# **Barriers to Heart Safe Schools: AED Needs Assessment in Southeastern Pennsylvania Public Schools**

# Children's Hospital of Philadelphia®

Youth Heart Watch An affiliate of Project ADAM<sup>®</sup>

# Background

- Sudden cardiac arrest (SCA) is the leading cause of death on school campuses, comprising 75% of all young athlete-related deaths.
- 20% of the population is found in a school on any given school day.
- 1 in 70 schools will have a SCA annually.
- Every minute of delay following SCA decreases the chance of survival by 10%.
- Best chance of SCA survival is prompt recognition and a planned emergency response with automated external defibrillator (AED) use.
- Working AEDs and a cardiac emergency response plan (CERP) at a school can increase survival from 10% to >85%.
- Youth Heart Watch, an affiliate of Project ADAM<sup>®</sup> works to prevent sudden cardiac death (SCD) among youth in schools and other community sites.

# **Potential Barriers to Heart Safe Schools**

Schools have noted limitations in

- Time for development of program
- Time for staff training
- Interest of staff
- Financial resources for equipment and participants' time
- Knowledge of SCA and prevention programs
- Liability

# **Study Aims**

- **Aim 1:** Perform an AED school needs assessment in Southeastern Pennsylvania counties (Bucks, Chester, Delaware, and Montgomery), identifying schools needing AED units, staff CPR/AED training, and CERP development.
- Aim 2: Evaluate impact of Median Household Income in Counties and School Districts to determine correlation of number of AEDs and Income.

- AEC Sou
- Che sur\
- Data
- Mec
- U.S
- Free ranç
- stat
- Sta incc corr
- 600
- 500
- 400
- 300
- 200
- 100
- 0
- 289/
- The
- Sch mea
- Med

#### Brady Kwong, BA, Lindsey Flanagan, MPH, Abenezer Lemma, BS(c), Michiyah Collins, BA, Mariam Sy, Justine Shults, PhD, Victoria L. Vetter, MD, MPH

Methods	
D school needs assessment was performed in otheastern Pennsylvania counties (Bucks, ester, Delaware, and Montgomery) by phone veys to determine CPR/AED information. a was entered in a REDCap database. dian Household Incomes obtained from the 2018 . Census database by school zip code. quency data (mean(SD), median, IQR25-IQR75, ge) were determined with comparisons using istical analysis in Stata 17. tistical correlation of AEDs and household ome of each district calculated using Spearman's relation.	1.95 1.9 1.85 1.8 1.75 1.72 1.7 1.65 1.6 Bucks
Results	Delaware
Schools Total AED	
AEDs in Schools 519	Chester
288	Bucks 700
151 440	Correlation of
	4 -
Bucks chester Delaware Montgoment rotal N/415 (70%) schools responded.	e Number of AEDs 2 3 3
ere were a total of 519 AEDs across 288 schools nools had at least 1 AED, range: 1-9 units; dian:1 AED/school, (IQR 25-75=1,2) mean 1.8(1.3) dian income across the counties was \$80.439	

(IQR 25-75=62,277-97,118); mean: \$83,884(22,036).



#### Results



# Mean AEDs with Median Household Income by District



#### Conclusions

- Schools had at least 1 AED, but 1 is needed per 500 students and per building. 1 unit may not be sufficient for a specific school population or geography.
- While most schools have 1-2 AEDs,~ 9% have >3 AEDs.
- Our data suggest that AEDs/school are associated with the Median Household Income by District indicating that wealthier districts are likely to have more AEDs. District budgets often depend on property taxes in addition to state funding.
- Often, the district office/administrative expectations regarding the schools' AED programs and the actual onsite practices were not aligned.
- Most schools did not have a specific Cardiac Emergency Response Plan.
- Presence of an AED alone does not translate to emergency staff preparedness to respond effectively to a cardiac arrest.
- Schools need a developed CERP with SCD drills and training to effectively respond to cardiac arrests.
- The Project ADAM Heart Safe School Program can provide the platform for these schools.

## Acknowledgements

#### Supported in part by:

- The Children's Hospital of Philadelphia Cardiac Center
- PURM at UPenn

## **Contact Information**

Brady Kwong, BA **Clinical Research Coordinator** Youth Heart Watch at CHOP. kwongb@chop.edu