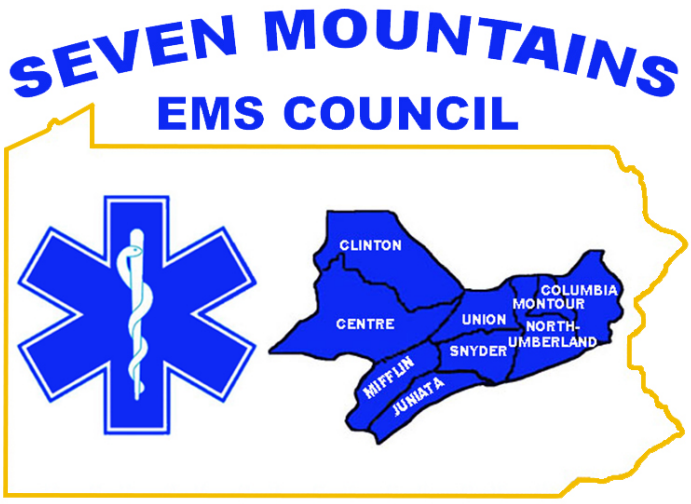

SEVEN MOUNTAINS EMS COUNCIL ANNUAL REPORT

FISCAL YEAR 2019-20

Authority

In accordance with the Pennsylvania Department of Health Rules and Regulations 28 Pa. Code § 1021.103, The regional council governing body shall submit an annual report to the Department.

Reporting requirements of Appendix A – Work Statement. Comprehensive Annual Report as related to, Coordinate and Improve the delivery of EMS in the Council's region.

Report are due within 30 calendar days of the end of each state fiscal year (June 30th)

Timothy E. Nilson
tnilson@smemsc.org

TABLE OF CONTENTS

REGIONAL SUMMARY:

(Provide a summary of the council including regional background / demographic and other information unique to individual region / county)

Seven Mountains EMS Council, incorporated in December 1974 and recognized by the PA Department of Health in March 1975, is one of thirteen (13) organizations currently holding a grant with the Commonwealth of Pennsylvania, PA Department of Health as a Regional EMS Council. The grant is to assist the Department through the Bureau of EMS in coordinating the emergency medical service (EMS) efforts within the Central Pennsylvania counties of Centre, Clinton, Columbia, Juniata, Mifflin, Montour, Northumberland, Snyder and Union into a unified regional emergency medical services system which is consistent with the Commonwealth EMS system. The Council specifically assists the Bureau of EMS with system planning, development, maintenance, expansion, and improvements by assisting with the implementation of the EMS Systems Act (Act 37 of 2009) as well as providing a forum for feedback from regional agencies, providers and stakeholders on the status of our regional EMS service delivery.

Below is a geographic overview of our Region:

County	Population[1]	Land Area[2]	Facilities			#EMS Calls[4]	
			Hospitals	Trauma Centers[3]	Stroke Centers	Using MCD	Agency Base of Operations
Centre	162,805	1109.92	1		1 - Primary	18,905	20,366
Clinton	38,684	887.98	2		1 – Acute Stroke Ready	4,339	4,799
Columbia	65,456	483.11	2		1 – Acute Stroke Ready	12,260	13,096
Juniata	24,704	391.35				4,649	4,431
Mifflin	46,222	411.03	1		1 – Acute Stroke Ready	8,588	9,975
Montour	18,240	130.24	1	1	1 - Comprehensive	5,356	6516
Northumberland	91,083	458.37	1			16,821	21,014
Snyder	40,540	328.71				5,507	6,298
Union	44,785	315.98	1		1- Primary	10,829	8,268
Regional Total	532,519	4,516.69	9	1	6	87,253	94,763

[1]2019 Population estimates

[2]Square Miles

[3]Geisinger Medical Center, Montour County, is recognized for both Adult & Pediatric trauma

[4]Based on information obtained from EMS Charts and quarrying agencies who don't use that PCR platform. Calendar year 2019. For representative purposes only. Excludes QRSs.

The following table provides an overview of the Regional EMS System. EMS is available throughout the Region with some areas being better served than others. Overall, populated areas within the region have EMS available within 10 minutes with ALS care available within 20 minutes or less. Council staff continue dialog with organizations to potentially fill the service gaps, especially with establishment of QRS agencies. Likewise, there are also some areas within the region where EMS Agency consolidation could be beneficial to the overall system and potentially improve care available. Columbia/Montour county EMS agencies have been the primary agencies to recognize the advantages and institute agency mergers.

County	Agencies			Vehicles						Personnel[2]		
	QRS	BLS	ALS	QRS	BLS	IALS	MICU	Squad	Air[1]	EMSVO	BLS	ALS
Centre	4	7	3	6	20	2	9	4	1	8	358	62
Clinton	5	3	2	8	6	0	5	1	0	4	145	17
Columbia	4	3	3	5	4	0	9	1	0	1	160	45
Juniata	0	6	1	0	12	0	2	0	0	7	87	18
Mifflin	3	3	1	3	10	0	5	1	0	13	134	27
Montour	1	0	2	3	4	0	6	1	0	0	38	15
North-umberland	6	1	6	17	13	0	13	5	0	12	237	75
Snyder	8	5	3	10	9	0	5		1	8	159	11
Union	1	3	2	5	7	0	5	2	0	8	135	17
Regional Totals				57	85	2	59	15	2	91	1453	287

[1]Location of aircraft – not necessarily headquartered out of the County. Geisinger has a total of 9 aircraft systemwide.
[2]EMS providers residing within the Region as of 6/30/2020. Not necessarily indicative of the number of providers who are actively engaged with a regional EMS agency.

Seven Mountains EMS Council is comprised of 154 organizations (not all currently active with an appointed delegate) including responder (police, fire, EMS), emergency management, hospital, PSAP, County Government, & consumers. Council delegates meet in October of each year to review the previous year's activities and elect a Board of Directors. The Board of Directors, consisting of 20 delegates, elect their Board officers and establish a schedule of five meetings per year to direct & oversee Council operations and establish program objectives. Board members are elected for a two-year term with half the Board up for election each October. Non-Board delegates are invited to participate in the Board meetings and are extended all privileges other than moving items and casting votes. With the region being so geographically large, we were rotating our meetings between the eastern & western portions of the region. Since March 2020, we have been conducting videoconference meetings in compliance with the Commonwealth's guidelines concerning in-person meetings to trying to mitigate the effects of the COVID-19 virus.

1. Board of Directors \ Health Council Officers

President: Mike Coldren

Vice President: Gerard Banfill

Treasurer: S. Scott Rhoat

Secretary: S. Scott Rhoat

(Please list all other members below)

	NAME		NAME
1	Matthew Abbey –Northumberland FD QRS	19	Laura Shay – Port Royal EMS
2	Chad Aucker – Central Susquehanna 911	20	Allen Weaver – Juniata County EMA
3	Gerard Banfill – Lock Haven EMS	21	Click or tap here to enter text.
4	James Blount III – William Cameron FD	22	Click or tap here to enter text.
5	Dayne Brophy – Bloomsburg Amb.	23	Click or tap here to enter text.
6	Joy Byler – Big ValleyAmb. Assoc.	24	Click or tap here to enter text.
7	Mike Coldren – FAME EMS	25	Click or tap here to enter text.
8	Tom Derby – Geisinger EMS	26	Click or tap here to enter text.
9	Robert Edwards Jr. - PSU	27	Click or tap here to enter text.
10	J. David Jones – University Ambulance	28	Click or tap here to enter text.
11	John Harahus – Geisinger Medical Center	29	Click or tap here to enter text.
12	Bob Hare – Americus Hose Co. EMS	30	Click or tap here to enter text.
13	Nicole Fye – Goodwill Hose Co. EMS	31	Click or tap here to enter text.
14	Matt Kurtz – Geisinger EMS	32	Click or tap here to enter text.
15	Romayne Naylor – American Red Cross	33	Click or tap here to enter text.
16	Thomas Perrin – Union CtyWest End EMS	34	Click or tap here to enter text.
17	S. Scott Rhoat – Bellefonte EMS	35	Click or tap here to enter text.
18	Derick Shambach – Snyder Cty. EMA	36	Click or tap here to enter text.

2. Regional EMS Council Staff:

Executive Director **Timothy E. Nilson**

STAFF POSITION	NAME
Regional Education Coord.	Scott Reiner
Regional Licensure Coord.	James Urban
EMS Program Specialist	Cathy Grimes
Office Manager	Laura Rompolski
CARES Coordinator	Kimbra Shoop
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3. Regional Medical Director(s)

	NAME
1	Randi McLeod D.O.
2	Click or tap here to enter text.

4. **Financial Statement of income and expenses:**

	Final Budget	Expended
Personnel Services	$338,792.43	$342,981.16
Consultant Services	$5,600.00	$5,600.00
Subcontracted Services	$126,712.90	$126,713.00
Patient Services	$0.00	$0.00
Equipment	$9,000.00	$6,898.00
Supplies	$20,497.00	$16,858.58
Travel	$14,007.23	$13,951.62
Other Costs	$106,249.44	$96,832.56
TOTALS	**$620,859.00**	**$610,334.92**

NOTE: *THE AMOUNTS SHOWN ABOVE ARE PRELIMINARY END OF YEAR TOTALS AND NOT FINAL AUDIT AMOUNT*

5. **Special Project Funding:**

Projects as determined by the Department to be appropriate and necessary for the implementation of a comprehensive statewide EMS system. The amounts listed below are included in the categorical totals shown above.

	Amount:
Regional PCR – Data Collection	$45,360

Project Narrative:

For years now Council has negotiated a contract for PCR access for regional EMS agencies who choose to participate. Council provides access and either tablet & mobile access – other "add-ins" are at the expense of the agency. All transport agencies, other than one, use this access – a few of the QRS agencies also participate.

	Amount:
CO monitoring	$30,785

Project Narrative:

Council provides one CO monitor per licensed EMS vehicle. This monitor is intended to be placed on a first-in bag thereby alerting providers to potentially hazardous environments. Council has been replacing expiring monitors as the agencies contact us informing of the situation. Council has received accounts where the monitor activated, saving EMS crews from potential harm and/or death and alerting personnel to leave the environment sooner than may have happened otherwise.

	Amount:
Patient Moving Devices (Bariatric emphasis)	$27,343

Project Narrative:

Council recognized the increasing instance of needing to lift & move increasingly heavier patients; the limited manpower often times available for lifting assistance; and liability that improper lifting & moving of patients has on the EMS system and EMS provider health and safety. We contacted all transport agencies within the region to see what devices they had available to assist with the movement of patients and offered their choice of a Binder or Doty belt to assist them in their efforts. Council provided belts to all agencies who expressed an interest in participating (27 agencies with one backing out at the last minute).

6. Regional Activities/ Organizational Management

	Date
Date of the current Comprehensive Regional EMS System Plan	2011[1]
Number of Board of Director Meetings \ Health Council meetings	6
Public Education Stop-the-Bleed Events	1[2]
Public Education CPR Events	4[3]
Number of Legislative Inquiries or Contacts	19
Technical Assistance Request (local entities and elected officials)	3[4]

Regional Activities/ Organizational Management Project Narrative:

[1]As per Bureau of EMS direction, the annual plan has been referenced with minimal review other than resource updates since 2011. We are waiting for the development and adoption of a Commonwealth EMS System Plan from which we will format & develop our Regional plan. Council & Regional EMS agencies actively participated in the planning workshops conducted in 2012 and are awaiting further guidance.
[2]Council staff conducted one Stop-the-Bleed program but assisted with supplies & equipment to multiple other Stop-the-Bleed & bleeding control/tourniquet training programs including a law enforcement camp cadet & the PA Farm Show.
[3]Similar to the Stop-the-Bleed program, Council staff conducted a total of four BCLS training programs but were instrumental in the successful presentation of many others. We are an AHA training institute whereby issuing roughly 1100 lay rescuer and 1450 professional rescuer course completion cards within the grant period – some courses requiring equipment assistance through Council.
Majority of the legislative contacts were attendees at our Legislative Breakfast. Regional EMS leaders updated legislators on EMS issues & concerns.
Council also completed 26 Fatal Accident Report System (FARS) reports and submitted the requested information to PennDOT.
[4]This reflects official, documented requests from local government/911. It does not reflect the almost daily assistance requests from regional agencies & providers.

7. Continuous Quality Improvement

	Quantity
Number of Clinical Cases Reviewed by Regional QI Committee	7
Accidents Involving Ambulances / EMS Personnel Reported in the Region	2
Number of Times the Regional QI Committee Met	4

Continuous Quality Improvement Narrative:

The Regional QI committee meeting in conjunction with the Regional MAC. The committee reviews all Ketamine & Etomidate usages along with any other incidents that warrant committee review.

8. Medical Direction

	Quantity
Regional Medical Advisory Committee meetings	4
Accredited Level I Trauma Centers	1
Accredited Level II Trauma Centers	0
Accredited Level III Trauma Centers	0
Accredited Level IV Trauma Centers	0
Accredited primary Stroke Centers	1
Comprehensive Stroke Centers	1
Thrombectomy Capable Stroke Centers	0
Acute Stroke-Ready Hospitals	3

Medical Direction Narrative:

Geisinger Medical Center is both an Adult & Pediatric trauma center.

9. Systems Operations

	Quantity
Spot inspections conducted – EMS Agencies	2
Spot inspections conducted – EMS Vehicles	5
Spot inspections conducted – Continuing Education Sponsors	6
Spot inspections conducted – Education Institutes	5
Spot inspections conducted – Medical Command Facilities	2
Number of Safety Inspections Conducted	2
Number of Vehicles Inspected During Safety Inspection	17
Photo & Signatures Added to Certification Cards	28
BLS Psychomotor Examinations Conducted	2
Number of BLS Psychomotor Exam Candidates Tested.	55

ALS Psychomotor Examinations Conducted	0
Number of ALS Psychomotor Exam Candidates Tested	0
Certification Class Visits Conducted	7
Number of EMS Agency Re-Inspections Conducted	0
Number of Authorized Inquiry Reports Filed with the Bureau	3

Systems Operations Narrative:

Due to COVID-19, 3rd & 4th quarter Safety Inspections were cancelled.

10. Emergency Preparedness Activities

	Quantity
Coalition / Task Force Meetings Attended (only EMSOF funded staff attendance)	16
Table Top Exercises Attended / Conducted	4
Full Scale / Functional Exercises Attended / Conducted	1
Special Event Plans Submitted	2
Responses / Deployments	4
Strike Team Agencies	6

Emergency Preparedness Narrative:

Though there were only 2 special events plans submitted, staff was involved in several other "discussion phase" planning sessions for events that never transpired – probably due to COVID-19
Council has supported regional EMS agencies by providing our Kubota for their use during special events & happenings which aren't included in the Response/Deployment figures.
Council has not been completely in the loop concerning the strike team agencies so our number may be off from the official Bureau/Preparedness number. We have six agencies (current or former strike team members) whom staff would feel comfortable reaching out to and confident that they would successfully fulfill the mission. Staff has requested a strike team meeting to discuss program issues but nothing has been finalized to date.

11. Board of Director \ Health Council Meetings

DATE:	TIME	LOCATION
8/15/2019	Noon	BOD - Council's Bellefonte Office
10/24/2019	18:30	Council – Council's Bellefonte Office
10/24/2019	19:40	BOD – Council's Bellefonte Office
1/16/2020	Noon	BOD – Union County Government Center, Lewisburg

5/27/2020	Noon	BOD – Conference Call
6/18/2020	Noon	BOD – Conference Call

12. Medical Advisory Committee Meeting

DATE:	TIME	LOCATION
9/3/2019	10:00	Teleconference from Mt. Nittany corporate offices
12/3/2019	10:00	Teleconference from Mt. Nittany corporate offices
3/13/2020	10:00	Supposed to be face-to-face; but due to COVID-19 became teleconference from Council office.
6/2/2020	10:00	Teleconference from Council office.

13. Quality Improvement Committee Meeting

DATE:	TIME	LOCATION
9/3/2019	10:00	Teleconference
12/3/2019	10:00	Teleconference
3/13/2020	10:00	Teleconference
6/2/2020	10:00	Teleconference

14. Regional Accomplishments:

Narrative:

COVID-19 – Seven Mountains Board and staff have been working diligently to assist Regional EMS agencies in preparing for and responding to potential COVID-19 related calls for assistance. Council staff have participated on planning and informational conference calls and have forwarded pertinent pandemic related correspondence to regional EMS agencies & providers. We assisted in the distribution of PPE and other supplies/equipment throughout the Region and have expended approximately 60% of a regional PPE stockpile maintained by Council. Though supplies remain limited, none of the EMS agencies within the Region are without, nor have they been without, critical PPE to protect their personnel and/or use as appropriate for source control measures. Council maintains fit-testing kits which are available throughout the Region and encourages regional agencies to maintain up-to-date fit-testing status for all their personnel. We have also purchased two UV lights which are available for an additional level of disinfection of both facilities & vehicles. Council has purchased over $10,000 in new equipment & supplies (in addition to our stockpile) to support our Regional EMS agencies dealing with pandemic issues and responses. Staff continues to share information concerning EMS staffing & operational changes initiated in response to the pandemic & disaster declaration. We continue to assist new, current and expired EMS providers in obtaining/maintaining certifications to meet manpower needs within the Region and to collaborate with regional EMS agencies in maintaining operational readiness (both personnel & equipment) to fulfill their mission. We continue to partner with the Task Forces, healthcare coalitions, EMAs, & preparedness specialists in planning for and mitigating COVID-19 related incidents, including but not limited to, assisting with the deployment of multiple EMS assets across the Region and Commonwealth and conversing with EMS Strike Teams within our Region to potentially assist in response efforts.

Bariatric Project – A few years back, Council initiated a bariatric transport project to alleviate both the increasing difficulty noted in obtaining (at least in a timely manner) bariatric transport services and the potential for system related injuries occurring, within the EMS workforce & to our patients, due to lifting/moving accidents. This year Council's focus was safe lifting & moving of patients. We surveyed the agencies to see what they were using & what equipment would be beneficial. Some of our agencies were using either Binder or Doty belts, but not all had the equipment available and some that did didn't have sufficient 'belts' for all their vehicles. Using available provider equipment funds, we purchased fifty-three (53) devices to support our EMS agencies. Council intends to emphasize proper lifting & moving techniques with continuing education sessions within the 2020-21 grant cycle.

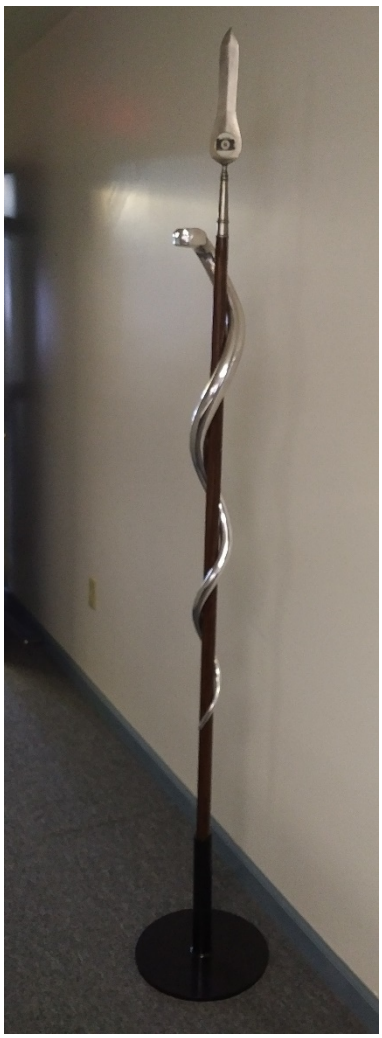
Legislative Breakfast – Council held our first, of what is expected to be annual, legislative breakfast in State College in March. Legislators (Senators, Representatives, Commissioners) from throughout the Region were invited to attend this session to hear first-hand the challenges facing the EMS system and to be an active participant in a brainstorming session to formulate a plan to overcome identified obstacles. Eight (8) state legislators and nine (9) county commissioners (encompassing 5 of our 9 member counties) were joined by twenty-one (21) EMS leaders and a handful of others in attending this interactive, educational session. Productive, collegial dialogue between the legislators & EMS providers was recognized by all attendees. The event began with a buffet breakfast allowing all attendees to socialize and interact on a personal basis. This was followed by a short overview of the current state of EMS within the Commonwealth presented by Jerry Ozog, Executive Director of the Pennsylvania Fire & Emergency Services Institute. Feeding off of Mr. Ozog's report, a panel of regional EMS leaders presented first-hand accounts of current issues facing EMS: manpower shortages, low reimbursement for services, inability to bill for services without transport, rising cost of educational programs, EMS Direct Pay concerns/issues, general need to recognize costs for 'readiness' when figuring the overall needs/expenses of EMS agencies. The ensuing dialog was educational for both the legislators & EMS managers. The session concluded with some summary remarks from Director Ferguson with the Bureau of EMS.

Testing Assistance – Manpower shortages have consistently been identified as an EMS system shortfall. Council recognizes the need to both expand and replace the current EMS provider pool and have instituted a few measures to assist. One problem identified is the low percentage of provider candidates who successfully complete, or even attempt, the cognitive certification examination. Lack of familiarization with and experience using computer adaptive testing has been identified as an obstacle. To overcome this, Council purchased keys (program seats) with FISDAP to allow candidates within the Region to experience computer adaptive testing as part of their training curriculum. These seats are for modular quizzes as well as comprehensive mid-term, final examinations. Enrollment with FISDAP is on a class/training institute basis currently we are having less than anticipated participation. Once enough candidates have participated, we want to see if this additional assistance has a bearing on examination success and/or candidate comfort. For a number of years now Council has assisted EMS agencies in obtaining needed manpower by covering the cost of first-time, National Registry certification testing of their provider candidates. Due to the way our testing cycles fall and the introduction of the COVID-19 pandemic into that equation, a total of $895 in National Registry testing vouchers were forwarded to regional EMS agencies. Historically this number has been considerably higher.

PA Farm Show – Though unable to directly participate in 2019, Council continued to assist with the annual PA Farm Show with both equipment & logistical support. The PA Farm Show is just one piece of what needs to be comprehensive EMS Public Information & Education outreach within the Commonwealth, but it is a high volume, high exposure event. We have been emphasizing the need for immediate Hands-Only CPR during out-of-hospital cardiac arrest events for well over 10 years,

adding public (immediate responders) use of tourniquets to control bleeding approximately 3 years ago. 'Future EMS Provider' pins & necklaces have been given out as participation 'favors' for several years. This year we also collected registration coupons to award three door-prizes for attendees who participated in our activities. Along with the above-mentioned educational activities, we also offer information concerning Naloxone administration within Pennsylvania and engage as many attendees in EMS System recruitment and Q&A conversations as will participate.

Honor Guard – Seven Mountains Board & staff continue to support efforts to recognize EMS providers for the sacrifices they make while in service to others – especially those who make the ultimate sacrifice. Seven Mountains maintains a complement of LODD supplies and accoutrements for both Regional & Commonwealth wide use – loaning/supplying items to sister Councils & the Bureau as needed. As much as possible, we actively support organizations/activities intended to recognize the EMS system and providers - such as the 911 Memorial Service in Harrisburg, National & PA EMS bike rides, National EMS Memorial Service, & National Moment of Silence. Eight to ten years ago, Council established an EMS Honor Guard to represent us during memorial (Honor Guard) and celebratory (Color Guard) occasions. The team is comprised of regional staff and providers (with assistance, as needed, by other regional or BEMS staff) and have functioned at several funerals, sporting events, conference openings, and presented the colors at the PA Fire & Emergency Services annual banquet for the past handful of years. During the 2019-20 grant period we were contacted by the US Military to assist with a LODD funeral being conducted within our Region – Council coordinated & our honor guard participated. This year's highlight with our honor guard program is the addition of a PA EMS espontoon to our inventory. For years we have used a sword to designate the team lead; this espontoon, in my opinion, will allow us to represent EMS with a much more significant symbol of who we are and provides a "PA EMS" flavor to the lead position and our team. Our espontoon is pictured to the right.



With permission from the Board of Directors & Bureau of EMS, Council staff would like to actively pursue the design, item acquisition, and building of a mobile EMS memorial similar to the one used by PennDOT.

CISM – Seven Mountains collaborates with LTS EMS Council to maintain an active critical incident stress management (CISM) team to debrief/defuse emergency providers after a major event or special situation/event that triggers an unhealthy, potentially responder disabling response. The team – Seven Mountains/Susquehanna CISM – is about 40 members strong; is coordinated by a Licensed Psychologist; and integrates training individuals from a variety of disciplines – police, fire, EMS, dispatch, nursing, clergy, corrections, coroner, and mental health. We are recognized by and/or work in coordination with the International Critical Incident Stress Foundation (ICISF), the SouthCentral Mountains & NorthCentral Task Forces, the Keystone Healthcare Coalition, PEHSC, and sister teams in Southern Alleghenies & Eastern EMS Councils. The team is available 24/7/365 with initial contact through the Lycoming or Mifflin County PSAPs and coordination of activities conducted by the EMS Program Specialist utilizing SERV-PA. During the 2019-20 grant period, the team was requested for a total of 16 incident requests and provided support for 2 Critical Incident Training (CIT) programs.

Intern – Council was fortunate to host an intern for the 2020 Spring semester. Lock Haven University senior Rachael Kuhlen contacted us concerning her interest in interning with Council. Her interest is in emergency/disaster communications with/for individuals with disabilities, especially children. Rachael had previously taken EMS training and ended up being a perfect fit for the organization and our mission. She reviewed our MCI plan with the intent of convening a meeting of interested providers to 'update' the plan. That meeting never transpired due to COVID-19 issues. She was able to assist Council in gathering information concerning system ability to respond to calls involving bariatric patients and the amount/type of equipment available within the region to safely and effectively handle those situations. Her survey and findings are primarily what led to the lifting & moving provider equipment project that Council completed this grant period. She was also instrumental in planning & preparation for our annual spring conference which unfortunately was cancelled at the last moment. Rachael's enthusiasm and energy was appreciated. It is unfortunate that the COVID pandemic affected her internship, as she may have had a greater impact on operations had she not been required to work remotely for the second half of the experience. The internship proved to be a mutually rewarding experience, and we are receptive to expanding partnerships with universities for future internship opportunities.

Annual Conference – Council committed considerable time and energy into offering a regional EMS conference that would benefit regional providers both educationally and by providing opportunities to networking. Evolving issues such as vaping, sepsis; National Speaker (Rommie Duckworth); provider safety emphasis; hands-on experiences; administrative & provider sessions; refresher as well as new information; along with networking and destressing opportunities of a Hawaiian Luau and the friendly competition of corn hole and ring toss challenges – all cancelled within 24 hours of kick-off due to COVID-19. The only good side to this is that is has made staff all the more determined to come back better in 2021. 2020 was year one of a ten-year collector series available to conference attendees. We are producing a challenge coin for each of our member counties finished in year ten by a regional coin. Union County was the 2020 coin – challenge is to see who is around long enough to collect all ten.

CARES – A little over three (3) years ago Council was asked to manage the hands-on, day-to-day operations of the Cardiac Arrest Registry to Enhance Survival (CARES) program throughout the Commonwealth. The Medtronic Foundation awarded a grant to improve out-of-hospital cardiac arrest survival in Pennsylvania. In 2016, the Bureau tasked Council with administration of the grant and maintenance/expansion of the CARES program. Using grant monies and supplemental funding from the Bureau of EMS, Seven Mountains has coordinated that project since. The PA CARES Coordinator has worked tirelessly to promote expanded participation in CARES throughout the Commonwealth; audit, research, and as needed correct incomplete or incorrect registry records to assure accurate & reliable data quality; act as lead diplomat with national CARES, EMS agencies, receiving hospitals, and other entities to make sure that all the pieces of the puzzle are in place for issuance of a useful, accurate, comprehensive annual CARES report that can be used by all stakeholders to implement successful, long term changes to prehospital cardiac arrest care, increase rates for return of spontaneous circulation (ROSC), and ultimately improve the likelihood of survival with good neurological outcome. With Seven Mountains as the lead council for CARES, a separate report is included herewith.

Pennsylvania CARES Annual Report 2019-2020

The Pennsylvania Cardiac Arrest Registry to Enhance Survival (CARES) continues to grow across the Commonwealth. The number of EMS agencies included in the CARES Annual Report has increased by approximate 46% over the past five years and by an estimated 81% since 2013 (see Figure 1).

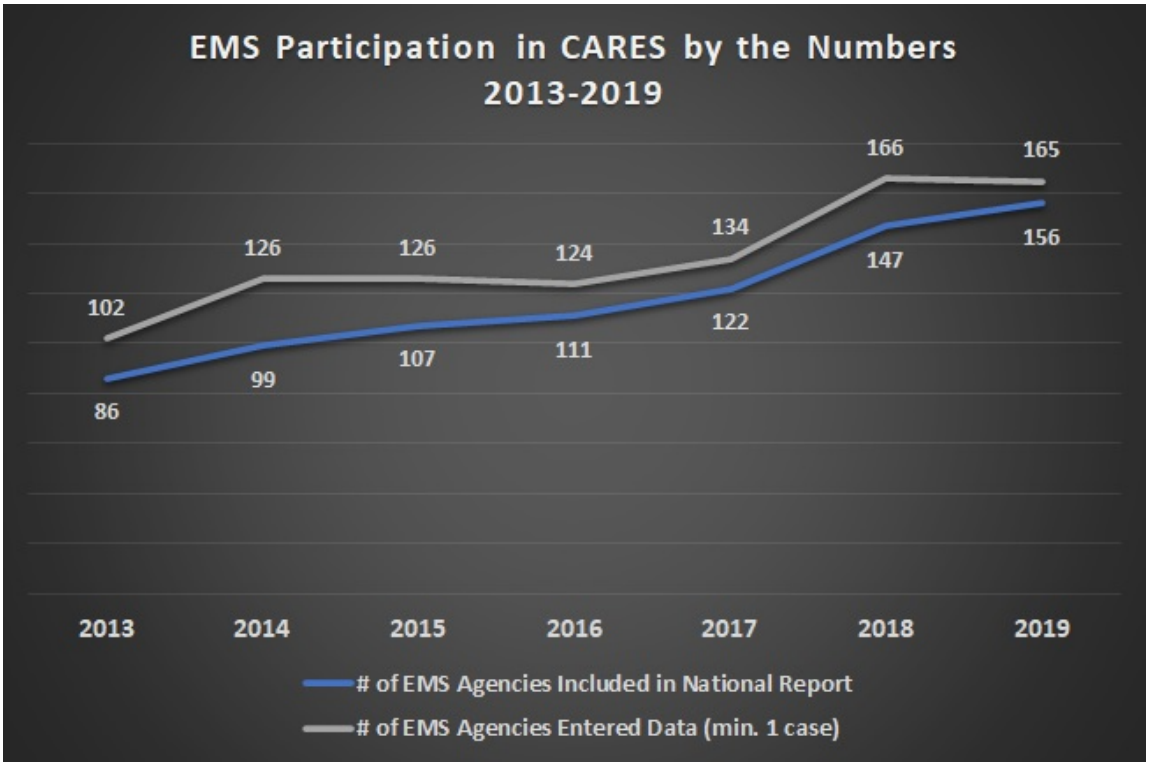


Figure 1

All EMS regions have one or more agencies actively entering data (see Figure 2).

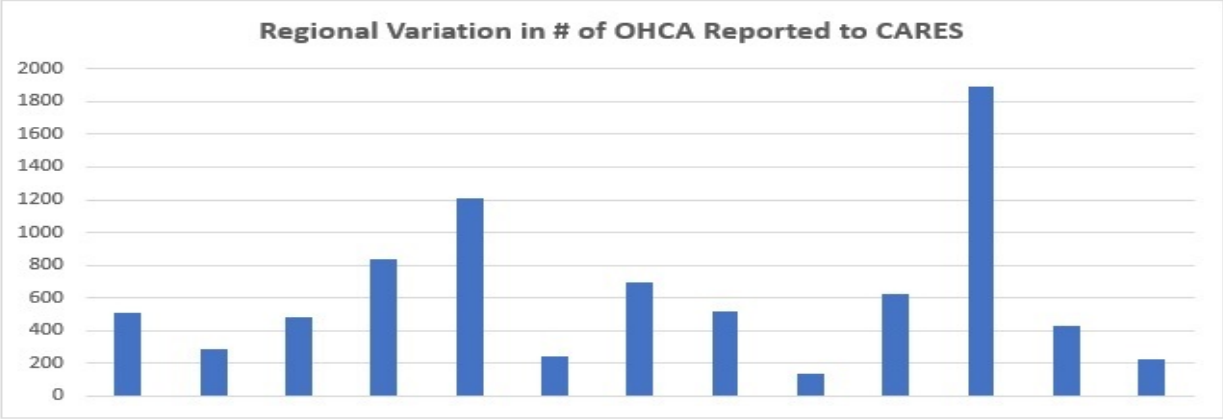


Figure 2

In 2019, the volume of nontraumatic out-of-hospital cardiac arrests (OHCA) reported to the statewide registry increased by approximately 10.5% from the previous year to 8,013 qualifying CARES cases. An explanation of the CARES case definition from the 2019 CARES Annual Report is included below.

Case Definition

CARES captures data on all non-traumatic out-of-hospital cardiac arrests where resuscitation is attempted by a 911 Responder (CPR and/or defibrillation). This also includes patients that receive an AED shock by a bystander prior to the arrival of 911 Responders. Inclusion and exclusion criteria are described below (Tables 1 and 2).

Table 1. CARES inclusion criteria (all of the following)
• Patients of all ages who experience a non-traumatic, out-of-hospital cardiac arrest.
• Patients who are pulseless on arrival of 911 Responder; OR • Patients who become pulseless in the presence of 911 Responder; OR • Patients who have a pulse on arrival of EMS, where a successful attempt at defibrillation was undertaken by a bystander prior to arrival of 911 Responder.

Table 2. CARES exclusion criteria (any of the following)
• Unworked/untreated cardiac arrests, to include codes that are terminated immediately upon arrival of EMS because the patient is not a viable candidate for resuscitation due to: ○ Injuries incompatible with life. ○ The presence of rigor mortis or lividity. ○ Signs of decomposition. ○ Presence of a valid DNR.
• Private EMS transport that did not involve 911 dispatch.
• Cardiac arrest of clear and obvious traumatic etiology.
• Bystander suspected cardiac arrest, where ROSC was achieved without the need for defibrillation or 911 Responder CPR.

Figure 3 Source: https://mycares.net/sitepages/uploads/2020/2019_flipbook/index.html?page=1

Overall, return of spontaneous circulation (ROSC) rates have continued to improve, while survival rates for nontraumatic OHCA of all etiologies remain stable (see Figure 4).

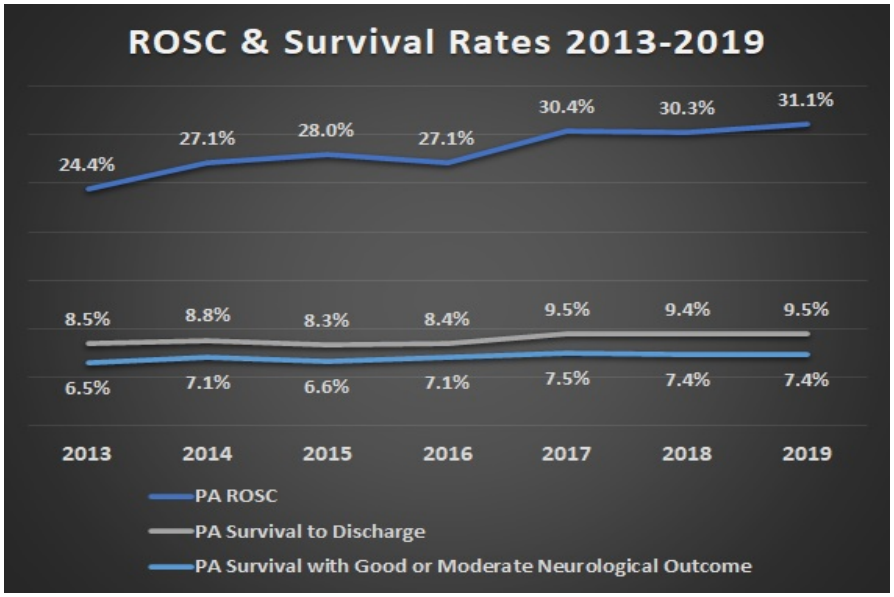


Figure 4

CARES also reports Utstein Survival and Utstein Bystander Survival rates. By definition, Utstein Survival includes OHCAs witnessed by a bystander and where the patient was found in a shockable rhythm. Utstein Bystander Survival includes OHCAs witnessed by a bystander, the patient was found in a shockable rhythm, and there was bystander intervention, cardiopulmonary resuscitation (CPR) and/or automated external defibrillator (AED) applied.

Although it appears a decline in Utstein Survival and Utstein Bystander Survival is observed, it may be that the sharp drop and rise in 2017 and 2018 are anomalous, given the steady improvement indicated from 2013-2019 (see Figure 5). Fluctuation may also be the result of factors beyond the control of EMS agencies and hospitals.

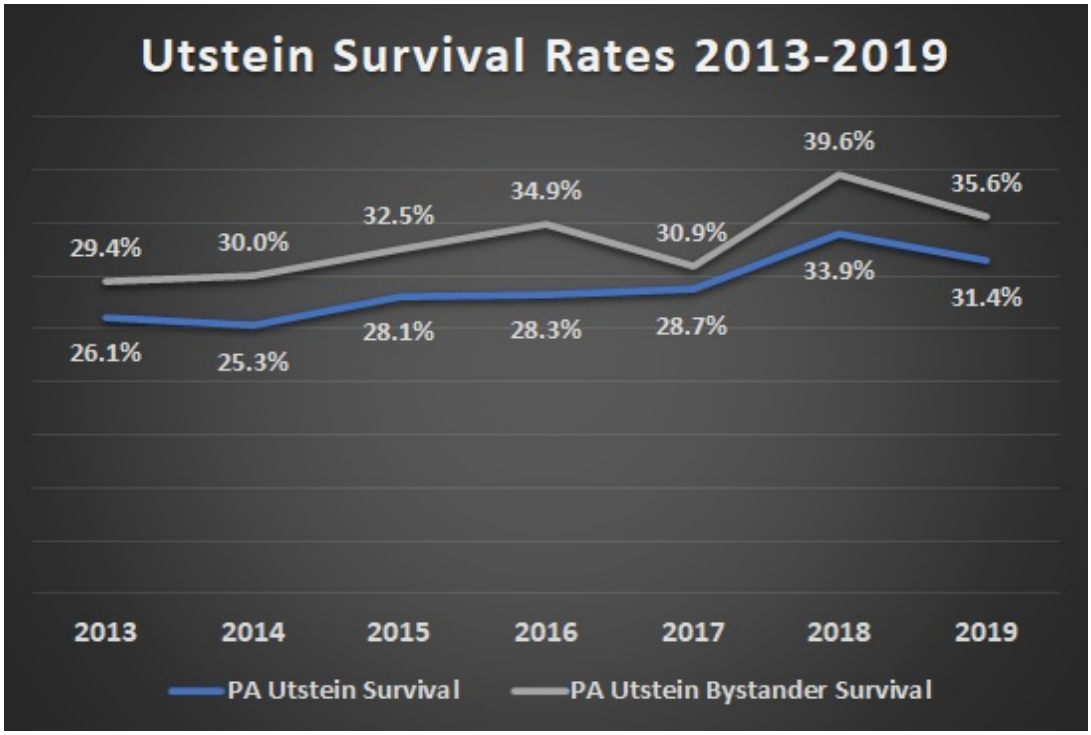


Figure 5

The 2019 CARES Summary Report for Pennsylvania, 2013-2019 Cumulative Summary Report, and summary presentation with comparisons of Pennsylvania and National statistics follow this report.

Pennsylvania CARES continues to create opportunities for quality improvement of resuscitation, from engaging communities to strengthen critical early links in the chain of survival, to helping EMS agencies and hospitals identify and address challenges and opportunities for improving the quality of care for OHCA in their communities. The registry also contributes to the broader understanding of OHCA at the local, state, and national levels, whether informally or in formal presentations and publications (see Table 1).

Table 1

Publication & Presentation Highlights

Peer-reviewed Publication

Balian, S., Buckler, D. G., Blewer, A. L., Bhardwaj, A., Abella, B. S., & CARES Surveillance Group. (2019). Variability in survival and post-cardiac arrest care following successful resuscitation from out-of-hospital cardiac arrest. *Resuscitation, 137*, 78-86.

Poster Presentation

Harig, N. A. (2019, December 9-13). *Let's do everything wrong and save a life: One EMS agency's journey to improve* [Poster presentation]. Cardiac Arrest Survival Summit 2019, Seattle, WA, United States.

Abstracts

Berry, C., Kupas, D., Olaf, M., Knorr, A., & Berger, A. *Division of EM, Geisinger Health System*. (2019, January 7-12). *In out-of-hospital cardiac arrest, longer on scene times are associated with higher survival rates: "Scoop and run" may be deadly* [Abstract]. National Association of EMS Physicians Annual Meeting 2019, Austin, TX, United States.

Kupas, D., Olaf, M., Knorr, A., & Berger, A. *Division of EMS, Geisinger Health System*. (2019, January 7-12). *Preliminary evaluation of the American Heart Association termination of resuscitation criteria in the pediatric population using the Cardiac Arrest Registry to Enhance Survival*. [Abstract]. National Association of EMS Physicians Annual Meeting 2019, Austin, TX, United States.

Olaf, M., Kupas, D., Knorr, A., Berger, A., & CARES Surveillance Group. (2019, January 7-12). *Validation of American Heart Association termination of resuscitation criteria and comparison to Shibahashi criteria in a United States out-of-hospital cardiac arrest population.* [Abstract]. National Association of EMS Physicians Annual Meeting 2019, Austin, TX, United States.

Overberger, R., Thomas, A., & Mohiuddin, K. *Einstein Medical Center Philadelphia*. (2019, January 7-12). *A comparison of outcomes following a change from therapeutic hypothermia to targeted normothermia in patients suffering out-of-hospital cardiac arrest.* [Abstract]. National Association of EMS Physicians Annual Meeting 2019, Austin, TX, United States.

Pinchalk, M., Palmer, A., Dlutowski, J., Mooney, J., Studebaker, A., Taxel, S., Reim, J., & Phillips, F. *City of Pittsburgh EMS*. (2019, January 7-12). *Utility of a prehospital "Crashing Patient" care bundle in reducing the incidence of post EMS contact cardiac arrest of critically ill medical patients* [Abstract]. National Association of EMS Physicians Annual Meeting; 2019 January 07-12; Austin, TX.

CARES Summary Report

Demographic and Survival Characteristics of OHCA

Non-Traumatic Etiology | Arrest Witness Status: All | Service Date: 01/01/19 - 12/31/19

Data	Pennsylvania N=8013
Age	**N=8012**
Mean	62.6
Median	65.0
Gender (%)	**N=8013**
Female	3066 (38.3)
Male	4947 (61.7)
Race (%)	**N=8013**
American-Indian/Alaskan	5 (0.1)
Asian	71 (0.9)
Black/African-American	1595 (19.9)
Hispanic/Latino	296 (3.7)
Native Hawaiian/Pacific Islander	4 (0.0)
White	5043 (62.9)
Unknown	999 (12.5)
Location of Arrest (%)	**N=8013**
Home/Residence	5608 (70.0)
Nursing Home	961 (12.0)
Public Setting	1444 (18.0)
Arrest witnessed (%)	**N=8013**
Bystander Witnessed	3176 (39.6)
Witnessed by 911 Responder	991 (12.4)
Unwitnessed	3846 (48.0)
Who Initiated CPR? (%)	**N=8013**
Not Applicable	5 (0.1)
Bystander	3176 (39.6)
First Responder	2451 (30.6)
Emergency Medical Services (EMS)	2381 (29.7)
Was an AED applied prior to EMS arrival? (%)	**N=8013**
Yes	3323 (41.5)
No	4690 (58.5)
Who first applied automated external defibrillator? (%)	**N=3323**
Bystander	769 (23.1)
First Responder	2554 (76.9)
Who first defibrillated the patient?* (%)	**N=8013**
Not Applicable	5733 (71.5)
Bystander	145 (1.8)
First Responder	561 (7.0)
Responding EMS Personnel	1574 (19.6)
First Arrest Rhythm (%)	**N=8013**
Vfib/Vtach/Unknown Shockable Rhythm	1303 (16.3)
Asystole	4263 (53.2)
Idioventricular/PEA	1762 (22.0)
Unknown Unshockable Rhythm	685 (8.5)
Sustained ROSC (%)	**N=8013**
Yes	2492 (31.1)
No	5521 (68.9)
Was hypothermia care provided in the field? (%)	**N=8013**
Yes	40 (0.5)
No	7973 (99.5)
Pre-hospital Outcome (%)	**N=8013**
Pronounced in the Field	2639 (32.9)
Pronounced in ED	1291 (16.1)
Ongoing Resuscitation in ED	4083 (51.0)
Overall Survival (%)	**N=8013**
Overall Survival to Hospital Admission	2188 (27.3)
Overall Survival to Hospital Discharge	759 (9.5)
With Good or Moderate Cerebral Performance	594 (7.4)
Missing hospital outcome	6
Utstein[1] Survival (%)	**N=814**
	31.4%
Utstein Bystander[2] Survival (%)	**N=466**
	35.6%

Inclusion criteria: An out-of-hospital cardiac arrest where resuscitation is attempted by a 911 responder (CPR and/or defibrillation). This would also include patients that received an AED shock by a bystander prior to the arrival of 911 responders.

**This is a new question that was introduced on the 2011 form.*

[1]Witnessed by bystander and found in a shockable rhythm

[2]Witnessed by bystander, found in shockable rhythm, and received some bystander intervention (CPR by bystander and/or AED applied by bystander)

CARES Summary Report

Demographic and Survival Characteristics of OHCA

Non-Traumatic Etiology | Arrest Witness Status: All | Service Date: 01/01/13 - 12/31/19

Data	Pennsylvania N=40190
Age	**N=40181**
Mean	62.8
Median	65.0
Gender (%)	**N=40189**
Female	15460 (38.5)
Male	24729 (61.5)
Race (%)	**N=40190**
American-Indian/Alaskan	72 (0.2)
Asian	292 (0.7)
Black/African-American	5973 (14.9)
Hispanic/Latino	1081 (2.7)
Native Hawaiian/Pacific Islander	20 (0.0)
White	23000 (57.2)
Unknown	9752 (24.3)
Location of Arrest (%)	**N=40190**
Home/Residence	26736 (66.5)
Nursing Home	4405 (11.0)
Public Setting	9049 (22.5)
Arrest witnessed (%)	**N=40187**
Bystander Witnessed	16229 (40.4)
Witnessed by 911 Responder	4761 (11.8)
Unwitnessed	19197 (47.8)
Who Initiated CPR? (%)	**N=40190**
Not Applicable	34 (0.1)
Bystander	14713 (36.6)
First Responder	12052 (30.0)
Emergency Medical Services (EMS)	13391 (33.3)
Was an AED applied prior to EMS arrival? (%)	**N=40189**
Yes	15217 (37.9)
No	24972 (62.1)
Who first applied automated external defibrillator? (%)	**N=15226**
Bystander	3892 (25.6)
First Responder	11334 (74.4)
Who first defibrillated the patient?* (%)	**N=40190**
Not Applicable	28822 (71.7)
Bystander	719 (1.8)
First Responder	2681 (6.7)
Responding EMS Personnel	7968 (19.8)
First Arrest Rhythm (%)	**N=40186**
Vfib/Vtach/Unknown Shockable Rhythm	6881 (17.1)
Asystole	20426 (50.8)
Idioventricular/PEA	8742 (21.8)
Unknown Unshockable Rhythm	4137 (10.3)
Sustained ROSC (%)	**N=40187**
Yes	11600 (28.9)
No	28587 (71.1)
Was hypothermia care provided in the field? (%)	**N=40190**
Yes	567 (1.4)
No	39623 (98.6)
Pre-hospital Outcome (%)	**N=40187**
Pronounced in the Field	11106 (27.6)
Pronounced in ED	6485 (16.1)
Ongoing Resuscitation in ED	22596 (56.2)
Overall Survival (%)	**N=40190**
Overall Survival to Hospital Admission	10351 (25.8)
Overall Survival to Hospital Discharge	3604 (9.0)
With Good or Moderate Cerebral Performance	2845 (7.1)
Missing hospital outcome	137
Utstein[1] Survival (%)	**N=4305**
	29.1%
Utstein Bystander[2] Survival (%)	**N=2280**
	33.5%

Inclusion criteria: An out-of-hospital cardiac arrest where resuscitation is attempted by a 911 responder (CPR and/or defibrillation). This would also include patients that received an AED shock by a bystander prior to the arrival of 911 responders.

**This is a new question that was introduced on the 2011 form.*

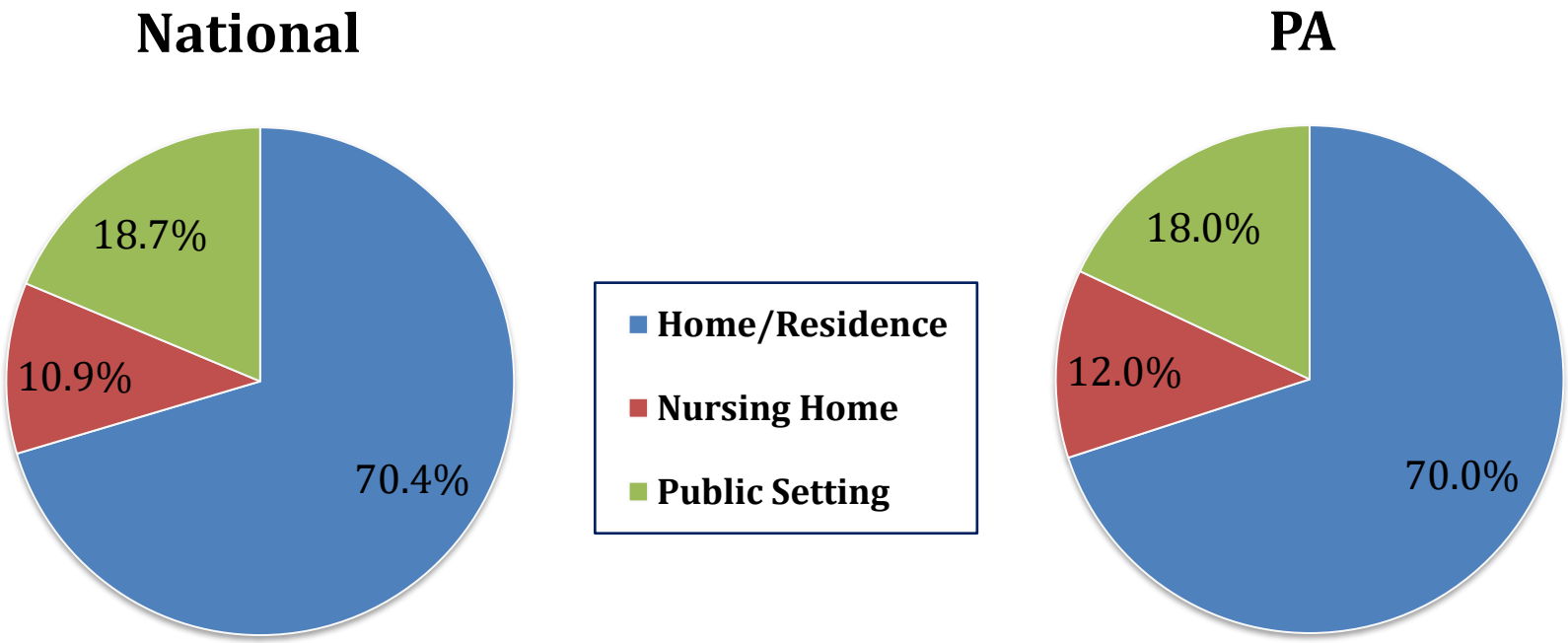
[1]Witnessed by bystander and found in a shockable rhythm

[2]Witnessed by bystander, found in shockable rhythm, and received some bystander intervention (CPR by bystander and/or AED applied by bystander)

CARES 2019 National Report Summary: Pennsylvania

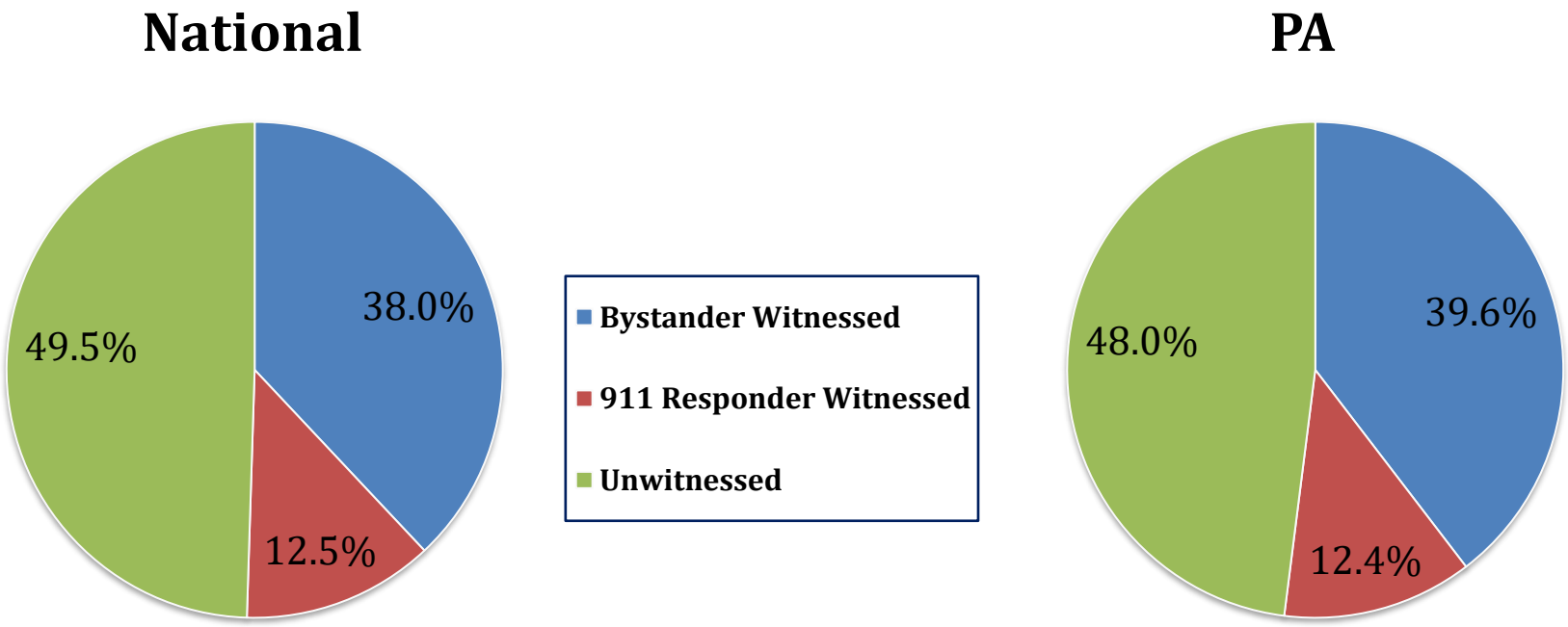
CARES
Cardiac Arrest Registry
to Enhance Survival

Location of Arrest



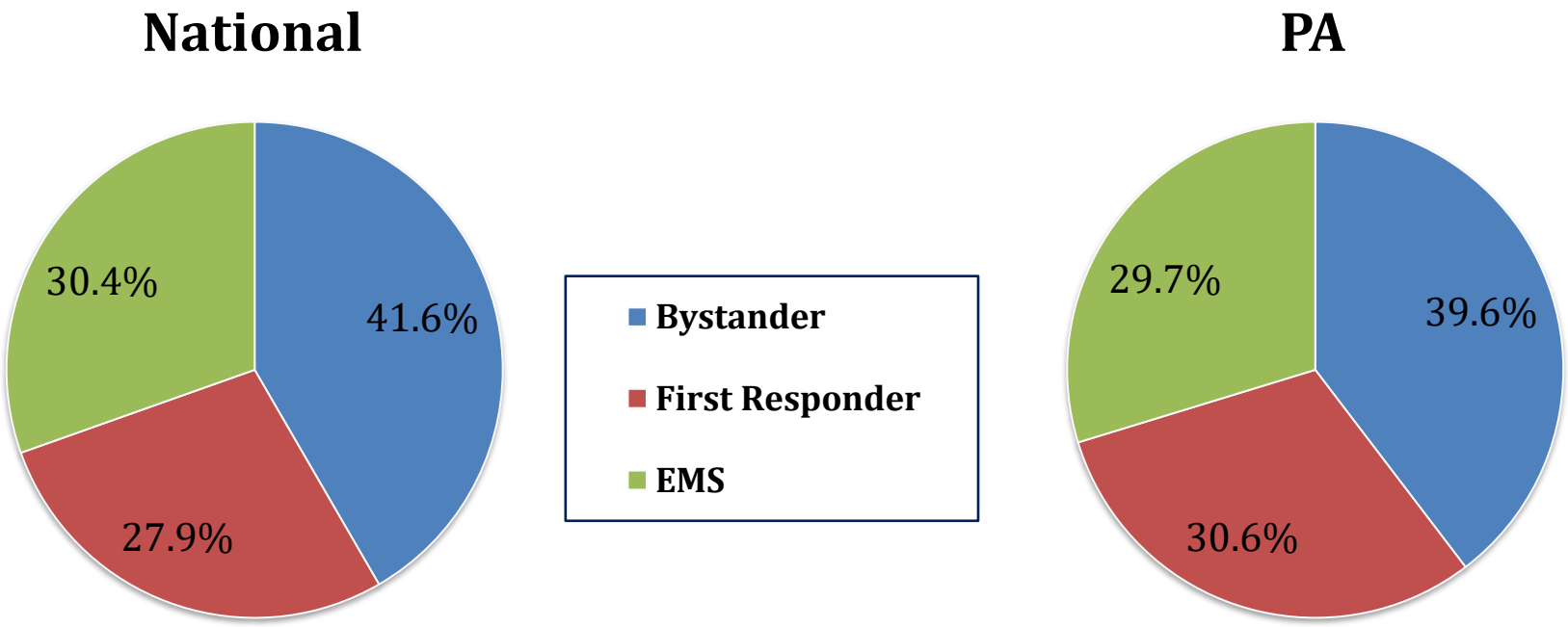
CARES
Cardiac Arrest Registry
to Enhance Survival

Arrest Witnessed Status



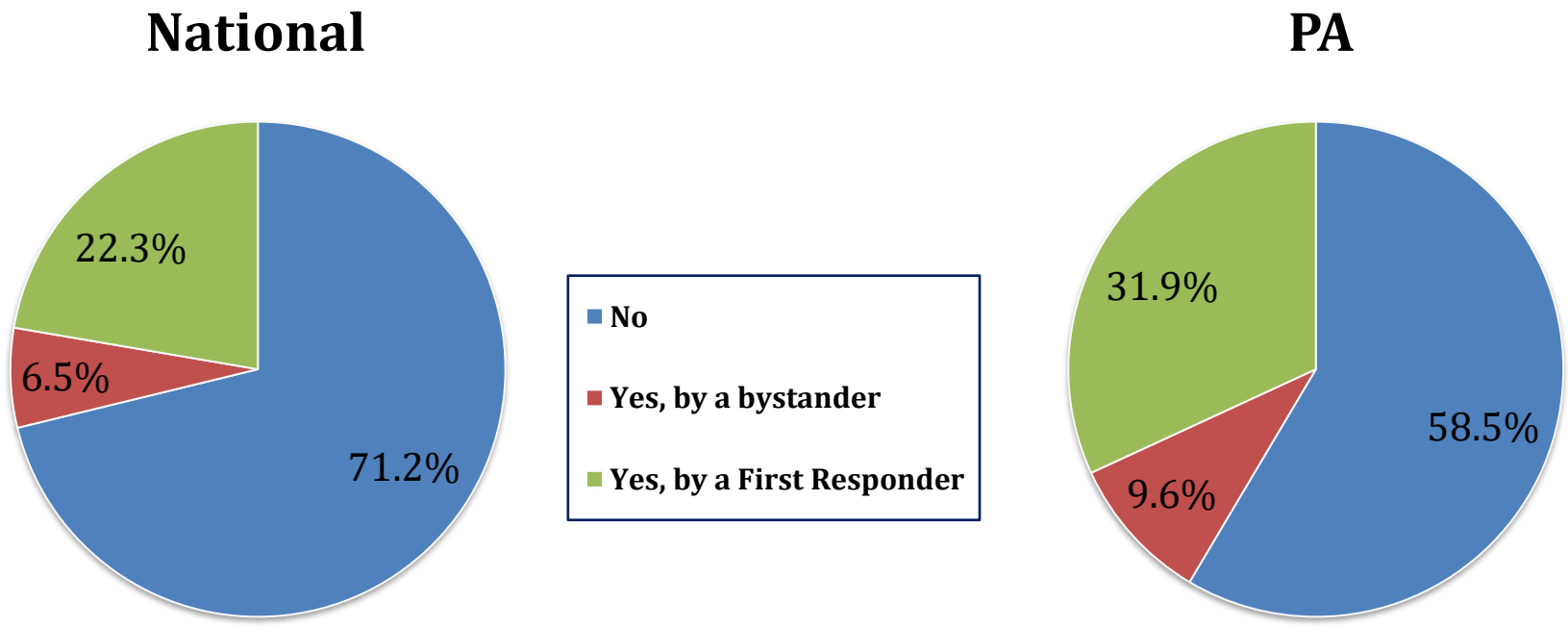
CARES
Cardiac Arrest Registry
to Enhance Survival

Who Initiated CPR



CARES
Cardiac Arrest Registry
to Enhance Survival

Was an AED Applied (prior to EMS arrival)?



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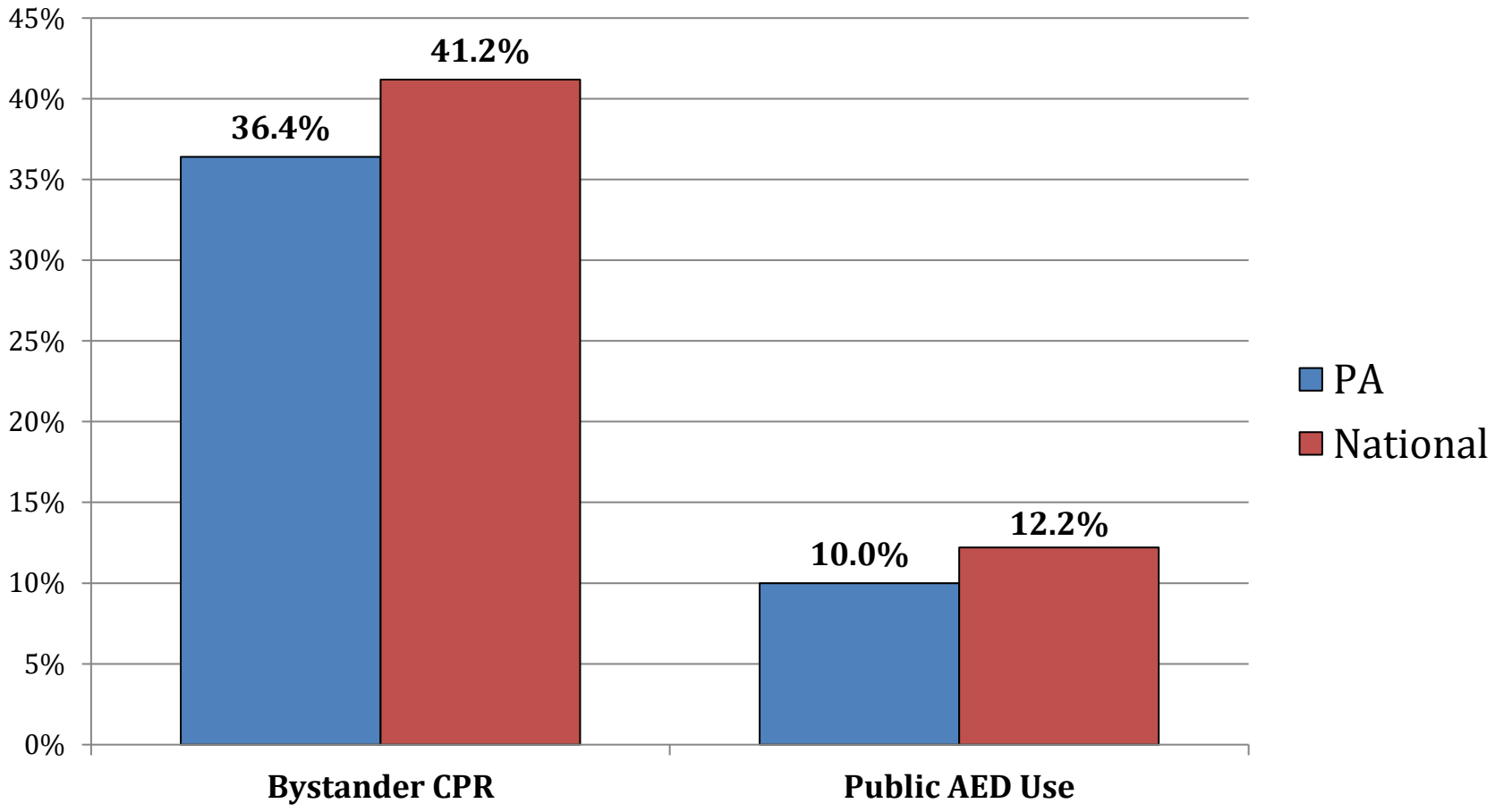
Cardiac Arrest Registry to Enhance Survival

Bystander Intervention Rates



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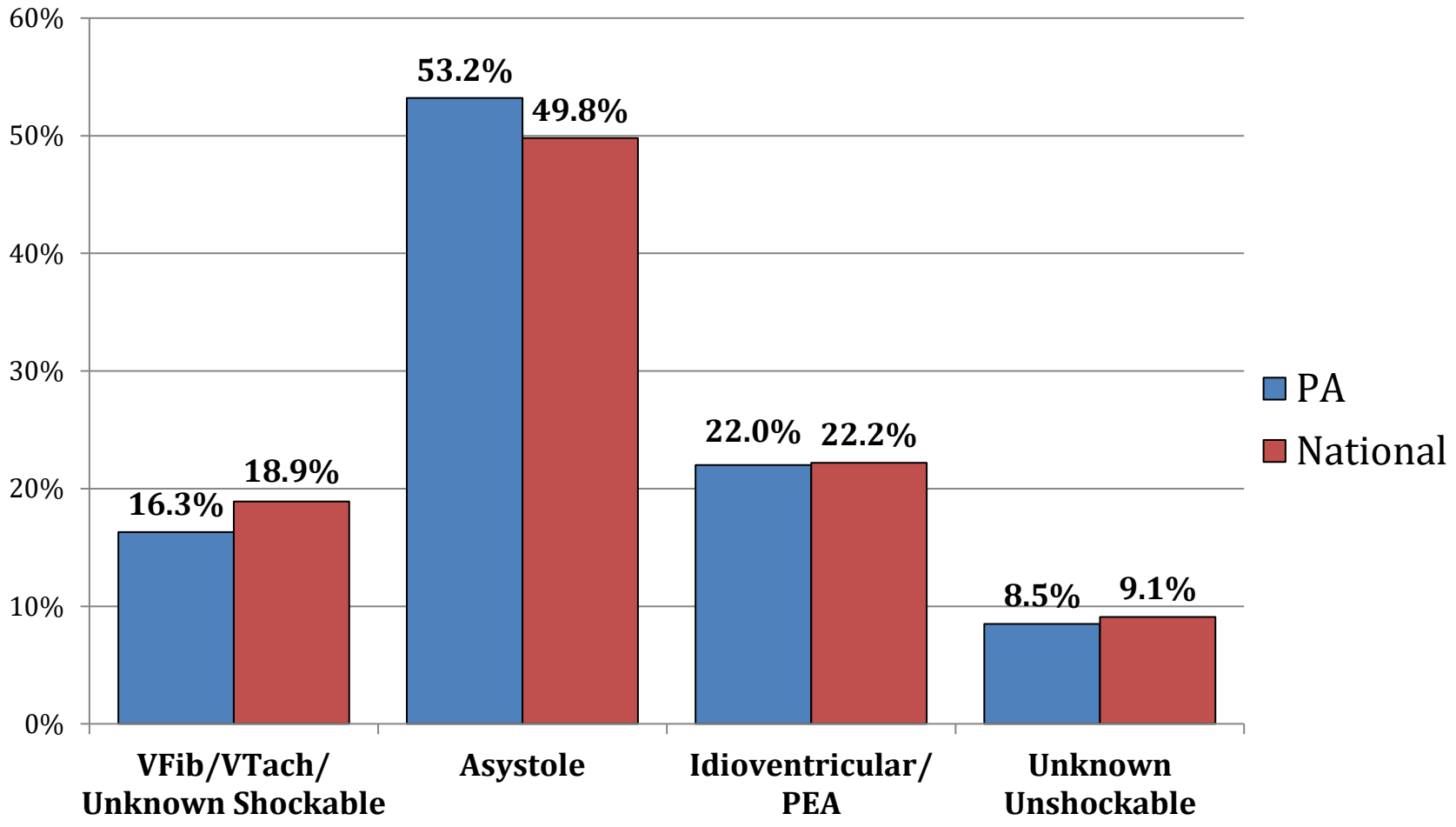
- *Bystander CPR rate excludes 911 Responder Witnessed, Nursing Home, and Healthcare Facility arrests.*
- *Public AED Use rate excludes 911 Responder Witnessed, Home/Residence, Nursing Home, and Healthcare Facility arrests.*

First Arrest Rhythm



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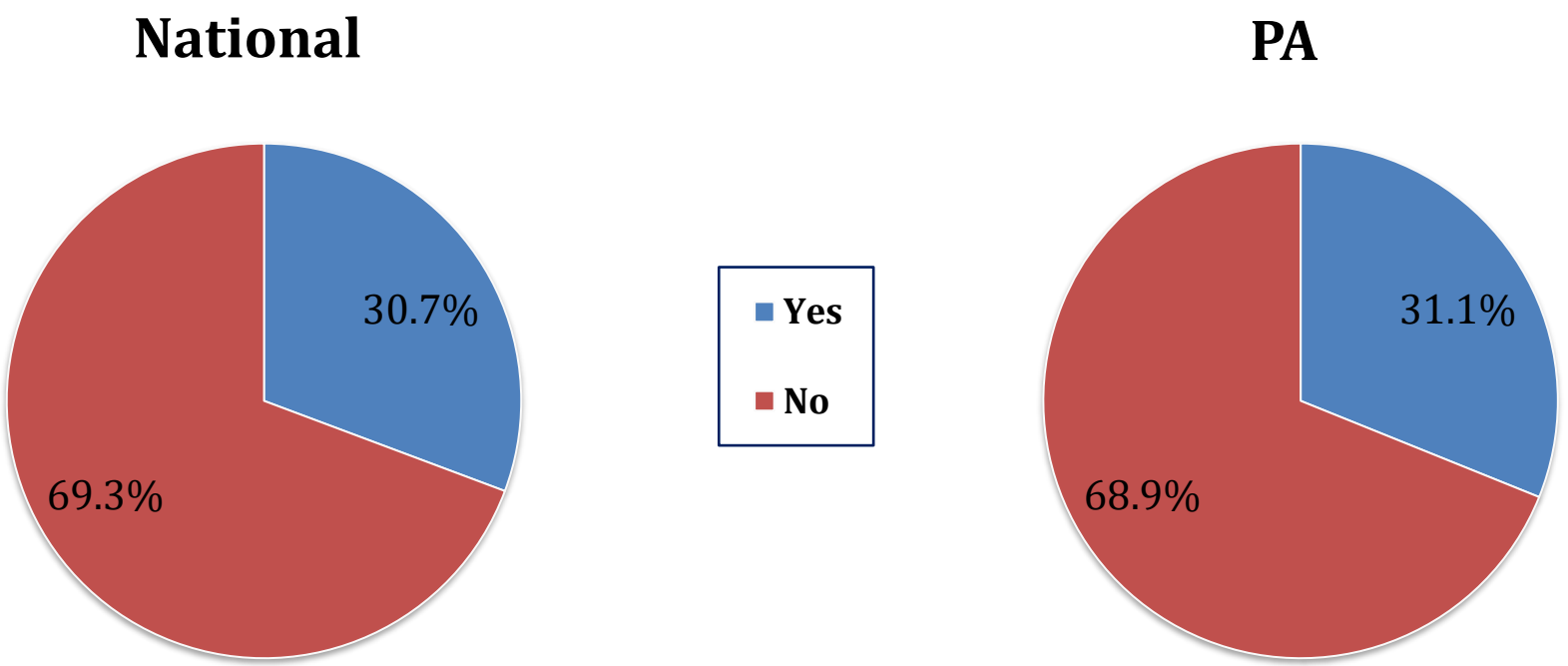
Cardiac Arrest Registry to Enhance Survival

Sustained ROSC in the field



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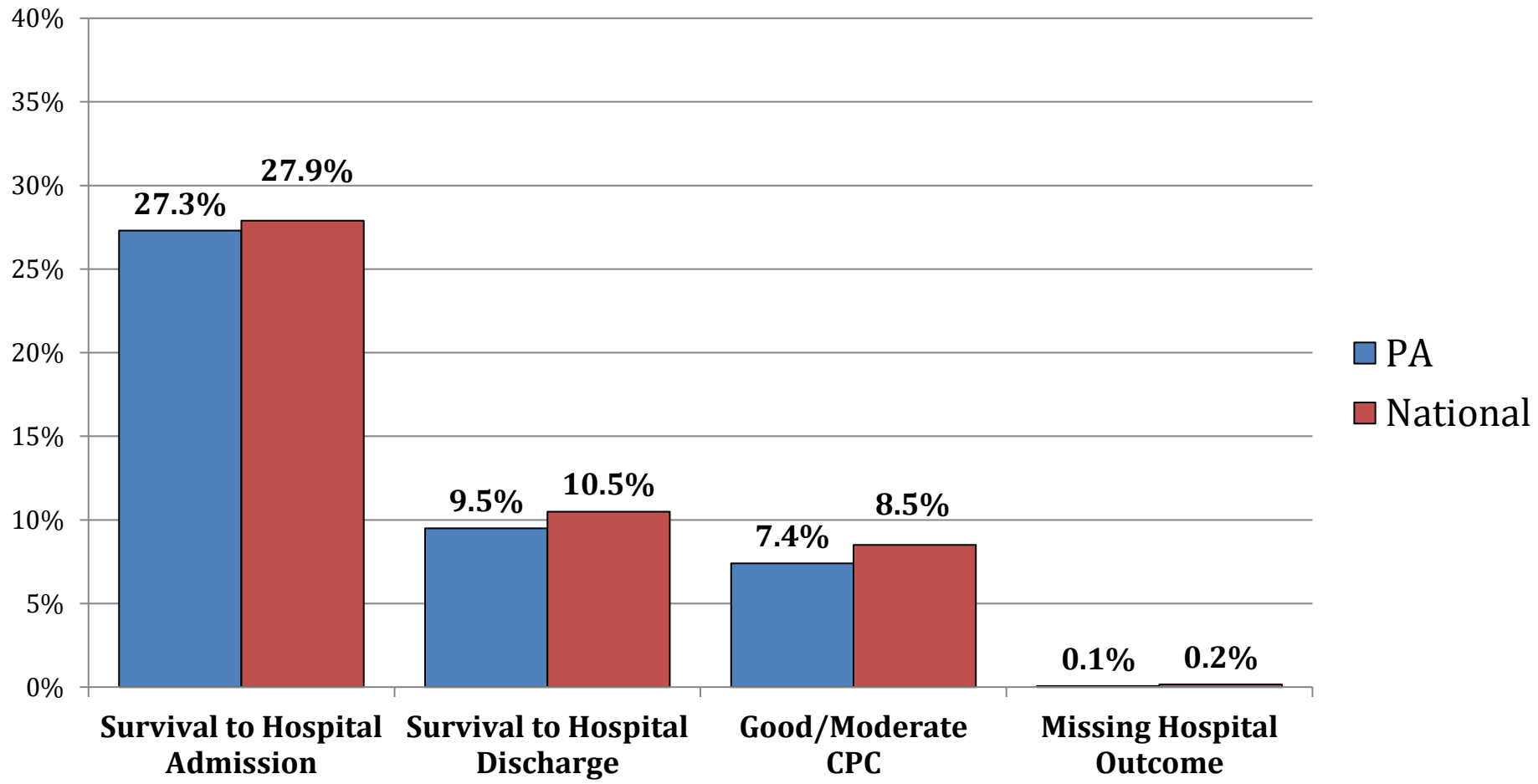
Survival Rates: Overall Survival



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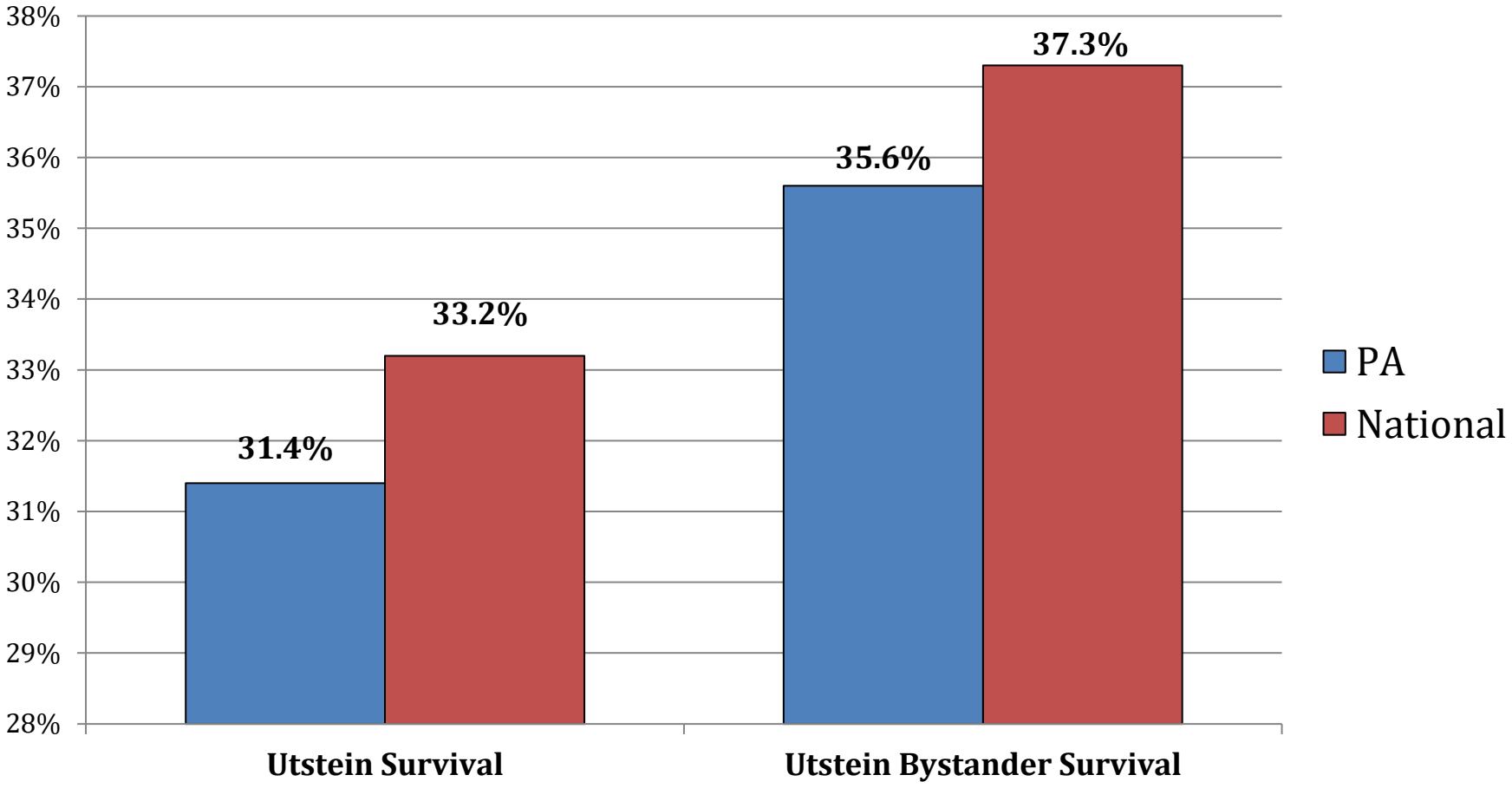
Survival Rates: Bystander Witnessed Shockable Rhythm



CARES
Cardiac Arrest Registry to Enhance Survival

- *Utstein = Witnessed by bystander and found in a shockable rhythm*
- *Utstein Bystander = Witnessed by bystander, found in shockable rhythm, and received some bystander intervention (CPR and/or AED application)*