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CAL/AAEM Announcement:

CAL/AAEM's Executive Committee appointed in April 2002 its Immediate Past President A. Antoine Kazzi, MD, FAAEM to the position of Executive Director, replacing Dr. Boris Lubavin who had reached the end of his term.

CAL/AAEM and AAEM wish to thank Dr. Lubavin for his outstanding service to CAL/AAEM during his 2 year term. Dr. Lubavin served in that role while training as a resident in Emergency Medicine at UC Irvine.

Holding On To Your Kids: A Report on Car Seat Safety in San Francisco

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On January 1, 2002, California was the first state to extend the mandatory use of car seats to children up to age six, or weighing up to 60 lbs.¹ Previous regulation stopped at age four, or 40 lbs, leaving a gap of "forgotten children," those too big for rear-facing or forward-facing car seats, yet too small for the vehicle's standard lap and shoulder belts.^{1,2} Many parents and caregivers are unaware that a vehicle's standard lap and shoulder belts are designed for persons older than eight years of age or weighing more than 80 lbs.¹ Booster seats provide protection by lifting the child up so that the safety belt fits correctly and prevents the child from being propelled during a car crash.^{1,3,4}

Motor vehicle crashes remain the leading cause of death for children 1-14 years of age.⁵⁻⁷ Riding unrestrained is the single greatest risk factor for death and injury among child motor vehicle occupants. Unrestrained children in vehicles are *twice* as likely to die or be injured as those who are restrained.⁸⁻¹¹ Despite the proven effectiveness of car seats and booster seats in saving lives, their use is far from universal, particularly as children grow older.¹²

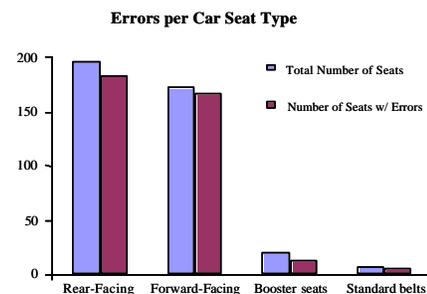


Figure 1. Car seat errors in installation and use.

Even though more people are buckling up their children in car seats, as well as booster seats, errors in their installation and positioning can cause them to be ineffective in preventing injuries or death.^{13,14} To look at this problem, the San Francisco Injury Center, in partnership with the San Francisco Safe Kids Coalition and the San Francisco Police Department, completed a series of car seat safety checks throughout the city. Of the 396 rear-facing, forward-facing, and booster car seats checked by certified technicians, 93% were either misused or incorrectly installed – a percentage much higher than the national average of 85%.^{7,14-16} See Figure 1. Of the 93% misused or incorrectly installed car seats, we found an average of four errors per seat. With rear-facing and forward-facing car seats, technicians found that a majority of the errors occurred with the car seat harness,

harness clips, or seat belts. Of the possible errors, the two most common problems encountered were: 1) that the vehicle safety belt did not hold the car seat tightly in the vehicle, and 2) that the harness straps were not snug against the child. In a car crash, installation errors like these could result in the child or the seat acting as projectiles.¹⁵ These findings were similar to those from other car seat safety checks conducted across the country. See Table 1.

Possible Errors	Types of Car Seats			
	RF	FF	BS	SB
Child w/in rec'd weight/height range	X	X	X	X
Lap/shoulder belt correctly positioned	X	X	X	X
Safety belt holding seat/child tightly in vehicle	X	X	X	X
Safety belt routed correctly and locked	X	X	X	
Locking clip used correctly	X	X	X	
Harness straps at or below shoulders (top slots for convertible seats)	X	X		
Harness attached securely and threaded correctly	X	X		
Harness straps snug	X	X		
Harness retainer clip used, at armpit level, and threaded correctly	X	X		
Seat facing appropriate direction	X	X		
Seat not in front of airbag and reclined no more than 45°	X			
Infant's head doesn't flop forwards	X			
Tether used correctly		X		
Seat upright		X		

Table 1. All possible errors in car seat installation and use.

In addition to properly restraining a child, location in the car is also important for protecting children. Children are safest when riding in the middle, rear seat.^{7,17} While 89% of the car seats checked in San Francisco were placed in the back seat, only 44.9% were correctly positioned in the middle, rear seat.

Furthermore, we looked at the type of vehicle (e.g., sedan vs. SUV vs. pickup), as well as age, and their relationship to car seat misuse. There was no statistical difference in the number of errors by type of vehicle. However, older cars statistically had more errors in car seat installation and use than newer cars. This may be related to the design of the newer cars and their ability to accommodate child safety seats.

The single most important step to protecting children in cars is to buckle them up properly, every time. The new California law mandates this behavior by requiring the use of booster seats for the "6 or 60" group of children. The universal recommendation for the use of booster seats is for children who weigh between 40-80 lbs and are at least 35" tall (typically between the ages of four to eight years). Violation of the new law results in a fine of \$270.¹⁶

There are two types of car booster seats available: The **high-back booster seat**, which protects the child's head and neck and should be used if the car's seat back is lower than the child's ears, and the **platform booster seat**, which should be used if the car's seat back is higher than the child's ears. Although there is a greater chance of error with the more complicated rear-facing and forward-facing car seats, the simpler booster seats, as well as the vehicle's safety belt, can also be misused.

The following are some guidelines for parents and other caregivers on use of booster seats:

- All children 12 and under should ride in the back seat. This alone reduces the risk of fatal injury by 30%.
- Children ages four to eight (about 40 to 80 pounds and at least 35" tall) should be in a booster seat, with lap and shoulder belts, every time they ride. Adult safety belts alone do not adequately protect children this size from injury in a crash.
- The shoulder belt should be snug across the center of the shoulder, not across the neck or face.
- The lap belt should be low over the upper thighs, not riding up on the abdomen.
- Do not let children put shoulder belts under their arms or behind their backs. Kids who misuse belts this way receive no upper body protection.
- If your child is over 40 pounds and you only have lap belts in the back seat, you may:
 - Buy a special car seat that is designed for kids who weigh more than 40 pounds;
 - Correctly restrain your child in a booster seat in the front seat using a lap/shoulder belt and move the front seat as far back as possible;
 - Or, contact an auto dealership about installing shoulder belts.
- Read your booster seat instruction manual and vehicle owner's manual carefully for proper installation.
- Like other consumer products, car seats are occasionally recalled. Send in your car seat registration card to be sure you'll be notified. You can also call the National Highway Traffic Safety Administration's Auto Safety Hotline, (888) 327-4236, for updated product recall information.
- Replace any car seat that has been involved in a crash.

For more information about the new California law or child passenger safety, visit the CA Vehicle Occupant Safety Program at <http://www.dhs.ca.gov/epic/html/vosp.html> or the National SAFE KIDS Campaign website at www.safekids.org.

This information was provided by the San Francisco Injury Center, <http://www.surgery.ucsf.edu/sfic/>. The San Francisco Injury Center is funded by the Centers for Disease Control

and Prevention to conduct research in injury control and prevention. Funding for the car seat checks conducted by the San Francisco Police Department was provided by a grant from the California Office of Traffic Safety, through the Business, Transportation, and Housing Agency.

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EMS COLUMN

Howard Michaels, MD

Capnography is the EMS buzzword of the month. New ACLS recommendations make end tidal CO₂ measurement by some method a strong requirement for quality care. Colorimetric devices, such as Nelcor's Easy Cap, are losing favor to sophisticated electronic monitors both in the field and in the ER, or and ICU. Older ER docs and paramedics may not be familiar with all aspects of CO₂ measurement and can find a wealth of information on the free website: capnography.com, an intensive labor of love by the author who has filled the site with excellent illustrations and explanations. The true explanations of end tidal CO₂ measurement lie in the mystery of ATP production which harkens back to the "Krebs" cycle.

EMS city agencies are in line for a portion of the \$3.5 billion Federal dollars earmarked for Homeland Security. These monies are available by grant request from your State by MMRS cities. The Feds have allocated 80% of the money for the cities with only 20% slated to go to the States. While the money is a Federal entitlement, this will result in a turf war, so I advise all involved cities to aggressively stake their claim for this money as soon as possible.

At the last AAEM meeting in San Francisco, an excellent collection of speakers provided a top-notch meeting. And the price was right, and fair.

ED overcrowding is a constant concern and diversions decrease the quality and availability of care. In Las Vegas recently, the local news broadcast which hospitals were on diversion at the time of the news and also listed those important conditions (chest pain, stroke syndromes, respiratory problems), that could not wait, while advising those with minor problems to seek out their MDs or other urgent care facilities. A brilliant solution.