Auto Insurance Report

The Authority on Insuring Personal and Commercial Vehicles

Vol.11#11/481 **Dec. 15, 2003**

Inside

Someone has to strap themselves in to a car and see how much it hurts to crash, at least if you want to collect data on car crash injuries. Just be glad that you're not that someone. **Page 2**

Someone has to crash cars in order to see how they fare, in order to collect data on how cars respond to external forces. So car, about 5,000 cars have paid the price in the name of science and safety. **Page 3**

The Grapevine

McKinsey and InsureQuote Join Forces To Examine Underwriting Sophistication

At the 2003 Auto Insurance Report National Conference, InsureQuote CEO **Keith Toney** and McKinsey analyst **Paul Mang** started chatting during a coffee break. They kept it up during the next break, and after the meeting was over. They traded business cards and kept talking on the phone, and via email, and in meetings. McKinsey has long worked to identify personal auto insurance pricing sophistication, going so far as to send researchers to insurance

Please see GRAPEVINE on Page 8

Automating "Desktop Reviews" Requires Crashing Into Science

At the core of most contested auto accident injury claims is the question of whether the severity of a collision could likely lead to the claimed injuries. For decades, insurers have either spent heavily on forensic experts, or to keep costs under control used a variety of highly unscientific approaches in an effort to resolve this issue, with decidedly mixed results.

Is it enough to look at the dollar amount of the auto repair? Hardly, though this is a common tool. How about looking at photographs to see how badly damaged a car may have been? Rudimentary, at best. Absent a broken bone, or a ruptured disc, can even a doctor really confirm or deny the existence of a soft tissue injury? Not without challenge.

To be sure, at the most extreme levels these tools can work. If there is no damage to either vehicle in a collision, no evidence of skid marks, and no visible signs of injury to anyone in the vehicles, it might be possible for a jury to discount a million-dollar claim for a soft tissue back injury. Or if an adjuster sees a car with both front and rear ends collapsed into the passenger compartment, it becomes a no-brainer to accept the claim of whiplash.

Alas, the vast majority of claims fall in between

Please see CRASH SCIENCE on Page 2

Who Dunnit? The EDR May Know

In 2004, about 23% of cars on the road in the United States will carry a little box, called an event data recorder (EDR), that can record vital information about the car just before, during, and after a collision. That percentage is growing about 4% a year, according to **Injury Sciences LLC**. Armed with this information, drivers and their insurers will gain a much more accurate picture of what happens in accidents, helping to identify the likelihood of injury, helping courts clarify guilt and comparative negligence.

But the ability to harvest this information, and the

Please see WHO DUNNIT? on Page 6

RISK INFORMATION, INC.
33765 Magellan Isle • Dana Point, CA • 92629 • (949) 443-0330
www.riskinformation.com

Reprinted with Permission

CRASH SCIENCE *Continued from Page 1*

these two extremes. And here, insurers are now reaching out for new tools that could better measure the likelihood of injury. Among these tools, the most newsworthy is the rapid increase in the number of cars on the road with "black box" event data recorders (EDR), which can save information on how fast a car was traveling, the severity of an impact, seat-belt usage in the car, etc. A less futuristic but equally intriguing tool combines information on accident severity (including EDR data, if available) and correlates it to data from real injuries sustained by human subjects who volunteered to crash themselves in a car for science. (See story, page one, on the emergence of EDR data.)

Scott Palmer, president and CEO of Injury Sciences, sits at the nexus of many of these developments. The Texas company was formed by doctors who examined what happened to military pilots in flight. These tests provided live human test subjects for examinations on how acceleration and deceleration impacted the human body. It was just a minor stretch to testing human reactions to abrupt deceleration in auto accidents, something the doctors, and CEO Palmer, were willing to try on their own.

> ***The search is for the elusive "delta v," which is the measure of velocity change that tosses bodies around inside crashing cars.***

(We tried joking about the Texas boys putting the beer on ice, strapping on sensors, and crashing cars into poles for fun. Palmer took offense to the suggestion they drank before crashing cars. It would ruin the protocols, Palmer told us with a straight face. Strapping on the sensors and crashing yourself in a car to see how much it hurt? That part was true.)

Injury Sciences grew out of **Biodynamic Research Corp.** After studying the effects of accelerations on pilots of high performance aircraft, such as when you catapult someone on and off aircraft carrier, the company found that such events were analogous to rear and front end collision. The company also developed an expertise in examining product liability cases.

In the late 1980s the company was retained by several insurers on some auto insurance bodily liability cases to examine the relatedness of soft tissue injury claims to auto collisions. The company was frustrated by the lack of scientifically sound research, so it embarked on research of its own, and began searching for better data. In the past twenty years, the number of measured human tests has jumped from just 60 to more than 1,200. Only a handful were conducted by Injury Sciences itself, as human testing is now taking place at a wide range of organizations around the world.

(This total does not including some 712 tests conducted by one **R. Haight**, with himself as the test subject. While a perversely impressive achievement, Haight's crashes are not sufficiently documented scientifically to be used by Injury Sciences or others.)

Of the useable tests, about 80% use male subjects, and only 20% female. There are also a multitude of tests using human cadavers and even relevant animal tests, those these clearly have less utility than live human test subjects.

Armed with information on real human responses to real collisions at slow speeds, the doctors gave way to the car specialists. A vast array of information is available from private and government agencies and from auto manufacturers about what happens to cars at various collision severities. At such an impact, the air bags will blow. At so much speed, the front end is pushed in by so far. Take a tape measure to a damaged car and, by accurately seeing the response of sheet metal to an impact, you can gauge how much force was created by the collision.

The search is for the elusive but critically important "delta v," which is the measure

Please see CRASH SCIENCE on Page 3

Warning: ***Auto Insurance Report*** is a confidential, copyrighted newsletter for subscribers only. No part of this publication may be reproduced by any form or means, including photocopying or facsimile transmission, without prior permission of the Publisher. For information call (949) 443-0330.

Reprinted with Permission

CRASH SCIENCE *Continued from Page 2*

of velocity change. It is that velocity change that tosses bodies around in cars, snapping heads back and forth and pushing chests against seat belts and steering wheels and heads against dashboards and windshields.

To understand what happened to a vehicle, and what forces the collision may have been exerted on vehicle occupants, Injury Sciences uses three categories of data:

• The damage repair estimate. Looking component by component at the decision to repair or replace, the company takes all repair estimates including supplements and compares that data against crash tests.

• Amount of deformation to the vehicle. In a proprietary software package, the company provides a screen for adjusters to paint in the damage profile. They need to take a tape measure to the car, usually when they go to photograph the car. How much was vehicle shortened by an impact?

• These two pools of information are then compared against known crash tests to establish the upper end of the severity of the collision.

The crash data, much of it at slow speeds – 2.5 to 5 mph – and ranging up to 35 miles an hour, comes from the government, auto makers, the **Insurance Institute for Highway Safety**, *Consumer Reports*, and private organizations such as Injury Sciences, which has crashed a dozen cars on its own for various reasons. There are about 5,000 scientifically measured crashes in the company's database.

At that point, the doctors and the car experts give way to the math wizards. Armed with the "delta v," Injury Sciences can now take the scientific measures of an accident and correlate it with real-world injuries that were identified in human testing. With an impact of X, an injury of Y is likely.

This assessment is only possible on low-speed collisions where human subject testing data is available. (Though we've seen some frightening voluntary crash film, even the Texas testing tournamenteers are not yet willing to subject themselves to a high-speed crash). But a large percentage of auto accidents happen at modest speeds, and an even larger percentage of questionable injury claims come from these low speed crashes. After all, in high speed collisions, injuries are much more understandable.

A safe benchmark for the ability to apply these tools is whether a car's wheels can roll or steer after the collision. If a vehicle is damaged so much that wheels cannot roll or steer, then the human testing does not exist. Among accidents that result in injury claimants, between 30% and 40% of cars can still roll or steer.

[Important caveat: too often it is assumed that high-speed collisions are always severe, and lower-speed collisions are always modest in terms of their ability to cause injury. At the risk of bringing back nightmares of the SAT college entrance exam, consider these two cases:

> ***The goal is to identify whether a claimed injury is within the sphere of probability given the best science on car damage and human reaction to collisions.***

Two cars are driving on the freeway in the same lane, in the same direction. One in the front is going 60 mph, the one behind is going 70 mph. Both drivers are messing around with their radios and paying no attention. The faster car rear-ends the slower one. The difference between these vehicles at the time of collision is 10 mph. To be sure, the driver in the front will feel a nasty bump. But compare this accident to a parking lot accident between two cars traveling at 10 mph when they hit head on. The combined force is 20 mph, much greater than the higher-speed highway accident.]

The goal is to identify whether a claimed injury is within the sphere of probability using

Please see CRASH SCIENCE on Page 4

Warning: ***Auto Insurance Report*** is a confidential, copyrighted newsletter for subscribers only. No part of this publication may be reproduced by any form or means, including photocopying or facsimile transmission, without prior permission of the Publisher. For information call (949) 443-0330.

Reprinted with Permission

CRASH SCIENCE *Continued from Page 3*

the best science on real-world damage assessment information on vehicles, and real-world human subject testing information on injuries from a defined collision. Are such calculations specifically accurate? That is, can a scientist calculate with certainty whether a person is injured, just by referring to measurements of a car's damage and to a database of human subject testing?

The answer is clearly "no." There is no certainty. The human body is highly variable, and just how a person is seated can have a major impact on how they respond to even a modest change in velocity. Anyone who has pulled a back muscle while reaching for a spoon knows this is true. But armed with data that gives reasonable parameters, insurers are better equipped to decide which claims warrant close scrutiny, and which should be promptly resolved.

Palmer reports that Injury Sciences does not provide information for use in court cases. The science is a starting point, and though it follows the protocols used by the forensic experts – engineers and doctors – who have traditionally testified in court, automated systems used across a wide array of cases are not superior to the more specific examination that professionals can bring to a single case.

Other tools being used in the claims process have attracted the attention of the media, regulators, and even the stray legislator. But Injury Sciences does not put a dollar value on a claim, which has been the spark for controversy.

Instead, Injury Sciences take the data input, and reports back to a claims adjuster. They may report, for example, that with an accident at severity X and angle of impact Y, of the 1,200 human subjects that have been experimented on at the same or less severities, 82% did not have an injury, and 18% did. Among those injured, the maximum duration for the injury was seven days. Injuries never appeared on a delayed basis.

Armed with this information, the claims adjuster can supplement their own observations to make decisions.

A middle ground that insurers have been using in recent year is a "desktop review" by a forensic expert, who would look at damage, claimed injuries, and correlate them with their own experience and published data without looking at the vehicle or the person's injury. This review typically costs $300 to $1,000, depending on the case and the skill of expert. Injury Science's goal is to shave down this cost by automating the "desktop review" concept. Although no database can match the savvy and experience of the best forensic expert, it is hoped the comprehensive nature of automated tools can not only be less expensive, but also more accurate, than a review by an inexperienced analyst.

There will still be arguments at the margins. Some people are legitimately injured in crashes that have minor changes in velocity, and minor amounts of vehicular damage. Some accidents have outcomes that fall outside the predicted boundaries of prior testing, simply because the complexity of real-world physics cannot be perfectly reconstructed in a laboratory setting or in a computer model. And all of the tools being implemented now to analyze auto accidents are relatively new, and will be improving every day as their use expands.

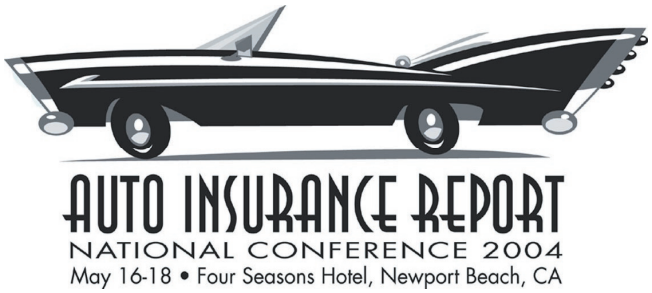
But these "margins" are already smaller than they were just a year ago, and will become smaller still with every passing day. Improved analytical tools based on improved testing and improved information flows are putting more and more claims within the pool of claims that are clearly predictable. More legitimate claims are paid quickly. More false claims are being rejected, while other false claims are being withdrawn when the claimant is forced to face these new facts.

At the end of the day, these advances will lower the cost of insurance for everyone, and will speed and improve the accuracy and fairness of the claims process. It isn't every day that you can find such progress. AIR

Warning: ***Auto Insurance Report*** is a confidential, copyrighted newsletter for subscribers only. No part of this publication may be reproduced by any form or means, including photocopying or facsimile transmission, without prior permission of the Publisher. For information call (949) 443-0330.

Reprinted with Permission

RESERVATION FORM



PLEASE FILL OUT THIS FORM AND MAIL IT WITH PAYMENT TODAY TO:
Auto Insurance Report National Conference
1110 Kalmia Ave., Boulder, CO 80304
Tel: 303-938-8840 • Fax: 303-938-8625
Email: Nordex@aol.com

Name:_____

Nickname for badge:_____ Title:_____

Company Name:_____

Address:_____

City, State, Zip_____

Phone:_____ Fax:_____

email: _____

☐ **Yes!** Please reserve my space at the conference at the special earlybird attendee/subscriber rate, ***a $200 savings.***

QUANTITY	TYPE	DESCRIPTION	AMOUNT
1	AIR2004	2004 Auto Insurance Conference	$1,199.00
1	SubDisc	Subscriber/Attendee Discount	-$100.00
1	Earlybird	Earlybird Discount (pay by 12/31/03)	-$100.00
		TOTAL:	**$999.00**

Please submit one form for each attendee
Make checks payable to **Risk Information Inc.** (Tax ID 33-0778701)
Credit cards not accepted.
Full refunds will be made for cancellations in writing prior to April 23, 2004.
Cancellations between April 23 and April 30, 2004 will be subject to a $150 cancellation fee.
No refunds for cancellations on or after April 30, 2004.
Substitutions to enrolled delegates may be made at any time.

To reserve your sleeping room, contact the
Four Seasons Hotel, Newport Beach, California, at 949-759-0808
Identify yourself as an attendee at the Auto Insurance Report National Conference.
For more information call Tracie Sullivan, Conference Director, at 949-443-1983

Warning: ***Auto Insurance Report*** is a confidential, copyrighted newsletter for subscribers only. No part of this publication may be reproduced by any form or means, including photocopying or facsimile transmission, without prior permission of the Publisher. For information call (949) 443-0330.

Reprinted with Permission

WHO DUNNIT? *Continued from Page 1*

tools available to make use of it, are just emerging from scientific infancy, and it will take some time before insurers make the move to maximize the opportunity.

EDRs are installed in cars primarily to identify abrupt changes in velocity in order to fire air bag restraint systems and engage systems to automatically secure seat belts.

At the 2003 Auto Insurance Report National Conference last May, Injury Science's CEO **Scott Palmer** explained that while the recorders were not created for insurers, the information is tailor-made for those who would seek to analyze auto accidents. Injury Sciences is one of the primary vendors helping insurers to harvest and analyze the data available from event data recorders, most of it harvested by a unit manufactured by **Vetronix Corp.**

There are still many barriers to the widespread use of EDR data, but the returns are so large that it seems likely that they will be overcome.

Recorders are not uniform in what they collect, how they store the information, or how long it is available after a recorded event. (Though there is a movement toward creating standards.) But most recorders track how fast a car was traveling, when braking took place, whether or not seatbelts were in use, and the amount of acceleration, deceleration and/or lateral movement resulting from a collision.

From this information, insurers can figure out if a driver was speeding and if they were wearing a seatbelt. It is possible to know when the driver started braking, and how hard they hit the brakes.

Vitally, the sensors in the recorder are designed to identify sharp movements to the vehicle in order to fire the restraint systems. The sensors become more and more sensitive every day as restraint systems themselves become more sophisticated. This makes it possible to measure with greater accuracy than ever before just how much force was exerted on the vehicle, and by extension on the vehicle occupants. Armed with this information, it quickly becomes easier to assess if claimed injuries are consistent with the forces exerted.

It is also possible to confirm with some certainty the sequence of multiple collisions. For example, there are often arguments over who hit who in a multi-vehicle chain-reaction rear-end accident. If the front end collision occurs before the rear-end collision, it would be hard for a driver to claim they had been pushed into the car in front of them.

Sometimes, having the data can simply confirm if a car was being operated at the time of a claimed accident. In some cars, the passenger side air bag will only fire if the seat has an occupant, and some will fire differently based on the weight of the occupant. If this data is inconsistent with a claimant who says they were injured while sitting in the passenger seat, someone is going to have some explaining to do.

While it is certainly true that this information will embolden insurers to challenge claims, our experience has been that such tools provide the most dollar value when they confirm an honestly made claim (the vast majority of those filed), enabling the insurer to pay quickly without the kind of additional investigation and delay that can inject a claimant's attorney into the process.

Recognizing that the information contained in the EDR can be adverse to the claim of a car-owner, it stands to reason that the question of ownership of the data would be raised. Some argue that when a car is declared a total loss it becomes the property of the insurer, and thus the EDR data becomes the insurer's. But legislation could well reverse that point, and beyond total losses, the emerging consensus holds that

Please see WHO DUNNIT? on Page 7

Warning: ***Auto Insurance Report*** is a confidential, copyrighted newsletter for subscribers only. No part of this publication may be reproduced by any form or means, including photocopying or facsimile transmission, without prior permission of the Publisher. For information call (949) 443-0330.

Reprinted with Permission

WHO DUNNIT? *Continued from Page 6*

the owner of the vehicle is also the owner of the data.

However this does not preclude the use of the information in the event of a claim. The law is evolving, but it seems clear that once a claim is made, the first party claimant has a duty to cooperate. This point has been clarified in the release of medical information, for example. And insurers have always had the right to examine a vehicle in assessing a claim. EDR data is almost certain to fall into this arena.

For third party claimants, the law on EDR data is emerging to support its use in civil or criminal proceedings, even against the wishes of the owner.

A different problem can emerges in harvesting the data before it is wiped clean or "spoiled." EDRs hold on to the information for a limited period of time, typically through a set number of ignition cycles. In minor accidents, a claimant may continue to drive a car, which could wipe the recorder clean of accident information.

Also, it will be vital that the chain of control of information is kept free of the possibility of tampering if data is to be later used in a legal setting. The "chain of custody" must be kept clear and clean.

There are several steps that must be taken if EDR units are to play a major role in auto claims management. First insurers must conclude that the benefits of having the information outweighs the cost and trouble of gathering the information. If insurers choose to go ahead (and several carriers have already taken this step), they must arrange for harvesting units to be available to repair shops, adjusters, or both. Though the costs are not outrageous, there are significant investments to be made in equipment and training.

New protocols must be established, and then refined for several years through experience. Should the data be harvested from all cars? This would create a consistent policy that would counter any accusations of selective enforcement. It would also be helpful in ensuring that information is collected quickly before it is "spoiled" or the chain of custody becomes too messy. Or, should the data only be harvested in more severe accidents in order to save costs? Who should do they harvesting? If it is the repair shops, should insurers share in the cost of purchasing the equipment, or should the shop bear this cost, as they do for all their other tools and equipment? If the repair shop harvests the data, what does this mean for the purity of the "chain of control?"

None of these issues is insurmountable, and none have proven significantly troubling to the fledgling use of EDR data which is already transforming the claims process for the handful of insurers who have ventured into the new world.

At the end of the day, access to this information will be a boon to good drivers and those who make legitimate claims. The information will confirm, as nothing else could, that they were driving at a safe speed, that they hit the brakes appropriately, and that they were struck, rather than doing the striking. For claimants who profess legitimate injuries, the information will confirm the forces that injured them, making it easy for insurers to quickly write a check with confidence.

But for others, the information will be as troubling as a breathalyzer test or red-light camera. It could prove that they were speeding recklessly on a rain-slickened road, and counter their claim that another driver initiated the accident. For those who would falsely claim that their sore back came from a car accident, and not from the weekend rugby game, the information will show that they were subjected to minimal forces in the alleged accident, or perhaps that the car was not even being driven when they claim there was an accident, or that they were not wearing a seatbelt as they claimed. AIR

Warning: ***Auto Insurance Report*** is a confidential, copyrighted newsletter for subscribers only. No part of this publication may be reproduced by any form or means, including photocopying or facsimile transmission, without prior permission of the Publisher. For information call (949) 443-0330.

Reprinted with Permission

GRAPEVINE

Continued From Page 1

departments with rolls of quarters to copy rating plans, which the firm examined in search of insights. Who has the most sophisticated skills in matching price to risk? What advantage does this bring them? What disadvantage does this present for less sophisticated competitors? These are powerfully important questions, and the answers can identify the future of the marketplace. This is the kind of thing the researchers at McKinsey live for.

As any insurer who has tried the same thing can tell you, the experience of trying to cull these answers from paper filings is less than satisfactory, and to truly understand the marketplace requires a Herculean effort. We've seen some of these manual efforts, and while instructive, they lack the comprehensiveness necessary to be truly definitive.

Enter InsureQuote, which is back on its feet with a comparative rating and competitive analysis product after being knocked down for a moment in the dot-com bust. (That's a story for another time.) With an automated tool for examining underwriting schemes, InsureQuote can take the Herculean effort of examining pricing plans of various insurers across different risks and different states, and reduce it to one that is still enormous (Schwartzeneggerian?) in scope, yet nevertheless manageable.

Together, McKinsey and InsureQuote confirmed to us last week that they are in the midst of a joint research effort that began at last year's conference, and we are pleased to report that the fruits of their work will be released for the first time, fittingly enough, at the next Auto Insurance Report National Conference, to be held May 16-18, 2004 at the Four Seasons Hotel in Newport Beach, California. We've seen the preliminary reports, and they are stunning. (It's killing us to keep a promise to wait for the final result before sharing the information.)

Auto Insurance Report
Brian P. Sullivan, Editor
Telephone: (949) 443-0330
Fax: (949) 443-0331
Email Address: bpsullivan@riskinformation.com
Subscription Information: 800-633-4931
On the Web: www.riskinformation.com
Auto Insurance Report, ©Copyright 2003, published weekly, 48 times a year, by Risk Information Inc., 33765 Magellan Isle, Dana Point, CA 92629. It is a violation of federal law to photocopy or reproduce any part of this publication without first obtaining permission from the Publisher. **ISSN: 1084-2950**
Subscription Rates: $797 per year in U.S. and Canada. Elsewhere $847 per year.

The conference is moving quickly to its annual sold-out status. Equally important, the $100 discount for Earlybird registrations is available only until December 31, 2003, just a few business days away. Lasting a little longer, but not too much longer, is our preferred $229 room rate at the Four Seasons, and equally discounted rates for upgraded rooms and suites. We have a limited number of rooms at these prices, and when they are gone the hotel's regular, and higher, price list goes into effect.

So if you or someone in your organization plans to attend this year's conference, we urge you to make your reservations soon in order to capture significant savings, and to prevent being shut out by our sell-out. We have closed the doors every year at 250 attendees.

The conference registration form is available in this week's newsletter. To reserve a room at the hotel, call the Four Seasons at 949-759-0808, and make sure you tell them you are attending the *Auto Insurance Report* National Conference. For more information, go to our web site at *www.riskinformation.com* and click on the link for "registration information and forms."

If you have any other conference questions, call Conference Director Tracie Sullivan at 949-443-1983. AIR

Warning: ***Auto Insurance Report*** is a confidential, copyrighted newsletter for subscribers only. No part of this publication may be reproduced by any form or means, including photocopying or facsimile transmission, without prior permission of the Publisher. For information call (949) 443-0330.

Reprinted with Permission