

SUDDEN: Out of Hospital Sudden Unexpected Death Project

September 22, 2015
3:00-4:00 pm Eastern



Council of State and Territorial Epidemiologists

Webinar Housekeeping



Webinar Housekeeping

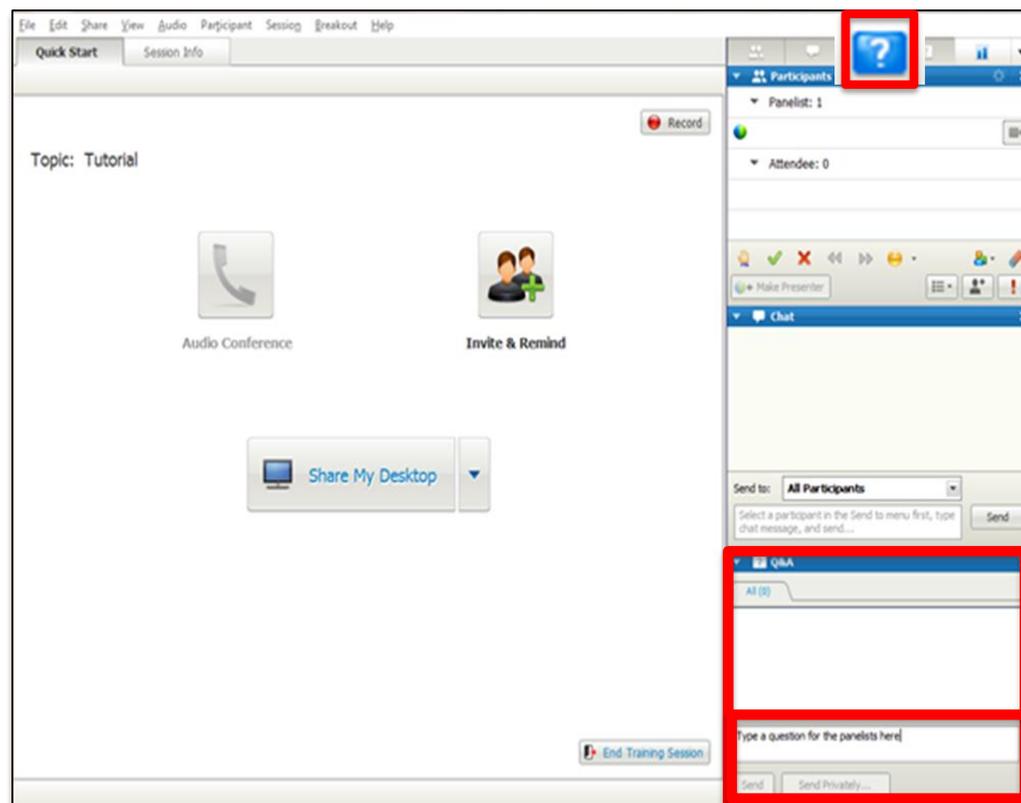


- Please note that today's webinar is being recorded
 - The webinar recording and presentation slides will be available in the webinar library on CSTE's website:
<http://www.cste.org/?page=WebinarLibrary>
- All phone lines have been placed on mute
- There will be a question-and-answer session at the end of the webinar
 - To ask a question, please use the Q&A box on the right side of your screen

To Ask a Question



- Click on the blue question mark tab on the top right panel of your screen
- This will open the Q&A box on the bottom right panel on your screen
- Type a question
- Send questions to All Panelists
- Questions will be answered during the Q&A period





THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL



UNC
CENTER FOR HEART
& VASCULAR CARE

***SUDDEN:
Out of Hospital Sudden Unexpected
Death Project***

Council of State and Territorial Epidemiologists
September 22, 2015

Ross J Simpson Jr, MD, PhD: Principal Investigator

Irion W Pursell Jr, RN: Co – Principal Investigator

Carter Devlin, BS: Post-Graduate Intern

Paul Mounsey, MD: Chair, Steering Committee

SUDDEN

Objectives

- Establish a baseline description of SUD
- Determine incidence rate of SUD
- Determine incidence rate of SUD by race, gender and socioeconomic class
- Evaluate the accuracy of death certificate data as to ICD 10 cause of death data

Estimates of sudden death

Myerburg RJ Circulation 2012

Range from 170,000-450,000 per year

– Best current estimate: 300,000-370,000 per year

- Account for approximately 50% of CV deaths
- Account for approximately 50% of first clinical expression of undiagnosed CHD
- Most (80%) occur in private homes or other living facilities

Sudden Unexplained Death

Deficit of knowledge:

- Magnitude in general population is uncertain
- No uniform description of SUD
- Occurrence in African Americans is underreported
- Death certificate data is inaccurate

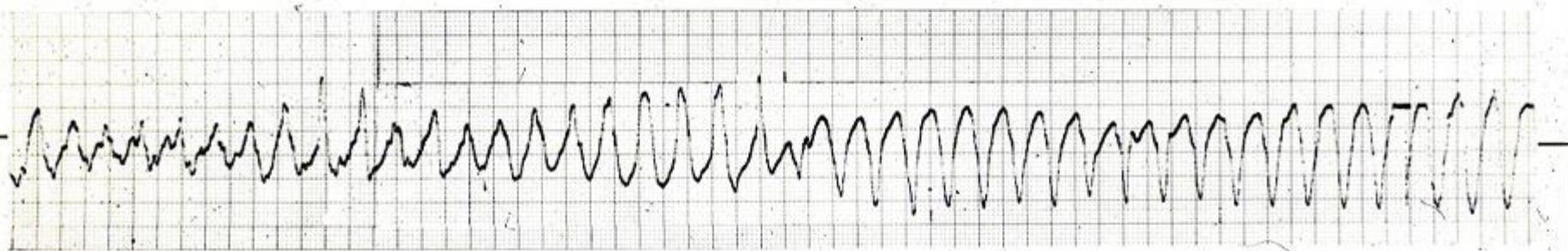
Preventive strategies are undefined



Monitor Lead



CONTINUOUS



CONTINUOUS



Conclusions

1. The majority of out of hospital sudden unexpected death (OHSUD) victims are not candidates for resuscitation and for those that are, resuscitation is often futile
2. Prevention is the only strategy that will lower the incidence of OHSUD

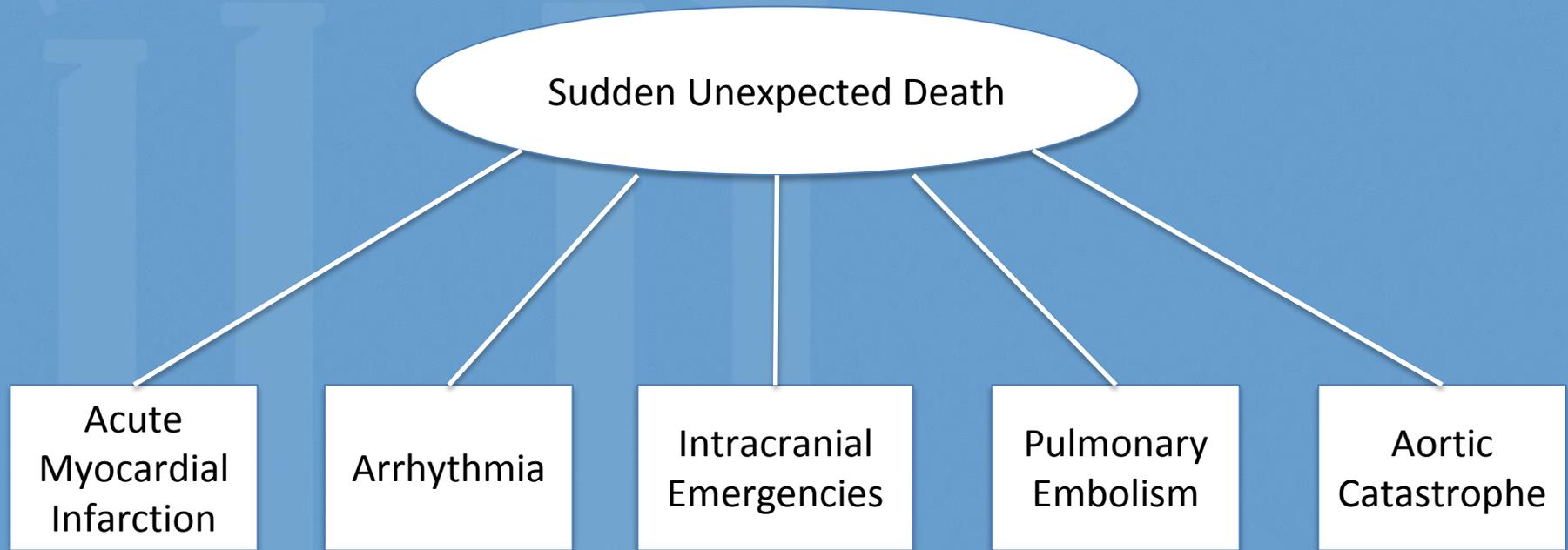
SUDDEN:

Resuscitation vs. Prevention

- Out-of-hospital, sudden unexpected death registry
- Establish geographic and personal risk models for out of hospital sudden death
- Seeks to lower the incidence of sudden death through targeted, preventative measures

What is Sudden Unexpected Death?

It's not just sudden cardiac arrest

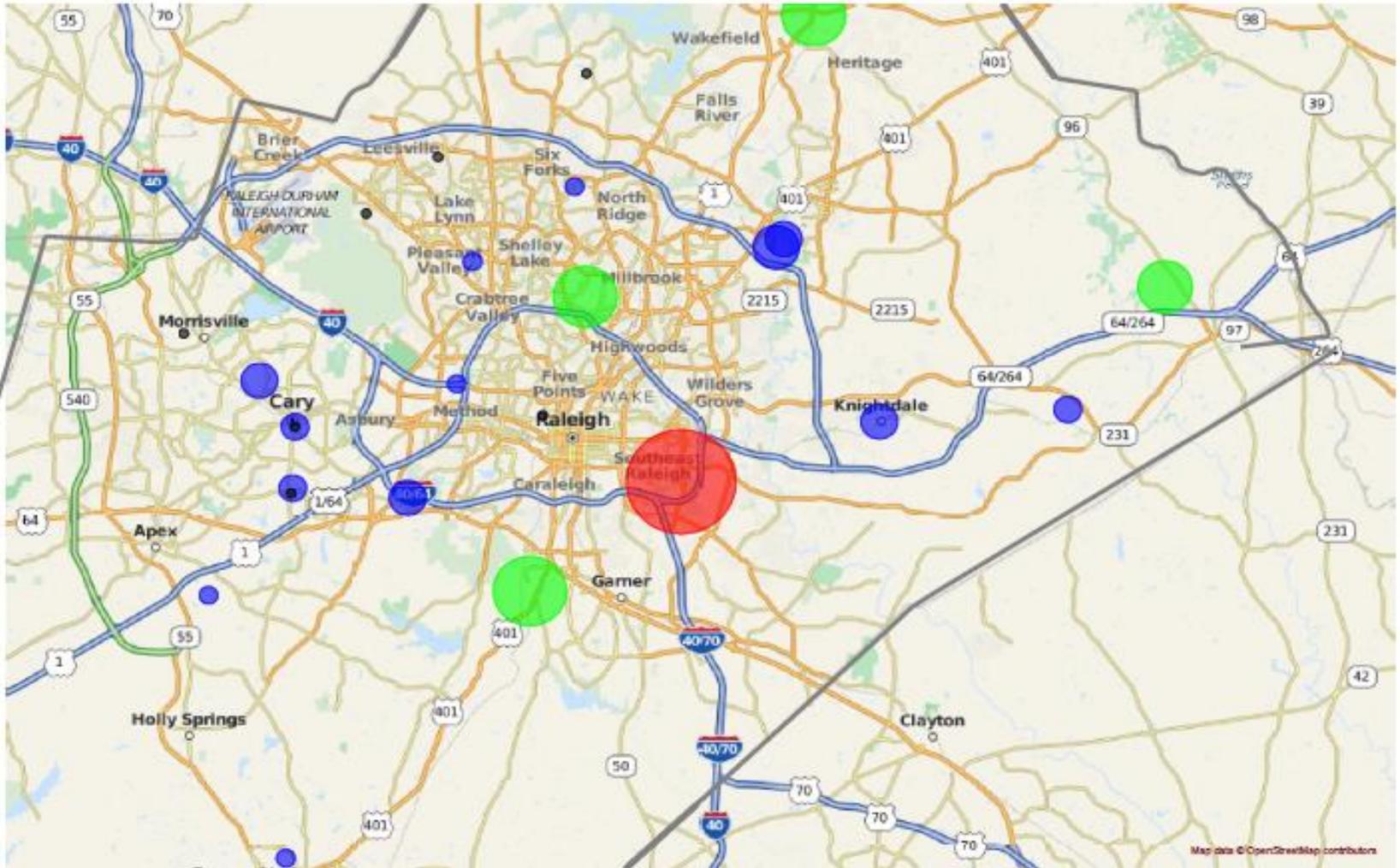


Slovis, C., et al. Five Common Causes of Sudden Unexpected Death. *Patient Care*. January 21, 2015

What is SUDDEN?

A collaborative teaching and research platform
focused on the prevention of out of hospital
sudden unexpected death

Sudden Unexplained Death



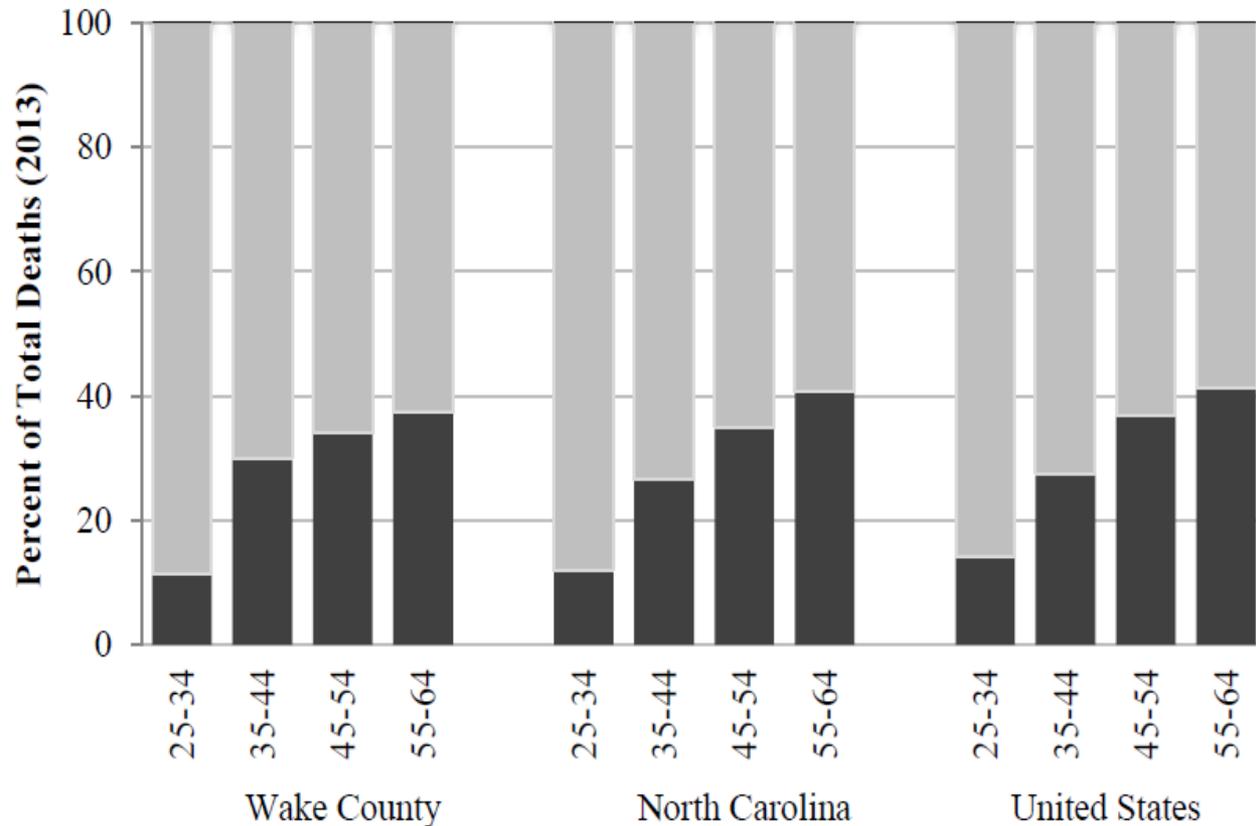
Case # = 11 or above

Case # = 6 to 10

Case # = 2 to 5

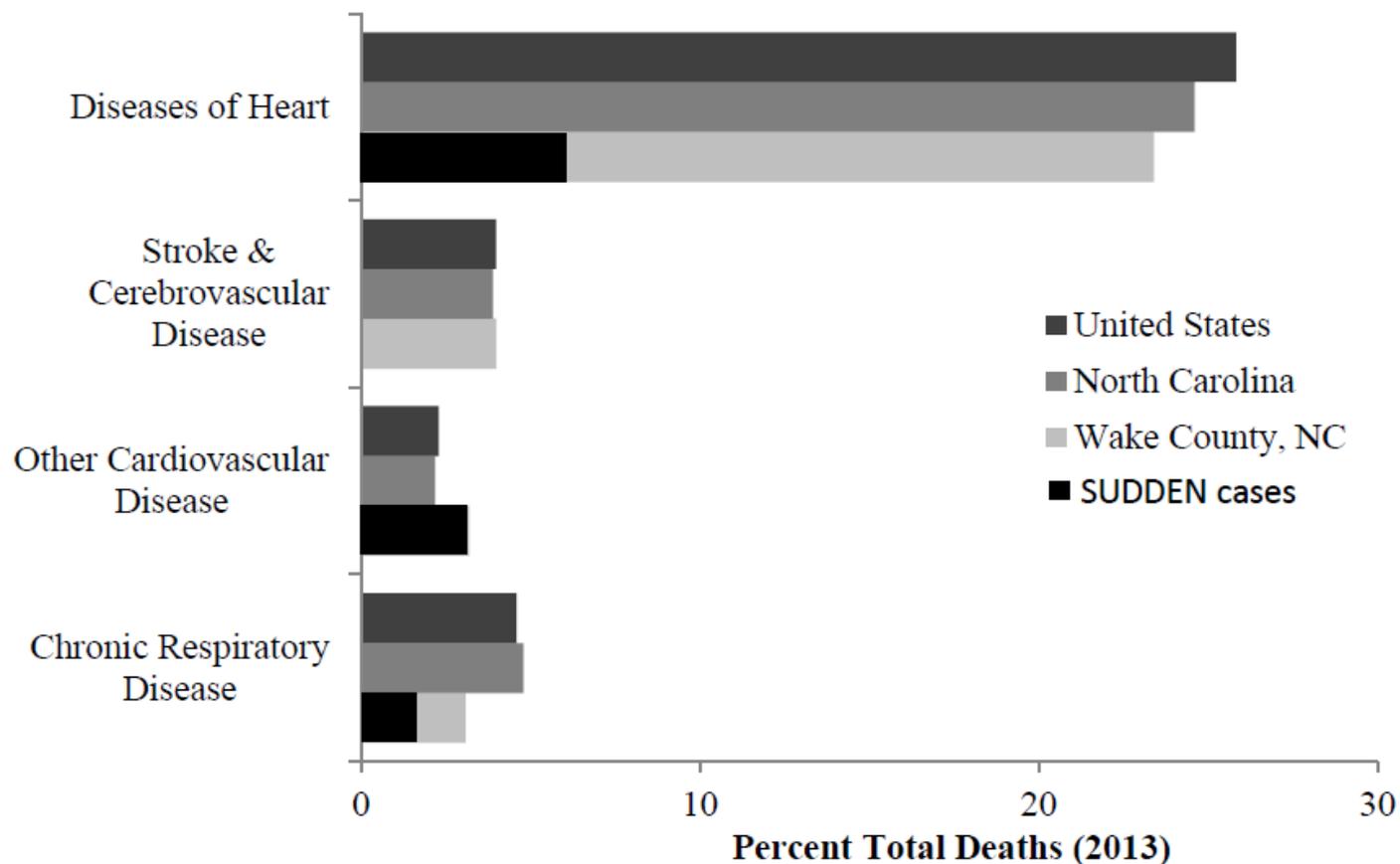
Case # = 1

Figure 1b. Potential SUD-attributable deaths* by age group



* Causes of death include ICD-10 codes for potential OHSUD (dark gray): Diseases of Heart (I00-I09, I11, I13, I20-I51), Stroke & Cerebrovascular Disease (I60-I69), Other Cardiovascular Disease (all remaining I codes), and Chronic Respiratory Disease (J40-J47); and non-SUD/expected deaths (light gray): Infectious Disease (all A and B, J09-J18), Accidents & Trauma (V01-X59, Y85-86), Intentional Injury (X60-X84, Y87.0), and Malignant Neoplasms (C00-C97).

Figure 1a. Causes of Death* in 2013 in 25- to 64-Year-Olds in the United States, North Carolina, and Wake County, NC



United States, North Carolina, and Wake County, NC, represented by dark, medium, and light gray bars, respectively; OHSUD in Wake County represented by black shading in light gray bars.

* As reported on the death certificate by the CDC 2013 National Vital Statistics Mortality Report and the North Carolina State Center for Health Statistics. Primary causes of death according to death certificate ICD-10 coding as follows: Diseases of Heart (I00-I09, I11, I13, I20-I51); Stroke & Cerebrovascular Disease (I60-I69), Other Cardiovascular Disease (all remaining I codes); and Chronic Respiratory Disease (J40-J47).

Table 1. Out-of-Hospital Sudden Unexpected Death in Wake County, North Carolina

Demographic Trait*	Cases N (%)
Women	70 (37%)
Mean BMI (SD), kg/m²	30.54*
Age	
18-44	33 (18%)
45-54	50 (27%)
55-64	104 (56%)
Race	
White	113 (60%)
African American	69 (37%)
Other	5 (3%)
Smoker	80 (65%)
≤ High School Education	86 (47%)
Married	71 (38%)
Medical Records available	123 (66%)
Comorbidities[†]	
Hypertension	109 (69%)
Heart Disease	39 (24%)
Diabetes	57 (37%)
Hypercholesterolemia	79 (55%)
COPD	24 (13%)

Table 2. Sudden Death Exclusion Criteria in the Literature

	Wake County N (%)	United States Estimated OHSUD (N)
EMS-reported dead on scene	1138 (24% of 2013 deaths)	611,500
Age < 18*	11 (1.0%)	5,911
Age > 65*	360 (32%)	193,445
Survive > 24h*	403 (35%)	216,551
Total adjudicated SUD	187 (14% of deaths ages 18-64)	95,390†
Unwitnessed	176 (94%)	89,849†
Unknown time of death or death occurring \geq 24h	153 (82%)	78,070†
No attempted resuscitation	122 (65%)	62,208†
Non-cardiac COD	90 (48%)	45,329†

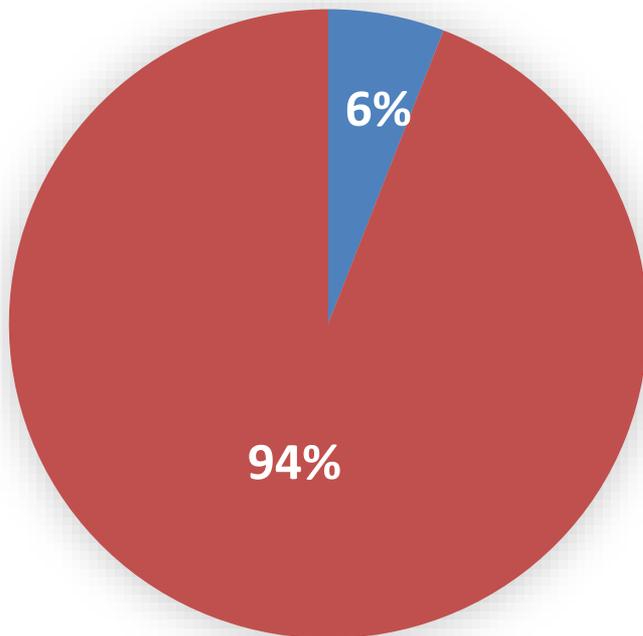
Number and percent of total presumed deaths that would be excluded from study by selected criteria. Wake County proportions derived from 2013 North Carolina State Center for Health Statistics mortality report.

* Exclusion criteria used by SUDDEN.

† Age- and sex-standardized extrapolated counts of all OHSUD for US population aged 20 to 64 using information for presumed sudden deaths in Wake County, North Carolina, in 2013.

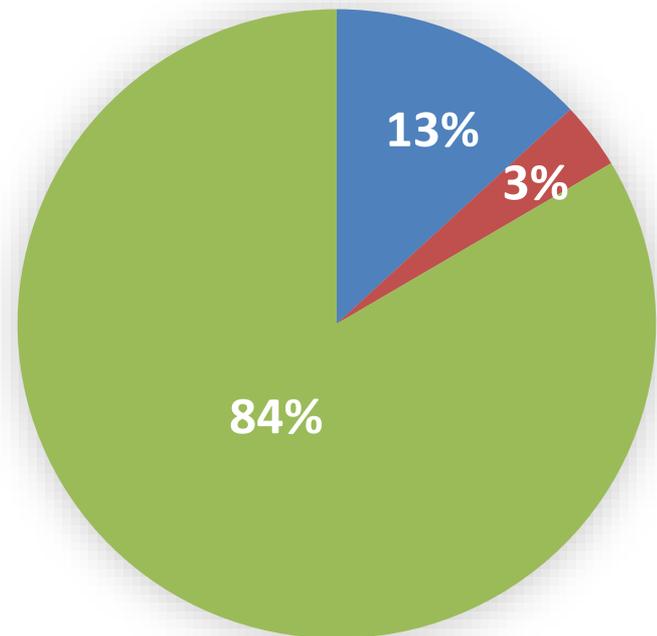
Prevention Should be the Standard Model

Witnessed vs. Unwitnessed Deaths



■ Witnessed ■ Unwitnessed

Last Seen Alive for Unwitnessed Death

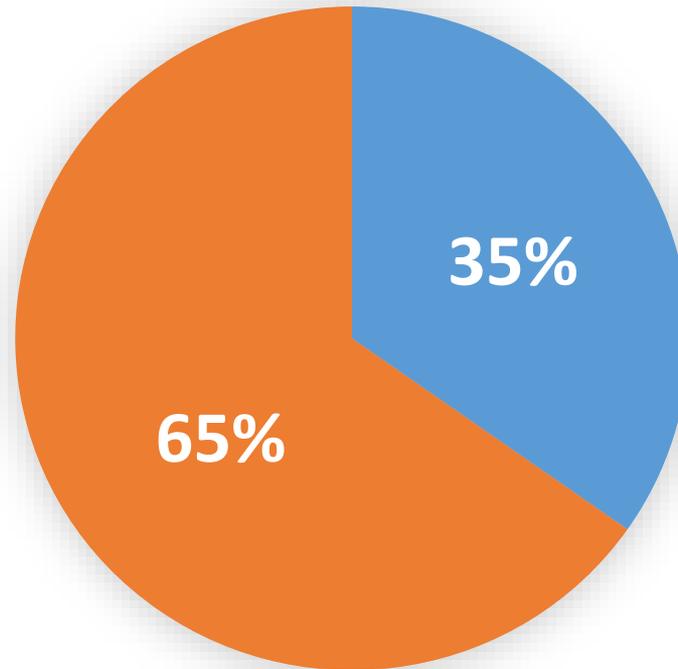


■ < 24 hours ■ > 24 hours ■ Unknown

Analysis based on pilot data from Wake County: 3/1/2013-2/28/2014

Prevention Should be the Standard Model

Resuscitation Comparison for Wake County Pilot Data



■ Resuscitation Attempted

■ Resuscitation NOT Attempted

Analysis based on pilot data from Wake County: 3/1/2013-2/28/2014

SUDDEN - Approval and Compliance Status

Institutional Review Board

Exempt from IRB approval because submission “does not constitute human subjects research as defined under federal regulations [45 CFR 46.102 (d or f) and 21 CFR 56.102(c)(e)(I)]”

HIPAA

Registry designated “HIPAA Compliant”

Steering Committee responsible for ongoing oversight and compliance

Medical Records procured for screened subjects only and de-identified

Legal

Business Associate Agreement

Data Use Agreement

Registry protocol reviewed and approved by UNC Compliance Officer

SUDDEN – Management

Steering Committee

Coordinates all study activities, provides oversight and is responsible for all issues related to data security and compliance

Ethics Committee

Deals with study protocol and ethical issues

Writing Committee

Responsible for all research output.

Intervention Plan

- Collaborate with EMS, hospital case managers, and county health services to develop preemptive management for at risk individuals
- Use EMS geo-coded data to identify at-risk areas and deliver focused, preventative messages

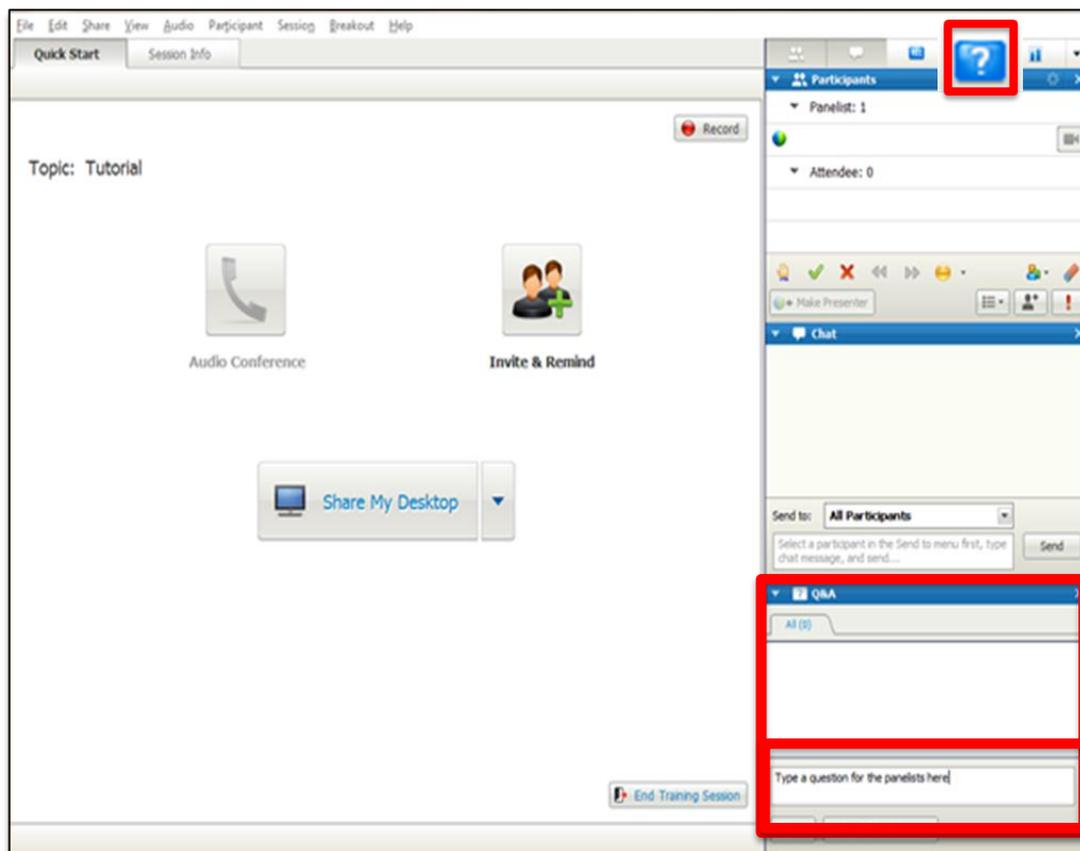
Conclusions

1. The majority of out of hospital sudden death victims are not candidates for resuscitation and for those that are, resuscitation is generally futile
2. Prevention is the only strategy that will lower the incidence of sudden death

To Ask a Question



- Click on the blue question mark tab on the top right panel of your screen
- This will open the Q&A box on the bottom right panel on your screen
- Type a question
- Send questions to All Panelists
- Questions will be answered during the Q&A period



Thank you for your participation!

- The webinar recording & slides will be available CSTE's website in the webinar library: <http://www.cste.org/?page=WebinarLibrary>

A large, stylized number '4' is the central graphic. It is composed of several segments: a light blue top-left section, a medium blue top-right section, a dark blue bottom-left section, and a dark blue bottom-right section. The background is a light beige color with a subtle, repeating pattern of interconnected lines forming a grid of triangles and squares, with small grey dots at the intersections.

CSTE National Office

2872 Woodcock Boulevard, Suite 250
Atlanta, Georgia 30341

770.458.3811
770.458.8516
cmccoull@cste.org