

THE ASSOCIATION

Indiana Association of Certified Accident Investigators
www.iacai.com



Death Notification & Law Enforcement

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I can think of few other responsibilities in the business of law enforcement that is more uncomfortable than doing a death notification. As a crash reconstructionist, I have on occasion, been asked to accompany the Coroner or chaplain to a residence to make notification following a fatal traffic accident. No matter how long you've been in the business of crash investigation, I don't think it ever gets any easier. The look you get when family members answer the door, the uncomfortable, awkward silence just before you break the news. What do you say? How do I tell them that their loved one has just been killed? Do I just blurt it out, without thought or emotion?

First of all, just as in all other phases of crash investigation, its always important to gather up a game plan before making a move. Who's going with you, what information do you know? What information don't you know? Do you have the right person identified?

Secondly, when making notification, its important to have a uniformed officer pre-

sent. Professionalism is a must, beginning with the look of professionalism.

Whether a family member answers the door or meets you in the yard, a professional demeanor must be observed.

This is not to mean that you should observe the "Jack Webb of Dragnet fame" approach, but rather, control and compassion. Control in the form of seeking out a quiet, comfortable location to talk, and compassion in the form of choosing the best method of relaying the information you have and in a manner in which shows caring and concern. Its bad enough for a family or family member to hear, "Mrs. Jones, your son Bill is dead, killed in a traffic crash. Do you have any questions?," in a dead-pan or sarcastic voice. Its worse when the officer making the notification acts distant or detached, or attempts to minimize the reactions of the family. Emotions can run the gambit from sadness, crying, to anger and rage. Keep in mind that, while it appears to be directed at you, it's not. You're the messenger, and sometimes the messenger

gets shot. It's not personal.

Don't be afraid to explain what you do know, and admit what you don't know. The importance is in the truthfulness. If the family believes you are attempting to deceive them, you've lost them and their trust, and have soiled the reputation of the department, intentional or not. The officer should be understanding, show compassion and be honest. Don't operate on a time-table, acting as if you need to leave. Offering to assist in the way of making a telephone call or additional notification goes a long way. The family will be much more appreciative for the extra effort. As a crash investigator, you can provide some insight that perhaps the average officer can't in terms of what happened.

Obviously, this article cannot begin to cover all the 'what-ifs' that may occur during a notification. The important thing to remember is to remain attentive, compassionate, and helpful. Provide what service your department expects of you and all of the service that your department permits of you.

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From All of Us at IACAI, Happy Holidays!



IACAI Hosts Momentum Refresher Class at Notre Dame University

On September 20, the Indiana Association of Certified Accident Investigators held a Momentum Refresher class at the beautiful campus of Notre Dame University, South Bend. Instructed by Mike Ditallo, Dynamic Safety, LLC, and a Northwestern University Center for Public Safety Instructor, the class covered such topics as Vehicle Behavior (Force & Rotation), how collision forces influence vehicle behavior; ways to determine after impact drag factors; and a review of the Conservation of Linear Momentum. Ditallo cautioned attendees about using accurate vehicle data when attempting to determine A & B values for crush/energy calculations. Most of the data that is currently available uses information from vehicles tested

nearly 20 years ago. Because there have been significant changes in the structure and material strength of the vehicles, it is not wise to use these charts without first verifying the information that is given. One way to do this is to obtain crash test information through web sites such as the NHTSA website or www.kevaeng.com, which can provide accurate vehicle data. Proper methods for obtaining crush measurements were also covered.

Ditallo spoke about the importance of considering restitution or elastic potential energy when figuring crush damage.

Discussion was also held on the topic of determine Impulse data, or delta-V. As some of the older guys would attest, this was not a hot topic several years ago, but recently

has been gaining more and more interest in the crash investigation world.

Handouts including Northwestern University information and information on accessing NUCPS's online interface (<http://cps.northwestern.edu> - click on "course catalog", then "accident investigation"), where an investigator can go and review sample momentum problems and test your skills.

After the class was over, attendees were treated to a tour of the Notre Dame University campus.

Whether an experienced investigator or just fresh from school, this class provided an excellent refresher on the skills each investigator should have when working motor vehicle crashes.

Thanks to Mike Ditallo for his time and efforts.

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NUCPS 2007 Training Info:

Accident Investigation I March 5 - 16, 2007	NUCPS Campus \$1150
Accident Investigation II March 19 - 30, 2007	NUCPS Campus \$1150
Basic Physics & Mathematics April 2 - 7, 2007	NUCPS Campus \$875
Vehicle Dynamics April 9 - 13, 2007	NUCPS Campus \$875
Traffic Accident Recon I April 16 - 27, 2007	NUCPS Campus \$1250
Traffic Accident Recon II April 30 - May 4, 2007	NUCPS Campus \$1000
TAR Refresher June 18 - 19, 2007	NUCPS Campus \$400

Kosciusko County Hosts CDR Class

The Kosciusko County Sheriff's Department recently hosted a Crash Data Retrieval Technician & Analyst Course in Warsaw October 9-12, 2006.

The course was well-attended by representatives from the insurance industry, law enforcement and private industry, some traveling as far away as New Mexico just to attend.

The class was instructed by Brad Muir & Rusty Haight, of the Collision Safety Institute. Muir, of the Ontario Provincial Police Dept., taught the first two days of class, the first of which covered the CDR Technician's certification course. Haight, who taught the last two days of the course, is best known as the 'human crash test dummy.' He holds the Guinness Book of World Records for the most human crash tests, with over 1000 crash tests to his credit, 101 of which involved airbag deployment.

The CDR Technician's course covered the basics of data collection of the ACM (Airbag Control Module), including the process and function of the CDR system, the CDR hardware, the software operation and how to preserve data. Legal considerations for the information obtained through the ACM was also addressed. One of the first things students learned that day was the fact that each auto manufacturer has a different name for their

ACM. Ford refers to their units as "Restraint Control Modules" or RCM's, and GM refers to their modules as SDM's or "Sensing & Diagnostic Modules." The term "EDR" or "Event Data Recorder" is actually a function within the ACM, which has the conditional capacity to save certain crash parameters after safety function(s) are completed.

ACMs have the capacity to record delta V changes, much like an accelerometer does. Formulas for interpreting those changes are used to determine vehicle speeds. Those attending also learned that not only are each manufacturer's ACM modules different in what data can be retrieved, but ACM's in each manufacturer car models are different as well. Additionally, these modules are not interchangeable from one line to another. Deployment events and non-deployment events were also discussed, with the differences between the two explained. Finally, proper recovery techniques were discussed, including proper downloading techniques and options were identified.

Days 2-4 were used to teach the CDR Analyst course. The best way to describe this course is perhaps "intense." The course reiterated the legal considerations involved in collecting this type of data, as well as the proper methods of interpreting the data. Much time was spent covering the

Ford and GM families of ACMs and what each 'family' can provide to the investigator. Sample CDR downloads were provided for analysis. The handouts and course CD were very beneficial, and videos of crash testing and airbag deployment helped to explain what the ACM detects.

As one might expect, there is a course test that follows; the test is not one to be taken lightly, as some discovered that day.

All and all, the course was well worth the migraines it caused, and should be a must for all those who are responsible for crash investigation. If I gained nothing else out of the course, it helped explain the process used to determine when the airbag should and should not go off.

Although not all vehicles can be downloaded at present, more manufacturers are expected in the near future. Look for these to be announced at the next CDR User's Conference, which is scheduled for early next year in Houston, TX.

Thanks to Chris McKeand and the Kosciusko County Sheriff's Dept for hosting this course.

For more information on CDRs or CDR training, please visit www.collisionsafety.net

- David McElhaney, IACAI Secretary





To make a
donation to
Indiana COPS,
send to:
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PO Box 556
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From the President: **How Fast Can You Die?**

How many times have you asked yourself, "How long does it take to die in a car crash?" I sent Dave an email the other day and told him I could not think of anything to write about it the newsletter. I was setting here this morning working on my computer and it came across my mind as I was working on a crash that could be a fatality, just how long does it take to die in a crash? I remembered something I got many years ago that read ***It Doesn't Take Long To Die*** and I thought this would be good for our members, especially if any are teaching or talking to kids in school about driving or that do drive. So, I got out my little word program and I decided to send this to Dave and hope it helps someone somewhere. Here it is, "***It Doesn't Take Long To Die.***"

It Doesn't Take Long To Die

How fast can you die in a speeding car? The Ohio Highway Safety Department released this information, prepared at the Madigan Army Hospital, Tacoma, Washington, answering that question in an effort to get motorists to slow down during the Memorial Day weekend. This is a slow-motion, split-second reconstruction of what happens when a car, traveling at 55 miles per hour, crashes into a solid, immovable tree.

1/10 Second:

The front bumper and chrome 'frosting' of the grillwork collapse. Slivers of steel penetrate the tree to a depth of 1 1/2 inches or more.

2/10 Second:

The hood crumples as it rises,

smashing into the windshield. Spinning rear wheels leave the ground. The fender comes in contact with the tree, forcing the rear parts over the front doors. The heavy structural members of the car begin to act as a brake on the terrific forward momentum on the 2 1/2 ton car. But your body continues to move forward at the vehicle's original speed (20 times the normal force of gravity, your body weighs 3,200 lbs). Your legs, ramrod straight, snap at the knee joints.

3/10 Second:

Your body is now off the seat, torso upright, broken knees pressing against the dashboard. The plastic and steel frame of the steering wheel begins to bend under your terrible death grip. Your head is now near the sun visor; your chest is above the steering column.

4/10 Second:

The car's front 24 inches have been demolished, but the rear end is still traveling at an estimated speed of 35 mph. Your body is still traveling 55 mph. The half-ton motor crunches into the tree. The rear of the car, like a bucking horse, rises high enough to scrape bark off low branches.

5/10 Second:

Your frozen hands bend the steering column into an almost vertical position. The force of gravity impales you on the steering shaft. Jagged steel punctures lung and intercostal arteries. Blood spurts into your lungs.

6/10 Second:

Your feet are ripped from your tightly laced shoes. The brake pedal shears off at the floor

board. The chassis bends in the middle, shearing body bolts. Your head smashes into the windshield. The rear of the car begins its downward fall, spinning wheels digging into the ground.

7/10 Second:

The entire, writhing body of the car is forced out of shape. Hinges tear, doors spring open. In the last convulsion, the seat rams forward, pinning you against the cruel steel of the steering shaft. Blood leaps from your mouth; shock has frozen your heart.

You Are Now Dead.

Time elapsed, 7/10 of a second.

This has made an impact on me as I speak to the kids that drive and in drivers education class, also. As you can see, 7/10 of a second is all it takes to die. That is about the blink of an eye. As for me, I want to live a little bit longer.

Hope to see you at the November Seminar being held at Greenwood. Have a safe and happy day!

Don Harris, President, IACAI

IACAI Skill Review

This edition of the IACAI Skill Review has to do with momentum & energy. Good luck!

1. A 2500 lb vehicle slid 150 feet while experiencing a drag factor of .70. How much work was done while the vehicle was sliding?

2. Given the answer to question #1, what was the velocity of V1 at first brake?

3. V1, a 3500# car, is traveling EB on Center Street. V2, a 2500# car, is traveling NB on Meridian Street. V2 disregards the stop sign, striking V1. Both vehicles depart in a north easterly direction; V1 at 40 degrees, V2 at 25 degrees, with a combined post impact speed of 30 feet per second. Using a vector diagram, answer the following questions:
 - 3a. What is the amount of post impact energy developed by V1 & V2?
 - 3b. How fast was V1 traveling at impact?
 - 3c. How fast was V2 traveling at impact?

4. V1 is traveling EB on CR 450 N. V2 is traveling WB on CR 450 N. V2 crosses the center line, striking V1 head-on. Both vehicles remain together following impact. Using the given information, answer the following questions:

V1 Wgt: 3500 lbs	V2 Wgt: 3000 lbs
V: 30 fps	V: 40 fps

5. V1, a 4000# car, strikes the rear of 3000# V2 that was initially parked. Both vehicles move a distance of 50 feet post impact. Tests following impact found a surface drag factor of .4. The damage to V1 was similar to striking an immovable barrier at 25 fps. The damage to V2 was similar to striking an immovable barrier at 30 fps.
 - 5a. How much energy was dissipated while the vehicles were sliding together after impact?
 - 5b. How much energy was dissipated in doing damage to V1?
 - 5c. How much energy did V1 possess at impact?
 - 5d. What is the velocity of V1 at impact?

Last Issue's Answers to the IACAI Skill Review:

1. (E) All of The Above
2. (D) Four
3. False
4. True
5. False
6. (B) Perspective Grid Technique

(Answers in the next issue of the Association)



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Seminar Announcement

The Indiana Association of Certified Accident Investigators will be sponsoring a seminar on

“Legal Update” & "Driver Identification Through Autopsies"

November 29, 2006 0900-1500 hrs

Greenwood Police Training Center

736 Loews Blvd

(Just off US 31, across from Greenwood Mall)

Greenwood, IN

Instructors: Lisa Manning, IPAC (AM course)

Dr. Dean Hawley, IU MED (PM course)

Cost: \$25 for IACAI members; \$50 for non-members

No advanced registration is required.

Registration begins at 08:30am

Please plan to attend!!

Questions regarding this seminar may be directed to IACAI
President Don Harris

email: donhar232@aol.com

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