight and Direction

Each of the four Medical Directors approves protocols and determines those which are standing-orders as opposed to those which require online approval. LifeNet EMTs and Medics operate vicariously through the Medical Director with the establishment of Clinical Protocols and Procedures.

LifeNet encourages a strong reliance on standing-order protocols that are best practices and evidence-based. However, the Medical Directors can determine those protocols and procedures that require direct approval by a physician. Receiving facility physicians are the primary source for online medical direction for most patient encounters. LifeNet’s Medical Directors can serve as an online resource for unique situations, when appropriate. It is important that the Medical Director maintain relationships with area peers involved in patient care and to communicate adjustments in clinical approach, equipment, and technologies.

The Medical Director has the final authority regarding the clinical privileges of field staff. The Medical Director can remove privileges if a clinical performance concern cannot be addressed satisfactorily through education and training from support staff. The mechanisms LifeNet employs to monitor individual and system performance are intended to avoid such situations.

LifeNet utilizes a Clinical Steering Committee (CSC) to direct clinical and quality initiatives within the company and to monitor the performance of the LifeNet systems as a whole. Participants include key contributors from each division who are routinely involved in, or responsible for, quality improvement and clinical development. These include regional Medical Directors, Clinical Managers, Operations Directors, leads for each Communications Center and General Managers. Ad-hoc contributors include Field Training Officers or any field staff involved in research, QI, or technology implementation. Examples of CSC activities include, protocol development, research, facilitation of medical device trials, and advising the LifeNet Board and CEO regarding purchase decisions for clinical enhancement. Each meeting involves ongoing review of quality initiatives and system performance so that trends identified in any one region may be compared to those of others and with peer agencies in data-sharing opportunities.

LifeNet strives to maintain relative consistency in clinical approach among regions; however, each Medical Director is at liberty to approve or facilitate variation from those norms when they better fit the practices or expectations of regional medical communities. The activities and outcomes of the Clinical Steering Committee go hand-in-hand with Medical Advisory Boards (or their equivalent) in each region. Information shared between those groups mutually contributes to the foundation of appropriate medical care and oversight.

The Medical Director’s primary duty is to provide clinical oversight and direction.
Matthew Young, MD, serves as the medical director for LifeNet’s Texarkana Division. Dr. Young is the current Medical Director of Emergency Services for Texarkana Emergency Center. He has actively served on the Bioterrorism/Disaster Planning Committee, Texarkana College EMS Advisory Board, and the LifeNet Medical Advisory Committee. Dr. Young was recently appointed to a non-funded position as the Medical Director of the Texarkana College EMS Program.

Dr. Young is a member of the American Medical Association, American College of Emergency Physicians, Texas Medical Association, Bowie County Medical Society, the National Congressional Committee Physician’s Advisory Board, and the National Association of EMS Physicians.

Patrick Cody, DO, Medical Director for the Payne County division, is a board certified emergency physician within the Norman Regional Health System. He is the program director for the Osteopathic Emergency Medicine Residency Program. Additionally, Dr. Cody is the Medical Director for EMSStat ambulance service (Norman, OK), the City of Norman Fire Department, the City of Norman Communications Center, the Oklahoma City Community College Emergency Medical Sciences program and the Gomer Jones Cardiac Care Clinic inside the University of Oklahoma Gaylord Family Stadium. Dr. Cody is also the team physician for the Norman Police Department SWAT team. His research interests are focused on pre-hospital care and its intersection with disaster medicine.

Karl Wagenhauser, MD, serves as the Hot Springs/Garland County Medical Director. He has served in this role since we initiated our Hot Springs services in 2005. Dr. Wagenhauser also serves as Medical Director for the Hot Springs Fire Department and Automated External Defibrillator (AED) program.

Dr. Wagenhauser is a licensed physician specializing in Emergency Medicine and is currently on staff at St. Vincent Hospital in Hot Springs. He attended medical school at the University of Texas Medical School in Houston and did his residency at Eastern Virginia Medical School. He is Board Certified in Emergency Medicine and a Fellow of the American College of Emergency Physicians. No stranger to EMS, Dr. Wagenhauser cultivated an interest in prehospital care early in his career, working as an EMT-Intermediate for his college ambulance service while still an undergraduate.

Dr. Wagenhauser has been integral to the development of our local EMS systems. In a former role as Medical Director for one of Garland County’s first responder organizations, he improved equipment standards and worked with local paramedics to improve the continuity of care from the field to the emergency department. His slogan of “continual movement toward a higher level of care” became a teaching mantra in the system.

Dr. Karl Wagenhauser was notified in December that he has successfully completed the 2017 EMS Certificate Examination. Dr. Wagenhauser is one of the first two physicians in the State of Arkansas to obtain this new subspecialty certification as recognized by the American Board of Emergency Medicine.

Andrew Bryan, MD, serves as the Medical Director for LifeNet’s Malvern/Hot Spring County operation. Dr. Bryan attended medical school at the University of Arkansas for Medical Sciences and did his residency at Louisiana State University Emergency Medicine Residency. He is Board Certified in Emergency Medicine through the American Board of Emergency Medicine and active in the American College of Emergency Physicians. Dr. Bryan is currently on staff at St. Vincent Hospital in Hot Springs as well as the Hot Spring County Medical Center in Malvern.
Our mission is to provide our customers and communities with quality out-of-hospital medical care and transportation. For us, the patient comes first. No exceptions.
Cardiac Arrest Report: Texarkana, USA – Adult – Medical

There were 96 total attempted resuscitations of which 34% achieved ROSC. There were 16 survivors, resulting in an overall survival percentage of 17%.

Cardiac Arrest Report: Texarkana, Texas – Adult – Medical

There were 66 total attempted resuscitations of which 27% achieved ROSC. There were 8 survivors, resulting in an overall survival percentage of 12%.

Cardiac Arrest Report: Texarkana Division – Adult – Medical

Unwitnessed …… 33
Discharged.………..3

Non-Traumatic Arrests……….451
Resuscitations Attempted .……147

Witnessed

Bystander**
(1* survived)
Asystole 25
PEA 15
VF 22
Discharged 2
Discharged 1
Discharged 4

Healthcare***
(2* survived)
Asystole 6
PEA 9
VF 2
Discharged 1
Discharged 0
Discharged 0

EMS
Asystole 4
PEA 15
VF 8
Discharged 2
Discharged 3
Discharged 2

ROSC % . . . . . . . . . . . . . . 32%
Witnessed Survival % . . . 16%
Wit VF Survival % . . . . . . 19%
18 Survivors; 10 w/ Good Neuro

There were 147 total attempted resuscitations of which 30% achieved ROSC. There were 21 survivors, resulting in an overall survival percentage of 14%.

Cardiac Arrest Report: Hot Springs – Adult – Medical

Unwitnessed …… 27
Discharged.………..2

Non-Traumatic Arrests……….152
Resuscitations Attempted .……73

Witnessed

Bystander
Asystole 5
PEA 7
VF 8
Discharged 1
Discharged 1
Discharged 2

Healthcare
Asystole 8
PEA 5
VF 0
Discharged 0
Discharged 1
Discharged 0

EMS
Asystole 2
PEA 10
VF 1
Discharged 0
Discharged 2
Discharged 0

ROSC % . . . . . . . . . . . . . . 39%
Witnessed Survival % . . . 15%
Wit VF Survival % . . . . . . 22%
7 Survivors; 4 w/ Good Neuro

There were 73 total attempted resuscitations of which 33% achieved ROSC. There were 9 survivors, resulting in an overall survival percentage of 12%.

Cardiac Arrest Report: Hot Springs Division – Adult – Medical

Non-Traumatic Arrests ....... 377
Resuscitations Attempted .... 174
Witned.............. 128
Field Terminations ........46

Bystander
Asystole 27
Discharged 4

PEA 14
Discharged 2

VF 17
Discharged 3

Healthcare
Asystole 10
Discharged 0

PEA 12
Discharged 1

VF 1
Discharged 0

EMS**
Asystole 4
Discharged 0

PEA 21
Discharged 6

VF 6
Discharged 3

ROSC % ............... 41%
Witnessed Survival % .... 17%
Wit VF Survival % .......25%
19 Survivors; 8 w/ Good Neuro

APPENDIX

Cardiac Arrest Report: Hot Springs Village – Adult – Medical

Non-Traumatic Arrests ....... 53
Resuscitations Attempted .... 23
Witned.............. 16
Field Terminations ........7

Bystander
Asystole 9
Discharged 0

PEA 2
Discharged 0

VF 1
Discharged 1

Healthcare
Asystole 0
Discharged 0

PEA 2
Discharged 0

VF 0
Discharged 0

EMS*
Asystole 2
Discharged 0

PEA 2
Discharged 0

VF 1
Discharged 0

ROSC % ............... 21%
Witnessed Survival % .... 0%
Wit VF Survival % .......0%
1 Survivors; 1 w/ Good Neuro

There were 174 total attempted resuscitations of which 35% achieved ROSC. There were 22 survivors, resulting in an overall survival percentage of 13%.

There were 23 total attempted resuscitations of which 26% achieved ROSC. There was 1 survivor, resulting in an overall survival percentage of 4%.

Cardiac Arrest Report: Malvern – Adult – Medical

Non-Traumatic Arrests: 78
Resuscitations Attempted: 34

Witnessed

Unwitnessed: 14
Discharged: 0

Bystander
Asystole: 5
Discharged: 2

PEA: 3
Discharged: 1

VF: 2
Discharged: 0

Healthcare
Asystole: 1
Discharged: 0

PEA: 4
Discharged: 0

VF: 1
Discharged: 0

EMS
Asystole: 0
Discharged: 0

PEA: 3
Discharged: 2

VF: 1
Discharged: 1

ROSC %: 40%
Witnessed Survival %: 30%
Wit VF Survival %: 25%
19 Survivors; 8 w/ Good Neuro

Discharged: 0
Asystole: 1
Discharged: 0
PEA: 4
Discharged: 0
VF: 1
Discharged: 0

There were 34 total attempted resuscitations of which 35% achieved ROSC. There were 6 survivors, resulting in an overall survival percentage of 18%.

Cardiac Arrest Report: Payne County – Adult – Medical

Non-Traumatic Arrests: 90
Resuscitations Attempted: 58

Witnessed

Unwitnessed: 29
Discharged: 1

Bystander
Asystole: 11
Discharged: 0

PEA: 4
Discharged: 1

VF: 5
Discharged: 2

Healthcare*
Asystole: 2
Discharged: 0

PEA: 2
Discharged: 1

VF: 0
Discharged: 0

EMS
Asystole: 2
Discharged: 0

PEA: 1
Discharged: 0

VF: 1
Discharged: 1

ROSC %: 62%
Witnessed Survival %: 17%
Wit VF Survival %: 50%
5 Survivors; 1 w/ Good Neuro

Discharged: 1
Asystole: 2
Discharged: 0
PEA: 2
Discharged: 0
VF: 0
Discharged: 0

There were 58 total attempted resuscitations of which 43% achieved ROSC. There were 6 survivors, resulting in an overall survival percentage of 10%.

Cardiac Arrest Report LifeNet System Adult – Medical

There were 379 total attempted resuscitations of which 34% achieved ROSC. There were 49 survivors, resulting in an overall survival percentage of 13%.
## LifeNet, Inc Cardiac Arrest Survivor Data

<table>
<thead>
<tr>
<th>Run Date</th>
<th>Jurisdiction</th>
<th>Response Time</th>
<th>Pt Age</th>
<th>Gender</th>
<th>Witnessed</th>
<th>AED Defib</th>
<th>Presenting Rhythm</th>
<th>Transport Destination</th>
<th>Neuro Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/09/17</td>
<td>New Boston</td>
<td>0.08</td>
<td>77</td>
<td>M</td>
<td>EMS</td>
<td>No</td>
<td>PEA</td>
<td>CSMH</td>
<td>Good</td>
</tr>
<tr>
<td>01/14/17</td>
<td>Texarkana</td>
<td>0.15</td>
<td>79</td>
<td>M</td>
<td>EMS</td>
<td>No</td>
<td>Asystole</td>
<td>CSMH</td>
<td>Good</td>
</tr>
<tr>
<td>01/20/17</td>
<td>Malvern</td>
<td>0.15</td>
<td>65</td>
<td>F</td>
<td>Lay Person/Family</td>
<td>No</td>
<td>Asystole</td>
<td>Baptist Malvern</td>
<td>Poor</td>
</tr>
<tr>
<td>01/26/17</td>
<td>Texarkana</td>
<td>0.04</td>
<td>71</td>
<td>M</td>
<td>Healthcare Provider</td>
<td>Yes, w/o defib</td>
<td>AED N-Shockable Rhythm</td>
<td>WRMC</td>
<td>Good</td>
</tr>
<tr>
<td>01/30/17</td>
<td>Texarkana</td>
<td>0.06</td>
<td>60</td>
<td>M</td>
<td>Lay Person/Family</td>
<td>No</td>
<td>Asystole</td>
<td>CSMH</td>
<td>Poor</td>
</tr>
<tr>
<td>02/09/17</td>
<td>Texarkana</td>
<td>0.03</td>
<td>71</td>
<td>M</td>
<td>Healthcare Provider</td>
<td>Yes, w/o defib</td>
<td>AED N-Shockable Rhythm</td>
<td>WRMC</td>
<td>Good</td>
</tr>
<tr>
<td>02/11/17</td>
<td>Texarkana</td>
<td>0.08</td>
<td>59</td>
<td>M</td>
<td>Not Witnessed</td>
<td>Yes, w/defib</td>
<td>VF</td>
<td>WRMC</td>
<td>Good</td>
</tr>
<tr>
<td>02/20/17</td>
<td>Garland</td>
<td>0.17</td>
<td>70</td>
<td>F</td>
<td>EMS</td>
<td>No</td>
<td>PEA</td>
<td>St Joseph's - HS</td>
<td>Poor</td>
</tr>
<tr>
<td>03/06/17</td>
<td>New Boston</td>
<td>0.07</td>
<td>56</td>
<td>F</td>
<td>EMS</td>
<td>No</td>
<td>PEA</td>
<td>CSMH</td>
<td>Poor</td>
</tr>
<tr>
<td>03/07/17</td>
<td>Hot Springs</td>
<td>0.22</td>
<td>23</td>
<td>M</td>
<td>Lay Person/Family</td>
<td>No</td>
<td>Asystole</td>
<td>St Joseph's - HS</td>
<td>Good</td>
</tr>
<tr>
<td>03/08/17</td>
<td>New Boston</td>
<td>0.06</td>
<td>72</td>
<td>M</td>
<td>Lay Person/Family</td>
<td>No</td>
<td>VF</td>
<td>CSMH</td>
<td>Poor</td>
</tr>
<tr>
<td>03/08/17</td>
<td>Texarkana</td>
<td>0.07</td>
<td>91</td>
<td>M</td>
<td>EMS</td>
<td>No</td>
<td>Asystole</td>
<td>CSMH</td>
<td>Poor</td>
</tr>
<tr>
<td>03/22/17</td>
<td>Texarkana</td>
<td>0.04</td>
<td>72</td>
<td>F</td>
<td>EMS</td>
<td>No</td>
<td>PEA</td>
<td>CSMH</td>
<td>Poor</td>
</tr>
<tr>
<td>03/25/17</td>
<td>Texarkana</td>
<td>0.06</td>
<td>83</td>
<td>F</td>
<td>EMS</td>
<td>No</td>
<td>VF</td>
<td>CSMH</td>
<td>Good</td>
</tr>
<tr>
<td>04/02/17</td>
<td>Texarkana</td>
<td>0.05</td>
<td>74</td>
<td>M</td>
<td>Lay Person/Family</td>
<td>No</td>
<td>PEA</td>
<td>WRMC</td>
<td>Poor</td>
</tr>
<tr>
<td>04/04/17</td>
<td>Texarkana</td>
<td>0.04</td>
<td>62</td>
<td>M</td>
<td>Not Witnessed</td>
<td>Yes, w/defib</td>
<td>VF</td>
<td>WRMC</td>
<td>Good</td>
</tr>
<tr>
<td>04/04/17</td>
<td>Hot Springs</td>
<td>0.04</td>
<td>79</td>
<td>M</td>
<td>Lay Person/Family</td>
<td>No</td>
<td>PEA</td>
<td>St Joseph's - HS</td>
<td>Fair</td>
</tr>
<tr>
<td>04/11/17</td>
<td>Stillwater</td>
<td>0.05</td>
<td>55</td>
<td>M</td>
<td>Lay Person/Family</td>
<td>No</td>
<td>VF</td>
<td>SMC</td>
<td>Unknown</td>
</tr>
<tr>
<td>04/15/17</td>
<td>Garland</td>
<td>0.18</td>
<td>72</td>
<td>F</td>
<td>Lay Person/Family</td>
<td>No</td>
<td>Asystole</td>
<td>St Joseph's - HS</td>
<td>Good</td>
</tr>
<tr>
<td>04/30/17</td>
<td>Garland</td>
<td>0.15</td>
<td>70</td>
<td>M</td>
<td>EMS</td>
<td>No</td>
<td>VF</td>
<td>Natl Park - HS</td>
<td>Good</td>
</tr>
<tr>
<td>05/01/17</td>
<td>Hot Springs</td>
<td>0.13</td>
<td>61</td>
<td>F</td>
<td>EMS</td>
<td>No</td>
<td>PEA</td>
<td>Natl Park - HS</td>
<td>Good</td>
</tr>
<tr>
<td>05/01/17</td>
<td>Hot Springs</td>
<td>0.05</td>
<td>64</td>
<td>M</td>
<td>Not Witnessed</td>
<td>No</td>
<td>Asystole</td>
<td>St Joseph's - HS</td>
<td>Poor</td>
</tr>
<tr>
<td>05/20/17</td>
<td>Hot Springs</td>
<td>0.06</td>
<td>43</td>
<td>M</td>
<td>Lay Person/Family</td>
<td>No</td>
<td>VF</td>
<td>St Joseph's - HS</td>
<td>Good</td>
</tr>
<tr>
<td>06/23/17</td>
<td>Garland</td>
<td>0.09</td>
<td>38</td>
<td>M</td>
<td>Lay Person/Family</td>
<td>No</td>
<td>VF</td>
<td>St Joseph's - HS</td>
<td>Poor</td>
</tr>
<tr>
<td>06/23/17</td>
<td>Stillwater</td>
<td>0.19</td>
<td>63</td>
<td>M</td>
<td>Lay Person/Family</td>
<td>No</td>
<td>PEA</td>
<td>SMC</td>
<td>Unknown</td>
</tr>
<tr>
<td>07/26/17</td>
<td>Stillwater</td>
<td>0.03</td>
<td>82</td>
<td>M</td>
<td>Not Witnessed</td>
<td>No</td>
<td>PEA</td>
<td>SMC</td>
<td>Good</td>
</tr>
<tr>
<td>08/02/17</td>
<td>Garland</td>
<td>0.20</td>
<td>62</td>
<td>M</td>
<td>EMS</td>
<td>No</td>
<td>VT</td>
<td>Natl Park - HS</td>
<td>Good</td>
</tr>
<tr>
<td>08/09/17</td>
<td>Texarkana</td>
<td>0.02</td>
<td>79</td>
<td>M</td>
<td>Lay Person/Family</td>
<td>No</td>
<td>VF</td>
<td>WRMC</td>
<td>Good</td>
</tr>
<tr>
<td>08/26/17</td>
<td>Texarkana</td>
<td>0.04</td>
<td>42</td>
<td>M</td>
<td>Lay Person/Family</td>
<td>Yes w/defib</td>
<td>VF</td>
<td>CSMH</td>
<td>Good</td>
</tr>
<tr>
<td>09/01/17</td>
<td>Stillwater</td>
<td>0.03</td>
<td>62</td>
<td>F</td>
<td>Healthcare Provider</td>
<td>No</td>
<td>PEA</td>
<td>SMC</td>
<td>Poor</td>
</tr>
<tr>
<td>09/03/17</td>
<td>Malvern</td>
<td>0.08</td>
<td>66</td>
<td>F</td>
<td>Bystander</td>
<td>No</td>
<td>PEA</td>
<td>Baptist Malvern</td>
<td>Fair</td>
</tr>
<tr>
<td>09/05/17</td>
<td>Garland</td>
<td>0.22</td>
<td>72</td>
<td>F</td>
<td>EMS</td>
<td>No</td>
<td>PEA</td>
<td>St Joseph's - HS</td>
<td>Good</td>
</tr>
<tr>
<td>09/09/17</td>
<td>Malvern</td>
<td>0.12</td>
<td>74</td>
<td>M</td>
<td>EMS</td>
<td>No</td>
<td>VT</td>
<td>Baptist Malvern</td>
<td>Fair</td>
</tr>
<tr>
<td>09/11/17</td>
<td>Stillwater</td>
<td>0.10</td>
<td>48</td>
<td>M</td>
<td>EMS</td>
<td>No</td>
<td>VF</td>
<td>SMC</td>
<td>Good</td>
</tr>
<tr>
<td>09/21/17</td>
<td>Hot Springs</td>
<td>0.04</td>
<td>51</td>
<td>M</td>
<td>Not Witnessed</td>
<td>No</td>
<td>VF</td>
<td>Natl Park - HS</td>
<td>Good</td>
</tr>
<tr>
<td>09/24/17</td>
<td>Maud</td>
<td>0.15</td>
<td>49</td>
<td>F</td>
<td>Lay Person/Family</td>
<td>No</td>
<td>ORL, Unk</td>
<td>CSMH</td>
<td>Good</td>
</tr>
<tr>
<td>09/24/17</td>
<td>Hot Springs</td>
<td>0.12</td>
<td>82</td>
<td>M</td>
<td>Bystander</td>
<td>No</td>
<td>VF</td>
<td>St Joseph's - HS</td>
<td>Poor</td>
</tr>
<tr>
<td>09/29/17</td>
<td>Clarksville</td>
<td>0.02</td>
<td>41</td>
<td>M</td>
<td>Lay Person/Family</td>
<td>No</td>
<td>VF</td>
<td>PRMC</td>
<td>Good</td>
</tr>
<tr>
<td>10/02/17</td>
<td>Texarkana</td>
<td>0.07</td>
<td>73</td>
<td>F</td>
<td>Lay Person/Family</td>
<td>No</td>
<td>Asystole</td>
<td>CSMH</td>
<td>Fair</td>
</tr>
<tr>
<td>10/09/17</td>
<td>HSV</td>
<td>0.12</td>
<td>32</td>
<td>M</td>
<td>Not Witnessed</td>
<td>No</td>
<td>VF</td>
<td>St Joseph's - HS</td>
<td>Good</td>
</tr>
<tr>
<td>10/18/17</td>
<td>Hot Springs</td>
<td>0.06</td>
<td>81</td>
<td>M</td>
<td>Healthcare Provider</td>
<td>No</td>
<td>PEA</td>
<td>St Joseph's - HS</td>
<td>Good</td>
</tr>
<tr>
<td>10/22/17</td>
<td>Texarkana</td>
<td>0.06</td>
<td>80</td>
<td>F</td>
<td>EMS</td>
<td>No</td>
<td>VF</td>
<td>WRMC</td>
<td>Good</td>
</tr>
<tr>
<td>11/04/17</td>
<td>Hot Springs</td>
<td>0.09</td>
<td>63</td>
<td>F</td>
<td>EMS</td>
<td>No</td>
<td>PEA</td>
<td>St Joseph's - HS</td>
<td>Good</td>
</tr>
<tr>
<td>11/09/17</td>
<td>Malvern</td>
<td>0.17</td>
<td>68</td>
<td>M</td>
<td>EMS</td>
<td>No</td>
<td>PEA</td>
<td>Baptist Malvern</td>
<td>Fair</td>
</tr>
<tr>
<td>11/25/17</td>
<td>Malvern</td>
<td>0.10</td>
<td>74</td>
<td>F</td>
<td>EMS</td>
<td>No</td>
<td>PEA</td>
<td>Baptist Malvern</td>
<td>Fair</td>
</tr>
<tr>
<td>11/27/17</td>
<td>Perkins</td>
<td>0.20</td>
<td>34</td>
<td>M</td>
<td>Lay Person/Family</td>
<td>Yes w/defib</td>
<td>AED Shockable Rhythm</td>
<td>SMC</td>
<td>Poor</td>
</tr>
<tr>
<td>12/05/17</td>
<td>Texarkana</td>
<td>0.05</td>
<td>48</td>
<td>F</td>
<td>Not Witnessed</td>
<td>No</td>
<td>VF</td>
<td>WRMC</td>
<td>Good</td>
</tr>
<tr>
<td>12/19/17</td>
<td>Malvern</td>
<td>0.10</td>
<td>27</td>
<td>M</td>
<td>Bystander</td>
<td>No</td>
<td>Asystole</td>
<td>Baptist Malvern</td>
<td>Fair</td>
</tr>
<tr>
<td>12/28/17</td>
<td>Texarkana</td>
<td>0.03</td>
<td>70</td>
<td>F</td>
<td>Healthcare Provider</td>
<td>No</td>
<td>Asystole</td>
<td>CSMH</td>
<td>Poor</td>
</tr>
</tbody>
</table>

Across the LifeNet System, we resuscitated 49 patients from clinical death to ultimately be discharged from the hospital. Twenty-five (25) of these survivors were reported to have good neurological function. We have record of an AED firing thirteen (13) times in the Texarkana Division, thirteen (13) times in the Hot Springs Division, and four (4) times in the Payne County Division.