



SB1135: CALIFORNIA YOUTH HEART SCREENING PILOT EXPANDED BACKGROUND

The [Eric Paredes Sudden Cardiac Arrest Prevention Act](#) (Sections 33479–33479.9 of the Education Code) has greatly improved awareness of warning signs, risk factors and what to do in a cardiac emergency in school athletic activities. Since its drafting more than five years ago, the American Academy of Pediatrics (AAP) has updated its [guidelines](#) to combat Sudden Death in the Young (SDY) with a recommendation that all youth be regularly screened for heart issues regardless of their level of physical activity or participation in sports programs.

Sudden cardiac death risk assessment is being added to the [Bright Futures Periodicity Schedule](#) (see attached for declaration)—the first time the schedule has addressed preventative care to identify heart abnormalities that can lead to SCA. A heart screening is now recommended every three years, especially upon entry to middle, junior and high school, with the onus put on practitioners to dialogue with patients about warning signs and risk factors. (On a side note, Bright Futures does indicate a pulse oximetry test at birth to screen for congenital heart defects, which, while a meaningful addition to preventative care, is not a test that identifies heart conditions that put youth at risk for SCA.)

While the AAP SDY guidelines are a step forward in preventing needless deaths, the recommendations indicate electrocardiogram (ECG) testing to evaluate presenting symptoms or risk factors. Studies show that about half of youth stricken by sudden cardiac arrest had such warning signs—**which means that half of youth stricken are asymptomatic and would therefore not be afforded ECG testing, thus missing a potential cardiac abnormality**. This is significant, given on average 1 in 300 youth is living with a heart condition that puts them at risk, and ECG testing can identify up to 70% of such conditions. [Studies](#) repeatedly show that ECG in addition to physical and history (P&H) find significantly more youth at risk than P&H alone.

P&H is current protocol in standard exams, which have been shown to miss up to 90% of youth at risk. This is likely attributed to the fact that the AAP recognized in their 2012 policy statement on [Pediatric Sudden Cardiac Arrest](#) that at-risk signals for SCA are often missed by patients and medical personnel alike. So, a major factor in preventing SCA and sudden death in youth is educating young people and their parents about warning signs and risk factors to affect a lifelong ability to advocate for themselves.

According to the CDC's [WSCC Model](#), (Whole School, Whole Community, Whole Child)—the framework for addressing health in schools—education, public health and school health sectors must have greater alignment and collaboration, in the areas of health education, health services, community involvement and family engagement, and above all, engaging students as active participants in their learning and health. The model asserts that schools play a critical role in promoting the health and safety of young people and establishing lifelong behavior, which is why this bill seeks to collaborate with schools to advance this public health initiative, as well as empower the next generation of life savers to eradicate SCA in their lifetime.

ECG screening as part of youth preventative care has become a national movement, most recently evidenced by President Biden signing into the 2022 National Defense Appropriations Act ECG pilot programs for incoming cadets at military academies. (See attached)



Likewise, the Cardiac Safety Research Consortium is conducting the *Prevention of Sudden Cardiac Death in the Young (SCDY) National Cardiac Screening Warehouse Pilot Study* to address this unmet public health need by assessing preventative ECG evaluation of youth. Formalizing a state pilot to support the national effort will bolster our ability to raise funds and ensure that California's diverse population can be adequately reached and represented in the national database. It will also allow the data collection to expand to other foundations that operate in other areas of the state.

Globally, a January 2022 [study](#) out of Japan recommends a school-based screening program for early identification of cardiac abnormalities, and a February 2022 [study](#) out of Switzerland recommends standardized ECG testing of youth. Famously, a 1982 Italian [mandate](#) for ECG screening in high school athletes led to a ~90% reduction in sudden cardiac deaths.

While this public health initiative to avert potential tragedy that families never truly recover from is the primary goal, preventative diagnosis can also avoid associated costs:

- Resuscitation but the youth is lost (Eric Paredes' ER bill was \$15,000 through he arrived DOA)
- Resuscitation and the youth survives but is ultimately lost (Travis Roy's cost was \$300,000)
- Resuscitation and the youth survives but needs long-term care due to disability caused by SCA (Abel Limones, with an estimated lifetime care of \$15,657,279 due to brain damage)
- Costs associated with [after-care](#) for families who have lost a child
- Heart conditions unidentified in youth that cause SCA as an adult (which is why SCA is a leading cause of death in the US), which affects the household income of the victim's families.

The identification of youth at risk can provide benefits of avoided costs to the healthcare system from tens of thousands of dollars to millions of dollars per individual in addition to the long-term emotional trauma to the surviving family members, friends, and community. Each life saved from avoided health effects under environmental regulations is valued at \$10 million.

National Emergency Medical Services Information System data estimates [23,000](#) youth are lost to sudden cardiac arrest each year. As a point of comparison, the American Cancer Society reports an estimated [540](#) cancer deaths in the 15–19 age group annually, with the American Society of Clinical Oncology estimating [1,050](#) cancer deaths in children under 15. The National Safety Council reports [7,300](#) motor vehicle fatalities in 2019 in youth under 25. The CDC reports [6,643](#) suicides in the 10 – 24 age group and in a 2016 study [650+](#) opioid deaths in children and adolescents age 0 to 19. When this data is juxtaposed, clearly, sudden cardiac arrest warrants priority consideration. And unlike the majority of tragedies that befall our youth (accidents, suicide, homicide, cancer and heart conditions are the leading causes of death), SCA is arguably the one that can easily and economically be *prevented*—and that's through early detection heart screening.

In summary, the addition of Section 33480 to the above noted Education Code augments the current health and safety collaboration with school-based populations through a pilot that provides life-saving screening services on a voluntary basis to California youth while collecting data that will inform future consideration of sudden cardiac arrest prevention given evolving recommendations in youth heart care and the critical need to address an unmet public health issue.