Advanced Automatic Collision Notification *and* Field Triage Guidelines for Injured Patients

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COMMUNITY MEMORIAL HOSPITAL

"If you are severely injured, care at a Level I trauma center lowers your risk of death by 25%."

The NEW ENGLAND JOURNAL of MEDICINE

SPECIAL ARTICLE

A National Evaluation of the Effect of Trauma-Center Care on Mortality

Ellen J. MacKenzie, Ph.D., Frederick P. Rivara, M.D., M.P.H., Gregory J. Jurkovich, M.D., Avery B. Nathens, M.D., Ph.D., Katherine P. Frey, M.P.H., Brian L. Egleston, M.P.P., David S. Salkever, Ph.D., and Daniel O. Scharfstein, Sc.D.

ABSTRACT

BACKGROUND

Hospitals have difficulty justifying the expense of maintaining trauma centers without strong evidence of their effectiveness. To address this gap, we examined differences in mortality between level 1 trauma centers and hospitals without a trauma center (non–trauma centers).

METHODS

Mortality outcomes were compared among patients treated in 18 hospitals with a level 1 trauma center and 51 hospitals non–trauma centers located in 14 states. Patients 18 to 84 years old with a moderate-to-severe injury were eligible. Complete data were obtained for 1104 patients who died in the hospital and 4087 patients who were discharged alive. We used propensity-score weighting to adjust for observable differences between patients treated at trauma centers and those treated at non–trauma centers.

RESULTS

After adjustment for differences in the case mix, the in-hospital mortality rate was significantly lower at trauma centers than at non–trauma centers (7.6 percent vs. 9.5 percent; relative risk, 0.80; 95 percent confidence interval, 0.66 to 0.98), as was the one-year mortality rate (10.4 percent vs. 13.8 percent; relative risk, 0.75; 95 percent confidence interval, 0.60 to 0.95). The effects of treatment at a trauma center varied according to the severity of injury, with evidence to suggest that differences in mortality rates were primarily confined to patients with more severe injuries.

CONCLUSIONS

Our findings show that the risk of death is significantly lower when care is provided in a trauma center than in a non–trauma center and argue for continued efforts at regionalization.

Source: MacKenzie EJ, Rivara FP, Jurkovich GJ, et al. A national evaluation of the effect of trauma-center care on mortality. *N Engl J Med*. 2006 Jan 26; 354(4):366-78.

CDC

MMWR

Morbidity and Mortality Weekly Report

www.cdc.gov/mmwr

Recommendations and Reports | January 23, 2009 / Vol. 58 / No. RR-1

Guidelines for Field Triage of Injured Patients

Recommendations of the National Expert Panel on Field Triage

INSIDE: Continuing Education Examination

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION

Published: January 2009

Available for FREE at:
www.cdc.gov/FieldTriage

Education Initiative

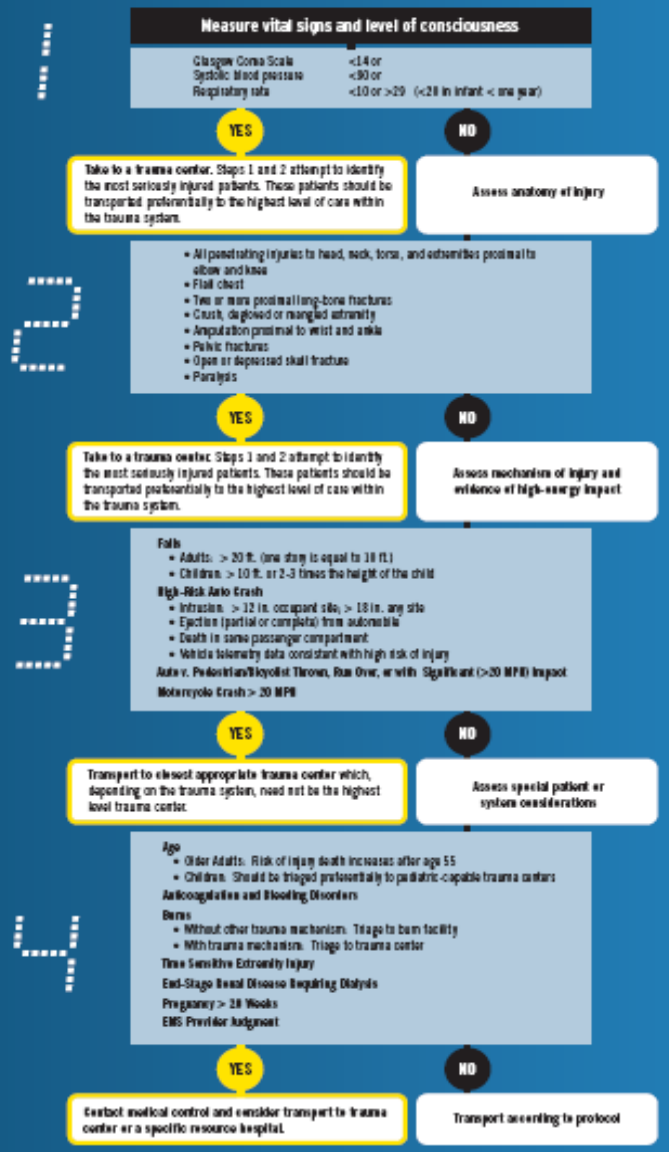
- CDC, in collaboration with partners and experts, has developed FREE educational tools:
  - Poster and pocket-sized reference card
  - Laminated poster for ambulances
  - Laminated insert for binders
  - Decision Scheme badge and holder
  - Video Podcast

FREE Continuing Education Opportunity at www.cdc.gov/FieldTriage

Coming Soon: Resource Guide for EMS leaders!

"Vehicle telemetry data consistent with high risk of injury"

FIELD TRIAGE DECISION SCHEME: THE NATIONAL TRAUMA TRIAGE PROTOCOL



When in doubt, transport to a trauma center.

For more information on the Decision Scheme, visit: www.cdc.gov/Field Triage

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
CDC

Vehicle Telemetry

- What is vehicle telemetry?
  - Combination of telematics and computing
  - Integration of vehicle's electrical architecture, cellular communication, GPS systems, and voice recognition
    - Can notify of exact location of crash
    - Can enable communication with occupants
    - Can provide key injury information to providers regarding force, mechanics, and energy of a crash that may help predict severity of injury

Telematics

- Combine and integrate directly into the vehicle's electrical system
  - Cellular technology
  - GPS location capability
  - Sophisticated voice recognition technology
- Call center-based services
  - Safety and security
  - Routing and point of interest
  - Hands free calling (OnStar)
- About 6.5 million subscribers
  - Multiple languages
  - TTY (OnStar)

Telematics Availability

- OnStar—5.7 million
  - GM (50+ models, standard in 2008)
  - Lexus Link
- Ford SYNC
  - “9-1-1 Assist”
  - Not embedded
  - No call center or data currently
- ATX—nearly 1 million
  - BMW (Assist)
  - Mercedes (Teleaid), Maybach, Rolls Royce
  - Future: Toyota/Lexus (Safety Connect)

Your New Safety Net on the Road

Updated on August 10, 2009

3rd Generation Prius Launches Safety Connect™

A A A

Tags: Vehicle Accessories, Technology, Safety, Prius, Owner Exclusives

safetyconnect

Toyota's all-new available safety and security service, Safety Connect,[1] can provide assistance with a variety of unexpected on-road incidents -- helping to keep you on course and to lend peace of mind along the way.

The four features provided with a Safety Connect subscription are:

- Automatic Collision Notification
- Stolen Vehicle Location
- Emergency Assistance Button (SOS)
- Roadside Assistance

WirelessCar awarded European telematics contract

27 May 2009

WirelessCar has been selected to be the Telematics Service Provider for BMW in Europe. This prestigious contract will ultimately connect all newly produced vehicles on these markets from June 2010. Read More.

Saving more lives on Europe's roads: mobile phone operators sign up for eCall roll-out

Today, eCall, Europe's in-car automatic emergency call system, received the full backing of Europe's mobile phone industry. Representatives of the industry's GSM Association underlined their commitment to this life-saving technology by signing the EU's Memorandum of Understanding to implement eCall across Europe. eCall automatically dials 112, Europe's single emergency number , when a car has a serious accident and sends its location to the nearest emergency service – even when passengers do not know or cannot say where they are. Rolling out eCall requires close cooperation between public authorities, car companies and mobile phone operators and could save up to 2,500 lives each year in the EU when fully deployed and reduce the severity of injuries by 10 to 15%.

INDUSTRY NEWS

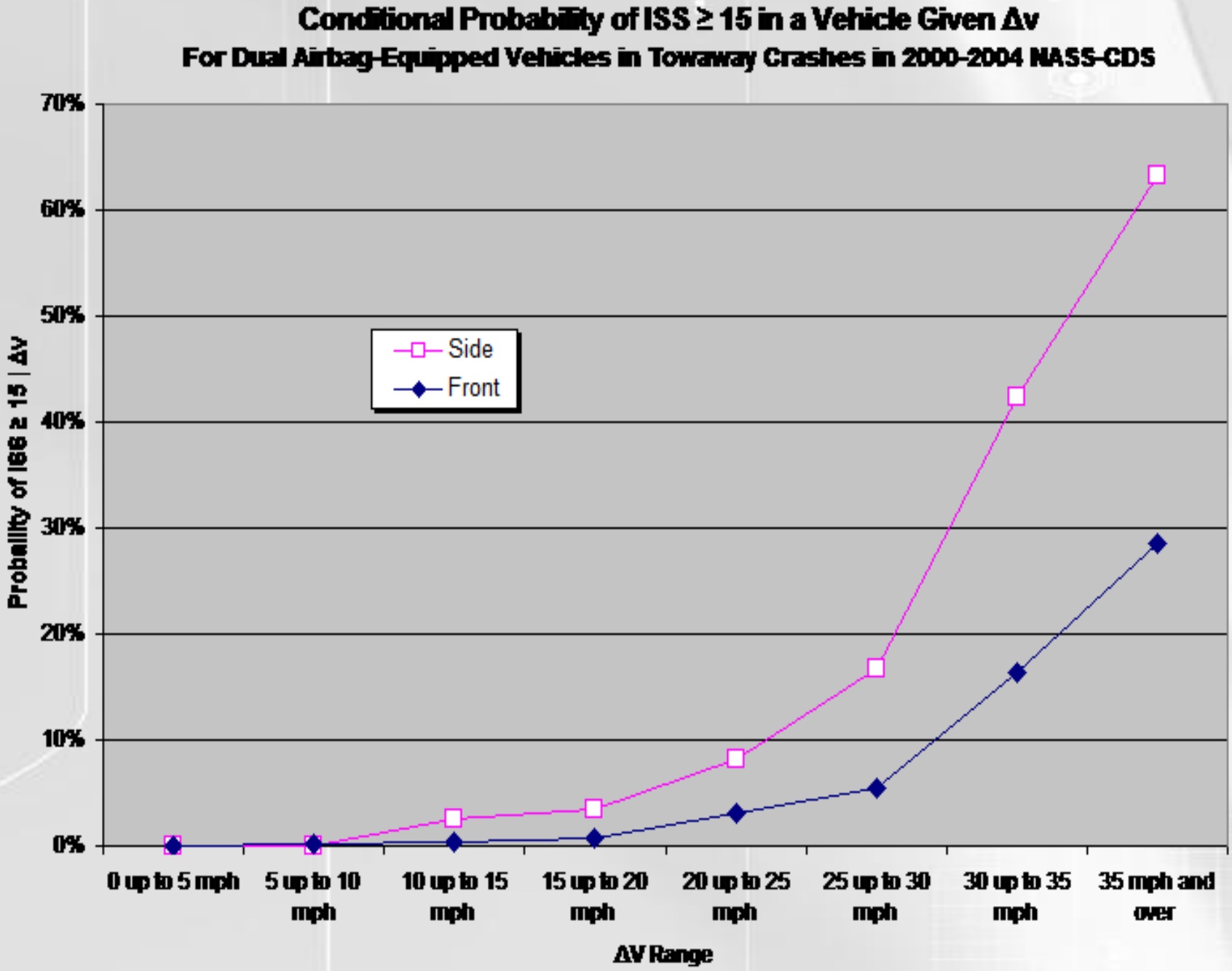
Ni Hao! OnStar Coming to China

By Matt Hardigree, 11:00 AM on Thu Nov 29 2007, 398 views

If you thought only American celebs like Jimmy Kimmel and Tiger Woods locked themselves out of their GM products, you'd be sorely mistaken. There are all sorts of Chinese celebs that need OnStar, too! Not to mention China has approximately 1.3 billion prospective customers. GM and the Shanghai Automotive Industry Corporation Group (SAIC) are planning to provide almost the full range of OnStar features to China, including crash notification, roadside assistance, door unlock, handsfree calling and turn-by-turn navigation. Press release below the jump.

Expert Panel

- PSAPs (9-1-1 call centers)
- EMS
- Emergency Medicine
- Trauma Surgery
- Engineering
- Vehicle Telematics Providers
- NHTSA
- HRSA-EMS for Children
- CDC


Conditional Probability of ISS ≥ 15 in a Vehicle Given Δv
For Dual Airbag-Equipped Vehicles in Towaway Crashes in 2000-2004 NASS-CDS
70%
60%
50%
40%
30%
20%
10%
0%
Probability of ISS ≥ 15 | Δv
Side
Front
0 up to 5 mph
5 up to 10 mph
10 up to 15 mph
15 up to 20 mph
20 up to 25 mph
25 up to 30 mph
30 up to 35 mph
35 mph and over
ΔV Range

RECOMMENDATIONS FROM THE EXPERT PANEL:

ADVANCED AUTOMATIC COLLISION NOTIFICATION AND TRIAGE OF THE INJURED PATIENT

—PREPARED BY THE—
CENTERS FOR DISEASE CONTROL AND PREVENTION,
NATIONAL CENTER FOR INJURY PREVENTION AND CONTROL, DIVISION OF INJURY RESPONSE

—WITH SUPPORT FROM—
ONSTAR, THE GENERAL MOTORS FOUNDATION, AND THE CDC FOUNDATION

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention

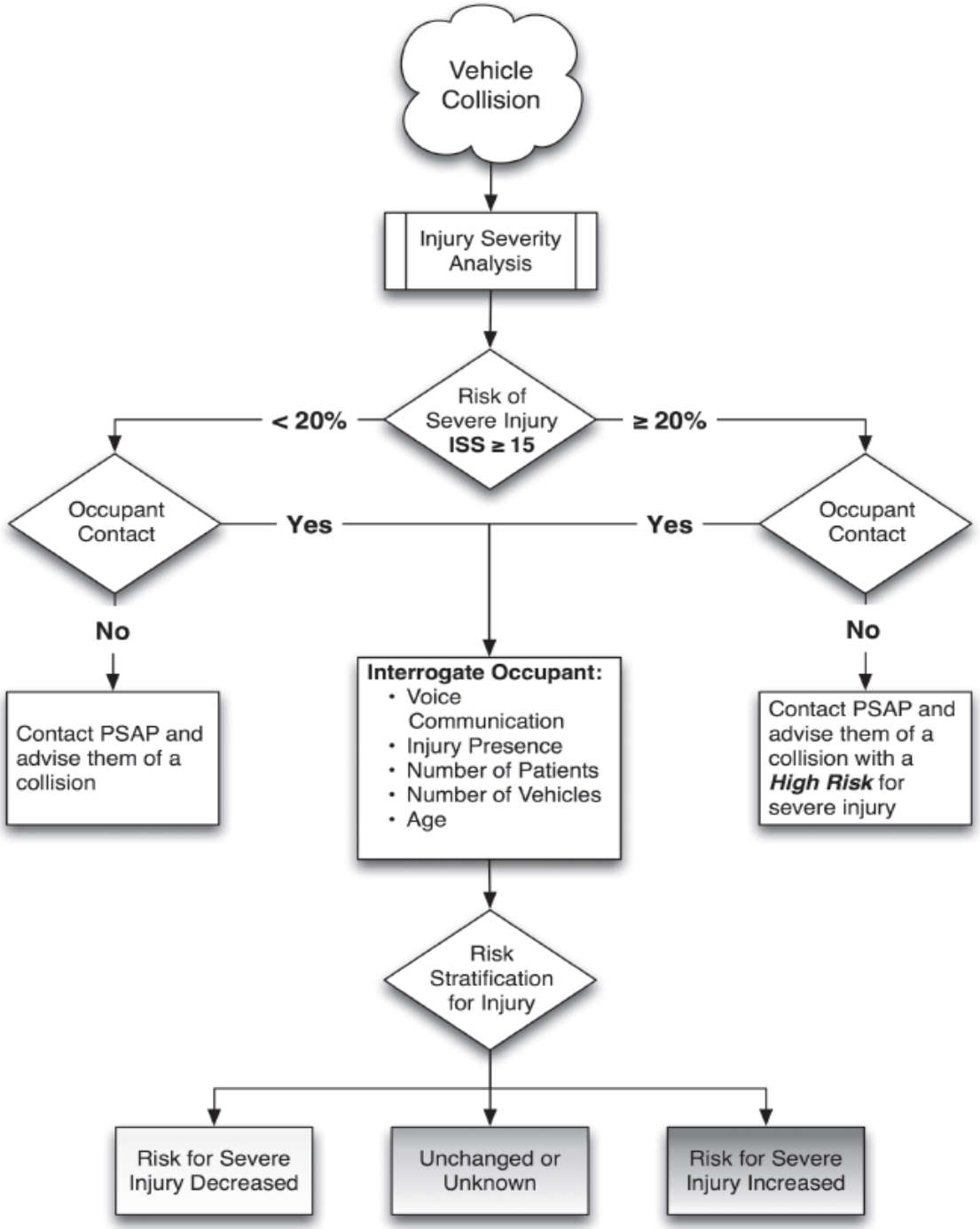
FREE Report Available at:
www.cdc.gov/injuryresponse/aacn.html

Expert Panel Recommendations

- AACN data transmission should include seatbelt
- Occupant age and gender should be obtained
- Need for national system to collect and analyze AACN injury data
- Feasibility of GCS acquisition should be studied
- Establish real-time communication among AACN providers, PSAP, EMS, EM, trauma surgery

Expert Panel Recommendations

- AACN can improve triage accuracy
- AACN shows promise in saving lives



Advanced Automatic Collision Notification Protocol

Injury Severity

- Identification of patients who have a ≥20% risk of having a severe injury *(defined as an ISS > 15)*
  - Delta V
  - Principal direction of force (PDOF)
  - Seatbelt usage/or without
  - Crash with multiple impacts
  - Vehicle type

Next Steps

- Develop common vehicle telematics provider injury severity analysis
- Pilot tests:
  - Expert panel recommendations meet the *Real World*



Pilot Tests

- **Purpose:**
  - To determine what AACN information would be most useful for them to receive

Raleigh, North Carolina

Charlotte, North Carolina

Pilot Test Key Findings

- Need for strong education package for implementation
- Agreement that AACN could:
  - Impact response
  - Improve patient care
  - Impact destination decisions
- Information to PSAPs should be consistent among providers
- Use of AACN is a local decision and will vary widely due to local capabilities
- More research needed

Helping to Get Each Patient:

- *the Right Care*
- *at the Right Place*
- *at the Right Time*