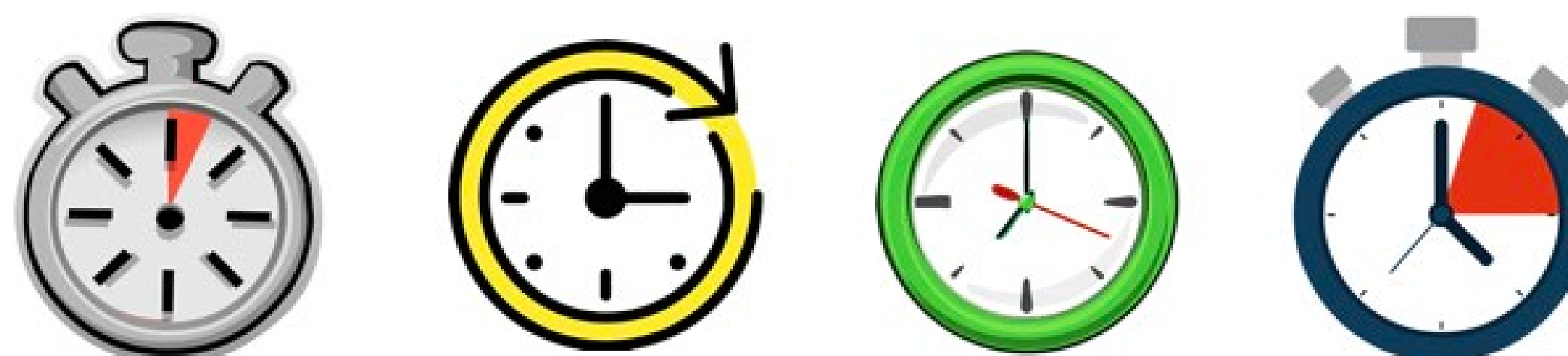


LESSONS LEARNED FROM FATAL SHOOTING IN THE BSW-IRVING ED

Connie Swickhamer DO FACEP, Barbara Klausing MHA BSN RN NEA-BC, Cindy Schamp MHA FACHE, Blake Johnson MD

INCIDENT

- ED patient presented for evaluation of cough on the evening of *June 29, 2022*.
- Patient behavior became erratic before ultimately pulling a handgun with ED physician in the room.
- BSW PD contacted immediately, Irving PD already coincidentally in the ED for legal blood draw, also called SWAT for back-up.
- 4 shots were fired in ED by the patient.
- Patient then fatally shot by Irving PD while still in ED treatment room.
- **No ED staff, officers, or patients** were physically harmed by gunfire.



STARTING THE HEALING PROCESS

- **Employee Assistance Program (EAP)** counselors present within 24 hours and available 2 days the following week.
- EAP led formal staff debriefings held within 48 hours.
- BSW System Lead for Peer Support personally called every staff member the following week to offer support.
- **BSW-Irving Hospital President (Cindy Schamp)** met with all ED staff at all levels in small group formats to personally hear what each team member/group needed to feel safe (>10 *separate meetings*).

LONG-TERM OUTCOMES

- All ED staff and providers participated in formal active shooter training program.
- ED staff members provided with locator badges that include panic buttons if needed.
- Permanent podium for BSW PD officers installed in the ED waiting room.
- Additional positions posted and hired for BSW PD, now staffed with *2-3 police/security officers at all times (24-7)*.
- Trial of **Evolv Weapon Detection System** within 8 weeks, followed by permanent installation in January 2023.

IMMEDIATE RESPONSE

- BSW system and Irving hospital leaders immediately responded to the scene once safe.
- ED Supervisors/Manager contacted off-duty RNs and technicians to come work and allow staff who were present to be relieved.
- ED physician and APP caring for gun-wielding patient were allowed to return home mid-shift.
- BSW-Irving ED went on EMS diversion for next several hours.
- ED became an **active crime scene** → Additional treatment rooms opened in back of ED to account for 7 ED rooms that were off-limits for the next several days/weeks.

SHORT-TERM CHANGES

- **No Weapons/Knives Policy** implemented and adapted by BSW system with aggressive signage throughout the ED.
- ED entrance door open timing shortened from 30 seconds to 15 seconds limiting unauthorized access.
- Intercom system access moved to Unit Secretary phone only.
- New lighting changes on the exterior of ED Triage area and ambulance bay.
- Closed circuit security cameras installed throughout the ED with comprehensive monitor stations in ED Triage and physician charting areas.
- “Red” emergency phones with outside lines added to every nursing station in the ED.

TAKE-HOME LESSONS

- *Staff safety is paramount until threat is eliminated.*
- Debriefing with professionals is important for the healing process.
- Communication of an event to rest of the hospital and ancillary services needs to be optimized. (Hospital units outside the ED, visitors, EMS, etc).
- Mobilizing new staff to relieve affected staff in real time allows the healing process to begin sooner.
- **MOST IMPORTANTLY: Every member of our ED staff** at BSW-Irving remained employed after the incident, many citing leadership team’s focus on healing and staff needs/desires for safety as a reason for their retention.

CAN USING AN EPIC DOT PHRASE (.SEPSISID) IMPROVE SEPSIS BUNDLE COMPLIANCE IN THE EMERGENCY DEPARTMENT AT BSW IRVING?

CONNIE SWICKHAMER, DO, FACEP, MARGARIDA CAMACHO, MSN/MHA, RN-BC

INTRODUCTION

- 1.7 million Americans develop sepsis in a typical year¹
- 1 in 3 people who dies in a hospital had sepsis during their hospitalization
- In almost 87% of cases, patient had sepsis, or the infection causing sepsis prior to arrival in the hospital¹
- Sepsis has been and continues to be a focus in the Baylor Scott & White Health with designation of Sepsis Task Forces for hospitals with Sepsis Accountable Owners

PROCESS

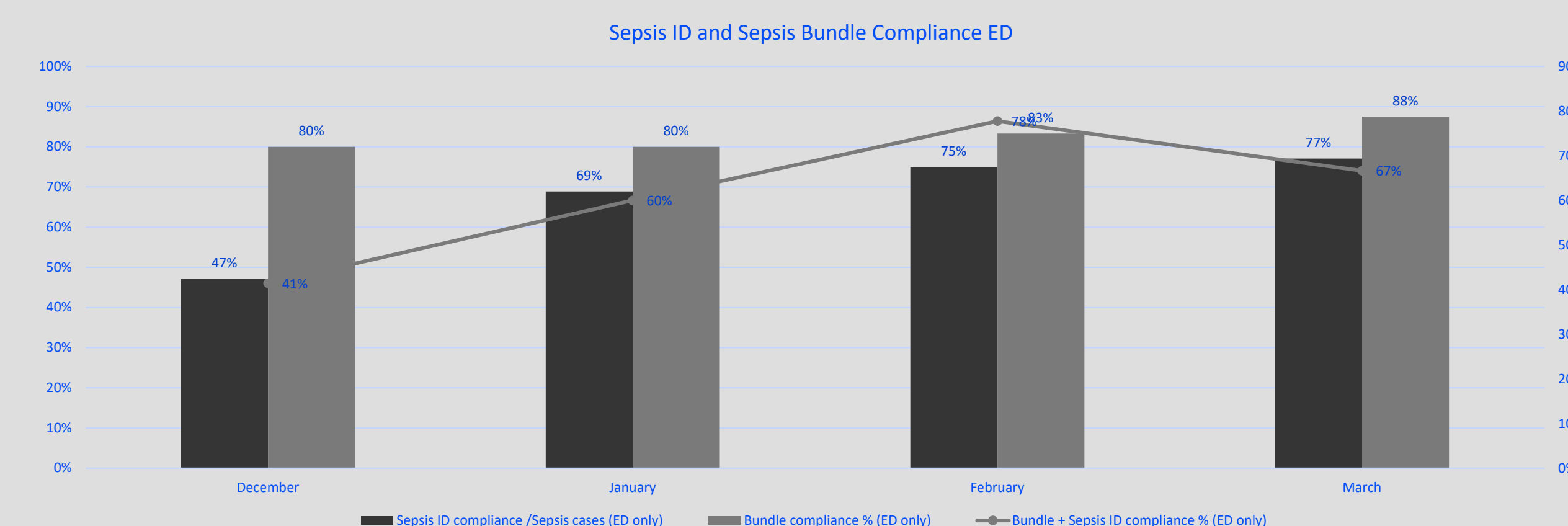
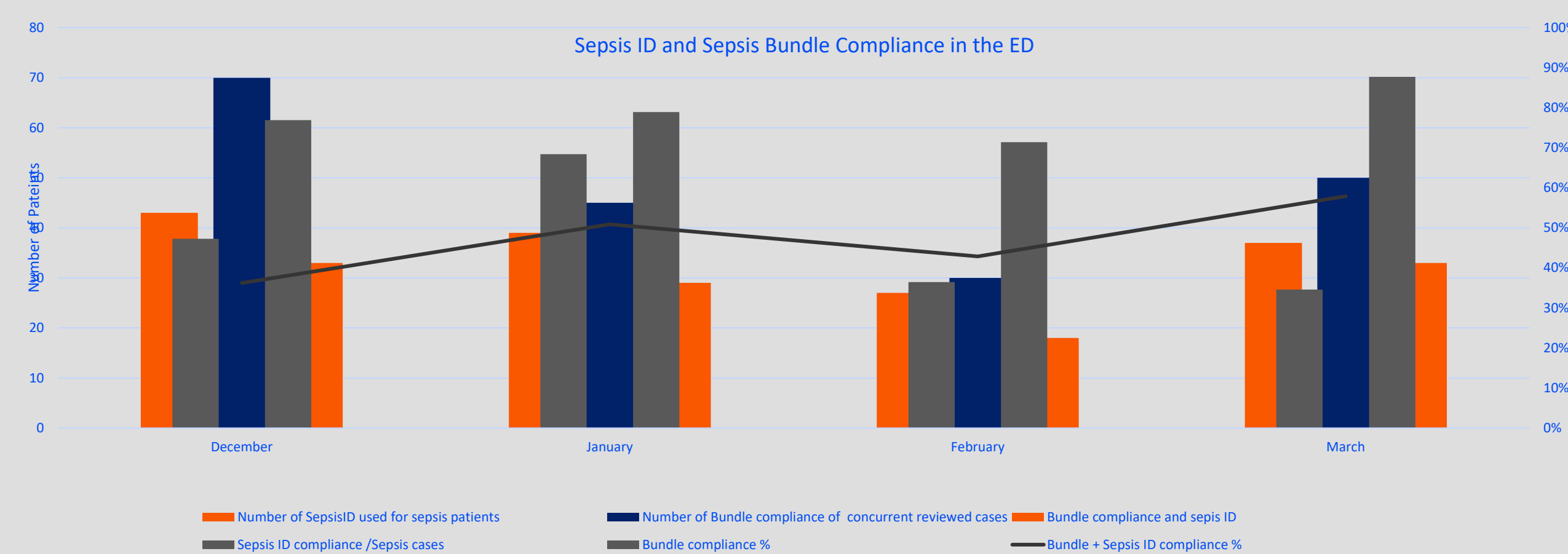
- In October 2022, the BSW Irving ED were given education on the updated .SEPSISID dot phrase during monthly department meeting
- We started to track data in December 2022 as to whether or not .SEPSISID dot phrase was utilized on the concurrent reviews that coded as Severe Sepsis/Septic Shock as final diagnosis
- We looked to see if increased utilization of the dot phrase that documents the main points of Sepsis care increased Sepsis Bundle Compliance for the hospital
- Monthly mortality data for Sepsis is also tracked and may be affected by Sepsis Bundle compliance

RESULTS

- 415 Sepsis cases underwent concurrent review for 4 months December 2022 through March 2023 and 168 cases were excluded with 199 being ED cases
- The number of severe sepsis/septic shock cases included were 70, 45, 36, and 48 for the four months
- .SEPSISID dot phrase compliance was 47%, 69%, 75%, and 77% for the months in review for the ED
- Bundle compliance % for the ED has been 80%, 80%, 83%, and 88% which are above the goal set at 70%
- Percentage of patients that met the Sepsis Bundle and the provider utilized .SEPSISID was 41%, 60%, 78% and 67%

METHOD

- BSW Irving has a process for concurrent real-time sepsis reviews through EPIC
- The sepsis bundle compliance goal for BSW Irving is 70%
- There were a significant number of cases that required daily EPIC contact with physicians, APPs, and nurses from our Sepsis coordinator to assist with improved documentation for possible Sepsis OFI
- Our idea was that we were able to improve compliance with documentation in EPIC there would be improved compliance with the 3 and 6 hour Sepsis Bundle as well



CONCLUSION

- Sepsis Bundle compliance in the ED has improved and remains above goal of 70%.
- There was improvement in both .SEPSISID utilization and the Sepsis Bundle compliance
- It is likely that concurrent reviews and direct communication with providers and staff to address documentation in real time affected Sepsis Bundle compliance
- Our goal is to increase utilization of .SEPSISID dot phrase in Severe Sepsis/Sepsis Shock with the hospitalist, critical care and OB physicians with education to improve facility wide Sepsis Bundle Compliance
- REFERENCE: 1. www.cdc.gov/sepsis

STOP THE ABUSE!

A WORKPLACE VIOLENCE PILOT IN A COMMUNITY ED

Chukwuagozie Iloma MD, Connie Swickhamer DO FACEP, Barbara Klausing MHA BSN RN NEA-BC, Blake Johnson MD

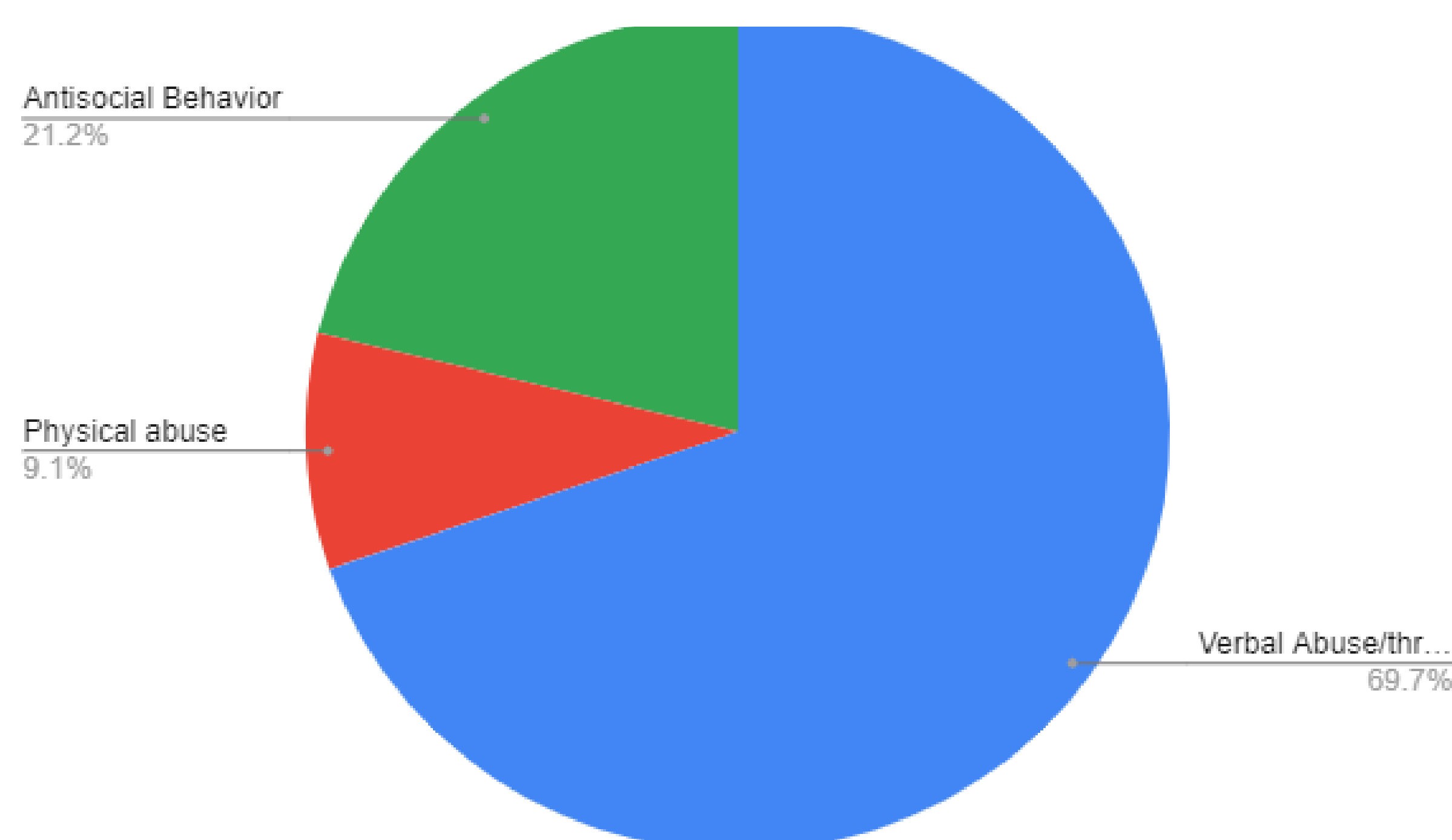
INTRODUCTION

- **Workplace violence (WPV)** is ANY *act or threat* of physical violence, harassment, intimidation, or other threatening/disruptive behavior occurring at the work site.
- Of those victims who experience trauma from workplace violence:
 - 68% are female
 - 65% are 25 to 54 years old
 - 70% work in healthcare/social assistance industry
 - 21% require 31 or more days away from work to recover
- In the wake of recent WPV incidents in our department and others, we initiated new processes that would ensure a safe ED for our staff and patients.

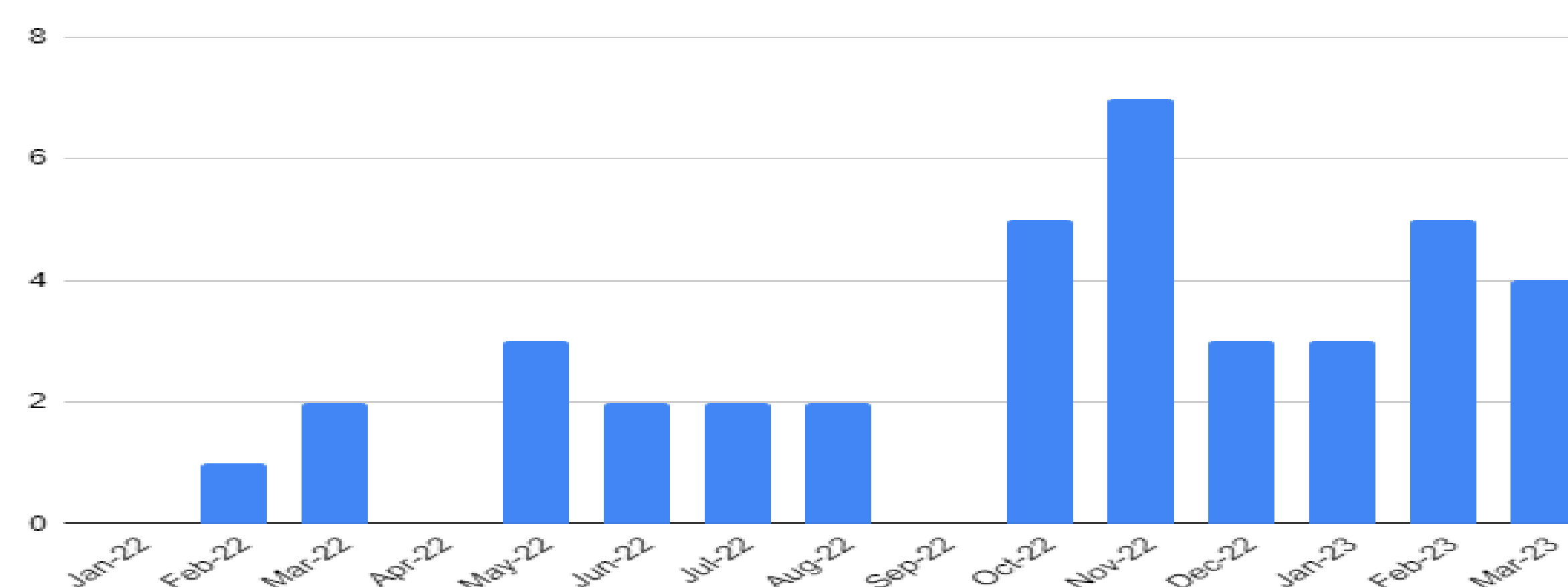
METHODS/PROCESS

- A WPV committee composed of ED staff from all levels was assembled, resulting in the following actions:
 - Awareness campaign with reading materials and in-person education at group meetings
 - ED staff provided locators and panic buttons for personal safety
 - Web-based reporting tool developed and disseminated to ED staff
 - Incidents recorded in MIDAS to ensure thorough follow-up
 - Ongoing reinforcement of education

Types of WPV Reported



Of Incidents Reported/Month



METHODS/PROCESS (cont)

- Primary focus was addressing the *under-reporting of WPV events*, a widespread issue in healthcare.
- Reported incident data periodically monitored to assess progress.

RESULTS

- In 9 months prior to the WPV campaign, there was an average of **1.3 reports/month**.
- In 6 months after launching the WPV campaign, there was an average of **4.5 reports/month**.
- **>300% increase in reporting.**
- *Verbal Abuse* is the most reported event in our ED at **69.7%** of all incidents.
- Subjectively, there is increased awareness and engagement from ED staff on WPV and a desire to work together to improve the safety of our ED.

CONCLUSION & PLAN

- Since the inception of this WPV campaign, there has been a marked increase in reporting and staff engagement.
- Availability of widespread education, an easy-to-use reporting tool, and access to MIDAS are important drivers of reporting.
- We believe these initiatives have improved safety in the ED for both our patients and staff.
- This data will be used to inform hospital and system administration on the scope of WPV in the ED, in hopes that additional resources will be allocated towards ED security and safety.

Eric H Chou, MD^{1,2}, Benjamin Morrissey, MD², Ali Farzad, MD², Toral Bhakta, DO¹, Dahlia Hassani, MD¹, John Garrett, MD²

1. Dept. of Emergency Medicine, Baylor Scott & White All Saints Medical Center, Fort Worth, TX 2. Dept. of Emergency Medicine, Baylor University Medical Center, Dallas, TX

INTRODUCTION

- **Adenosine** and **Diltiazem** are the two most used agents for supraventricular tachycardia (SVT), a common arrhythmia in the emergency department (ED).
- Current guidelines give stronger recommendations for adenosine vs. diltiazem as a first line treatment of SVT.

OBJECTIVES

- Compare the efficacy of bolus intravenous adenosine versus diltiazem in the termination of spontaneous SVT in the ED.
- Determine if diltiazem as the potential to become a first line treatment for SVT in the ED.

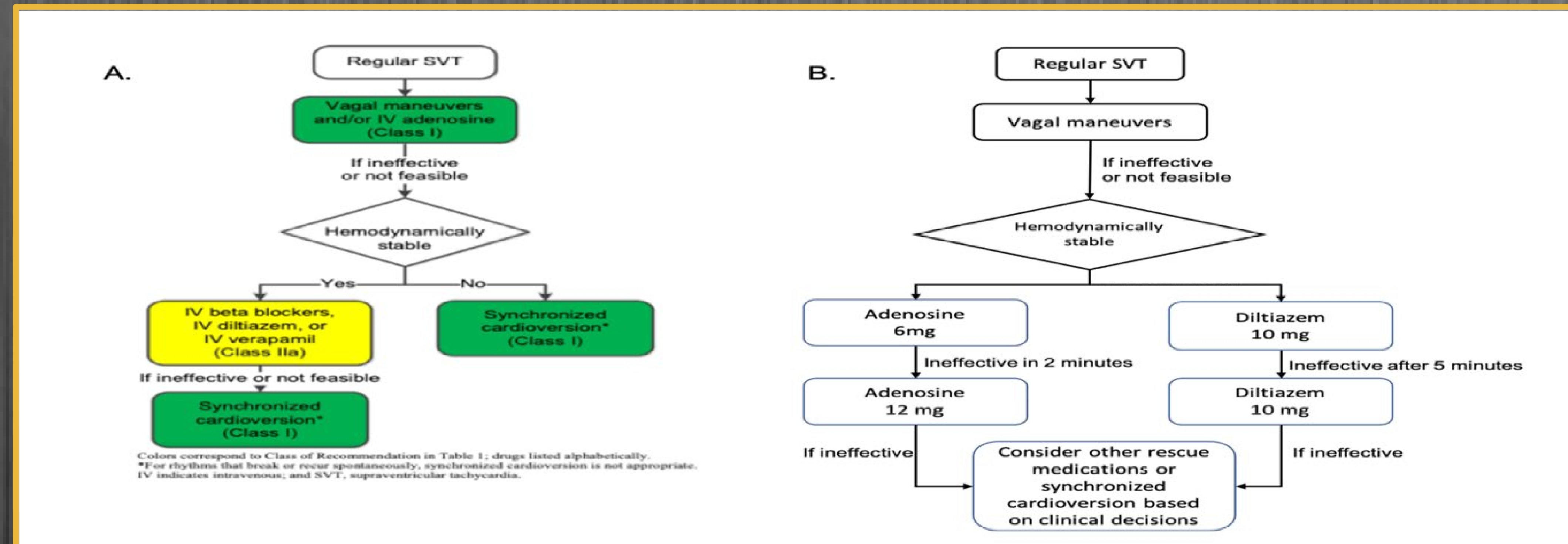
METHODS

- **Retrospective, multi-center, cohort study** conducted in 15 community ED's in North Texas.
- **All adult patients ≥18 years presenting with SVT in the ED** treated with adenosine or diltiazem as initial treatment were included.
- **Primary outcome: Rate of successful conversion to sinus rhythm.**
- Secondary outcomes: time to treatment, time to conversion, and response dose of pharmacological agents.
- Wilcoxon rank-sum test and Pearson chi-square test for categorical data comparison between groups.

RESULTS

- The rate of successful conversion had no significant difference in adenosine versus diltiazem group (94.3% vs 87.5%, p=0.287).
- There is no significant difference in the mean time to conversion (p=0.749) and the mean time to treatment (p=0.897) between both groups.
- To achieve successful conversion, the median required dose of adenosine was 12 mg (IQR 6-12 mg), and the median dose of diltiazem was 15 mg (IQR 10-20 mg).

RESULTS



(A) Standard treatment for regular SVT from 2015 AHA guideline. (B) ADVISED protocol for regular SVT.

	Overall (n = 174)	Adenosine (n = 158)	Diltiazem (n = 16)
Age, median	57 (24)	56 (22)	60 (33)
Sex			
Male	78 (45%)	69 (44%)	9 (56%)
Female	96 (55%)	89 (56%)	7 (44%)
Comorbidities			
BMI, median (IQR)	29 (11)	29 (11)	28 (7)
Tobacco use	75 (38%)	65 (42%)	10 (63%)
Diabetes mellitus	42 (21%)	36 (23%)	6 (38%)
Hypertension	94 (49%)	85 (54%)	9 (56%)
CAD	24 (13%)	22 (14%)	2 (13%)
Heart failure	23 (11%)	19 (12%)	4 (25%)
Asthma	15 (8%)	13 (8%)	2 (13%)
COPD	11 (6%)	10 (6%)	1 (6%)
CKD	15 (9%)	15 (10%)	0 (0%)
Malignancy	29 (13%)	23 (15%)	6 (38%)

	Median (Q1–Q3) ^a		
	Adenosine (n = 158)	Diltiazem (n = 16)	p value
Successful conversion, No. (%)	149 (94.3%)	14 (87.5%)	0.287
Time to conversion, min	29 (21–72)	28 (18–66)	0.749
Time to treatment, min	24 (18–41)	27 (17–50)	0.897
Response dose, mg	12 (6–12)	15 (10–20)	

CONCLUSION

- There was a similar efficacy between adenosine vs. diltiazem for stable SVT in ED.
- While adenosine is the initial drug of choice based on current guidelines, diltiazem can be considered as a great alternative for patients with stable SVT.

Eric H Chou, MD^{1,2}, Andrew Shedd, MD¹, Chinmay Patel, MD¹, Jennifer Walker, MD¹, Michael Flores, MD¹

Toral Bhakta, DO¹, Dahlia Hassani, MD¹

1. Dept. of Emergency Medicine, Baylor Scott & White All Saints Medical Center, Fort Worth, TX, 2. Dept. of Emergency Medicine, Baylor University Medical Center, Dallas, TX

Background

- Early administration of intravenous tPA is associated with higher rates of favorable clinical outcomes in acute ischemic strokes
- **Door-to-CT time (DTCT) within 25 minutes of arrival to the hospital is recommended**
- Unclear if **race-ethnic and gender disparities** play a role in delaying Door-to-CT with the effect of the COVID-19 pandemic.

Objectives

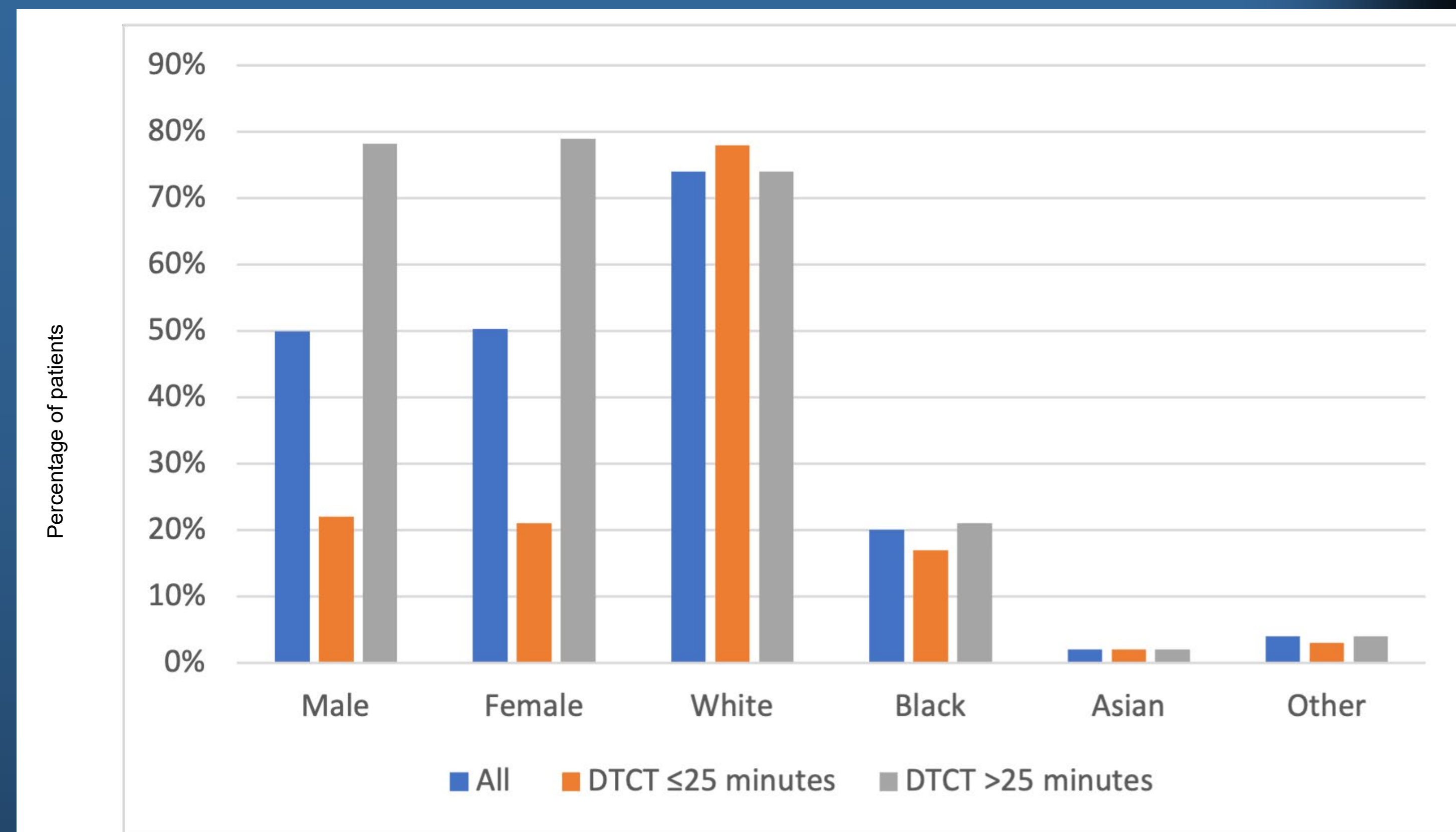
- To investigate the relationship between **socio-demographic factors and DTCT** in the Emergency Department (ED) under the effect of COVID-19.

Methods

- **Retrospective, multi-center, cohort study conducted in 5 urban community ED's in North Texas.**
- We included all adult patients ≥ 18 years presenting with suspected acute ischemic stroke in the ED.
- **Pre-COVID (before March 2020), during COVID, and post-COVID (after March 2022).**
- Primary outcome: **DTCT ≤ 25 minutes upon arrival to the ED for all patients suspected of acute ischemic stroke.**
- Multivariate logistic regression was performed to examine the associations between independent variables and outcomes

Results

Patient characteristics	All (n= 23,364)	Door to CT ≤ 25 min (n= 4,468)	Door to CT > 25 min (n= 16,464)	p-value
Age (year), mean \pm SD	69 \pm 15	70 \pm 15	69 \pm 15	<0.01
Sex, n (%)				0.14
Male	11,617 (49.7)	2,255 (21.8)	8,102 (78.2)	
Female	11,747 (50.3)	2,213 (20.9)	8,362 (79.1)	
Race, n (%)				<0.01
White	17,345 (74.2)	3,481 (77.9)	12,161 (73.9)	
Black	4,745 (20.3)	763 (17.1)	3,369 (20.5)	
Asian	454 (1.9)	72 (1.6)	346 (2.1)	
Other	820 (3.5)	152 (3.4)	588 (3.6)	
Hypertension, n (%)	19,599 (83.9)	3,826 (85.6)	13,782 (83.7)	<0.01
Diabetes mellitus, n (%)	10,082 (43.2)	1,826 (40.9)	7,202 (43.7)	<0.01
Coronary artery disease	7,532 (32.2)	1,435 (32.1)	5,280 (32.1)	0.95
Smoking history, n (%)	8,869 (46.4)	1,663 (46.1)	6,243 (46.1)	0.98
COVID status				<0.01
Pre-COVID	6,852 (29.3)	1,519 (34.0)	4,425 (26.9)	
COVID	13,593 (58.2)	2,397 (53.7)	9,859 (59.9)	
Post-COVID	2,919 (12.5)	552 (12.4)	2,180 (13.2)	



	Odds ratio (95% CI)	p-value
Race		
White	-	-
Black	1.35 (1.23-1.49)	<0.001
Asian	1.33 (1.01-1.74)	0.04
Other	1.09 (0.90-1.33)	0.38
Hispanic	1.20 (1.07-1.34)	0.002
Insurance		
None	-	-
Commercial	1.16 (1.02-1.32)	0.03
Medicare/Medicaid	1.00 (0.87-1.15)	1.00
Temperature	1.06 (1.02-1.10)	0.004
Mean arterial pressure (MAP)	0.99 (0.99-1.00)	<0.001
Glasgow Coma Scale		
3-8	-	-
9-12	0.45 (0.35-0.56)	<0.001
13-15	0.95 (0.78-1.16)	0.59
Cirrhosis	1.31 (1.16-1.49)	<0.001
Chronic kidney disease (CKD)	1.13 (1.04-1.22)	0.005
COVID period		
Pre-COVID	-	-
During COVID	1.45 (1.34-1.57)	<0.001
Post-COVID	1.46 (1.34-1.57)	<0.001

- Patients evaluated **during COVID (OR 1.45; 95% CI 1.34-1.57) and post-COVID (OR 1.46; 95% CI 1.30-1.65)** were more likely to have DTCT > 25 minutes compared to patients evaluated in the pre-COVID period.
- **Black (OR 1.35; 95% CI 1.23-1.49) and Asian (OR 1.33; 95% CI 1.01-1.74) race** were more likely to have DTCT > 25 minutes compared to White race.
- **Hispanic patients (OR 1.20; 95% CI 1.07- 1.34)** were more likely to have DTCT > 25 minutes compared to non-Hispanic patients.

Conclusion

- **Race and ethnic disparities were noted in delaying door-to-CT time in acute ischemic stroke patients.**
- **We also observed a delayed door-to-CT time within 25 minutes from the effect of COVID pandemic.**

CASE REPORT OF PARADOXICAL AGITATION TO ETOMIDATE ADMINISTRATION DURING CONSCIOUS SEDATION

Trey Van Dyke, PharmD; Katie Weigartz, PharmD, BCPS; Christina Bird, DO
Baylor University Medical Center

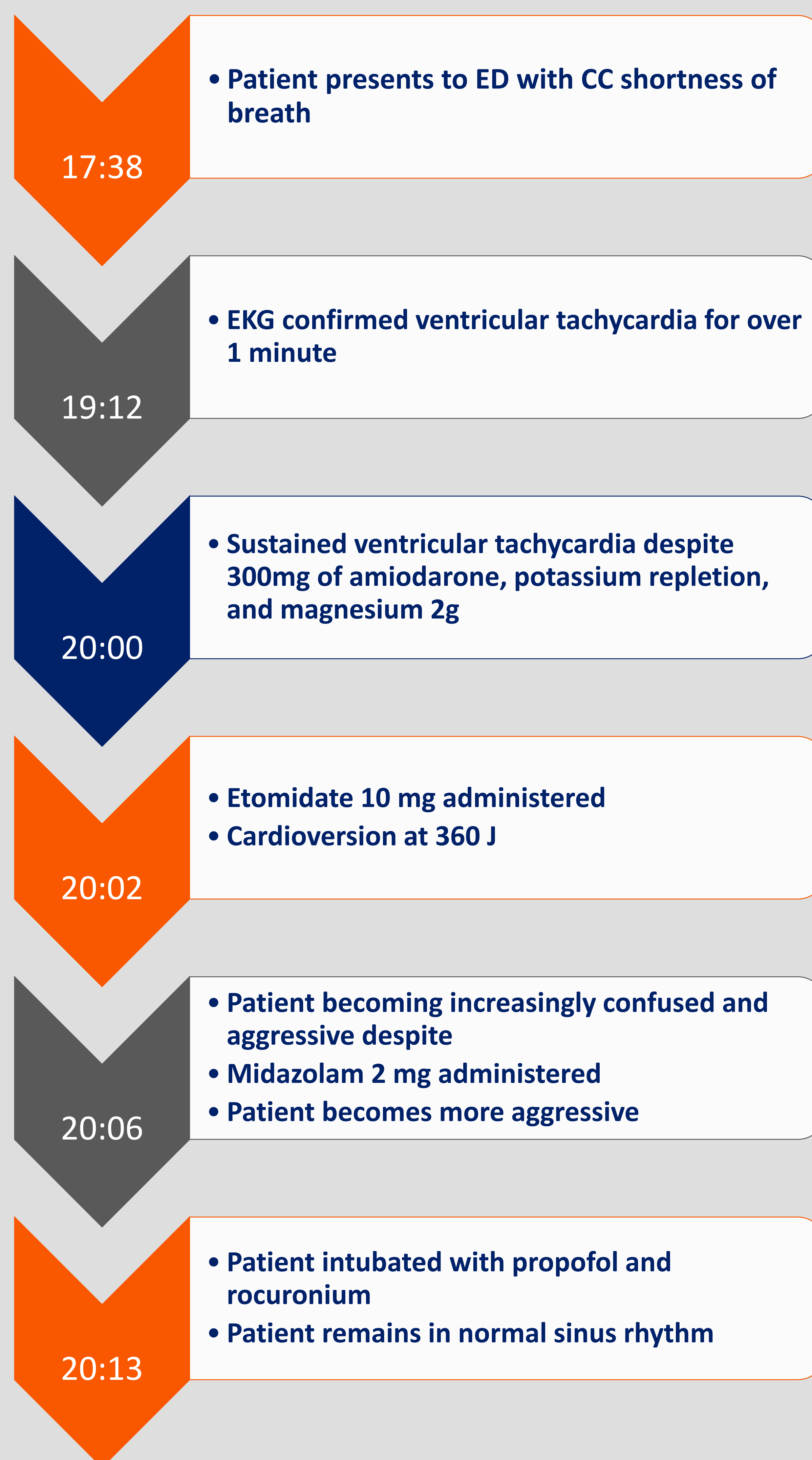
INTRODUCTION

- Etomidate is an imidazole-derived sedative hypnotic that stimulates GABA receptors to block neuroexcitation leading to reduced consciousness¹
- The fast onset, short to moderate duration of action, and hemodynamic neutrality make etomidate an ideal agent for procedural sedation, particularly cardioversions²
- Side effects such as myoclonus and adrenal suppression, are well elucidated in the literature. However, some case reports of paradoxical aggression have been seen when etomidate³⁻⁵
- We describe a case of a paradoxical reaction to etomidate causing aggressiveness necessitating mechanical ventilation

EMERGENCY DEPARTMENT COURSE

A 44-year-old male with a past medical history of non-ischemic cardiomyopathy with left ventricular assist device (LVAD) presented to the emergency department with a chief complaint of shortness of breath. On presentation, the patient had several occurrences of non-sustained ventricular tachycardia with a pulse eventually culminating in sustained ventricular tachycardia. During this time, the patient remained alert and oriented, and LVAD flow remained unchanged. Interrogation of the LVAD revealed no power spikes, speed drops, or other LVAD alarms. After amiodarone 300 mg bolus and 2 g of magnesium sulfate, the patient remained in ventricular tachycardia. The decision was made to sedate the patient for cardioversion. Etomidate 10 mg (0.1 mg/kg) was administered via peripheral IV. He was successfully cardioverted with 360 J per the cardiologist. After cardioversion, the patient became profoundly agitated requiring multiple staff members to restrain him. Despite administration of midazolam 2mg IV, agitation worsened. For the safety of the patient and staff, the patient was intubated using propofol and rocuronium.

CASE PRESENTATION



DISCUSSION

- Idiosyncratic psychomimetic effects of benzodiazepines is rare but well documented in the literature unlike etomidate
- Mechanism of this paradoxical reaction to etomidate may be related to those seen in benzodiazepines given similar GABA-A binding site
- Attempted treatment of aggression with midazolam worsened symptomatology
- Frequency of etomidate use outside of rapid sequence intubation has led to under reporting of paradoxical reactions
- Due to the short duration of action of etomidate, these reactions may quickly abate
- For safety of patient and staff, including potential to return to arrhythmia with increasing HR due to agitation, the decision was made to intubate

CONCLUSION

Incidence of paradoxical reactions to etomidate is likely under reported

It is reasonable to avoid benzodiazepines as a treatment of any paradoxical reaction

Increased awareness of such reactions is needed in the literature

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Eric H Chou, MD^{1,2}, Andrew Shedd, MD¹, Chinmay Patel, MD¹, Toral Bhakta, DO¹, Dahlia Hassani, MD¹, John Garrett, MD²

1. Dept. of Emergency Medicine, Baylor Scott & White All Saints Medical Center, Fort Worth, TX 2. Dept. of Emergency Medicine, Baylor University Medical Center, Dallas, TX

INTRODUCTION

- Intravenous adenosine is the current initial drug of choice for stable supraventricular tachycardia (SVT), a common arrhythmia in the emergency department (ED).
- There is growing evidence of using different medications for stable SVT patients with good outcomes.
- Modified Valsalva maneuvers have also been found to be an effective non-pharmaceutical therapy in converting stable SVT into sinus rhythm

OBJECTIVES

- Compare the efficacy of different initial treatments of SVT in the ED across multiple community hospitals.

METHODS

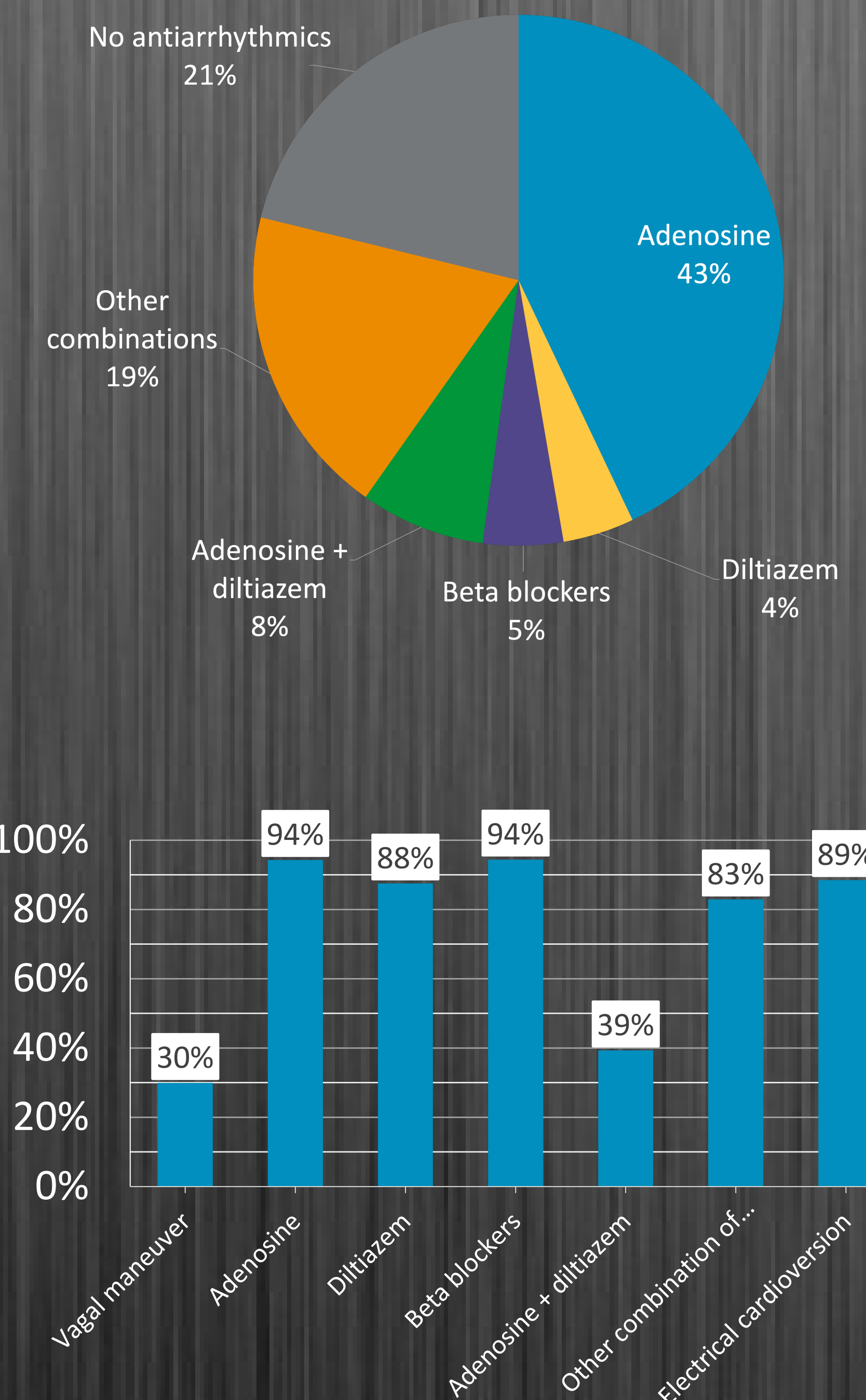
- Retrospective, multi-center, cohort study conducted in 15 community ED's in North Texas.
- We included all adult patients ≥18 years presenting with SVT in the ED.
- Primary outcome: Rate of successful conversion to sinus rhythm.
- Secondary outcomes: time to treatment, response dose of pharmacological agents, use of electrical cardioversion, hospital admission, and intensive care unit (ICU) stay.

CONCLUSION

- Most patients with SVT requiring pharmacological therapies were treated successfully with adenosine alone.
- The median response dose of adenosine was higher than the initial dose described in current guidelines.

RESULTS

	No. (%) ^a		
	Overall (n = 368) ^b	Successfully converted (n = 308)	Not successfully converted (n = 37)
Age, median (IQR), y	58 (23)	56 (23)	71 (20)
Sex			
Male	163 (44%)	132 (43%)	21 (57%)
Female	188 (51%)	160 (52%)	16 (43%)
Race			
Asian	6 (2%)	6 (2%)	0 (0%)
Black	65 (18%)	58 (19%)	4 (11%)
White	282 (77%)	233 (76%)	31 (84%)
Other	10 (3%)	9 (3%)	1 (3%)
Ethnicity			
Hispanic	50 (14%)	45 (15%)	3 (8%)
Non-Hispanic	316 (86%)	262 (85%)	34 (92%)
BMI, median (IQR)	29 (11)	29 (12)	27 (7)
Tobacco use	155 (43%)	127 (42%)	19 (51%)
Diabetes mellitus	78 (21%)	66 (22%)	11 (30%)
Hypertension	204 (56%)	163 (53%)	27 (73%)
Coronary artery disease	45 (12%)	30 (10%)	10 (27%)
Heart failure	50 (14%)	36 (12%)	10 (27%)
Asthma	34 (9%)	28 (9%)	1 (3%)
COPD	21 (6%)	11 (4%)	7 (19%)
Cerebrovascular accident	23 (6%)	19 (6%)	3 (8%)
Hepatitis	5 (1%)	4 (1%)	1 (3%)
Cirrhosis	9 (2%)	8 (3%)	0 (0%)
Chronic kidney disease	30 (8%)	23 (8%)	6 (16%)
Dementia	10 (3%)	7 (2%)	1 (3%)
Malignancy	54 (15%)	42 (14%)	8 (22%)
HIV	4 (1%)	4 (1%)	0 (0%)
Solid organ transplant	4 (1%)	4 (1%)	0 (0%)



- Among 84 patients (45%) receiving **adenosine alone**, 79 (94%) achieved successful conversions.
- Among 9 patients (5%) receiving **diltiazem alone**, 9 (100%) achieved successful conversions.
- Among 10 patients (5%) receiving **beta blockers (metoprolol/atenolol)**, 8 (80%) achieved successful conversions.
- Among the successfully converted patients who received either adenosine or diltiazem, the median response dose of adenosine was 12 mg (IQR 6-18 mg), and that of diltiazem was 15 mg (IQR 10-21.25 mg).

IMPLEMENTATION OF CLINICAL PHARMACIST DRIVEN CULTURE REVIEW PROCESS FOR EMERGENCY DEPARTMENT DISCHARGED PATIENTS

Katie Weigartz, PharmD, BCPS; Paige Baize, PharmD, BCPS; Stephanie Barre, PharmD;
Trey Van Dyke, PharmD; Tyler Brouse, PharmD; Jazmin Agee, PharmD; Christina Bird, DO
Baylor University Medical Center

INTRODUCTION

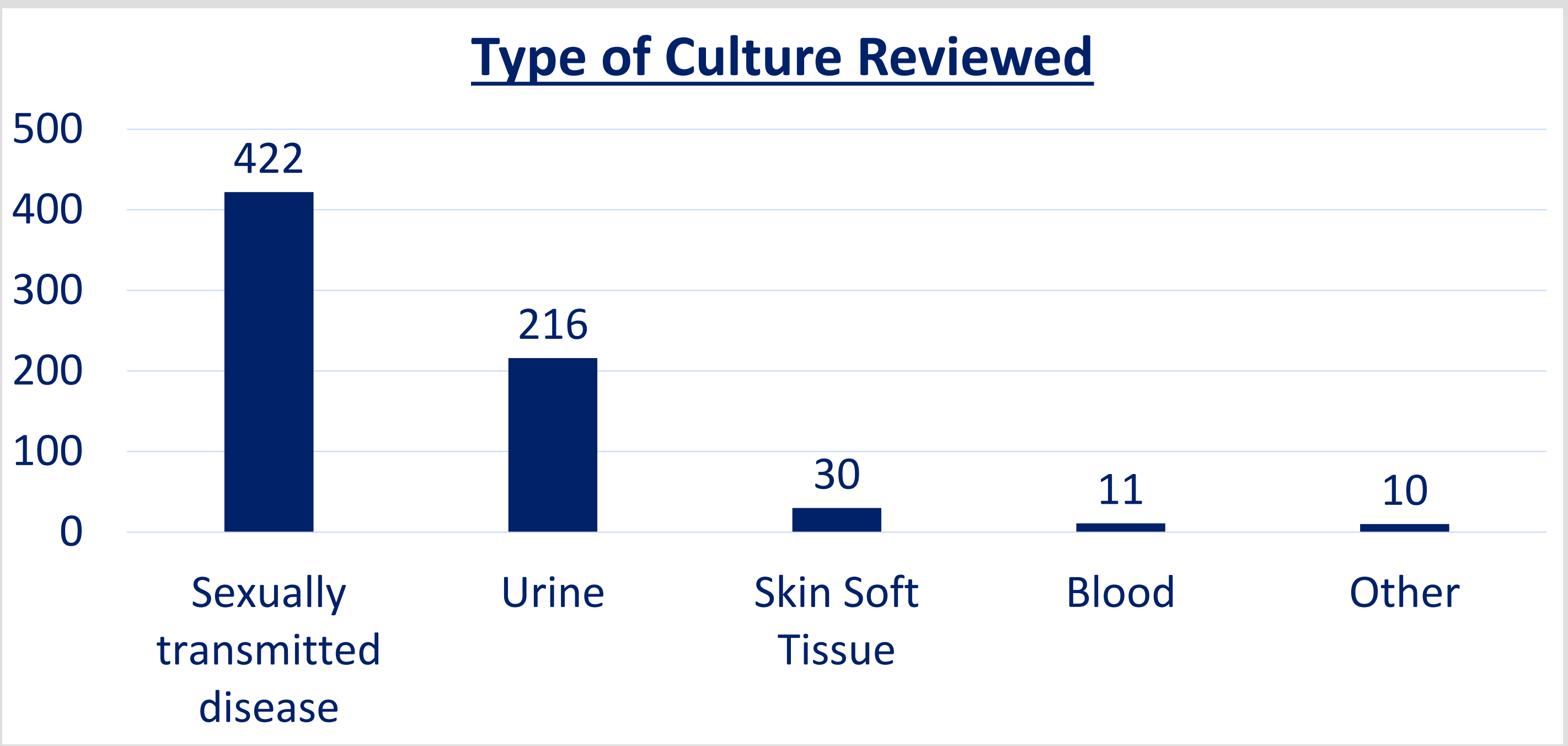
- Emergency Medicine Clinical Pharmacists (EM pharmacists) receive specialized training to optimize antibiotic coverage for various infectious organisms while prioritizing antimicrobial stewardship¹
- The Emergency Department (ED) poses a challenging environment for review of discharged patient culture results due to the rotating provider schedule
- EM pharmacist managed culture review can lead to less subsequent patient visits, more timely patient follow up, and more accurate revised regimens than provider or nurse-driven review processes²⁻⁴
- EM pharmacists are more likely to complete an intervention related to antimicrobial stewardship and optimization of care⁵
- Review allows for a streamlined approach to provider recommendation and ordering

TIMELINE

- August 25**
EM pharmacists added to shared results folder
- September 1**
EM pharmacists begin review of blood, urine, skin soft tissue, and other miscellaneous infectious disease results
- December 15**
EM pharmacists begin reviewing sexually transmitted disease results; stop reviewing blood culture results
- February 5**
Algorithm for culture review responsibilities finalized with physicians and nurse coordinators

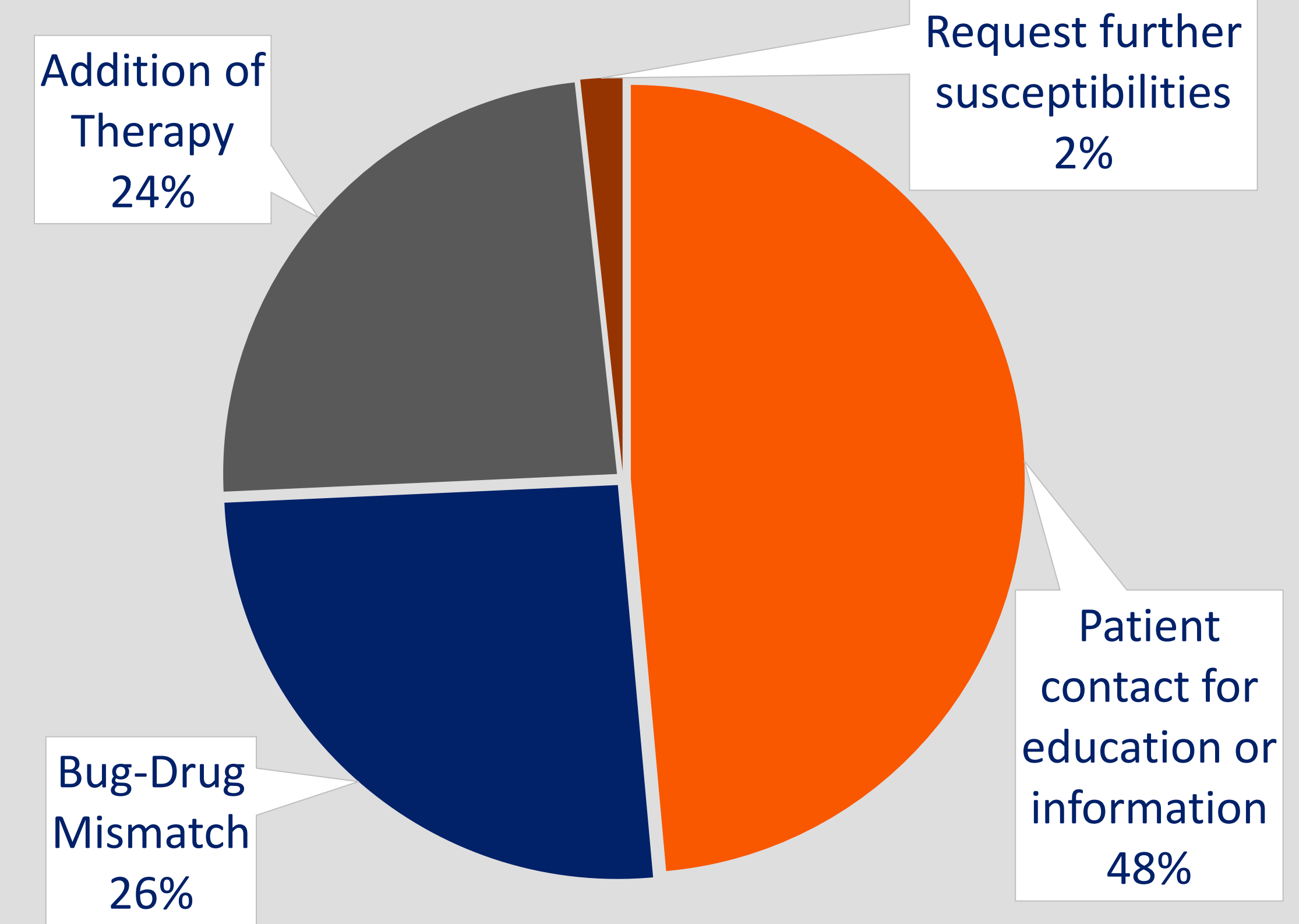
Over 6 months, Clinical Pharmacist culture review saved over 4,000 provider minutes reviewing 689 cultures for appropriate therapy.

RESULTS



RESULTS

Pharmacist Intervention



Totals

Cultures Reviewed	689
Minutes Spent	4117
Average Minutes per Day	22.6
Average Cultures per Day	4

FURTHER DIRECTION

- Expansion of EM pharmacist review to all infectious disease results
- Implementation of hospital specific policy for independent EM pharmacist review of infectious disease results
- Expansion of EM pharmacist weekend coverage
- Separation of infectious disease results to EM pharmacist only folder to reduce provider burden

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Eric H Chou, MD^{1,2}, Ryan Bellinger, MD¹, Fabi Vesper, MD¹, Daniel Gruzman, MD¹, Steven Maher, MD¹, Tsung-Chien Lu, MD, PhD³

1. Dept. of Emergency Medicine, Baylor Scott and White All Saints Medical Center, Fort Worth, TX, 2. Dept. of Emergency Medicine, Baylor University Medical Center, Dallas, TX

3. Dept. of Emergency Medicine, National Taiwan University Hospital, Taipei, Taiwan

BACKGROUND

- **Cardiac arrest in the emergency department (ED)** is a subset of **in-hospital cardiac arrest (IHCA)**.
- Although rare, it affects patients and their caregivers drastically if happens unexpectedly.

STUDY AIM

- To construct **prediction models to early detect IHCA in the ED** using machine learning (ML) algorithms.

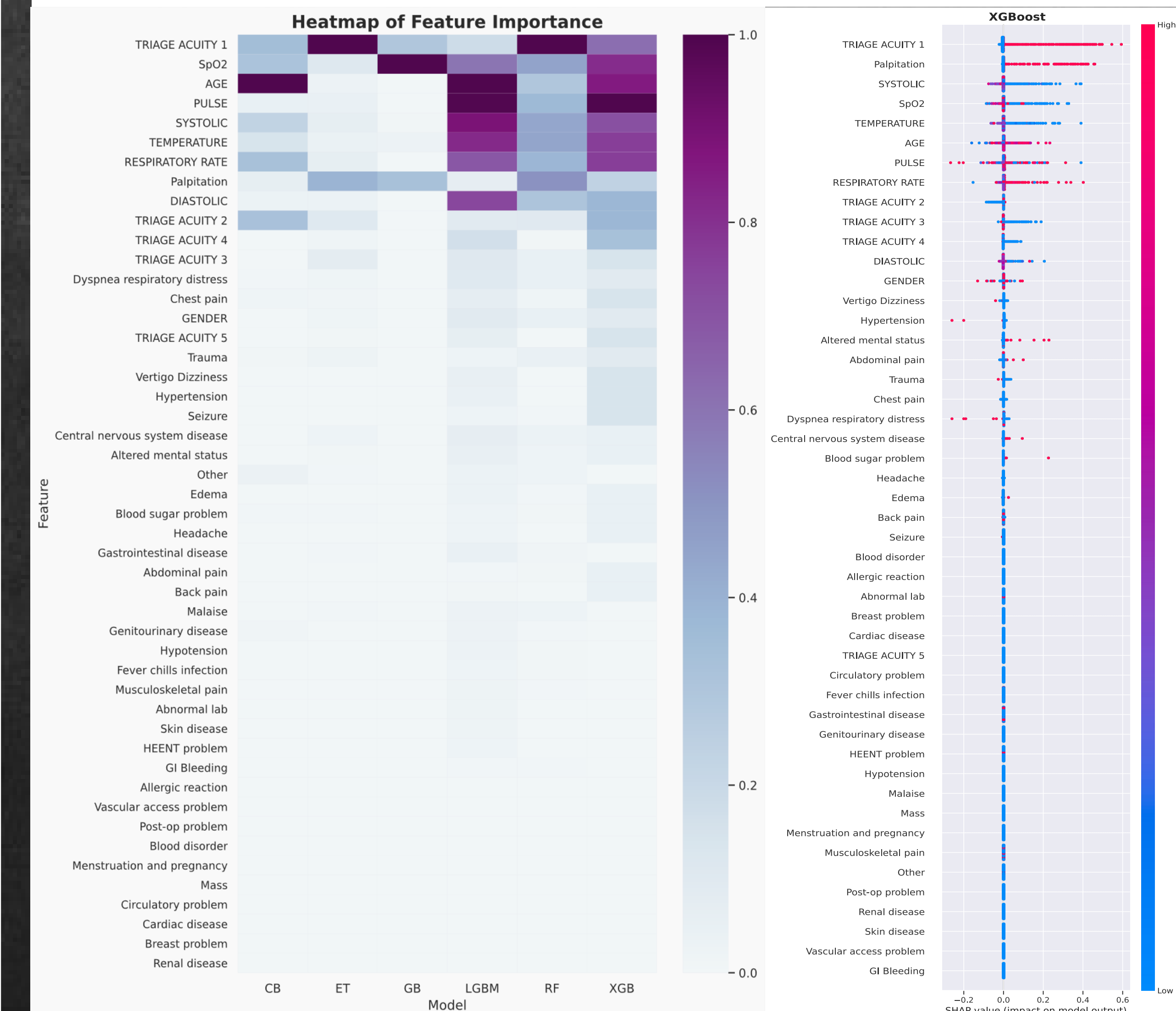
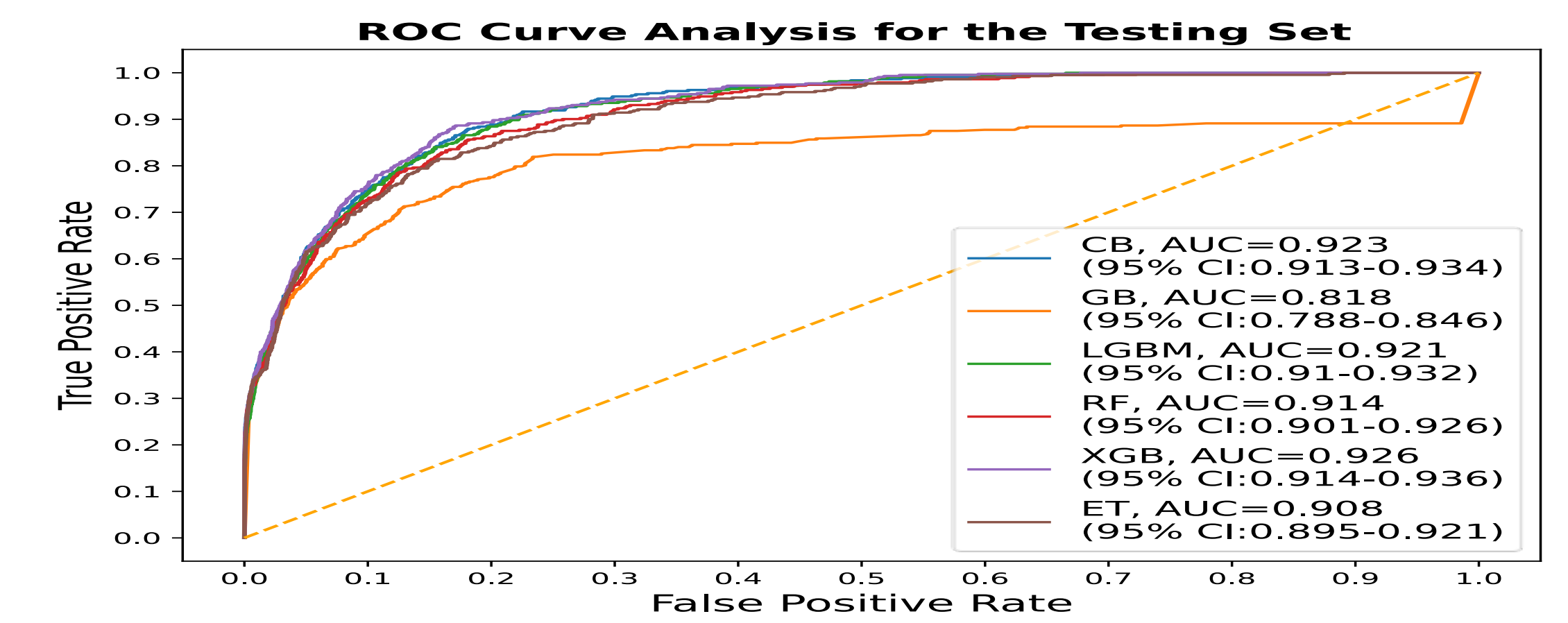
METHODS

- We retrieved data from the EMR of Baylor Scott & White Health (BSWH).
- All adult patients (age ≥ 18 years) who visited one of the five EDs in BSWH between May 30, 2019 and April 17, 2021 were eligible for inclusion. Patients who presented with out-of-hospital cardiac arrest were excluded.
- **The primary outcome was IHCA in the ED**, defined as unexpected cardiac arrest requiring resuscitation during the ED stay.
- Collected records were split into **training (consisting of data from one urban and two suburban hospitals)** and **testing (consisting of data from one urban and one suburban hospitals)** cohorts.
- Several ML algorithms were constructed and K-fold cross-validation was adopted during the training process. The models' performances were evaluated by using the **area under the receiver operating characteristic curve (AUROC)** in the testing cohort.

RESULTS

Demographic & Clinical Characteristics

	Training Cohort(n=200999)			Testing Cohort(n=143089)		
	IHCA(-) (n=200009)	IHCA(+) (n=990)	P value	IHCA(-) (n=142657)	IHCA(+) (n=432)	P value
AGE, Mean(SD)	49.4 (19.2)	64.6 (17.4)	<0.001	49.1 (19.8)	67.7 (13.9)	<0.001
GENDER			<0.001			<0.001
FEMALE	105859 (52.9)	420 (42.4)		87556 (61.4)	184 (42.6)	
MALE	94030 (47.0)	563 (56.9)		55091 (38.6)	248 (57.4)	
UNKNOWN	120 (0.1)	7 (0.7)		10 (0.0)	0 (0.0)	
SYSTOLIC, Mean(SD)	138.8 (24.0)	124.6 (37.4)	<0.001	138.4 (23.4)	125.4 (35.0)	<0.001
DIASTOLIC, Mean(SD)	82.7 (16.3)	74.2 (26.7)	<0.001	79.4 (15.4)	74.2 (25.3)	<0.001
PULSE, Mean(SD)	88.8 (18.3)	97.4 (30.4)	<0.001	87.4 (17.9)	96.1 (27.8)	<0.001
SpO2, Mean(SD)	97.9 (3.2)	91.3 (14.7)	<0.001	98.2 (2.9)	92.0 (12.7)	<0.001
RESPIRATORY_RATE, Mean(SD)	18.4 (2.8)	22.9 (10.1)	<0.001	17.7 (2.7)	22.3 (9.5)	<0.001
TEMPERATURE, Mean(SD)	98.4 (0.9)	97.9 (2.4)	<0.001	98.4 (0.8)	97.9 (2.1)	<0.001
Abnormal lab	1793 (0.9)	7 (0.7)	0.53	1386 (1.0)	5 (1.2)	0.69
Altered mental status	6731 (3.4)	65 (6.6)	<0.001	3389 (2.4)	20 (4.6)	0.002
Chest pain	15881 (7.9)	47 (4.7)	<0.001	11540 (8.1)	26 (6.0)	0.11
Dyspnea_respiratory_distress	29925 (15.0)	262 (26.5)	<0.001	20097 (14.1)	132 (30.6)	<0.001
Fever_chills_infection	8330 (4.2)	41 (4.1)	0.97	6100 (4.3)	13 (3.0)	0.19
TRIAGE_ACUITY			<0.001			<0.001
1	1653 (0.8)	474 (47.9)		2493 (1.7)	157 (36.3)	
2	46243 (23.1)	389 (39.3)		29284 (20.5)	197 (45.6)	
3	111056 (55.5)	125 (12.6)		86686 (60.8)	78 (18.1)	
4	35725 (17.9)	2 (0.2)		23114 (16.2)	0 (0.0)	
5	5332 (2.7)	0 (0.0)		1080 (0.8)	0 (0.0)	



Extreme Gradient Boosting (XGBoost) obtained excellent performance of **AUC (0.926, 95% CI: 0.914-0.936)**, followed by **Category Boosting (CatBoost) classifier (0.923, 95% CI: 0.913-0.934)** under 7-fold cross-validation.

CONCLUSION

- The constructed ML models have the potential to predict IHCA in ED and save more lives if successfully implemented in our decision support system.

Prognostic Value Of Cardiac Troponin In Patients With Supraventricular Tachycardia In The Emergency Department: A Multi-center Cohort Study

Eric H Chou, MD^{1,2}, Jon Wolfshohl, MD¹, Yi-Hsuan Yen, MD¹, ChingFang Tiffany Tzeng, MD, MPH¹,
Andrew Shedd, MD¹, Chinmay Patel, MD¹, Toral Bhakta, DO¹, Dahlia Hassani, MD¹

1. Dept. of Emergency Medicine, Baylor Scott & White All Saints Medical Center, Fort Worth, TX 2. Dept. of Emergency Medicine, Baylor University Medical Center, Dallas, TX

Introduction

- Supraventricular tachycardia accounts for approximately 50,000 ED visits each year
- Cardiac troponin I (cTnI) elevation indicates underlying heart disease and is known to predict adverse cardiac events.
- **There is limited evidence regarding the prognostic value of cTnI among patients presenting with SVT in the emergency department**

Methodology

- **Multicenter retrospective cohort study** in 15 community EDs in North Texas
- Eligible study subjects were adult patients (age ≥ 18 years) presenting with SVT in the ED with serum cTnI testing
- **Primary outcome: 30-day Major Adverse Cardiac Event (MACE)**
- MACE: Includes acute myocardial infarction, coronary revascularization by PCI, CABG, and all cause mortality

Statistics

- **Multivariate logistic regression** was performed to examine the factors associated with 30-day MACE and elevated cTnI values

Table 2. Odds Ratio and 95% CI for Risk Factors of Elevated Cardiac Troponin I in Patients Presenting with SVT in the ED

	Odds ratio (95% CI)	p value
Chronic kidney disease	7.33 (1.84–29.30)	0.005
ECG ventricular rate	1.02 (1.00–1.04)	0.018
Mean arterial pressure	0.95 (0.93–0.98)	0.002

Table 3. Odds Ratio and 95% CI for Risk Factors of 30-Day Major Adverse Cardiac Event

	Odds ratio (95% CI)	p value
Male gender	10.87 (1.26–94.10)	0.030
Elevated troponin ^a	11.97 (2.67–53.67)	0.001

^a Elevated troponin is troponin level ≥ 0.05 ng/mL

Table 1. Demographic and Clinical Characteristics of Enrolled Patients Presenting with SVT in the ED by Troponin Level

	No. (%) ^a		
	Overall (n = 147)	Normal Troponin (n = 116) ^b	Elevated Troponin (n = 31) ^b
Race			
Asian	3 (2%)	3 (3%)	0 (0%)
Black	26 (18%)	20 (17%)	6 (20%)
White	112 (77%)	88 (76%)	24 (80%)
Other	4 (3%)	4 (3%)	0 (0%)
Ethnicity			
Hispanic	24 (16%)	18 (16%)	6 (20%)
Non-Hispanic	122 (84%)	98 (84%)	24 (80%)
BMI, median (IQR)	31 (10)	31 (10)	32 (10)
Tobacco use	59 (40%)	48 (41%)	11 (35%)
Diabetes mellitus	45 (31%)	34 (29%)	11 (35%)
Hypertension	91 (62%)	72 (62%)	19 (61%)
Coronary artery disease	16 (11%)	11 (9%)	5 (16%)
Heart failure	25 (17%)	18 (16%)	7 (23%)
Cerebrovascular accident	13 (9%)	10 (9%)	3 (10%)
Chronic kidney disease	13 (9%)	7 (6%)	6 (19%)
Malignancy	23 (16%)	15 (13%)	8 (26%)

^a Data are expressed as No. (%) unless otherwise indicated.

^b Elevated troponin is troponin level ≥ 0.05 ng/mL

Results

- **147 Total patients with SVT with elevated troponin in 31 patients**
- **Elevate troponin (OR 11.97) was associated with increased rate of 30-day MACE after SVT**
- **Male gender (OR 10.87)** is a risk factor for 30-day MACE after presenting to the ED for SVT

Conclusion

- **Patients who presented to the ER for SVT with elevated troponin had a higher risk of 30-day MACE when compared to patients with a normal troponin level.**
- In patients with cardiac risk factors, troponin may be a useful tool to determine if a patient should be admitted vs discharged home after treatment for SVT

Limitations

- Retrospective format of study
- Data collected in North Texas and may not be generalizable to populations outside of this

Eric H Chou, MD^{1,2}, Andrew Shedd, MD¹, Chinmay Patel, MD¹, Jennifer Walker, MD¹, Michael Flores, MD¹,
Toral Bhakta, DO¹, Dahlia Hassani, MD¹

1. Dept. of Emergency Medicine, Baylor Scott & White All Saints Medical Center, Fort Worth, TX 2. Dept. of Emergency Medicine, Baylor University Medical Center, Dallas, TX

INTRODUCTION

- Early administration of intravenous (IV) tissue plasminogen activator (tPA) in acute ischemic stroke (AIS) is associated with higher rates of favorable clinic outcomes.
- The time from emergency department (ED) arrival to initiation of treatment within 60 minutes (door-to-needle time (DTN)<60 minutes) is recommended based on current stroke guidelines.

OBJECTIVES

- Determine if sociodemographic disparities affect door-to-needle time in acute ischemic strokes during the COVID-19 pandemic.

METHODS

- Retrospective, multi-center, cohort study conducted in 5 community ED's in North Texas.
- Eligible study subjects were adult patients ≥18 years presenting with SVT in the ED with suspected acute ischemic stroke.
- COVID period was categorized as pre-COVID (before March, 2020), during COVID, and post-COVID (after March, 2022).
- Primary outcome: door-to-needle time<60 minutes upon arrival to the hospital for all patients suspected of acute ischemic stroke.
- T-test and chi-square test were used to analyze continuous and categorical variables, respectively.
- Multivariate logistic regression was performed to examine the associations between independent variables and outcomes.

RESULTS

Table 1. Patient characteristics of acute ischemic stroke patients by Door-to-needle time.

Patient characteristics	All (n= 1,386)	Door to needle ≤60 min (n= 855)	Door to needle >60 min (n= 531)	p-value
Age (year), mean ± SD	66±16	67±15	64±16	<0.01
Sex, n (%)				0.05
Male	699 (50.4)	449 (52.5)	250 (47.1)	
Female	687 (49.6)	406 (47.5)	281 (52.9)	
Race, n (%)				0.94
White	1,056 (76.2)	665 (77.8)	391 (73.6)	
Black	235 (17.0)	138 (16.1)	97 (18.3)	
Asian	22 (1.6)	13 (1.5)	9 (1.7)	
Other	73 (5.3)	39 (4.6)	34 (6.4)	
Hypertension, n (%)	1,165 (84.1)	728 (85.1)	437 (82.3)	0.16
Diabetes mellitus, n (%)	554 (40.0)	322 (37.7)	232 (43.7)	0.03
Coronary artery disease	407 (29.4)	257 (30.1)	150 (28.3)	0.47
GCS score				0.92
3-8	47 (3.4)	23 (2.7)	24 (4.5)	
9-12	156 (11.3)	95 (11.1)	61 (11.5)	
13-15	1,183 (85.4)	737 (86.2)	446 (84.0)	
COVID status				0.92
Pre-COVID	363 (26.2)	224 (26.2)	139 (26.2)	
COVID	835 (60.3)	523 (61.2)	312 (58.8)	
Post-COVID	188 (13.6)	108 (12.6)	80 (15.1)	

Table 2. Adjusted Odds Ratio and 95% CI for race-ethnic differences in door-to-needle time >60 minutes among patients with acute ischemic stroke and the effect of COVID-19 pandemic.

	Odds ratio (95% CI)	p-value
Age	0.98 (0.97-0.99)	<0.001
Male	0.79 (0.63-0.99)	0.04
Hispanic	1.59 (1.16-2.17)	0.004
Insurance		
None	-	-
Commercial	1.75 (1.12-2.72)	0.01
Medicare/Medicaid	1.66 (1.10-2.52)	0.02
Pulse	1.01 (1.00-1.02)	0.01
Respiratory rate	1.04 (1.00-1.07)	0.03
Dementia	1.47 (1.03-2.11)	0.03
Chronic kidney disease (CKD)	1.57 (1.21-2.04)	<0.001
COVID period		
Pre-COVID	-	-
During COVID	0.96 (0.74-1.25)	0.76
Post-COVID	1.22 (0.85-1.77)	0.29

CI, confidence interval.

- Male patients (OR 0.79; 95% CI 0.63-0.99) were less likely to have DTN >60 minutes compared to female patients.
- Hispanic patients (OR 1.59; 95% CI 1.16-2.17) were more likely to have DTN >60 minutes compared to non-Hispanic patients.
- There is no significant difference between different races or COVID periods.

CONCLUSION

- Sex and ethnic disparities were noted in door-to-needle time in acute ischemic stroke patients.
- COVID-19 pandemic had no significant impact on stroke patients achieving door-to-needle time within 60 minutes based on our cohort.

TO MANAGE INCREASED ED CENSUS

Nikki Boykin and Alan Weier, MD, Baylor Scott & White Medical Center - Plano

SITUATION

- Baylor Scott & White Medical Center – Plano (BSWMC-Plano) has seen significant growth in its ED patient census
- Yearly census is poised to cross into the 30K/year bracket
- Despite that, the department is small enough that day-to-day census lability can be large (from a percentage standpoint) and poses significant staffing challenges
- Additionally, BSWMC-Plano has had definite increases in boarding hours in recent months

BACKGROUND

- BSWMC-Plano staffs both physicians and APPs
- Half of APP hours are as a provider in triage (PIT)
- Physician shifts:
 - Morning 7A-5P
 - Mid 2P-12A
 - Night 10P-8A
- BSWMC-Plano has 16 standard beds and approximately 10 hall beds available daily, depending on nursing staff availability
- Peak patient arrival days and times are similar to other Emergency Departments in the region
- Afternoon hours (mid-shift) are frequently uncomfortably busy for patients and providers alike

INTERVENTION

- Flexible, increased physician hours at peak times was needed
- It did not appear that an additional, full physician shift was warranted based on overall volumes
- It was agreed that a weekday “float shift” starting at 12 PM would be offered that had variable duration based on department need
- Physicians voluntarily assigned themselves to those shifts on a first-come, first-serve basis
- Plan was to evaluate at later date for effectiveness and unexpected negative consequences
- Shifts began in January 2023

DATA

- Weekday float shifts worked per month:
 - January 13
 - February 18
 - March 11
 - April 11
- Decrease in number of expected shifts in March and April due to unexpected staffing adjustment
- Shifts were worked by regular/full time as well as PRN physicians

FINDINGS

- Hours worked were variable and based on Department needs on a given day (usually 4-6 hours)
- Physicians saw at or above average number of patients/hour while on float shifts (usually 1.8/hour or more)
- No attributable improvements to objective throughput or patient experience measures (LBTC, LTR, etc.) identified
 - Possible other unaccounted variables
 - Possible too small a data set
 - Possible no real effect

ANALYSIS

- Voluntary, physician-directed float shifts:
 - Decompressed the transition to the busy afternoon hours, made the mid-shifts more manageable
 - Reduced stress of the mid shifts
 - Provided opportunity for extra income at physician discretion
 - Are rapidly deployable and provide needed flexibility without formal “call” schedule
 - Provide double-coverage to help new or PRN physicians with onboarding

A Diagnostic and Linkage to Care Opportunity

Seamus Lonergan, MD; Amanda Bradley, NP; Will Huggins, PA

BACKGROUND

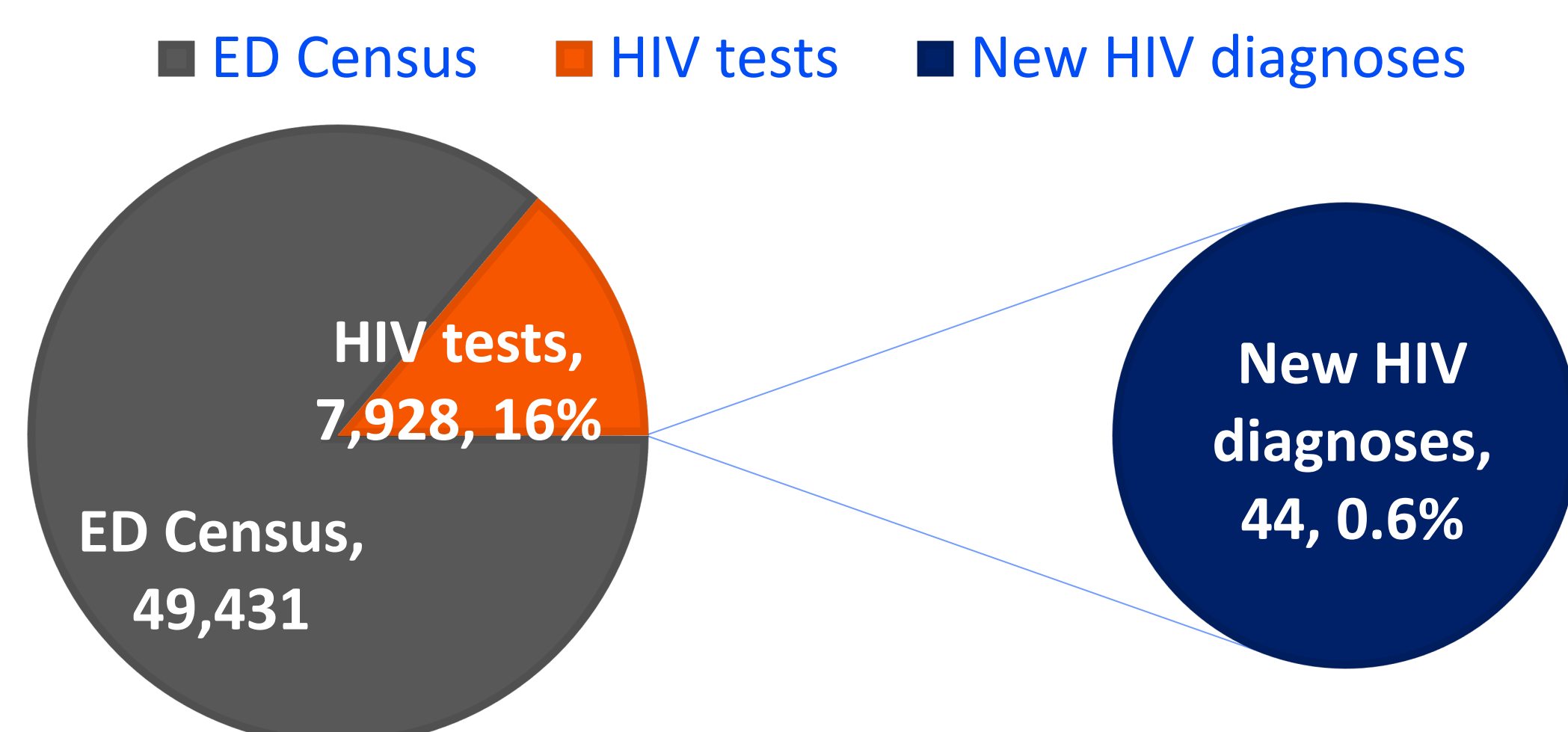
- CDC data from 2019 found an estimated 1,189,700 million people aged 13 and older had HIV in the U.S.
- CDC estimates that 13% of people with HIV do not know they have it and 40% of new infections are spread by these same people.
- Texas DSHS reports that EDs account for highest % of new HIV diagnoses.
- Early Diagnosis through ED screening is one way to prevent transmission and slow the epidemic.
- As a critical access point to healthcare for patients in our community, the Baylor University Medical Center (BUMC) ED decided to implement an ED HIV screening program.

IMPLEMENTATION OF HIV TESTING

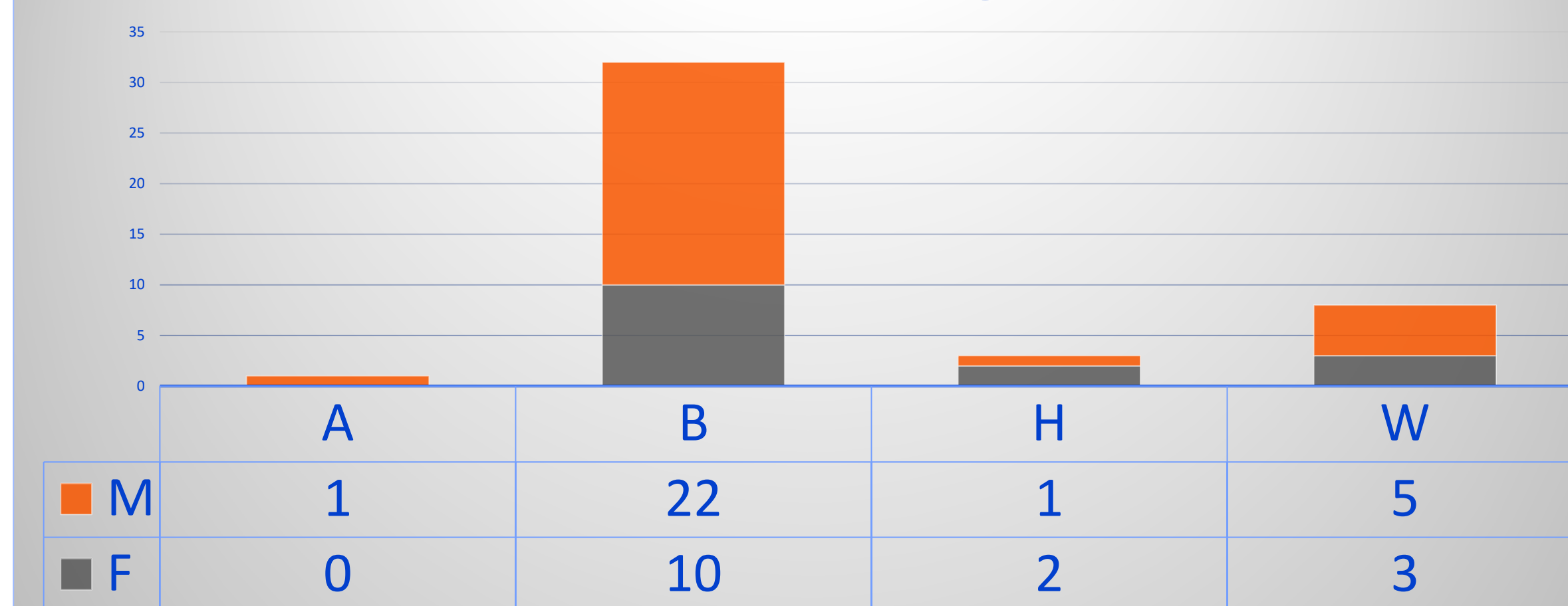
- Multidisciplinary committee convened: ED providers/nursing, Legal, IT, Lab, Case Management, Infectious Disease, and finance.
- ED providers/nursing: created education program, posters, and referral packets.
- Legal: approved verbal opt out consent plan to be performed by ED providers.
- IT: created EMR BPA based on screening criteria: age 18-65, blood draw, No HIV dx.
- Lab Testing: fourth generation HIV antigen/antibody testing with reflex confirmation.
- Case Management: provided assistance with notification and referral packet information.
- ID-Linkage to care: NTIDC group agreed to next-day follow-up regardless of insurance status.
- Financial support obtained through Gilead Sciences FOCUS award program and funneled through BSW Foundation and finance team.

RESULTS – 6 MONTHS

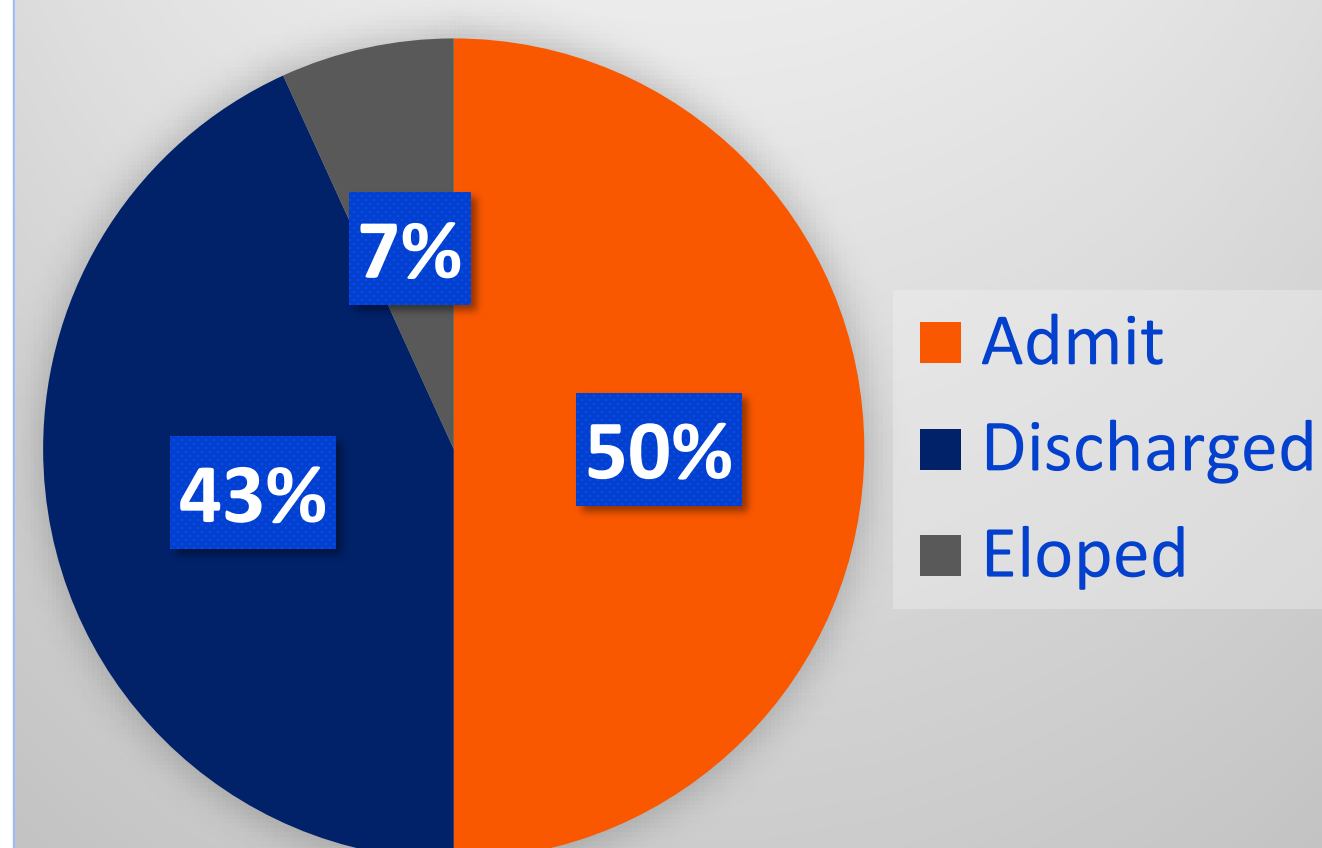
BUMC ED HIV SCREENING



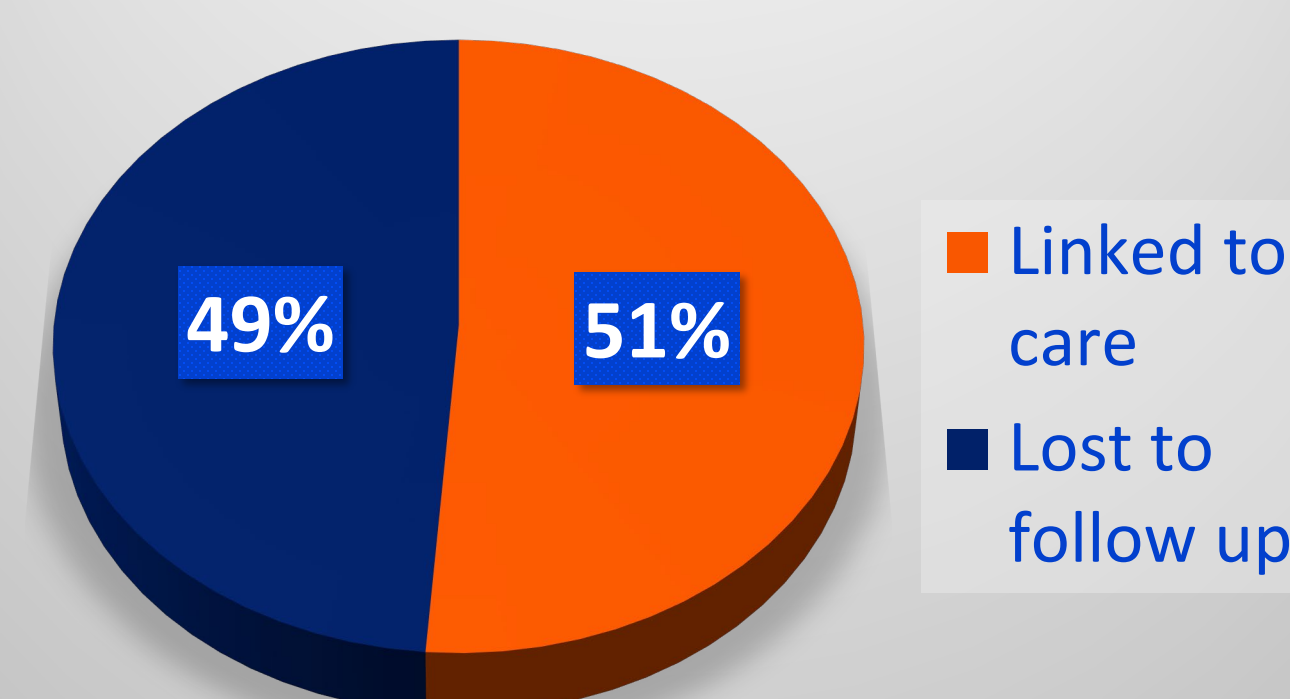
New HIV Demographics



New HIV-Dispositions



New HIV-Linkage to Care



CONCLUSIONS

- We were able to successfully test almost 8000 patients through our ED in 6 months (16%).
- 44 new diagnoses (>7/month) confirm previous research that a large number of patients are living with undiagnosed HIV.
- Demographic data shows the majority of new HIV-positive individuals in our community are black.
- Multiple new diagnoses were made on patients requiring admission for late-stage HIV/AIDS presentations. 3 of these patients subsequently died.
- Diagnosis is important, but linkage to care is the next critical step. Linkage was more challenging than anticipated due to patient-associated factors including homelessness, psychiatric illness, denial, and fear.

DISCUSSION

- The BUMC ED HIV screening program is unique because most ED HIV screening programs are performed at county and state facilities, as opposed to private hospitals.
- While BUMC ED serves a community of patients at higher risk for HIV, we know all EDs serve some percentage of similarly high-risk patients that may also be living with undiagnosed HIV.
- We would like to make our program available to other Emergency departments in the BSW system.
- A potential cluster of black patients living with undiagnosed HIV was discovered. Additional efforts to provide education may be needed.
- With these efforts to educate, diagnose, and link to care, we hope to decrease transmission and further contribute to slowing the HIV epidemic in the communities that our hospitals serve.

Gordon Aalund MD, Jacquelyn LaRussa MD, Morgen Priest RN, Dennis Hamilton, RJ Johnson

Baylor Scott and White Medical Center Grapevine

INTRODUCTION

On December 13, 2022 a Tornado caused loss of power at Baylor Scott & White Medical Center at Grapevine. When power failed, one hospital generator did not automatically switch to emergency power due to a mechanical issue. This combined primary and back up power outage affected all hospital operations.

TIMELINE

- **0900** Power loss from Oncor due to tornado damage
- One of the 750 kW generators did not start due to impact of the storm
- The hospital operated on only partial power from one remaining generator
- **0905** Emergency Operations Plan (EOP) activated
- **0930** Command Center set up
- **0945** Grapevine Fire (GF) surveyed damage to hospital campus
- **1000** RAC notified of divert status
- **1151** Hospital closed
- **1511** Partial power restored
- **2050** Generator repaired
- **2054** Hospital issued all clear



INITIAL IDENTIFIED PROBLEMS

- No power to the Command Center
- Radios were deployed but were not previously trained on regarding channel usage
- Red emergency phones were functional but needed updated call lists
- Battery-operated systems not charged
- Power Outage Kits (POKs) were not available for all units, especially, clinic locations
- EMS doors initially locked, which required alternate access
- Time for initial damage assessment by GF and delay in all-clear for staff
- No fatalities, 11 injured initially to ED

COMBINED POWER LOSS EFFECTS

- Parts of the hospital had no power because generator was damaged
- Locked entrances and exits, because of lack of badge access (Omniceils)
- The OR with only partial power due to damaged generator
- There was no power to computers or phones
- There was no lighting in patient rooms, only from hallways and windows
- City power was restored but initially unstable and no back up generator
- Water supply shut down lab

LESSONS LEARNED

- Combined power loss presented unexpected complications
- Portable power and lighting for areas of complete power loss
- Skeleton key for badge doors readily available 24/7 (Omniceils, security)
- Emergency back up power plugs (red) for clinical workstations
- Radios and POKs to all areas
- After-Action Report/Improvement Plan was evaluated at the next Disaster Preparedness Meeting and all identified gaps were addressed

IMPROVING TRAUMA CARE IN A SUBURBAN LEVEL 3 TRAUMA CENTER

Bert Ridings BSN, TCRN, EMT-P; Jeremy Zobell BSN, MSML; Tiffany Bodetti, BSN, Mindy Nelson, Med, ATC, LAT; Amy Lary; Terra Rippy BSN, EMT-P; Kim Withrow, BSN; Joshua Mark MD, Eric Daniel, MD, FACEP

INTRODUCTION

BSW Lake Pointe is designated as a Level 3 Trauma Center located in a suburb of the DFW Metroplex. We currently see on average 2900 patients/month with approximately 83 of those being trauma patients. We experienced a 16% increase in overall ED volume from 2021 to 2022. Prior to February 2022 the length of stay for our trauma patients requiring transfer averaged 286 mins (arrival to departure/leaving the facility) with a standard goal of 120 mins. In February 2022 with the hiring of a new Trauma Program Manager we started a PI project to improve the length of stay for our trauma patients requiring transfer to a higher level of care.

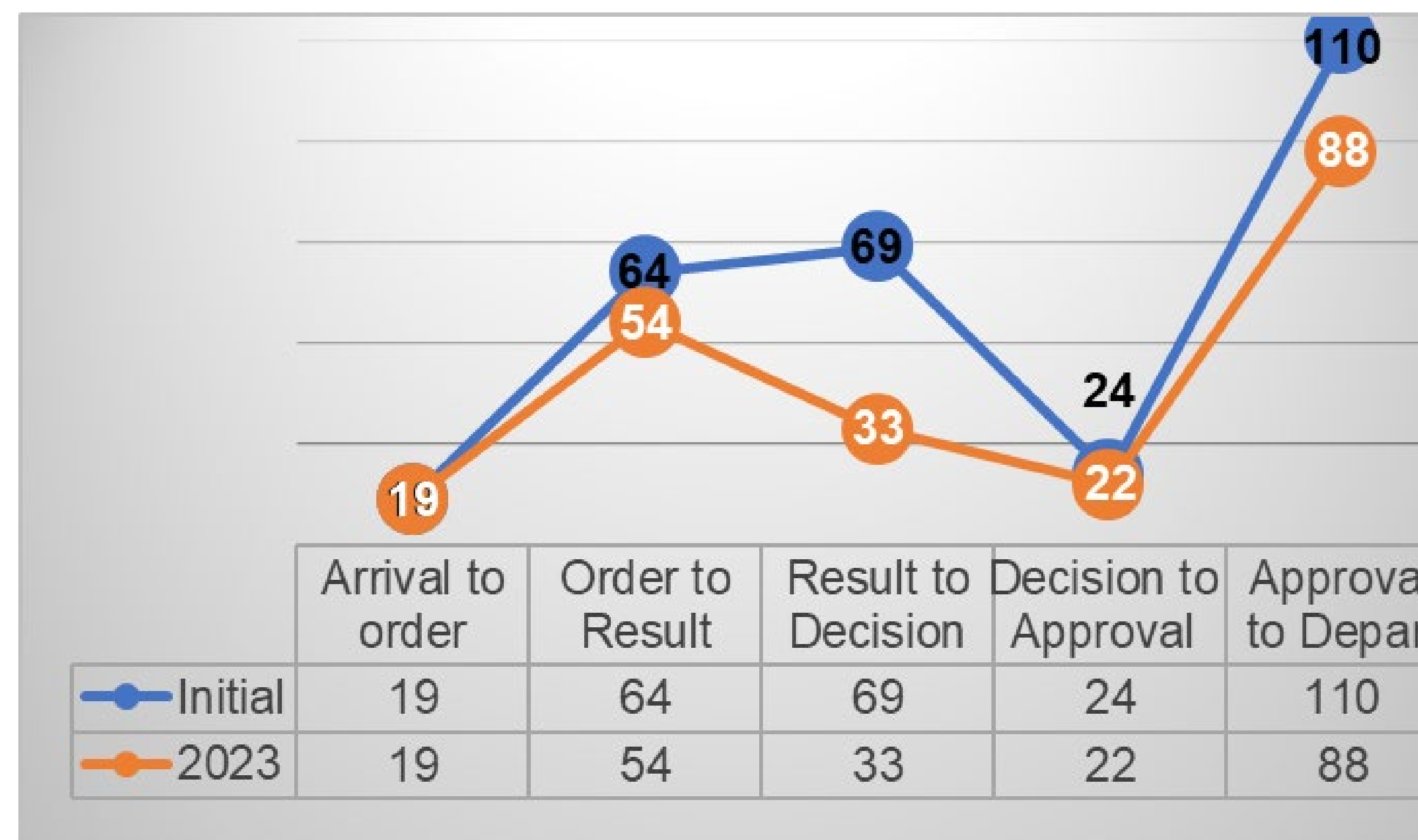
INTERVENTIONS

- Simplify/Update activation criteria to increase compliance
- Nursing education on trauma process to decrease time to lab and radiology Including RN transport to CT
- Implementation of a hospital wide trauma activation notification system to ensure necessary parties arrive in a timely manner
- Breakdown of trauma transfers with assigned responsibility
- Triage and transfer policy which clearly identifies injuries requiring transfer to a higher level of care
- Involving ED providers to start the transfer process as early as possible
- Opening contracts with multiple EMS providers to help ensure timely transfer
- Working with regional facilities to streamline transfer process and present data to EMS from a regional level
- Adding additional EMS crews including those stationed regionally to reduce transfer times

INTERVENTIONS

IDEA	Date Started	Date Completed
Review causes of trauma transfer delays with Physicians	February 22	On-going
Track and trend delays for transfer and report monthly	April 22	On-going
Breakdown times to determine causes of Delay	April 22	On-going
Meet with EMS Provider to review trauma transport processes	May 22	May 22
Contract new EMS Providers	June 22	August 22

RESULTS



RESULTS

- Prior to PI project TAT- 286 minutes
- 2023 Jan-April TAT- 216 minutes
- Arrival to Departure improvement of 70 mins
- Arrival to Transfer initiation improvement of 46 mins

CONCLUSION

Caring for trauma patients requires multifaceted processes that involve many people from multiple departments. We have improved our arrival to departure times for our trauma patients requiring transfer by a total of 70 minutes with 46 minutes being improvement in our own internal processes. Breaking down the components of care for trauma patients helps to assign responsibility for delay. It is also a great tool to help programs identify individual contributors of delay instead of attempting to solve the problem as a whole. We have been able to improve our transfer approval to departure 22 minutes by collaborating with regional facilities, existing EMS agencies, and expanding to add new EMS agencies to meet growing transfer needs. This remains our biggest opportunity for improvement and will continue to be a focus. Collaboration between staff and providers from multiple hospital departments, receiving facilities and EMS helps identify and improve delays to provide the best care to our trauma patients.