2025 Data Dictionary

Cardiac Arrest Registry to Enhance Survival (CARES)

PLEASE NOTE: This data dictionary is intended for CARES end users. ePCR vendors and programming staff should only use the XML data dictionary found at: https://mycares.net/cares_xml_upload_docs.jsp.

CARES
Cardiac Arrest Registry
to Enhance Survival

The CARES data dictionary provides definitions and coding examples for the questions and responses found on the CARES form. This document is designed to be a helpful reference tool for participating EMS agencies and hospitals.

The original CARES dataset and dictionary were developed by a committee comprised of experienced leaders and stakeholders in the field of emergency medicine. Since that time, CARES staff have continued to update and refine the dataset and dictionary based on feedback from end users, state coordinators, and the CARES Advisory Council, as well as relevant findings in cardiac arrest literature.

It is important to recognize that CARES was developed as a surveillance registry and not a research database; therefore, the CARES dataset is purposefully brief and collects the minimum number of data elements known to be essential in the response and treatment of out-of-hospital cardiac arrest (OHCA).

In 2010, a number of supplemental/optional elements were added to the CARES form, which allow for additional information to be collected by participating EMS agencies and hospitals where resources allow. These supplemental elements are noted as such in the data dictionary. State programs may require entry of the supplemental/optional elements. Please consult your CARES state coordinator for details about your state's requirements.

The sources that were used for the development of the dataset and dictionary include the National EMS Information System (NEMSIS) and the Utstein template. A brief explanation of each source is provided below:

- NEMSIS[1] is a national effort to standardize the data collected by EMS agencies, and was developed to help states eventually submit data to a national EMS database. The NEMSIS dataset and dictionary includes over 400 elements and have been through several updates. CARES makes every attempt to align with the NEMSIS dataset wherever possible.
- Utstein[2] is the recognized international standard for reporting out-of-hospital cardiac arrest survival. The Utstein recommendations are an attempt to develop and present consensus definitions for previously poorly defined areas of clinical epidemiology as they pertain to OHCA patients.

Please feel free to contact CARES staff at cares@emory.edu with any questions or comments regarding this document.

[1] http://www.nemsis.org

[2] Perkins GD, Jacobs IG, Nadkarni VM, et al; Cardiac arrest and cardiopulmonary resuscitation outcome reports: update of the Utstein Resuscitation Registry Templates for Out-of-Hospital Cardiac Arrest: a statement for healthcare professionals from a task force of the International Liaison Committee on Resuscitation and the American Heart Association Emergency Cardiovascular Care Committee and the Council on Cardiopulmonary, Critical Care, Perioperative and Resuscitation. *Circulation.* 2015;132(13): 1286-300.

CARES CASE DEFINITION

A non-traumatic out-of-hospital cardiac arrest 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.

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.

NOTE: Patients experiencing multiple arrests, even in cases where ROSC is sustained for 20 minutes, should be entered as one event.

CARES exclusion criteria (any of the following):

Examples of cardiac arrests that do not meet the CARES case definition and therefore do not need to be entered into the registry include:

- 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.
- Stillborn neonates/perinatal newborns, born without signs of life.
- Private EMS transport that did not involve 911 dispatch (example: interfacility transport between nursing home and hospital).
- 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.

ACRONYMS

ACRONYM	DEFINITION
ACLS	Advanced Cardiovascular Life Support
AED	Automated External Defibrillator
ALS	Advanced Life Support
BLS	Basic Life Support
BVM	Bag Valve Mask
CABG	Coronary Artery Bypass Grafting
CAD	Computer Aided Dispatch
CARES	Cardiac Arrest Registry to Enhance Survival
CCU	Critical Care Unit
CPC	Cerebral Performance Category
CPR	Cardiopulmonary Resuscitation
DNR	Do Not Resuscitate
ECG	Electrocardiogram
ED	Emergency Department
EMS	Emergency Medical Services
ER	Emergency Room
ET	Endotracheal Tube
GIS	Geographic Information System
ICD	Implantable Cardioverter Defibrillator
ICU	Intensive Care Unit
IO	Intraosseous
ITD	Impedance Threshold Device
IV	Intravenous
LMA	Laryngeal Mask Airway
MI	Myocardial Infarction
MRN	Medical Record Number
OHCA	Out-Of-Hospital Cardiac Arrest
PCR	Patient Care Report
PEA	Pulseless Electrical Activity
QA	Quality Assurance
QI	Quality Improvement
ROSC	Return of Spontaneous Circulation
SNF	Skilled Nursing Facility
STEMI	ST-Segment Elevation Myocardial Infarction
TH	Therapeutic Hypothermia
VF	Ventricular Fibrillation
VT	Ventricular Tachycardia

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1. STREET ADDRESS

Definition/Description:

- The street address (or best approximation) where the patient arrested. In the event that the patient arrested after the 911 call was placed, the street address of the patient when the 911 call was placed should be recorded as the Street Address.
    - NOTE: if the patient arrested during transport, the original incident location should be recorded as the Street Address.
- Incident location information can be used to map the location of the cardiac arrest using GIS technology and to identify patterns and clusters of cardiac arrest events.

Instructions for Coding:

- The ability to use GIS technology and to map cardiac arrest events is dependent upon the accuracy of the cardiac arrest address. For this reason, United States Postal Service (USPS) standards are recommended for the coding of the address. The full document of these standards can be found at the USPS website.
- Use standard USPS abbreviations, where applicable. These abbreviations include, but are not limited to: ALY (alley), ANX (annex), APT (apartment), AVE (avenue), BLDG (building), BLVD (boulevard), BYP (bypass), CIR (circle), CT (court), CV (cove), DEPT (department), DR (drive), EXPY (expressway), FL (floor), HWY (highway), JCT (junction), LN (lane), LOOP (loop), MTWY (motorway), OFC (office), PKWY (parkway), PL (place), PLZ (plaza), RAMP (ramp), RD (road), RM (room), RTE (route), SQ (square), ST (street), STE (suite), TER (terrace), TRL (trail), WAY (way), UNIT (unit), N (north), NE (northeast), NW (northwest), S (south), SE (southeast), SW (southwest), E (east), W (west).
- Uppercase letters are preferred.
- Use the “&” or “+” sign to indicate an intersection address.
- Do *not* use the “#” sign if there is an address unit designator such as APT, STE, or RM.
- Do *not* use periods, commas, or semicolons in the address.

Street Address	**CARES Coding**
102 Main Street Southwest; Apartment #12	102 MAIN ST SW APT 12
Intersection of “Clifton Road Northeast” and “North Decatur Road Northeast”	CLIFTON RD NE & N DECATUR RD NE

2 – 5. CITY, STATE, ZIP CODE, and COUNTY

Definition/Description:

- The city/township, state, zip code, and county where the patient arrested (or best approximation). In the event that the patient arrested after the 911 call was placed, the location of the patient when the 911 call was placed should be recorded as the Incident City, State, Zip Code, and County.
- Incident location information can be used to map the location of the cardiac arrest using GIS technology and to identify patterns and clusters of cardiac arrest events.

Instructions for Coding:

- The ability to use GIS technology and to map cardiac arrest events is dependent upon the accuracy of the cardiac arrest address. For this reason, United States Postal Service (USPS) standards are recommended for the coding of the address. The full document of these standards can be found at the USPS website.
- Uppercase letters are preferred.
- City names should be spelled out in their entirety.
- States should be indicated using the standard USPS two-letter abbreviations.
- Zip Codes should be indicated using the standard 5-number USPS zip codes.
- "99999" should be used if the zip code is unknown and cannot be determined.
- The counties in which a participating EMS Agency responds will be added to their CARES form upon initial account setup. Incident County should be selected from the drop-down menu of defined choices. Additional counties may be added to the drop-down menu if needed.

City, State, Zip Code, and County	CARES Coding
New York; New York; 10065-1234; Brooklyn County	NEW YORK, NY, 10065, BROOKLYN
Atlanta; Georgia; 30327; Fulton County	ATLANTA, GA, 30327, FULTON

6 – 7. FIRST NAME & LAST NAME

Definition/Description:

- The patient's first (given) and last (family) name.
- Accurate and complete patient names are essential for obtaining outcome information from hospitals.
- When a CARES record is clean and hospital data has been entered, the patient's name and date of birth will be removed to de-identify the record.

Instructions for Coding:

- If the patient's name is known, indicate the first and last name, with accurate spelling.
- If the patient's name is unknown, list as "John/Jane Doe."
    - In these cases, crew members should include the Medical Record Number (MRN) in the narrative, and this should be entered into the "Hospital Medical Record Number" free text field (#59) of the CARES form. This will help the hospital contact obtain the patient outcome.
    - The CARES record should be updated with correct patient name if this becomes available at a later time.

First Name & Last Name	CARES Coding
First name: Bill; Last name: Smith	Bill Smith
Unidentified male patient	John Doe
Unidentified female patient	Jane Doe

8. AGE & AGE MODIFIER

Definition/Description:

- The patient's age (calculated from the date of birth) or best approximation.
- Allows for categorization of patients according to their age at the time of cardiac arrest.

Instructions for Coding:

- Both "Patient Age" and "Patient Age Units" must be coded.
- If the patient's actual age is not known, it should be estimated based on available information.
- For pediatric patients:
  - If a child is less than one month old, use the "Days" age unit.
  - If a child is >1 month and <1 year old, use the "Months" age unit.
  - If a child is >1 year old, use the "Years" age unit.
- This is an all-inclusive registry – please enter patients of ALL ages.
- Stillborn neonates/perinatal newborns born without signs of life, are not CARES cases and do not need to be entered into the registry.

Patient Age	CARES Coding
2 weeks	14 Days
90 days	3 Months
15 months	1 Year
65 years	65 Years

9. DATE OF BIRTH

Definition/Description:

- The patient's date of birth as reported by the patient, family, or healthcare provider.
- Patient date of birth is essential for obtaining outcome information from hospitals.
- When a CARES record is clean and hospital data has been entered, the patient's date of birth and name will be removed to de-identify the record.

Instructions for Coding:

- All dates should be entered in the following format: MM/DD/YYYY.
- Alternatively, DOB can be selected from the pop-out calendar on the CARES form. This will auto-calculate the patient's age.
- In cases where the date of birth is unknown, leave the date field blank and select the "DOB Unknown" checkbox.

Date of Birth	CARES Coding
July 25, 1945	07/25/1945
Unable to obtain this information	DOB Unknown

10. SEX

Definition/Description:

- The patient's biological sex as recorded in the patient care report.
- The sex of the patient may be an important risk factor for cardiac arrest and resuscitation interventions.

Instructions for Coding:

- Select Male or Female on the CARES form.

11. RACE / ETHNICITY

Definition/Description:

- The patient's race or ethnicity as defined by the OMB (US Office of Management and Budget; http://www.whitehouse.gov/omb/) OR (https://www.whitehouse.gov/omb/information-regulatory-affairs/statistical-programs-standards/).
- The race/ethnicity of the patient may be an important risk factor for cardiac arrest and resuscitation interventions.

Instructions for Coding:

- Assign race/ethnicity as reported by the patient, family, or healthcare provider based on the definitions below. If the patient is of mixed race/ethnicity, multiple selections can be made.

Race/Ethnicity	Definition
American-Indian/Alaska Native	A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.
Asian	A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
Black/African-American	A person having origins in any of the black racial groups of Africa.
Hispanic/Latino	A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race.
Native-Hawaiian/Pacific-Islander	A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
White	A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.
Unknown	Race/Ethnicity not available or collected on patient care report.

12. MEDICAL HISTORY

******OPTIONAL ELEMENT******

Definition/Description:

- Patient's medical history as reported by the patient, family, or healthcare provider.

Instructions for Coding:

- This field is in a multi-select format.
- Select any and all that are known to be part of the patient's medical history as reported by the patient, family, or healthcare provider based on the definitions below.
- Use the Other free text field for any conditions that are known but not covered by the defined answer choices.

Medical History	Definition
No	Patient has no previous medical diagnoses.
Unknown	EMS unable to obtain any past medical history.
Cancer	A disease in which abnormal cells divide without control and can invade nearby tissues.
Diabetes	A disease in which the body's ability to produce or respond to the hormone insulin is impaired, resulting in abnormal metabolism of carbohydrates and elevated levels of glucose in the blood and urine. This includes both Type I and Type II diabetes.
Heart Disease	Any disorder that affects the heart, synonymous with cardiac disease. Examples include: angina, arrhythmia, congenital heart disease, coronary artery disease (CAD), dilated cardiomyopathy, prior heart attack (myocardial infarction), chronic heart failure (CHF), hypertrophic cardiomyopathy, mitral regurgitation, mitral valve prolapse, and pulmonary stenosis.
Hyperlipidemia	A disorder of excess fat or lipids in the blood. Also called hypercholesterolemia, high cholesterol.
Hypertension	A long-term medical condition in which the blood pressure in the arteries is persistently elevated.
Renal Disease	A medical condition in which the kidneys fail to adequately filter metabolic wastes from the blood.
Respiratory Disease	Disease of the respiratory system which may affect any of the structures and organs that have to do with breathing, including the nasal cavities, the pharynx (or throat), the larynx, the trachea (or windpipe), the bronchi and bronchioles, the tissues of the lungs, and the respiratory muscles of the chest cage. This includes Chronic Obstructive Pulmonary Disease (COPD), asthma, pneumonia, chronic bronchitis.
Stroke	The sudden death of brain cells due to lack of oxygen, caused by blockage of blood flow or rupture of an artery to the brain. Sudden loss of speech, weakness, or paralysis of one side of the body can be symptoms.
Other	Patient has medical history not included in one of the defined categories. Use of Other should be confined to medical conditions that impact patient survival. A complete medical history is not required. Specific information should be added to the free text field.

13. EMS AGENCY ID

Definition/Description:

- The state-assigned provider number for the Emergency Medical Service (EMS) responding agency.
- For CARES, EMS is defined as personnel who respond to the medical emergency in an official capacity (i.e. respond to the 911 call) as part of an organized medical response team AND are the designated transporter of the patient to the hospital.
    - NOTE: By this definition, organized responding personnel who are ***not*** the designated transporter of the patient to the hospital are characterized as a "First Responder" and are ***not*** considered the EMS agency.
    - NOTE: By this definition, physicians, nurses, or paramedics who are not part of the organized response team are characterized as Healthcare Providers and are ***not*** part of the EMS or First Responder system.

Instructions for Coding:

- This value is assigned to each EMS Agency upon enrollment in CARES and is not nullable.
- This field is auto-populated for both methods of CARES data entry: desktop data entry and automatic ePCR extraction.
- This value must be entered as or 0-padded to 15 digits.

EMS Agency ID	CARES Coding
58475	000000000058745

14. DATE OF ARREST

Definition/Description:

- Date that the cardiac arrest occurred.
- Allows for the calculation of time intervals, and assessment of seasonality of OHCA.

Instructions for Coding:

- Use the date of event as recorded in the EMS Patient Care Report (PCR).
- All dates should be entered in the following format: MM/DD/YYYY.
- Alternatively, Date of Arrest can be selected from the pop-out calendar on the CARES form.

Date of Arrest	CARES Coding
January 25, 2021	01/25/2021

15. INCIDENT

Definition/Description:

- The unique number automatically assigned by the EMS Agency for each Patient Care Report (PCR).
- This number will be used to identify each unique record within the CARES database after patient name and DOB are removed.
- Where applicable, this value can be used to link dispatch information (CAD data) for EMS and First Responders.

Instructions for Coding:

- This field is *required* and cannot be left blank.
- Use the PCR number as recorded in the EMS trip sheet.
- Incident #s may have dashes, be alphanumeric, and can be a maximum of 32 characters.
- NOTE: Agencies may refer to this number in different terms (e.g., Call #). The CARES term "Incident #" broadly refers to the unique number assigned to each patient by the EMS Agency.
- When systems have multiple numbers assigned to each patient (i.e. CAD number and ePCR number), choose the most commonly used identifier. EMS agencies should be consistent with which identifier is used.

16. FIRE/FIRST RESPONDER

Definition/Description:

- First Responder agency that provided out-of-hospital care to the patient in cardiac arrest.
- For CARES, a First Responder agency is defined as personnel who respond to the medical emergency in an official capacity as part of an organized medical response team but are *not* the designated transporter of the patient to the hospital. This would include personnel who arrive by quick response units, fire apparatus, and supervisor/administrative vehicles operated by the transport agency.
    - NOTE: Organized responding personnel who are the designated transporter of the patient to the hospital are characterized as "EMS Responder (transport EMS)" and are *not* considered a "First Responder."
    - NOTE: Physicians, nurses, or paramedics who are not part of the organized response team are characterized as Healthcare Providers and are *not* part of the EMS or First Responder system.

Instructions for Coding:

- This field is in a drop-down menu format. Additional First Responder agencies may be added to the drop-down menu if needed.
- If a First Responder agency was not dispatched, this field can be left blank. Select the "No First Responder dispatched" checkbox below the pull-down menu.
- If a First Responder agency was dispatched, this field MUST be completed. This is independent of whether or not the First Responder actually provided direct care to the patient.
- If more than one First Responder agency was dispatched, the unit that arrived and provided care first at the scene (or would have provided care first, if EMS was not already on scene) should be selected as the "First Responder" for this field.
- The designated First Responder does not need to be on the scene prior to EMS. EMS personnel may arrive on scene first, depending on dispatch and travel times.

17. DESTINATION HOSPITAL

Definition/Description:

- The hospital to which the patient was transported.
- Accurate Destination Hospital information is essential for obtaining patient outcome information.

Instructions for Coding:

- This field is in a drop-down menu format. Additional Destination Hospitals may be added to the drop-down menu if needed.
- This field must be completed for all patients that are transported to the hospital. This is independent of whether or not the patient was later admitted to the hospital.
- This field should be left blank when resuscitative efforts were terminated in the field and the patient was not transported to a hospital.
- This field should be left blank when resuscitative efforts were terminated in the field and the patient was transported to the morgue.
- This field should be left blank if the patient refused transport.

18. LOCATION TYPE

Definition/Description:

- The location category of the address given in field #1.
- This should be the location where the patient arrested. In the event that the patient arrested after the 911 call was placed, select the location type of the address of the patient when the 911 call was placed.
    - Example: if patient arrests in the back of the ambulance, the location type should be coded as the place from which the 911 call was made.
- Allows for categorization of cardiac arrests according to type of location (private vs. public). This may allow for a greater understanding of high frequency arrest locations that can be targeted for prevention or response programs.

Instructions for Coding:

- Select the location type that is most appropriate based on the definitions below. If location type is not included in one of the defined categories, select "Other" and describe the location in the free text field. The "Other" category should not be the default selection. This free text will be reviewed during the audit/QA process by a CARES coordinator.

Location Type	Definition
Home/Residence	Includes apartment, boarding house, dormitory, group home, institutional place of residence, halfway house, military barracks, mobile home, private home, residential house, vacation home rental, and home premises (private driveway, garage, garden, walkway, swimming pool within private residence or garden, and yard of home.)
Public/Commercial Building	Any building used by the general public including a bank, café, casino, church/place of worship, courthouse, dance/music hall, daycare center, farm, fire station, gas station or service area, hotel/motel, jail/prison, library, market, movie cinema, museum/art gallery, nightclub, office building, parking garage/parking lot, post office, restaurant, school, shop/store, and theater. *Excludes* home garage (see Home/Residence), industrial building/workplace (see Industrial Place), and physician's office (see Healthcare Facility).
Street/Hwy	Includes all public roadways, sidewalks, or roads not associated with a residence or business.
Nursing Home	Includes all medical residential institutions that are licensed by the state as nursing homes or assisted-living centers.
Healthcare Facility	Includes birth center, detox facility, doctor/dentist office, dialysis clinic, free standing clinic, and rehabilitation facility (unless meeting the definition of a Hospital, as in-hospital arrests do not qualify as CARES cases).
Place of Recreation	Includes athletic court/field/grounds, amusement park, beach, campsite, fairgrounds, golf course, gymnasium, hike/bike trail, holiday camp, lake resort, marina, mountain resort, playground, public park, racetrack, resorts of all types, riding school, rifle range, shoreline, skating rink, ski resort, sports grounds, stadium, public swimming pool, and zoo. *Excludes* occurrence in private house, garden, swimming pool, or yard (See Home/Residence).
Industrial Place	Includes building under construction, dock or shipyard, factory, loading platform in factory or store, industrial plant, junk yard, mine or pit, oil rig, quarry, railway yard, and warehouse.
Transport Center	Includes airport, bus station/terminal, ferry terminal, highway rest stop, and train/subway station.
Other	To be used when location is not included in the above categories. When this option is selected, please indicate/describe the location type in the free text field. Includes cemetery, homeless camp/tent city, general outdoors, vehicle in transit (i.e. ferry/boat on a body of water) and wilderness area (desert, forest).

Example	CARES Coding
Patient arrested while on a private tennis court located in the backyard of a residential home.	Home/Residence
Patient arrested while on a tennis court at the Shady Grove Country Club.	Place of Recreation
Patient was walking down the street. Not feeling well, the patient approached a nearby home to ask for help. Upon stepping on the private porch, the patient had a cardiac arrest.	Home/Residence
Patient had a cardiac arrest while in the Shady Grove Supermarket.	Public/Commercial Building
Patient had a cardiac arrest in the parking lot of the Shady Grove Supermarket.	Public/Commercial Building
Patient arrested at the Shady Grove Neighborhood Church.	Public/Commercial Building
Patient arrested while in his/her college dorm room.	Home/Residence
Patient arrested while on dialysis at the Shady Grove Dialysis Clinic.	Healthcare Facility
Patient arrested while in the Atlanta airport.	Transport Center
Patient arrested while on his/her private boat on Lake Lanier.	Other

19. ARREST WITNESS STATUS

Definition/Description:

- Witness status of the cardiac arrest.
- A witnessed cardiac arrest is one that is seen or heard by another person.
- To be able to determine a true Utstein survival rate in a given community, it is necessary to identify those patients who have a bystander witnessed cardiac arrest.
- Patients who experience a cardiac arrest after the arrival of a 911 Responder (First Responder or EMS) are likely to receive immediate resuscitative efforts by trained personnel, to include CPR and/or defibrillation.

Instructions for Coding:

- Select the witness status that is most appropriate based on the definitions below.

Arrest Witness Status	Definition
Unwitnessed	Cardiac arrest is neither seen nor heard by another person. This includes patients found after an unknown period of time.
Witnessed by Bystander	Cardiac arrest is seen OR heard by a bystander.
Witnessed by 911 Responder	Cardiac arrest is seen OR heard by a 911 Responder (First Responder or EMS).

Example	CARES Coding
The patient was found on the floor of the kitchen by her husband. He did not see or hear her fall.	Unwitnessed
The patient's wife heard a loud 'thud' in the next room. She immediately walked into the room to find the patient on the floor unconscious/unresponsive and called 911.	Witnessed by Bystander
EMS was called to the home of the patient, who complained of shortness of breath. The patient was awake and alert when EMS arrived and the first monitored cardiac rhythm was sinus tachycardia of 150 bpm. After 2 minutes of monitored sinus tachycardia, the patient went into ventricular fibrillation. Resuscitative efforts were initiated.	Witnessed by 911 Responder
EMS was called to the corner of Main Street and 14th Street for a possible cardiac arrest. Upon arrival, the patient was found lying on the sidewalk with no pulse. The couple, who had called 911, was interviewed and stated that they found the patient while walking to their car.	Unwitnessed
EMS was called to the YMCA for a possible cardiac arrest. Upon arrival, the patient was found lying on the gym floor with no pulse. Several other people were playing basketball when the event occurred, but no one heard or saw the patient collapse.	Unwitnessed
EMS and a First Responder were dispatched to the Shady Grove Sporting Club for a patient complaining of mild chest pain. The First Responder arrived on scene to find the patient awake and alert. After 1 minute, the patient went into full cardiac arrest. Resuscitation efforts were initiated. EMS personnel arrived 2 minutes later.	Witnessed by 911 Responder

20. PRESUMED CARDIAC ARREST ETIOLOGY

Definition/Description:

- Indication of the etiology or cause of the cardiac arrest.
- **All cardiac arrests of non-traumatic etiology where resuscitative efforts were initiated by a 911 Responder MUST be entered into CARES including those due to: presumed cardiac cause, respiratory cause or asphyxia, drowning/submersion, electrocution, exsanguination/hemorrhage, and drug overdose.**
- This field allows for categorization based on evidence to suggest the presumed etiology of the arrest. This will allow for the best chance of identifying patients that are otherwise presumed to have a primary cardiac etiology and help establish an Utstein survival rate for a specific community.

Instructions for Coding:

- An arrest is ***presumed to be of cardiac etiology*** unless it is known or likely to have been caused by trauma, drowning, respiratory causes, asphyxia, electrocution, drug overdose, poisoning/intoxication, hemorrhage/exsanguination, or any other non-cardiac cause as best determined by rescuers.
- Additional information when available from the hospital (if the patient is transported) or medical examiner's office (death certificate) that may help clarify the etiology should also be used when available.
    - If the hospital determines the etiology to be other than what is listed by pre-hospital providers, the EMS Agency should be notified and the etiology changed in CARES with approval of pre-hospital provider.
- Select the presumed arrest etiology that is most appropriate based on the definitions below. If etiology is not included in one of the defined categories, select "Other" and describe the arrest etiology in the free text field. This free text will be reviewed during the audit/QA process by a CARES coordinator.

Presumed Cardiac Arrest Etiology	Definition
Presumed Cardiac Etiology	The arrest should be coded as "Presumed Cardiac Etiology" unless it is known or likely to have been caused by a non-cardiac cause (see definitions below).
Trauma	Defined as out-of-hospital injury (e.g. blunt or penetrating trauma, burns, GSW, hanging, etc.) resulting in traumatic arrest. In cases where seemingly minor "trauma" may be present but not likely the cause of the arrest, cardiac etiology should be considered (e.g. minor MVA with patient slumped over; a minor fall).
Respiratory/Asphyxia	Underlying respiratory disease or a respiratory mechanism as the primary cause of arrest, e.g. acute respiratory event that is likely the cause of the cardiac arrest. Examples include: choking, hypoxemia, foreign body airway obstruction (FBAO).
Drowning/Submersion	Submersion in water with no evidence of other contributing factors such as drug poisoning or trauma prior to falling into the water.
Electrocution	Primary cause of arrest due to electric shock, i.e. by a source of high voltage current.
Exsanguination/Hemorrhage	Includes GI bleed, post-surgical complications, ruptured varices, all ruptured aneurysms, subarachnoid hemorrhage (SAH), cranial bleeds not specified as stroke or CVA, any other uncontrolled bleeding resulting in hypovolemia.
Drug Overdose	Includes all intentional and accidental arrests caused by a presumed or known overdose of medication or drugs (legal/illegal), to include alcohol.

Other	**Only** to be used if the cause of arrest is known and documented but is not one of the available options. "Other" is **not** the default answer and therefore should **not** be used for "unknown" etiologies. When this option is selected, please indicate/describe the arrest etiology in the free text field. Examples of Other etiologies include, but are not limited to: Anaphylaxis; End Stage Cancer; Carbon Monoxide (CO) Poisoning; Chemical Poisoning; Hyperthermia or Hypothermia; Labor Complications; Metabolic Disease (DKA, Hypo or Hyperkalemia, Hyponatremia, Hypo or Hyperglycemia, Renal or Liver Failure); Pulmonary Embolism (PE); Stroke or CVA; Sudden Unexplained Infant Death (SUID); Sudden Infant Death Syndrome (SIDS).

Example	**CARES Coding**
EMS was called to the home of a patient who complained of shortness of breath and chest pain. The patient was awake and alert when EMS arrived and the first monitored cardiac rhythm was sinus tachycardia. The patient then went into ventricular fibrillation and resuscitative efforts were initiated.	Presumed Cardiac Etiology
EMS was called to a dialysis clinic to find patient in full cardiac arrest. No other information was provided.	Presumed Cardiac Etiology
EMS arrived on scene to find patient unresponsive on the floor of a public building. Bystander stated that the patient exhibited seizure-like activity before becoming unresponsive. The patient had no history of seizures.	Presumed Cardiac Etiology
EMS is called to the home of a forty-year-old man for an attempted suicide. Patient is found hanging and resuscitation efforts are initiated.	Trauma
EMS was called to the home of a patient who complained of shortness of breath. EMS arrived to find the patient awake, alert, and wheezing. The patient had a medical history of asthma. After two minutes the patient stopped breathing and went into respiratory arrest.	Respiratory/Asphyxia
EMS was dispatched to a possible cardiac arrest. Upon their arrival, the patient was unconscious in the swimming pool. The patient did not have a pulse when he was removed from the pool.	Drowning/Submersion
EMS arrived at a college dormitory to find patient unconscious and unresponsive. Drug paraphernalia was located near the patient. Friends of the patient said she had been using cocaine and heroin throughout the day.	Drug Overdose
Patient found with large amounts of bloody emesis, thought to be from a gastrointestinal hemorrhage (GI bleed).	Exsanguination/Hemorrhage
EMS arrived on scene to find patient lying in bed unresponsive. The patient had end stage cancer and was in hospice care.	Other: Cancer
Patient found in a parked car in his garage, suspected of carbon monoxide poisoning.	Other: CO Poisoning
EMS responds to an infant arrest believed to be Sudden Infant Death Syndrome (SIDS) or Sudden Unexpected Infant Death (SUID), the unexpected, sudden death of a child under age 1 in which an autopsy does not show an explainable cause of death.	Other: SIDS

21. RESUSCITATION ATTEMPTED BY 911 RESPONDER (OR AED SHOCK GIVEN PRIOR TO EMS ARRIVAL)

Definition/Description:

- Indication of an attempt to resuscitate the patient who is in cardiac arrest by CPR, defibrillation, and/or other related Advanced Cardiovascular Life Support (ACLS) techniques. **Bystander CPR that results in ROSC without the need for defibrillation or 911 Responder CPR should not be considered a resuscitation attempt.**
- Patients with signs of obvious death (dependent lividity, rigor mortis, decomposition) where initial efforts may have been initiated will not be considered as attempted resuscitation. This includes cases where First Responders may start CPR but upon arrival of ALS, efforts are ceased due to obvious signs of death.

Instructions for Coding:

- Determine if a 911 Responder attempted resuscitation, as defined above.
- If the patient was defibrillated successfully prior to 911 Responder arrival and post-resuscitative care was provided, then this field must be marked "Yes."
- If the patient only received bystander CPR, and did not require defibrillation or 911 Responder CPR efforts, then this field must be marked "No."

Resuscitation Attempted by 911 Responder	Definition
Yes	A resuscitation attempt is defined as the act of attempting to maintain or restore life by establishing or maintaining airway (or both), breathing, and circulation through CPR, defibrillation, and other related emergency care techniques.
No	No resuscitation attempt was made by 911 Responder.

Example	CARES Coding
EMS arrived on scene to a bystander performing CPR on a patient with dependent lividity. EMS terminated the resuscitation effort (without ever performing CPR themselves) due to the futile nature of the event.	No
After witnessing a man collapse, a bystander performed CPR and a healthcare provider applied an AED (but did not defibrillate), resulting in a full resuscitation of the patient prior to arrival of EMS. EMS transported the patient to the hospital, providing supportive care only.	No
After witnessing a man go into cardiac arrest, a bystander performed CPR and a healthcare provider applied an AED (with AED defibrillation), resulting in a full resuscitation of the patient prior to arrival of EMS. EMS transported the patient to the hospital, providing supportive care only.	Yes
EMS found patient in PEA arrest, and patient was treated per ACLS guidelines without change. Patient's wife requested that resuscitation efforts be stopped, and patient was pronounced per protocol.	Yes
First Responders arrived on scene, started CPR, and placed AED. EMS arrived and found patient with dependent lividity/rigor mortis. Patient pronounced per protocol.	No

22. WHO INITIATED CPR

Definition/Description:

- Identifies the initial person to perform CPR.
- Cardiopulmonary resuscitation (CPR) is an attempt to restore spontaneous circulation by performing chest compressions with or without ventilations.
- Used to measure Bystander and First Responder involvement.

Instructions for Coding:

- If CPR was not initiated by anyone, select "Not Applicable."
- If CPR was performed, indicate who initiated CPR using the definitions below.
- If the person who initiated CPR fits the definitions for both "Family Member" and "Healthcare Provider," then "Healthcare Provider" should be selected.
- If arrest occurs at a Nursing Home or Healthcare Facility, assume Healthcare Provider initiated CPR unless otherwise specified.

Who Initiated CPR	Definition
Not Applicable	CPR was not initiated by a bystander or 911 Responder.
Bystander	Bystander not responding to the medical emergency in an official capacity (i.e. not part of the 911 response team). Known family members and medical providers are excluded from this group. *(See "Family Member" and "Healthcare Provider" below.)*
Family Member	Lay person who is known to be a family member of the patient.
Healthcare Provider (non-911 Responder)	Physicians, nurses, or paramedics who are not part of the organized rescue team.
First Responder	Personnel who respond to the medical emergency in an official capacity as part of an organized medical response team, but <u>are not</u> the designated transporter of the patient to the hospital.
Did Law Enforcement initiate CPR?	Indicates whether the First Responder was a law enforcement officer, to include police, sheriff, marshals, highway patrol, or other local law enforcement.
EMS Responder (transport EMS)	Organized responding personnel who are the designated transporter of the patient to the hospital.

Example	CARES Coding
After attending the symphony, a couple saw a woman suddenly collapse to the sidewalk. Since there was no pulse the man began chest compressions while the woman called 911.	Bystander
Police responded to a 911 call at a single-family dwelling. When police arrived, wife stated she saw her husband collapse while he was washing dishes but she did not perform CPR. Since there was no pulse, police began chest compressions.	First Responder; *Law Enforcement: Yes*
After attending a movie, a group of nurses heard someone call for help in the parking lot. A man was found on the ground with no pulse and no respirations. CPR was initiated by the nurses.	Healthcare Provider (non-911 Responder)

23. TYPE OF BYSTANDER CPR PROVIDED

******OPTIONAL ELEMENT******

Definition/Description:

- Describes type of cardiopulmonary resuscitation (CPR) performed by a bystander.
- This field allows for categorization of the type of bystander CPR (compressions & ventilations, compressions only, or ventilations only).

Instructions for Coding:

- This question is applicable only if a bystander initiated CPR (#22–Who Initiated CPR = Bystander, Family Member, or Healthcare Provider).
- Determine type of bystander CPR from patient care report narrative.

Type of Bystander CPR Provided	Definition
Compressions and ventilations	A combination of chest compressions and mouth or bag ventilations.
Compressions only	Manual chest compressions performed with no attempt at ventilations.
Ventilations only	Mouth or bag ventilations performed with no attempt at chest compressions.
Unknown	The type of bystander CPR provided is unknown.

Example	CARES Coding
EMS arrived on scene while two bystanders are performing CPR on a patient. Bystanders were providing ventilations with chest compressions.	Compressions and ventilations
EMS arrived on scene while a bystander is performing chest compressions only. Ventilations were not attempted.	Compressions only
EMS arrived on scene while a bystander is performing ventilations only. Compressions were not attempted.	Ventilations only

24. WERE DISPATCHER CPR INSTRUCTIONS PROVIDED

******OPTIONAL ELEMENT******

Definition/Description:

- Indicates whether or not dispatcher-assisted CPR instructions were provided to the 911 caller.
- CPR instructions are directions provided by dispatchers and call-takers to guide callers through the process of performing bystander CPR.
- Instructions are considered as "provided" if they are simply started, even if they are not finished.
- Instructions to get the patient to a hard, flat surface should not be considered the start of CPR instructions. In many protocols, instructions start when a dispatcher or call-taker tells the caller to "kneel by the patient's side." The moment when CPR instructions are considered started, however, may vary from one dispatch center to another according to language used in local protocols.
- This question is not applicable if the arrest was witnessed by a 911 Responder (#19-Arrest Witness Status= Witnessed by 911 Responder).

Instructions for Coding:

- If CPR instructions were provided, code this question as "Yes."
- If CPR instructions were not provided to the caller, code this question as "No."
- This question is asking whether CPR instructions were provided, not whether bystander CPR was performed. In cases where the dispatcher provided CPR instructions, but the caller was unwilling to provide CPR, code this question as "Yes."

Were Dispatcher CPR Instructions Provided	Definition
Yes	The 911 dispatcher provided CPR instructions to the caller.
No	The 911 dispatcher did not provide CPR instructions to the caller.
Unknown	It is unknown whether the 911 dispatcher provided CPR instructions to the caller.

Example	CARES Coding
Bystander calls 911 and is provided with CPR instructions.	Yes
Bystander calls 911 and is not offered CPR instructions.	No

25. WAS AN AED APPLIED PRIOR TO EMS ARRIVAL

Definition/Description:

- To determine the incidence of automated external defibrillator (AED) use prior to EMS arrival.
- This question is designed to capture both public access defibrillation (PAD) and First Responders with an AED (as opposed to a monitor/defibrillator).
    - NOTE: a manual defibrillator locked in Automated (AED) mode IS an AED.

Instructions for Coding:

- To be coded "Yes", the AED would need to have the pads applied to the patient with a minimum of one analysis performed, regardless of whether or not a shock is indicated or given.
- If AED pads were applied, indicate whether or not the AED was used to defibrillate the patient.
- If AED pads were not applied to the patient, code as "No."

Was an AED Applied Prior To EMS Arrival	Definition
Yes, with defibrillation	The AED was applied to the patient and used to deliver at least one shock.
Yes, without defibrillation	The AED was applied to the patient with a minimum of one analysis performed. The AED indicated an unshockable rhythm or no shock was given.
No	No AED was applied to the patient prior to EMS arrival.

Example	CARES Coding
EMS responded to a possible cardiac arrest at Town Center Mall. Upon arrival, a female patient was found on the floor with mall security at her side and an AED in use. AED pads had been applied and one shock had been given.	Yes, with defibrillation
A man collapses at a downtown café; first on the scene is an engine company from the fire department. They apply an AED and shock the patient and start CPR prior to EMS arrival.	Yes, with defibrillation
First Responders from the fire department respond to a possible cardiac arrest and apply a manual defibrillator locked in AED mode. They shock the patient and start CPR prior to EMS arrival.	Yes, with defibrillation
After the fitness instructor applied the AED to the collapsed jogger in the health club, she reported to the responding EMS personnel that the AED indicated an unshockable rhythm. Therefore, she did not defibrillate the patient.	Yes, without defibrillation
Police respond to a possible cardiac arrest and arrive to find a woman collapsed and receiving bystander CPR. The police apply an AED to the patient with no shock advised.	Yes, without defibrillation
EMS was called to the YMCA for a possible cardiac arrest. Upon arrival, a man was found lying on the gym floor with no pulse. Several other people were playing and watching a basketball game when the event occurred. Several bystanders saw the man collapse and were at his side, but did not initiated CPR or apply an AED. EMS applied monitor/defibrillator.	No

26. WHO FIRST APPLIED THE AED

Definition/Description:

- Identifies the individual who initially applied/used the AED, if applicable. This will be used to differentiate between lay person and First Responder AED use.

Instructions for Coding:

- This question is applicable only if #26 (Was an AED applied prior to EMS arrival) is "Yes."
- Indicate who applied the AED using the definitions below.
- If the person who applied the AED fits the definitions for both "Family Member" and "Healthcare Provider," then "Healthcare Provider" should be selected.
- If a First Responder applied the AED, indicate whether or not the First Responder was a law enforcement officer.

Who First Applied the AED	Definition
Bystander	Bystander not responding to the medical emergency in an official capacity (i.e. not part of the 911 response team). Known family members and medical providers are excluded from this group. *(See "Family Member" and "Healthcare Provider" below.)*
Family Member	Lay person who is known to be a family member of the patient.
Healthcare Provider (non-911 Responder)	Physicians, nurses, or paramedics who are not part of the organized rescue team.
Law Enforcement First Responder	Personnel who respond to the medical emergency in an official capacity as part of an organized medical response team, are not the designated transporter of the patient to the hospital, and are law enforcement officers (to include police, sheriff, marshals, highway patrol, or other local law enforcement).
Non-Law Enforcement First Responder	Personnel who respond to the medical emergency in an official capacity as part of an organized medical response team, are not the designated transporter of the patient to the hospital, and are not law enforcement officers.

Example	CARES Coding
EMS responded to a possible cardiac arrest at Town Center Mall. Upon arrival, a female patient was found on the floor with mall security at her side and an AED in use. Pads had been applied and one shock had been given	Bystander
EMS responded to a 911 call at a nursing home. Nursing staff have initiated CPR and applied an AED with no shock advised.	Healthcare Provider (non-911 Responder)
Police responded to a 911 call at a single-family dwelling. When police arrived, the wife stated she saw her husband collapse while he was washing dishes but she did not perform CPR. Since there was no pulse, police began chest compressions. An AED was applied by police and the patient was shocked once.	Law Enforcement First Responder

27. WHO FIRST DEFIBRILLATED THE PATIENT

Definition/Description:

- Indicates whether or not defibrillation occurred and if so, by whom.
- This includes defibrillation by an AED and/or manual monitor/defibrillator.
- Used to determine the frequency of defibrillation by the following groups: bystanders, family members, healthcare providers, First Responders, and EMS Responders.

Instructions for Coding:

- If the patient was not defibrillated by a bystander or 911 Responder, code as "Not Applicable."
- If the patient was defibrillated, select who administered the shocks using the definitions below.
- If the person who defibrillated the patient fits the definitions for both "Family Member" and "Healthcare Provider," then "Healthcare Provider" should be selected.
- If a First Responder defibrillated the patient, indicate whether or not the First Responder was a law enforcement officer.

Who First Defibrillated the Patient	Definition
Not Applicable	Patient did not receive defibrillatory shocks.
Bystander	Bystander not responding to the medical emergency in an official capacity (i.e. not part of the 911 response team). Known family members and medical providers are excluded from this group. *(See "Family Member" and "Healthcare Provider" below.)*
Family Member	Lay person who is known to be a family member of the patient.
Healthcare Provider (non-911 Responder)	Physicians, nurses, or paramedics who are not part of the organized rescue team.
Law Enforcement First Responder	Personnel who respond to the medical emergency in an official capacity as part of an organized medical response team, are not the designated transporter of the patient to the hospital, and are law enforcement officers (to include police, sheriff, marshals, highway patrol, or other local law enforcement).
Non-Law Enforcement First Responder	Personnel who respond to the medical emergency in an official capacity as part of an organized medical response team, are not the designated transporter of the patient to the hospital, and are not law enforcement officers.
EMS Responder (transport EMS)	Organized responding personnel who are the designated transporter of the patient to the hospital.

Example	CARES Coding
EMS responded to a possible cardiac arrest at Town Center Mall. Upon arrival, a female patient was found on the floor with mall security at her side and an AED in use. Pads had been applied and one shock had been given	Bystander
Police responded to a 911 call at a single-family dwelling. When the police arrived, the wife stated she saw her husband collapse while he was washing dishes. She did not perform CPR since there was no pulse. Police began chest compressions and an AED was applied by police. The police noted that the patient was shocked once.	Law Enforcement First Responder
EMS responded to a 911 call at a nursing home. Nursing staff have initiated CPR and applied an AED with no shock advised. EMS applied monitor/defibrillator upon arrival and patient remained in asystole for duration of resuscitative efforts. No shocks were provided.	Not Applicable

28. DID 911 RESPONDER PERFORM CPR

******OPTIONAL ELEMENT******

Definition/Description:

- Indicates whether 911 Responder (BLS and/or ALS) performed CPR.

Instructions for Coding:

- For the answer to be "Yes", CPR must have been performed by 911 Responder (BLS and/or ALS).

Did 911 Responder Perform CPR	Definition
Yes	CPR was performed by 911 Responder (BLS and/or ALS).
No	CPR was not performed by 911 Responder.

Example	CARES Coding
911 Responder performed CPR.	Yes
911 Responder arrived on scene to a bystander performing CPR on a patient with dependent lividity. Responder terminated the resuscitation effort (without ever performing CPR themselves) due to the futile nature of the event.	No
After witnessing a man go into cardiac arrest, a bystander performed CPR and a healthcare provider applied an AED (but did not defibrillate), resulting in a full resuscitation of the patient prior to arrival of 911 Responder. 911 Responder transported the patient to the hospital, providing supportive care only.	No
After witnessing a man go into cardiac arrest, a bystander performed CPR and a healthcare provider applied an AED (with AED defibrillation), resulting in a full resuscitation of the patient prior to arrival of 911 Responder. 911 Responder transported the patient to the hospital, providing supportive care only.	No
911 Responder found patient in PEA arrest, and patient was treated per ACLS guidelines without change. Patient's wife requested that resuscitation efforts be stopped, and patient was pronounced per protocol.	Yes
First responders arrived on scene, started CPR, and placed AED. 911 Responder arrived and found patient with dependent lividity and rigor mortis. Patient was pronounced per protocol.	No

29. FIRST ARREST RHYTHM OF PATIENT

Definition/Description:

- The first monitored rhythm is the first cardiac rhythm present when a manual monitor/defibrillator or AED (automated external defibrillator) is attached to a patient after cardiac arrest.

Instructions for Coding:

- This field should represent the findings of the *first* device to be placed on the patient. If a manual monitor/defibrillator was applied after an AED, the First Arrest Rhythm should be the rhythm recorded by the AED. The exception to this would be if the patient is transitioned from AED to manual monitor/defibrillator before the AED has completed rhythm analysis.
- If the AED does not have a rhythm display, then it may be possible to determine the first monitored rhythm from a data storage card, hard drive, or other device used by the AED to record data. If the AED has no data-recording device, then the first monitored rhythm should be classified simply as "Unknown Shockable" or "Unknown Unshockable." This data point can be updated later if the AED has download capability.
- For manual defibrillators, the first monitored rhythm should be recorded in the Patient Care Report (PCR) narrative by paramedics.

First Arrest Rhythm of Patient	Definition
Ventricular Fibrillation	Very rapid, uncoordinated fluttering contractions of the ventricles of the heart resulting in loss of synchronization between heartbeat and pulse beat. Deflection on the surface ECG of ≥ 1 mm amplitude (calibrated 10 mm/mv).
Ventricular Tachycardia	Rhythm in which three or more premature ventricular contractions (PVCs) arise in sequence at a rate greater than 100 beats per minute.
Asystole	An absence of heartbeat; ventricular standstill. Deflection on the surface ECG of <1 mm amplitude (calibrated 10 mm/mv).
Idioventricular/Pulseless Electrical Activity (PEA)	Idioventricular: A slow (20-40 bpm) independent cardiac rhythm; absent P wave; wide and unmeasurable QRS complex. PEA: The absence of a palpable pulse or myocardial muscle activity with presence of organized electrical activity on the cardiac monitor.
Unknown Shockable Rhythm	AED was applied and initial rhythm is unknown. The AED advised to deliver a shock.
Unknown Unshockable Rhythm	AED was applied and initial rhythm is unknown. The AED advised not to deliver a shock.

Example	CARES Coding
EMS was called to the YMCA for a possible cardiac arrest. Upon arrival, a man was found lying on the gym floor with no pulse. A bystander initiated CPR, but no AED was applied. EMS applied Monitor/Defibrillator and provided shocks. The manual defibrillator waveform strip was available to responding EMS personnel, who interpreted the presenting rhythm as Ventricular Fibrillation.	Ventricular Fibrillation
An AED without a rhythm display was used by a lifeguard. The AED advised to deliver a shock. The storage data card is not available to EMS.	Unknown Shockable Rhythm

30. SUSTAINED ROSC (20 CONSECUTIVE MINUTES) OR PRESENT AT END OF EMS CARE

Definition/Description:

- Return of Spontaneous Circulation (ROSC) is defined as the restoration of a palpable pulse or a measurable blood pressure.
- Sustained ROSC is deemed to have occurred when chest compressions are not required for 20 consecutive minutes and signs of circulation persist. Sustained ROSC is also deemed to have occurred when circulation persists for a shorter duration of time, but patient care is transferred to the ED before 20 minutes are reached.
- 20 minutes can be estimated as it is understood these times can be difficult to quantify.

Instructions for Coding:

- If a patient has a loss of spontaneous circulation after "Sustained ROSC", this subsequent arrest is NOT coded as a new event. After the cardiac arrest event that resulted in the initial 911 call, all subsequent arrests after ROSC are considered part of the initiating event.

Sustained ROSC Or Present at End of EMS Care	Definition
Yes, but pulseless at end of EMS care (or ED arrival)	Patient achieved 20 consecutive minutes of spontaneous circulation during resuscitative efforts, but lost spontaneous circulation before the end of EMS care.
Yes, pulse at end of EMS care (or ED arrival)	Patient achieved spontaneous circulation during resuscitative efforts, which was maintained until the end of EMS care (or ED arrival).
No	Patient did not achieve 20 consecutive minutes of spontaneous circulation during EMS care or only experienced intermittent spontaneous circulation.

Example	CARES Coding
After defibrillation, patient monitored rhythm returned to sinus tachycardia with a palpable carotid pulse. There was no further fibrillation or asystole. Patient remained stable and was transported to the ED. ROSC was sustained through transport and ED arrival.	Yes, pulse at end of EMS care (or ED arrival).
During transport, patient monitored rhythm returned to sinus tachycardia with a palpable carotid pulse. There was no further fibrillation or asystole. Patient remained stable during transport and care was transferred to ED staff 9 minutes later.	Yes, pulse at end of EMS care (or ED arrival).
After defibrillation, patient monitored rhythm returned to sinus tachycardia with a palpable carotid pulse. After 10 minutes, the patient became asystolic. Chest compressions were restarted and spontaneous circulation was not achieved prior to arrival at the ED, but it was achieved upon arrival at the ED.	Yes, pulse at end of EMS care (or ED arrival).
After receiving chest compressions and/or defibrillation, spontaneous circulation was not achieved during transport, prior to arrival at the ED, or upon arrival at the ED.	No
After receiving chest compressions and/or defibrillation, spontaneous circulation was intermittent and not sustained during transport or prior to arrival at the ED.	No

After defibrillation, patient monitored rhythm returned to sinus tachycardia with a palpable carotid pulse. After 10 minutes, the patient became asystolic. Chest compressions were restarted and spontaneous circulation did not reoccur during transport or arrival at ED.	No
After defibrillation, patient monitored rhythm returned to sinus tachycardia with a palpable carotid pulse. After 22 minutes, the patient became asystolic. Chest compressions were restarted and spontaneous circulation did not reoccur during transport or arrival at ED.	Yes, but pulseless at end of EMS care (or ED arrival)
After defibrillation, patient monitored rhythm returned to sinus tachycardia with a palpable carotid pulse. Sustained ROSC was present for 20 minutes but the provider did not document when it occurred or if present at end of EMS care.	Yes, but pulseless at end of EMS care (or ED arrival)

31. WAS HYPOTHERMIA CARE PROVIDED IN THE FIELD

Definition/Description:

- Hypothermia care is provided in the field if measures were taken to reduce the patient's body temperature by means of:
  - external cold pack application to armpits and/or groin
  - administration of cold intravenous saline bolus, with or without sedation or other medications.

Was Hypothermia Care Provided in the Field	Definition
Yes	Measures were taken to reduce the patient's body temperature in the field by means of cold pack application or administration of cold IV saline bolus.
No	Measures were not taken to reduce the patient's body temperature in the field.

Example	CARES Coding
20 y/o intubated male achieves prehospital ROSC, remains comatose, and EMS applies cold packs and administers a cold IV fluid bolus.	Yes
34 y/o female achieves ROSC and is awake and alert shortly after defibrillation. No measures are taken to reduce her body temperature.	No

32. END OF EVENT

Definition/Description:

- A resuscitation event is deemed to have ended when death is declared or spontaneous circulation is restored and sustained for 20 minutes or longer.
- This variable will be used to quantify the number of patients who had resuscitation terminated in the field and the number who were transported to the hospital.

Instructions for Coding:

- If a DNR is produced, *even if resuscitative attempts have already been started*, this field should be coded as "Effort ceased due to DNR." These records do not meet the CARES case definition and will be excluded from standard reports.
- If resuscitative efforts are ceased in the field without transport, code as "Pronounced in the Field."
- If the patient is transported to the hospital, but EMS has knowledge that resuscitative efforts were terminated by ED staff, code as "Pronounced in the ED." This will decrease the data entry burden by local hospital contacts, as the hospital section of the CARES form is no longer applicable.
- If the patient is transported to a hospital, but EMS does not know whether resuscitative efforts were ceased in the ED, code as "Ongoing Resuscitation in ED." This will prompt an email to the local hospital contact indicating that the hospital portion of the CARES record needs to be completed.
- If the patient refuses transport, code as "Ongoing Resuscitation in ED" and leave Destination Hospital (#17) blank. Add a note in the General Comments box indicating that transport was refused, and a CARES Coordinator will code the record as "Discharged Alive."

End of Event	Definition
Effort ceased due to DNR	Resuscitative efforts ceased due to a valid Do Not Resuscitate (DNR) order presented in the field.
Pronounced in the Field	Resuscitative efforts ceased and death declared without transportation to the hospital.
Pronounced in the ED	Resuscitative efforts ceased in the ED after transport.
Ongoing Resuscitation in ED	Patient care transferred to ED staff, with ED outcome unknown to EMS personnel. This includes patients with sustained ROSC who are receiving supportive care at the hospital.

Example	CARES Coding
After 30 minutes of attempted resuscitation, patient did not achieve spontaneous circulation. Resuscitation was terminated in the field per protocol, without transport to a hospital.	Pronounced in the Field
Following transfer of patient care to hospital staff, resuscitative efforts were terminated while EMS personnel were still in the ED completing their patient care report.	Pronounced in the ED
EMS arrived on scene, initiating CPR and applying a defibrillator. In the meantime, the patient's family presented a valid DNR. All resuscitative attempts were terminated.	Effort ceased due to DNR
Patient had a pulse upon arrival at the ED and care was transferred to hospital staff. When EMS personnel left the hospital, patient was still receiving care.	Ongoing Resuscitation in ED

33. WHEN DID SUSTAINED ROSC FIRST OCCUR

******OPTIONAL ELEMENT******

Definition/Description:

- Return of Spontaneous Circulation (ROSC) is defined as the restoration of a palpable pulse or a measurable blood pressure.
- Sustained ROSC is deemed to have occurred when chest compressions are not required for 20 consecutive minutes and signs of circulation persist.

When Did Sustained ROSC First Occur	Definition
Never	Patient did not achieve 20 consecutive minutes of spontaneous circulation during EMS care.
After Bystander CPR only	Patient achieved 20 consecutive minutes of spontaneous circulation after bystander, family member, or healthcare provider performed CPR.
After Bystander defib shock	Patient achieved 20 consecutive minutes of spontaneous circulation after bystander, family member, or healthcare provider administered at least one defibrillatory shock.
After 911 Responder CPR only	Patient achieved 20 consecutive minutes of spontaneous circulation after 911 Responder (First Responder or EMS) performed CPR.
After 911 Responder defib shock	Patient achieved 20 consecutive minutes of spontaneous circulation after 911 Responder (First Responder or EMS) administered at least one defibrillatory shock.
After ALS	Patient achieved 20 consecutive minutes of spontaneous circulation after Advanced Life Support (ALS) care[3], defined as at least one round of ALS drugs.
Unknown	The timing of sustained ROSC during resuscitative care is unknown.

Example	CARES Coding
The patient had return of a sustained pulse immediately after being defibrillated by EMS providers.	After 911 Responder defib shock
The patient was noted to have a pulse and blood pressure upon EMS arrival after bystander CPR was performed.	After Bystander CPR only
The patient never had a pulse throughout treatment.	Never
After EMS administered one round of ALS drugs, a pulse is noted.	After ALS
After EMS providers completed 2 minutes of chest compressions, a sustained pulse was detected.	After 911 Responder CPR only
After First Responder defibrillates with an AED, a pulse is noted.	After 911 Responder defib shock
After 2 minutes of First Responder CPR, a pulse is noted.	After 911 Responder CPR only

[3] Mark S. Link, Lauren C. Berkow, Peter J. Kudenchuk, Henry R. Halperin, Erik P. Hess, Vivek K. Moitra, Robert W. Neumar, Brian J. O'Neil, James H. Paxton, Scott M. Silvers, Roger D. White, Demetris Yannopoulos, Michael W. Donnino. Part 7: Adult Advanced Cardiovascular Life Support2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Circulation. 2015;132:S444-S464

34. ESTIMATED TIME OF ARREST

*****OPTIONAL ELEMENT******

Definition/Description:

- The estimated time of arrest can be entered for a witnessed/monitored arrest.
- In cases of a bystander witnessed arrest (one that is seen or heard), the time of arrest can be presumed to be the time of 911 call in the absence of other information.
- In cases of a 911 Responder witnessed arrest, the time of arrest can be abstracted from the run sheet or deduced from documented patient vitals.

Instructions for Coding:

- Use the time as documented on the EMS Patient Care Report (PCR). Avoid missing time data since the intervals calculated between consecutive events are fundamental to patient care.
- All times collected for the CARES registry should be coded in a uniform manner. Uniformity of this data collection will allow accurate calculation of resuscitation time intervals.
- If a time is unknown, leave the field blank rather than entering 00:00:00.
  Times should be recorded in military time (HH:MM:SS). The first two digits represent the hour 00-24. The second two digits represent the minutes 00-59. The last two digits are seconds 00-59.

Time	CARES Coding
Twenty-three minutes and 45 seconds after 1 o'clock in the morning	01:23:45
Four thirty and 15 seconds in the afternoon	16:30:15

Example	CARES Coding
The patient's wife heard a loud 'thud' in the next room. She immediately walked into the room to find the patient on the floor unconscious/unresponsive and called 911 at 5:55 p.m.	17:55:00
EMS was called to the home of the patient, who complained of shortness of breath. The patient was awake and alert when EMS arrived at 3:15 a.m. and the first monitored cardiac rhythm was sinus tachycardia of 150 bpm. After 2 minutes of monitored sinus tachycardia, the patient went into ventricular fibrillation. Resuscitative efforts were initiated.	03:17:00

35. TIME OF 1ST CPR

*****OPTIONAL ELEMENT******

Definition/Description:

- This denotes the time of ***first*** cardiopulmonary resuscitation (CPR) after arrest, including that provided by a bystander, First Responder, or EMS personnel.
- Cardiopulmonary resuscitation (CPR) is an attempt to restore spontaneous circulation by performing chest compressions with or without ventilations.
- In cases where a bystander initiated CPR, the time of first CPR can be presumed to be the time of 911 call in the absence of other information.
- If the arrest was witnessed by a 911 Responder, the time of first CPR can be presumed to be the same as the time of arrest in the absence of other information.

Instructions for Coding:

- Use the time as documented on the EMS Patient Care Report (PCR). Avoid missing time data since the intervals calculated between consecutive events are fundamental to patient care.
- All times collected for the CARES registry should be coded in a uniform manner. Uniformity of this data collection will allow accurate calculation of resuscitation time intervals.
- If a time is unknown, leave the field blank rather than entering 00:00:00.
  Times should be recorded in military time (HH:MM:SS). The first two digits represent the hour 00-24. The second two digits represent the minutes 00-59. The last two digits are seconds 00-59.

Time	CARES Coding
Twenty-three minutes and 45 seconds after 1 o'clock in the morning	01:23:45
Four thirty and 15 seconds in the afternoon	16:30:15

Example	CARES Coding
The patient's wife heard a loud 'thud' in the next room. She immediately walked into the room to find the patient on the floor unconscious/unresponsive and called 911 at 5:55 p.m. The dispatcher initiated CPR instructions 2 minutes into the call and the patient's wife began chest compressions.	17:57:00
Police responded to a 911 call at a single-family dwelling. When police arrived at 8:03 a.m., wife stated she saw her husband collapse while he was washing dishes, but she did not perform CPR. Since there was no pulse, police began chest compressions one minute after arrival on the scene.	08:04:00

36. TIME OF 1ST DEFIBRILLATORY SHOCK

*****OPTIONAL ELEMENT******

Definition/Description:

- This denotes the time of the *first* defibrillatory shock, administered by either an AED or manual defibrillator.
- The best way to obtain this information is through an AED or manual defibrillator with automated event documentation. These devices provide precise details about initial rhythm, times, and response of heart rhythm to therapy.
- This field should be left blank if "#27 – Who First Defibrillated the Patient" = Not Applicable.

Instructions for Coding:

- Use the time as documented on the EMS Patient Care Report (PCR). Avoid missing time data since the intervals calculated between consecutive events are fundamental to patient care.
- All times collected for the CARES registry should be coded in a uniform manner. Uniformity of this data collection will allow accurate calculation of resuscitation time intervals.
- If a time is unknown, leave the field blank rather than entering 00:00:00.
  Times should be recorded in military time (HH:MM:SS). The first two digits represent the hour 00-24. The second two digits represent the minutes 00-59. The last two digits are seconds 00-59.

Time	CARES Coding
Twenty-three minutes and 45 seconds after 1 o'clock in the morning	01:23:45
Four thirty and 15 seconds in the afternoon	16:30:15

Example	CARES Coding
The patient's wife heard a loud 'thud' in the next room. She immediately walked into the room to find the patient on the floor unconscious/unresponsive and called 911 at 5:55 p.m. Fire Department personnel arrived at 6:01 p.m., applied an AED, and defibrillated with the AED at 6:03 p.m.	18:03:00
EMS was called to the home of the patient, who complained of shortness of breath. The patient was awake and alert when EMS arrived at 3:15 a.m. and the first monitored cardiac rhythm was sinus tachycardia of 150 bpm. After 2 minutes of monitored sinus tachycardia, the patient went into ventricular fibrillation. EMS defibrillated with a monitor.	03:17:00
EMS responded to a 911 call at a nursing home. Nursing staff have initiated CPR and applied an AED with no shock advised. EMS applied monitor/defibrillator upon arrival and patient remained in asystole for duration of resuscitative efforts. No shocks were provided.	Leave Blank

37. TIME OF SUSTAINED ROSC

*****OPTIONAL ELEMENT******

Definition/Description:

- Return of Spontaneous Circulation (ROSC) is defined as the restoration of a palpable pulse or a measurable blood pressure.
- Sustained ROSC is deemed to have occurred when chest compressions are not required for 20 consecutive minutes and signs of circulation persist. Sustained ROSC is also deemed to have occurred when circulation persists for a shorter duration of time, but patient care is transferred to the ED before 20 minutes are reached.
- 20 minutes can be estimated as it is understood these times can be difficult to quantify.
- This field should be left blank if "#30 – Sustained ROSC" = No.
- Record the time that ROSC first started.

Instructions for Coding:

- Use the time as documented on the EMS Patient Care Report (PCR). Avoid missing time data since the intervals calculated between consecutive events are fundamental to patient care.
- All times collected for the CARES registry should be coded in a uniform manner. Uniformity of this data collection will allow accurate calculation of resuscitation time intervals.
- If a time is unknown, leave the field blank rather than entering 00:00:00.
  Times should be recorded in military time (HH:MM:SS). The first two digits represent the hour 00-24. The second two digits represent the minutes 00-59. The last two digits are seconds 00-59.

Time	CARES Coding
Twenty-three minutes and 45 seconds after 1 o'clock in the morning	01:23:45
Four thirty and 15 seconds in the afternoon	16:30:15

Example	CARES Coding
After defibrillation, patient monitored rhythm returned to sinus tachycardia with a palpable carotid pulse at 2:23 p.m. There was no further fibrillation or asystole. Patient remained stable and was transported to the ED. ROSC was sustained through transport and ED arrival.	14:23:00
During transport, patient monitored rhythm returned to sinus tachycardia with a palpable carotid pulse at 1:15 a.m. There was no further fibrillation or asystole. Patient remained stable during transport and care was transferred to ED staff 9 minutes later.	01:15:00
After defibrillation, patient monitored rhythm returned to sinus tachycardia with a palpable carotid pulse. After 10 minutes, the patient became asystolic. Chest compressions were restarted and spontaneous circulation did not reoccur during transport or arrival at ED.	Leave Blank

38. TIME RESUSCITATION TERMINATED

*****OPTIONAL ELEMENT******

Definition/Description:

- The time of patient's death in the field.
- This variable will be used to determine duration of resuscitative efforts.
- If the patient is transported to the hospital with ongoing resuscitation, the time of discharge/death will be recorded by hospital personnel.

Instructions for Coding:

- Use the time as documented on the EMS Patient Care Report (PCR). Avoid missing time data since the intervals calculated between consecutive events are fundamental to patient care.
- All times collected for the CARES registry should be coded in a uniform manner. Uniformity of this data collection will allow accurate calculation of resuscitation time intervals.
- If a time is unknown, leave the field blank rather than entering 00:00:00.
- Times should be recorded in military time (HH:MM:SS). The first two digits represent the hour 00-24. The second two digits represent the minutes 00-59. The last two digits are seconds 00-59. A colon should separate the hour, minutes, and seconds.

Example	CARES Coding
Twenty-three minutes and 45 seconds after 1 o'clock in the morning	01:23:45
Four thirty and 15 seconds in the afternoon	16:30:15

Example	CARES Coding
After 30 minutes of attempted resuscitation, patient did not achieve spontaneous circulation. Resuscitation was terminated in the field per protocol at 7:26 p.m., without transport to a hospital.	19:26:00
Following transfer of patient care to hospital staff, resuscitative efforts were terminated at 11:30 p.m. while EMS personnel were still in the ED completing their patient care report.	23:30:00
EMS arrived on scene, initiating CPR and applying a defibrillator. In the meantime, the patient's family presented a valid DNR. All resuscitative attempts were terminated at 2:48 p.m.	14:48:00
Patient had a pulse upon arrival at the ED and care was transferred to hospital staff. When EMS personnel left the hospital, patient was still receiving care.	Leave Blank

39. MECHANICAL CPR DEVICE USED

******OPTIONAL ELEMENT******

Definition/Description:

- A mechanical CPR device is defined as an automated device which can perform chest compressions for the rescuer.

Instructions for Coding:

- If a mechanical CPR device was used, code as "Yes" and indicate which type of device was applied.
  - Choose only one that applies from the list provided.
  - If the specific device is not listed, select "Other" and note the device in the free text field.
- If a mechanical CPR device was not used, code as "No."

Mechanical CPR Device Used	Definition
Yes	A mechanical CPR device was used.
Load Distributing Band (AutoPulse)	A portable battery-driven electromechanical device that wraps around the chest and shortens and lengthens, capable of compressing the anterior chest via a load-distributing band (LDB). Provides both direct compression and semi-circumferential thoracic compression.
Active Compression Decompression (LUCAS Device)	A pneumatically driven device that drives a piston to compress the anterior chest, and employs active decompression suction on the upstroke.
Mechanical Piston (Thumper)	A device that compresses the chest in an up-and-down motion, similar to manual CPR.
Other	A mechanical CPR device that does not fall into one of the defined categories. Describe the device type in the free text field.
No	A mechanical CPR device was not used.

Example	CARES Coding
The AutoPulse™ Resuscitation System was used during resuscitation.	Yes; Load Distributing Band (AutoPulse)
The LUCAS™ Chest Compression System was used during resuscitation.	Yes; Active Compression Decompression (LUCAS Device)

40. AUTOMATED CPR FEEDBACK DEVICE USED

******OPTIONAL ELEMENT******

Definition/Description:

- An automated CPR Feedback device is defined as any device that automatically senses the performance of CPR in real-time during resuscitation care and provides either audio or video information on CPR performance.

Instructions for Coding:

- Code as "Yes" if an automated CPR feedback device used during resuscitative efforts.

Automated CPR Feedback Device Used	Definition
Yes	An automated CPR feedback device was used.
No	No automated CPR feedback device was used.

Examples	CARES Coding
A PocketCPR device was used during resuscitation.	Yes
MRX AED audio feedback was used during resuscitation.	Yes
A TrueCPR Coaching Device was used during resuscitation.	Yes
A device equipped with Q-CPR software was used during CPR.	Yes

41. ADVANCED AIRWAY SUCCESSFULLY PLACED IN THE FIELD

******OPTIONAL ELEMENT******

Definition/Description:

- Indicates whether or not an advanced airway was used during the course of resuscitative efforts.

Instructions for Coding:

- If an advanced airway was successfully placed, code as "Yes" and indicate which type of device was used.
  - If the airway was changed/upgraded during the course of resuscitation, multiple selections can be made.
  - If the specific device is not listed, select "Other" and note the device in the free text field.
- If an advanced airway was not placed, code as "No."
- Please note: Oropharyngeal (also known as oral airway, OPA or Guedal airway) and Nasopharyngeal airways are airway adjuncts and are NOT advanced airways.

Advanced Airway Successfully Placed in the Field	**Definition**
Yes	An advanced airway device was successfully placed in the field.
Combitube	A blind insertion supraglottic airway device, consisting of a two-barreled tube meant to function when placed in either the esophagus or trachea.
King Airway	A blind insertion supraglottic airway device consisting of a curved tube with ventilation apertures located between two cuffs, which are inflated with a single valve/pilot balloon.
LMA (Laryngeal Mask Airway)	A blind insertion supraglottic airway device composed of an airway tube that connects to an elliptical mask with a cuff which is inserted through the mouth.
Oral/Nasal ET	Endotracheal tube (ET) placed into the trachea through either the mouth or nose.
Other	An advanced airway device (to include i-gel) that does not fall into one of the defined categories. Describe the device type in the free text field.
No	An advanced airway device was not successfully placed in the field.
Used existing tracheostomy	An existing stoma in the trachea was utilized.

Example	**CARES Coding**
The patient had oral tracheal intubation performed after being defibrillated into a perfusing rhythm.	Yes; Oral/Nasal ET
The patient had a King Airway device successfully inserted after the initial intubation attempt failed.	Yes; King Airway

42. ITD USED

******OPTIONAL ELEMENT******

Definition/Description:

- The impedance threshold device (ITD) is a device that delivers intrathoracic pressure regulation therapy during CPR to improve perfusion. An ITD lowers intrathoracic pressure during the recoil phase of CPR by selectively restricting unnecessary airflow into the chest.

Instructions for Coding:

- If an ITD was used, code as "Yes" and indicate which type of device was used.
  - Choose only one that applies from the list provided.
  - If the airway is changed/upgraded during the course of resuscitation, choose the most advanced airway (endotracheal tube (ET) > supraglottic > bag valve mask (BVM)). Typically, questions 40 and 41 should have the same answer.
  - If the specific device is not listed, select "Other" and note the device in the free text field.
- If an ITD was not used, code as "No."
- It is assumed in this question that the ITD was first placed on a Bag Valve Mask (BVM). Please select the additional advanced airway device it was used with, unless the ITD was only used on the BVM and not moved to an advanced airway.

ITD Used	Definition
Yes	An ITD was used during the course of resuscitative efforts.
Bag valve mask	A hand-held, self-inflating device commonly used to provide positive pressure ventilation to patients who are not breathing or not breathing adequately.
Combitube	A blind insertion supraglottic airway device, consisting of a two-barreled tube meant to function when placed in either the esophagus or trachea.
King Airway	A blind insertion supraglottic airway device consisting of a curved tube with ventilation apertures located between two cuffs, which are inflated with a single valve/pilot balloon.
LMA (Laryngeal Mask Airway)	A blind insertion supraglottic airway device composed of an airway tube that connects to an elliptical mask with a cuff which is inserted through the mouth.
Oral/Nasal ET	Endotracheal tube (ET) placed into the trachea through either the mouth or nose.
Other	An ITD that does not fall into one of the defined categories. Describe the device type in the free text field.
No	An ITD was not used during the course of resuscitative efforts.

Example	CARES Coding
No ITD was used during resuscitation.	No
An ITD used with a Bag Valve Mask and Oral/Nasal ET.	Yes; Oral/Nasal ET

43. WERE DRUGS ADMINISTERED

******OPTIONAL ELEMENT******

Definition/Description:

- The term "drugs" refers to the delivery of any medication (by intravenous cannula, intraosseous needle, or tracheal tube) during the resuscitation event.

Instructions for Coding:

- This is a multi-select field. Select any and all drugs that were administered during resuscitative efforts.
- Use the Other free text field for any drugs that were administered, but are not covered by the defined answer choices.

Were Drugs Administered	Definition
Yes	Drugs were administered during resuscitation.
Epinephrine	RxNorm Code 317361 (0.1 mg/ml). The primary drug used in cardiopulmonary resuscitation for its potent vasoconstrictive effects and ability to increase cardiac output.
Amiodarone	RxNorm Code 703. A potent antiarrhythmic agent that is used to treat ventricular arrhythmias (VFib and VTach).
Atropine	RxNorm Code 1223. A parasympatholytic drug that accelerates the transmission of electrical impulses, to reverse asystole and severe bradycardia.
Bicarbonate	RxNorm Code 36676. A buffer drug that corrects metabolic acidosis and hyperkalemia during a cardiac arrest.
Calcium Chloride	RxNorm Code 1901. A mineral used to stabilize the contraction of cardiac tissue after metabolic changes have cause instability and arrythmias.
Dextrose	RxNorm Code 237653. A carbohydrate drug that prevents or reverses hypoglycemia during cardiac arrest resuscitation.
Lidocaine	RxNorm Code 6387. An alternative antiarrhythmic drug that is used to treat ventricular arrhythmias (VFib and VTach).
Magnesium Sulfate	RxNorm Code 6585. An electrolyte used to treat polymorphic VTach with a pulse.
Naloxone	Multiple RxNorm Codes. A potent antagonist of the binding of opioid medications to their receptors in the brain and spinal cord.
Vasopressin	RxNorm Code 11149. An antidiuretic hormone often used in combination with epinephrine.
Other	A drug that does not fall into one of the defined categories. Describe the medication in the free text field.
No	Drugs were not administered during resuscitation.

Example	CARES Coding
A total of 6 mg of Epinephrine and 2 mg of Atropine were administered during the code.	Yes; Epinephrine and Atropine
The patient was defibrillated once, successfully regained a pulse, and was then started on an Amiodarone infusion with bolus provided.	Yes; Amiodarone
No drugs were administered during the code.	No

44. VASCULAR ACCESS

******OPTIONAL ELEMENT******

Definition/Description:

- Describes which, if any, devices were inserted into the systemic venous system, which permits administration of intermittent or continuous infusion of parenteral solutions or medications.

Instructions for Coding:

- Code as "None" if neither an intravenous catheter nor an intraosseous catheter was used.
- Code as "IV" if an intravenous catheter was used.
- Code as "IO" if an intraosseous catheter was used.
- If vascular access was achieved via both IV and IO catheters, both responses may be selected.

Vascular Access	Definition
None	An intravenous (IV) catheter or intraosseous (IO) catheter was *not* used.
IV	An intravenous (IV) catheter was used.
IO	An intraosseous (IO) catheter was used.

Example	CARES Coding
An intravenous (IV) catheter was placed in the patient's right arm.	IV
An intraosseous (IO) catheter was placed in the right tibia of a pediatric patient.	IO

45. 12 LEAD

******OPTIONAL ELEMENT******

Definition/Description:

- A 12-lead electrocardiogram (ECG) is a recording of the electrical activity of the heart using specific wires (leads) placed on the chest wall and extremities.
- An ECG may be performed on the patient in the field during post resuscitation care and can assist in identifying patients that experienced myocardial infarction, as evidenced by certain ECG changes (ST elevation).

Instructions for Coding:

- Code as "Yes" if a 12-lead ECG was placed.
- Code as "No" if a 12-lead ECG was not placed.

12 Lead	Definition
Yes	A 12 lead ECG was placed on the patient in the pre-hospital setting.
No	A 12 lead ECG was *not* placed on the patient in the pre-hospital setting.

Example	CARES Coding
A 12 lead ECG was performed in transport after the patient was successfully resuscitated.	Yes
No 12 lead ECG was performed during post-resuscitative care in the field.	No

46. STEMI

******OPTIONAL ELEMENT******

Definition/Description:

- ST-segment elevation myocardial infarction (STEMI) is a clinical syndrome defined by the development of full thickness cardiac muscle damage, caused by a prolonged period of blocked blood supply that affects a large area of the heart.
- Diagnoses of STEMI requires that a 12-lead electrocardiogram (ECG) be performed and analyzed.
- ECG criteria for the diagnosis of STEMI vary by sex and age, and is defined as new ST segment elevations in at least two anatomically contiguous leads:
    - Men age ≥ 40 years: ≥ 2 mm in V2-V3 and ≥ 1 mm in all other leads
    - Men age < 40 years: ≥ 2.5 mm in V2-V3 and ≥ 1 mm in all other leads
    - Women (any age): ≥ 1.5 mm in V2-V3 and ≥ 1 mm in all other leads

Instructions for Coding:

- If the 12-lead analysis indicates STEMI, code as "Yes."
- If the 12-lead analysis does not indicate STEMI, code as "No."
- If a 12-lead analysis was not performed or analyzed, or the result is not recorded, code as "Unknown."

STEMI	Definition
Yes	A 12-lead ECG was performed and analyzed, diagnosing STEMI.
No	A 12-lead ECG was performed and analyzed, with no STEMI diagnosis.
Unknown	A 12-lead ECG was not performed and/or analyzed, or the result is unknown.

Example	CARES Coding
The patient has evidence of ST elevation in their anterior ECG leads.	Yes
The patient does not have evidence of any ST elevation on their ECG.	No

47. ER OUTCOME

Definition/Description:

- The final disposition of the patient in the emergency department.
- This variable will be used to determine whether the patient survived to hospital admission.

Instructions for Coding:

- If resuscitative efforts were terminated and the patient died in the ED, code as "Died in the ED."
- If the patient was admitted to the hospital (ICU/CCU or floor) after ED care, code as "Admitted to hospital."
- If the patient refused medical care, leaves against medical advice (AMA), or was discharged directly from the ED prior to hospital admission, code the Hospital Section as follows:
    - ER Outcome = Admitted to hospital
    - Was hypothermia care initiated/continued in the hospital = No
    - Hospital Outcome = Discharged alive
    - Discharge from the Hospital = Home/Residence
    - Neurological Outcome at Discharge = Good Cerebral Performance (CPC 1)
- If the patient was transferred to another acute care facility directly from the ED (prior to hospital admission), code as "Transferred to another acute care facility from the ED."
    - Select the transfer hospital from the drop-down menu. If the transfer hospital is not listed on the drop-down menu, use the free text field to the right.

ER Outcome	Definition
Died in the ED	Resuscitative efforts were terminated in the ED.
Admitted to hospital	The patient was admitted to the hospital (ICU/CCU or floor).
Transferred to another acute care facility from the ED	The patient was transferred to another acute care facility from the emergency department.

Example	CARES Coding
Patient was received in the ED after successful resuscitation in the field by EMS personnel. Patient's blood pressure was labile upon arrival to the ED and continued to deteriorate. Patient was pronounced dead in the ED 20 minutes after arrival.	Died in the ED
Patient was received in the ED after successful resuscitation in the field by EMS personnel. Patient's blood pressure was adequate upon arrival to the ED and continued to improve after the administration of Dopamine. Patient was admitted to the CCU.	Admitted to hospital
Patient was received in the ED with ongoing resuscitation by EMS personnel. Patient was stabilized in the ED after the administration of Dopamine. Patient was transported to Pine Valley Tertiary Care Hospital for further intervention.	Transferred to another acute care facility from the ED
Patient was taken directly from the ambulance to the cardiac catheterization lab.	Admitted to hospital

48. WAS HYPOTHERMIA CARE/TTM INITIATED OR CONTINUED IN THE HOSPITAL

Definition/Description:

- Hypothermia care is provided in the hospital if measures were taken to reduce the patient's body temperature by either non-invasive means (i.e. administration of cold intravenous saline, external cold pack application to armpits and groin, use of a cooling blanket, torso vest or leg wrap devices) or by invasive means (i.e. use of a cooling catheter inserted in the femoral vein).
    - NOTE: Maintaining "normothermia" is considered TTM if the hospital is actively managing the patient with a TTM protocol.

Instructions for Coding:

- This question is not required if resuscitative efforts were terminated in the ED, and is only applicable for admitted or transferred patients.
- This field should not be left blank, even if hypothermia care was not indicated or your facility does not have a therapeutic hypothermia program in place.
    - The reason that hypothermia care was not initiated/continued may be indicated in question 47b.

Was Hypothermia Care Initiated/ Continued in the Hospital	**Definition**
Yes	Measures were taken to reduce the patient's body temperature by either non-invasive or invasive means in the hospital.
No	Measures were not taken to reduce the patient's body temperature in the hospital.

49. HOSPITAL OUTCOME

Definition/Description:

- The final disposition of the patient from the hospital.
- This variable will be used to determine whether the patient survived to hospital discharge.

Instructions for Coding:

- This field is applicable only if the patient survived to hospital admission (ER Outcome = Admitted to hospital).
- If the patient died in the hospital after admission, code as "Died in the Hospital."
- If the patient was discharged alive after admission, code as "Discharged Alive."
- CARES includes an option for "Patient made DNR" if you choose to differentiate these patients. If "Patient made DNR" is selected, please also select the final hospital outcome from the pull-down menu. Of note: CARES does not differentiate between DNR and non-DNR patients in our reports.
- If the patient was transferred to another *acute care* facility after hospital admission, code as "Transferred to another acute care hospital."
    - Select the transfer hospital from the drop-down menu. If the transfer hospital is not listed on the drop-down menu, use the free text field to the right.
    - If the patient was transferred to a long-term care facility, code as "Discharged Alive" to a "Rehabilitation Facility" or "Skilled Nursing Facility."
- If the patient is still admitted and the final disposition is unknown, select "Not yet determined." The record will remain on your CARES Dashboard until the disposition is known and selected.

Hospital Outcome	Definition
Died in the Hospital	The patient died in the hospital.
Discharged Alive	The patient was discharged alive from the hospital.
Patient made DNR	Patient had a valid Do Not Resuscitate (DNR) order in place. Hospital Outcome should be selected from the pull-down menu.
Transferred to another acute care hospital	The patient was transferred to another acute care facility after admission.
Not yet determined	Patient is still admitted and the final disposition is unknown.

Example	CARES Coding
Patient was admitted to the CCU after successful resuscitation in the ED. Patient became unstable after 2 days in the CCU and blood pressure could not be maintained after pharmacological support. Patient arrested at 04:30. Resuscitation attempts were unsuccessful and patient was pronounced dead at 6:00.	Died in the Hospital
Patient was received in the ED after successful resuscitation in the field by EMS personnel. Patient's blood pressure was adequate upon arrival to the ED and continued to improve after the administration of Dopamine. Patient was admitted to the CCU. Patient remained stable and was weaned from Dopamine in 12 hours. Patient was transferred to the floor and discharged home after one week in the hospital.	Discharged Alive
Patient was admitted to CCU after successful resuscitation in the field. Patient is still in the CCU and has not yet been discharged from the hospital.	Not yet determined

50. DISCHARGE FROM THE HOSPITAL

Definition/Description:

- This variable will be used to determine the type of discharge location.

Instructions for Coding:

- This field is applicable only if the patient survived to hospital discharge (Hospital Outcome = Discharged Alive).
- Select the discharge location that is most appropriate based on the definitions below.
- NOTE: If a patient is *discharged home with hospice care*, code location as "Home/Residence."

Discharge from the Hospital	Definition
Home/Residence	The patient's private home or institutional place of residence.
Rehabilitation Facility	An establishment for treatment designed to facilitate the process of recovery from injury, illness, or disease to as normal a condition as possible.
Skilled Nursing Facility/Hospice	Skilled Nursing Facility: An establishment that houses chronically ill, usually elderly patients, and provides long-term nursing care, rehabilitation, and other services. Also called long-term care facility or nursing home. Hospice: An establishment that provides special care for people who are near the end of their life.

Example	CARES Coding
After two weeks in the hospital following sudden cardiac arrest, the patient was discharged home with follow up orders.	Home/Residence
After 3 weeks in the CCU and 5 weeks on the floor, the patient was transported to Sunshine Rehabilitation Hospital for further treatment.	Rehabilitation Facility
After an extensive stay at Memorial Hospital, the patient was discharged with severe cerebral disability to a hospice facility.	Skilled Nursing Facility/Hospice
After 7 weeks at CARES Medical Center, the patient was discharged home with hospice care and severe cerebral disability.	Home/Residence

51. NEUROLOGICAL OUTCOME AT DISCHARGE FROM HOSPITAL

Definition/Description:

- The neurological outcome of the patient at the time of hospital discharge, defined by the simple and validated Cerebral Performance Categories (CPC) scale.
- Survival without higher neurological function is suboptimal; therefore, it is important to attempt to assess neurological outcome at time of discharge.

Instructions for Coding:

- This field is applicable only if the patient survived to hospital discharge (Hospital Outcome = Discharged Alive).
- Select the neurological outcome that is most appropriate based on the adult and pediatric definitions below.
    - If a patient is discharged to a "Skilled Nursing Facility/Hospice" with "Good Cerebral Performance (CPC 1)" at time of discharge, CARES will prompt the user to clarify in the Hospital Comments box.
    - If a patient is discharged to a "Home/Residence" with "Severe Cerebral Disability (CPC 3)" or "Coma, vegetative state (CPC 4)" at time of discharge, CARES will prompt the user to clarify in the Hospital Comments box.
- For reporting purposes, CARES groups CPC 1 & 2 as a positive neurological outcome and CPC 3 & 4 as a poor neurological outcome.

Neurological Outcome at Discharge From Hospital	**Adult Definition**
Good Cerebral Performance (CPC 1)	Conscious, alert, able to work and lead a normal life.
Moderate Cerebral Disability (CPC 2)	Conscious and able to function independently (dress, travel, prepare food), but may have hemiplegia, seizures, or permanent memory or mental changes.
Severe Cerebral Disability (CPC 3)	Conscious, dependent on others for daily support because of impaired brain function (in an institution or at home with exceptional family effort).
Coma, vegetative state (CPC 4)	Not conscious. Unaware of surroundings, no cognition. No verbal or psychological interactions with environment.

Pediatric/Neonate Cerebral Performance Categories Scale	**CARES Coding**
PCPC 1 (Normal) - Age-appropriate level of functioning; preschool child developmentally appropriate; school-age child attends regular classes. Neonate – No obvious neurological abnormalities.	Good Cerebral Performance (CPC 1)
PCPC 2 (Mild cerebral disability) – Able to interact at an age-appropriate level; minor neurological disease that is controlled and does not interfere with daily functioning (i.e. seizure disorder that is well controlled with medication); preschool child may have minor developmental delays, but more than 75% of all daily living milestones are above the 10th percentile; school-age child attends regular school, but grade is not appropriate for age, or child is failing appropriate grade because of cognitive difficulties. Neonate – Minor neurological abnormality; neurological disease that is controlled and does not interfere with daily functioning.	Moderate Cerebral Disability (CPC 2)
PCPC 3 (Moderate cerebral disability) – Below age-appropriate functioning; neurological disease that is not controlled and severely limits activities; most activities of preschool child's daily living developmental milestones are below the 10th percentile; school-age child can perform activities of daily living, but attends special classes because of cognitive difficulties and/or has a learning deficit. Neonate – Neurological disease that is not controlled (i.e. breakthrough seizures despite medications which affect responsiveness to environment).	Moderate Cerebral Disability (CPC 2)

PCPC 4 (Severe cerebral disability) – Preschool child's activities or daily living milestones are below the 10th percentile, and child is excessively dependent on others for provision of activities of daily living; school-age child may be so impaired as to be unable to attend school and is dependent on others for provision of activities of daily living; abnormal motor movements for both preschool and school-age child may include non-purposeful, decorticate, or decerebrate responses to pain. Neonate – Obvious severe neurological disorder. Abnormal motor movements may include non-purposeful, decorticate, or decerebrate response to pain.	Severe Cerebral Disability (CPC 3)
PCPC 5 (Coma or vegetative state) - Any degree of coma. Unaware, even if awake in appearance, without clear or consistent interaction with environment. Unresponsive with no evidence of cortical function (not aroused by verbal stimuli). Possibility of some reflexive response, spontaneous eye-opening, and sleep-wake cycles.	Coma, vegetative state (CPC 4)

52. WHY WAS HYPOTHERMIA CARE/TTM NOT INITIATED OR CONTINUED IN THE HOSPITAL

******OPTIONAL ELEMENT******

Definition/Description:

- Indicates the reason that hypothermia care was not initiated or continued in the hospital setting.

Instructions for Coding:

- This field is in a drop-down menu format.
- Select the primary reason that hypothermia care was not initiated or continued, according to the medical record.
- This field is applicable only when #47 (Was Hypothermia Care Initiated/Continued in the Hospital) is "No."

Why Was Hypothermia Care Not Initiated/Continued in the Hospital	Definition
Awake/Following commands	Patient is alert and responsive to medical staff upon initial presentation to hospital.
DNR/Family request	Patient has a valid Do Not Resuscitate (DNR) order in place, or family requests that hypothermia care not be provided.
Unwitnessed cardiac arrest	Unwitnessed cardiac arrest: Patient has a cardiac arrest that is neither seen nor heard.
Unshockable rhythm	First monitored cardiac rhythm upon application of manual monitor/defibrillator or AED was asystole, idioventricular/PEA, or unknown unshockable.
No TH program in place	Destination hospital does not have therapeutic hypothermia program in place.
Other	Reason for not initiating/continuing hypothermia care does not fall into one of the defined categories.
Unknown	Information not available in medical record.

53. DATE AND TIME OF DISCHARGE/DEATH

******OPTIONAL ELEMENT******

Definition/Description:

- The date and time of patient's discharge from the hospital or death.
- This variable will be used to determine duration of hospital admission.

Instructions for Coding:

- All dates should be entered in the following format: MM/DD/YYYY.
- Alternatively, Date of Discharge/Death can be selected from the pop-out calendar on the CARES form.
- Times should be recorded in military time (HH:MM). The first two digits represent the hour 00-24. The second two digits represent the minutes 00-59.

Example	CARES Coding
Patient was received in the ED after successful resuscitation in the field by EMS personnel. Patient's blood pressure was labile upon arrival to the ED and continued to deteriorate. Patient was pronounced dead in the ED at 4:30 a.m on May 1st, 2021.	05/01/2021 04:30
Patient was admitted to the CCU after successful resuscitation in the ED. Patient became unstable after 2 days in the CCU and blood pressure could not be maintained after pharmacological support. Patient arrested at 04:30. Resuscitation attempts were unsuccessful and patient was pronounced dead at 6:15pm on June 7th, 2021.	06/07/2021 18:15
Patient was received in the ED after successful resuscitation in the field by EMS personnel. Patient was admitted to the CCU. Patient was transferred to the floor and discharged home after one week in the hospital on November 7th, 2021 at 3:45 p.m.	11/07/2021 15:45

54. WAS THE FINAL DIAGNOSIS ACUTE MYOCARDIAL INFARCTION

******OPTIONAL ELEMENT******

Definition/Description:

- Diagnoses of acute myocardial infarction (MI) via electrocardiogram (ECG), cardiac markers, angiography, or autopsy.
- This diagnosis refers to the index cardiac arrest event only.

Instructions for Coding:

- If the final diagnosis was acute MI, code as "Yes."
  - NOTE: STEMI and NSTEMI are included in a final diagnosis of acute MI.
- If the final diagnosis was not acute MI, code as "No."
- In the case of transfer patients, this field should be completed by the final hospital of care.

Was Final Diagnosis Acute Myocardial Infarction	Definition
Yes	There was a final diagnosis of an acute myocardial infarction.
No	There was no final diagnosis of an acute myocardial infarction.
Unknown	Information not available in medical record.

55. CORONARY ANGIOGRAPHY PERFORMED

******OPTIONAL ELEMENT******

Definition/Description:

- Coronary angiography is a therapeutic procedure that uses contrast dye, usually containing iodine, and x-ray to detect blockages in the coronary arteries.

Coding Instruction:

- Indicate whether emergency coronary angiography was performed.
- If a coronary angiography was performed, code as "Yes" and provide date and time of the procedure.
    - Use initial groin puncture of the femoral artery as the time of procedure.
    - All dates should be entered in the following format: MM/DD/YYYY.
    - Alternatively, date of coronary angiography can be selected from the pop-out calendar on the CARES form.
    - Times should be recorded in military time (HH:MM). The first two digits represent the hour 00-24. The second two digits represent the minutes 00-59.
- If a coronary angiography was not performed, code as "No."

Coronary Angiography Performed	Definition
Yes	Coronary angiography procedure was performed on the patient. Provide date and time (initial groin puncture of the femoral artery) of the procedure.
No	Coronary angiography procedure was not performed on the patient.
Unknown	Information not available in medical record.

Example	CARES Coding
Patient was taken to the cardiac catheterization lab for a coronary angiography.	Yes; provide date and time
Coronary Angiography was not performed on the patient.	No

56. WAS A CARDIAC STENT PLACED

******OPTIONAL ELEMENT******

Definition/Description:

- A cardiac stent is a small mesh, expandable tube that is used to treat narrowed or blocked arteries. A stent is placed during a percutaneous coronary intervention (PCI) procedure to keep a coronary artery open.

Instructions for Coding:

- If a cardiac stent was placed during this angiography (does not apply to previously placed stents), code as "Yes."
- If a cardiac stent was not placed during this angiography, code as "No."

Was A Cardiac Stent Placed	Definition
Yes	A cardiac stent was placed.
No	A cardiac stent was not placed.
Unknown	Information not available in medical record.

Example	CARES Coding
A blocked coronary artery was detected during angiography, and a cardiac stent was placed via balloon catheter.	Yes
An angiography revealed no blockages, and a stent was not placed.	No

57. CABG PERFORMED

******OPTIONAL ELEMENT******

Definition/Description:

- Coronary artery bypass grafting (CABG) is a surgical procedure to restore normal blood flow to an obstructed coronary artery.

Coding Instruction:

- Indicate whether CABG was performed during this hospitalization.
- If CABG was performed, code as "Yes."
- If CABG was not performed, code as "No."

CABG Performed	Definition
Yes	Coronary artery bypass grafting (CABG) was performed.
No	Coronary artery bypass grafting (CABG) was not performed.
Unknown	Information not available in medical record.

Example	CARES Coding
A patient with coronary heart disease underwent CABG surgery during their hospital stay.	Yes
Patient did not undergo CABG surgery during their hospital stay.	No

58. WAS AN ICD PLACED AND/OR SCHEDULED

******OPTIONAL ELEMENT******

Definition/Description:

- An implantable cardioverter defibrillator (ICD) is a small battery-powered electrical impulse generator which is implanted in patients who are at risk of sudden cardiac death due to sustained ventricular tachycardia (VT) or fibrillation (VF).

Coding Instructions:

- If an ICD was placed and/or scheduled for placement at a later date, code as "Yes."
- If an ICD was not placed and/or scheduled, code as "No."

Was an ICD Placed and/or Scheduled	Definition
Yes	An ICD was placed and/or scheduled.
No	No ICD was placed and/or scheduled.
Unknown	Information not available in medical record.

Example	CARES Coding
After being diagnosed with sustained VF, the patient elected to have an implantable cardioverter defibrillator (ICD) placed. Placement of the ICD was scheduled for 6 weeks post-discharge.	Yes
ICD was not placed or scheduled.	No

59. HOSPITAL MEDICAL RECORD NUMBER

******OPTIONAL ELEMENT******

Definition/Description:

- The unique number assigned by the hospital for each patient's Medical Record.
- When a CARES record is clean and hospital data has been entered, it is de-identified by removing patient name and date of birth. The Medical Record Number (MRN) can be used to recognize each unique record within the CARES database after de-identification.

Coding Instructions:

- This is a free text field which allows up to 30 alphanumeric characters.

60-69. RESPONSE AND TREATMENT TIME VARIABLES

******OPTIONAL ELEMENTS******

60. TIME CALL RECEIVED AT DISPATCH CENTER
61. TIME FIRST RESPONDER DISPATCHED
62. TIME FIRST RESPONDER EN ROUTE
63. TIME FIRST RESPONDER ARRIVED AT SCENE
64. TIME AMBULANCE DISPATCHED
65. TIME AMBULANCE EN ROUTE
66. TIME AMBULANCE ARRIVED AT SCENE
67. TIME EMS ARRIVED AT PATIENT SIDE
68. TIME AMBULANCE LEFT SCENE
69. TIME AMBULANCE ARRIVED AT ED

Coding Instructions:

- "Ambulance" is used to denote EMS personnel who are responding to the medical emergency in an official capacity as part of an organized medical response team AND are the designated transporter of the patient to the hospital.
- "First Responder" is used to denote organized responding personnel who are *not* the designated transporter of the patient to the hospital.
- Use the time as documented in the computer aided dispatch (CAD) record.
- Avoid missing time data since the intervals calculated between consecutive events are fundamental to patient care.
- All times collected for the CARES registry should be coded in a uniform manner. Uniformity of this data collection will allow accurate calculation of resuscitation time intervals.
- If a time is unknown, leave the field blank rather than entering 00:00:00.
- Times should be recorded in military time (HH:MM:SS). The first two digits represent the hour 00-24. The second two digits represent the minutes 00-59. The last two digits are seconds 00-59. A colon should separate the hour, minutes, and seconds.

Example	CARES Coding
Twenty-three minutes and 45 seconds after 1 o'clock in the morning	01:23:45
Four thirty and 15 seconds in the afternoon	16:30:15