

EMS Transport Safety Summit

Safety Systems, Strategies and Solutions, 2012

Introduction and Safety Developments Update

Nadine Levick MD MPH
EMS Safety Foundation

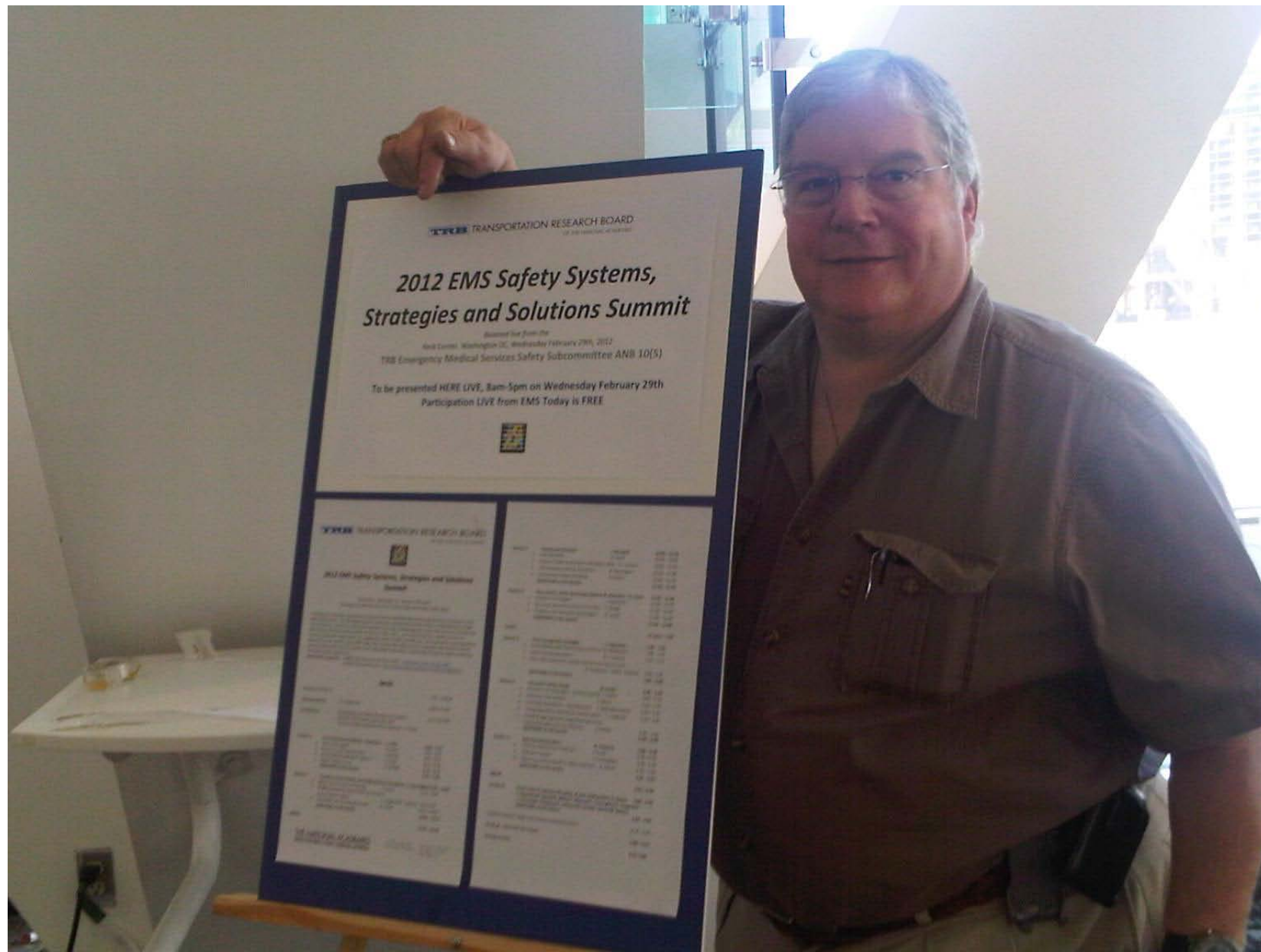
EMS Subcommittee of the TRB ANB10(5)
EMS Transport Safety Summit

February 29th , 2012



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OF THE NATIONAL ACADEMIES

Thank you AJ and JEMS!!



RD

Welcome to those joining us at EMS Today

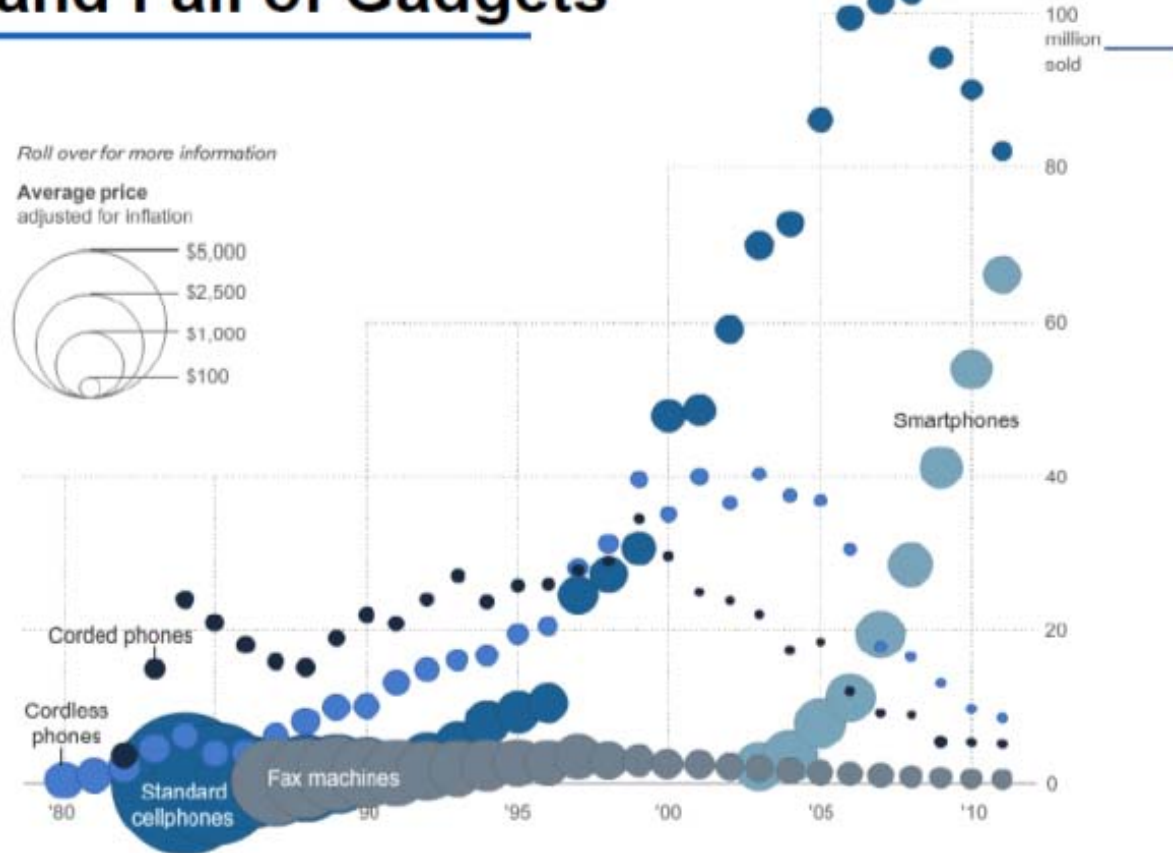


Since 2009

- New perspectives
- New technologies
- New generations focus
- New vehicles
- New platforms
- New policies/standards
- New international models

Communication Technology trends

Rise and Fall of Gadgets

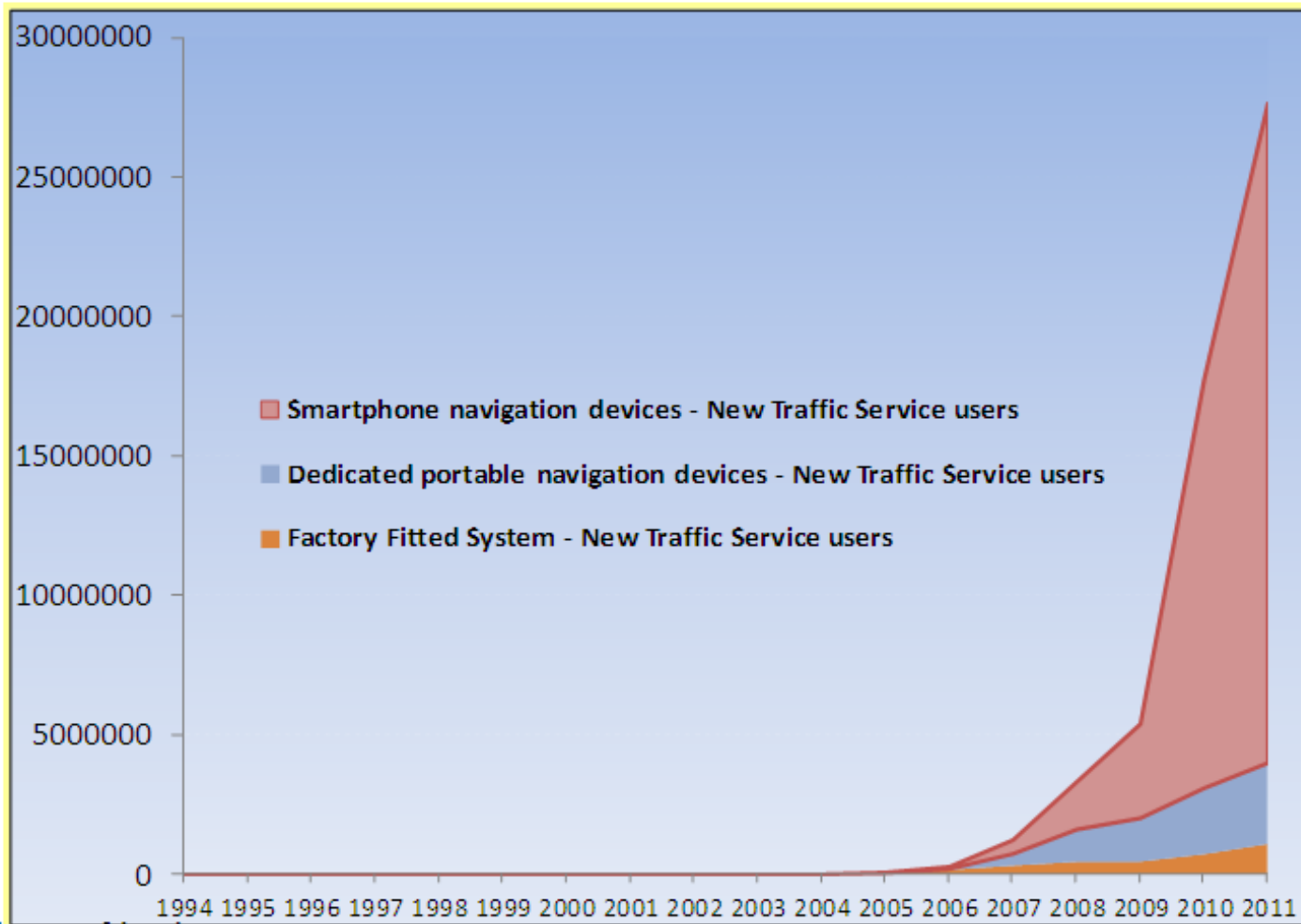


NOTE: 2010 data are estimates and 2011 data are projections. GRAPHIC: Alicia Parlapiano / The Washington Post - January 10, 2011

20

Smartphone navigation devices

US New Traffic Subscribers 1996 to 2011



Courtesy: Navteq

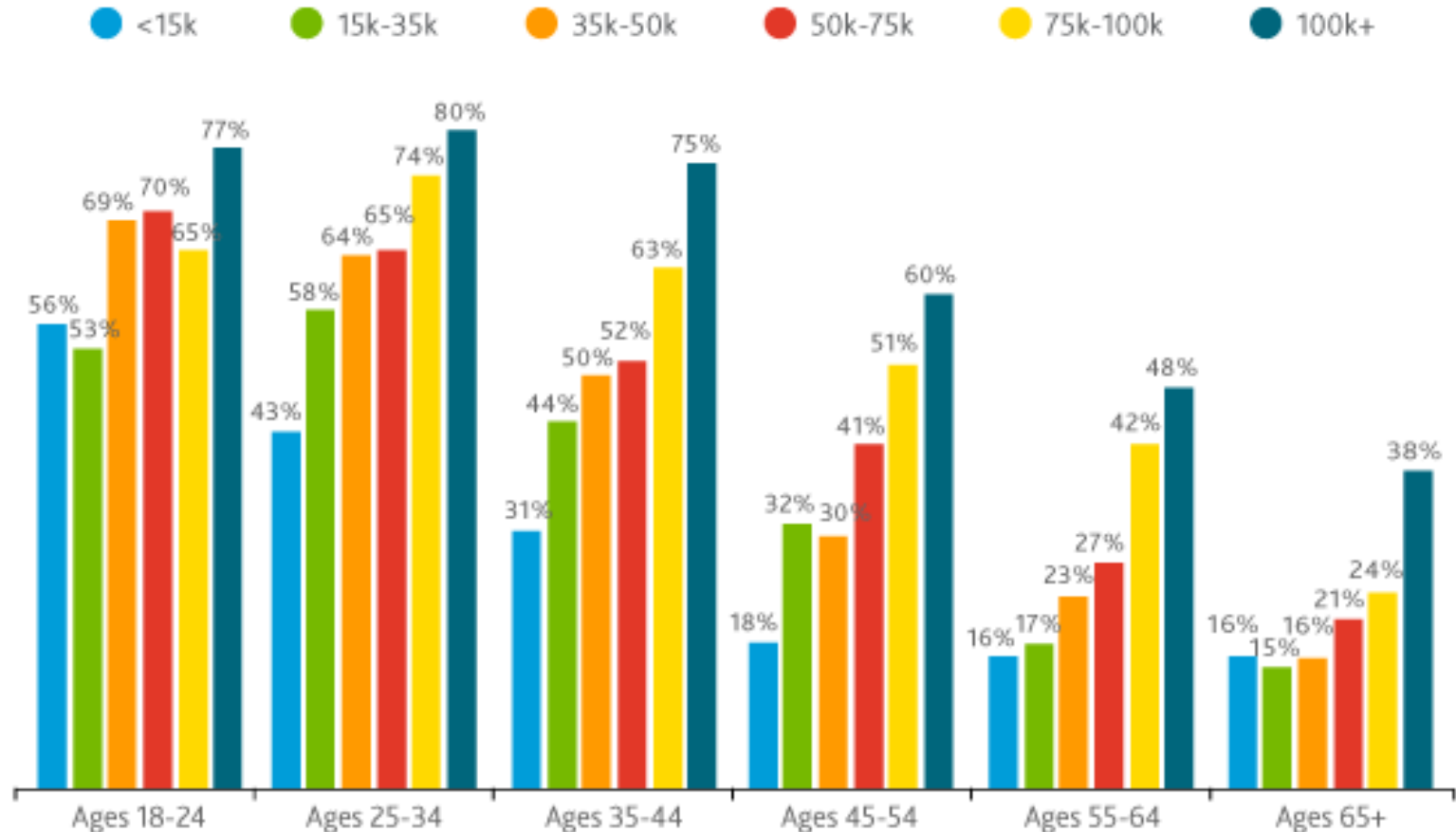
U.S. Department of Transportation <#>



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January 2012, USA

Smartphone penetration by age and income



Source: Nielsen



nielsen
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Generation - Y



A History of the Business of Social Media :-)



The new world of social media



SOURCES: UNCP, MEDIABISTRO, FACEBOOK, TECHCRUNCH, MASHABLE, WSJ, BBS DOCUMENTARY, FINANCIAL TIMES DESIGN: DAVID FOSTER

The Cloud is Global



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TRB MISSION

- To provide leadership in transportation innovation and progress through research and information exchange, conducted within a setting that is objective, interdisciplinary, and multimodal.

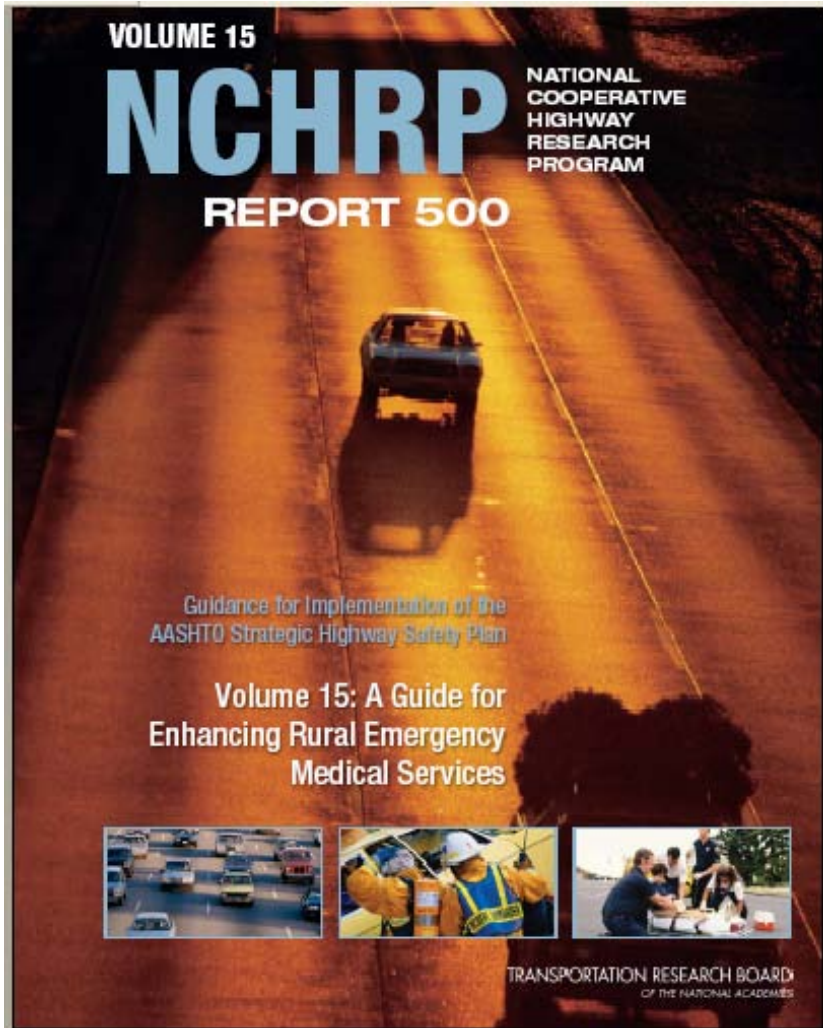


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Special role for EMS at TRB

- One of the Key 4 E's
 - Engineering
 - Education
 - Enforcement
 - **Emergency Medical Services**

Transportation Research Board is an excellent resource... we should be using it!!



TRB TRANSPORTATION RESEARCH BOARD
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ANB10 (5) TRB EMS Subcommittee Mission

- *'Bridging the gap between what we do and what is known
- Enhancing ambulance transport safety through shared knowledge of technical data'.*

Fragmentation Panacea

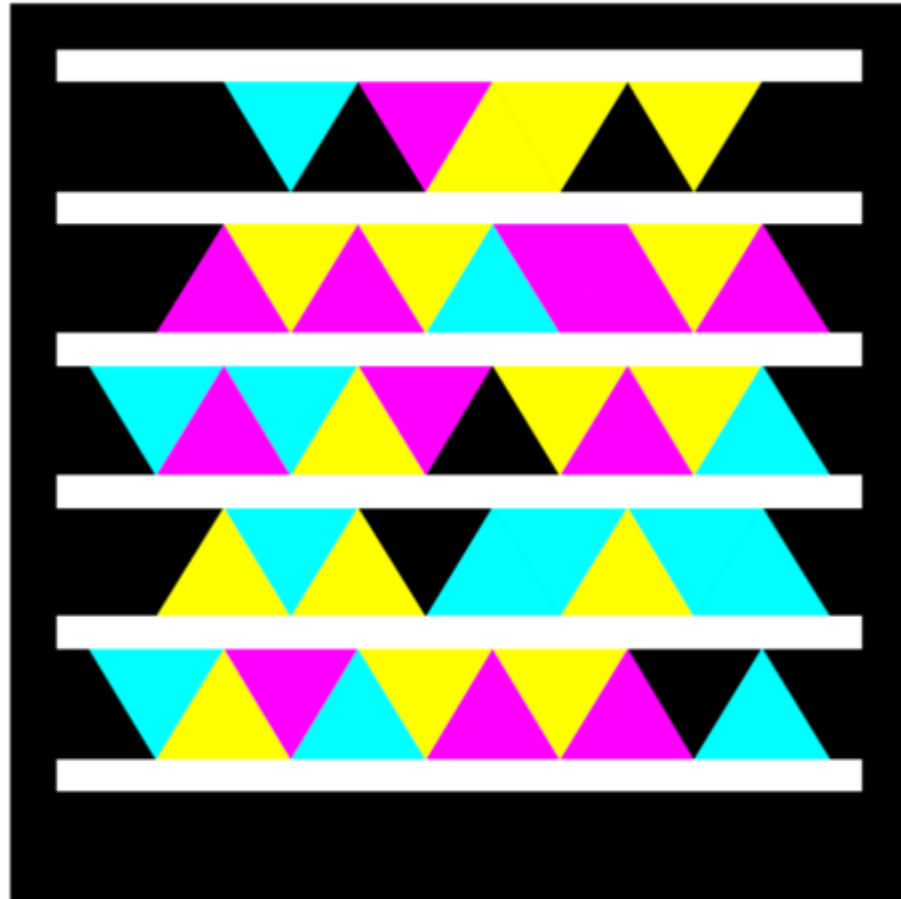
ANB10(5) is an independent platform for:

- Bringing fragmented information together
- Uniting diverse disciplines
- Focus on technically robust information

Multidisciplinary research

- Encompassing all aspects of transportation
- The expertise that EMS needs to address its transportation safety challenges includes:
 - Systems design
 - Transport systems safety
 - Human factors
 - Vehicles
 - Vehicle operations
 - Air medical transport safety
 - Impaired operators
 - Road design and egress and access
 - Highway and operational hazards

TRB ANB10 (5) eTag





Bridging technical experts, operational EMS providers and the government agencies too

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EMS Safety Subcommittee Mid-year Meeting and Safety Summit

Friday, November 7, 2008 1:00 PM - 5:00 PM EST

Webinar Registration

The purpose of the webinar is to share interdisciplinary peer reviewed and published transportation safety and technical data. Access to transportation safety and technical information is complex and the EMS community is in need of this information to improve operations and practice in providing quality patient care and safe transport today and into the future.

The event will be Chaired by Dr. Nadine Levick (Chair of the EMS Safety Subcommittee of the Transportation Research Board), with an opening address from Dr. Jim Augustin, Medical Director of DC Fire/EMS. The webinar will cover the full spectrum of ground transportation safety issues for EMS and patient transport. The five general topics include Data, Vehicle Operations, Vehicles, Human Factors and Standards.

The webinar will be interdisciplinary, with transportation, data, engineering, human factors participants as well as EMS leaders and organizations and federal agencies and all academic representation. Thirty onsite participants including speakers and moderators form the basis of the webinar.

Fri, Nov 7, 2008 1:00 PM - 5:00 PM EST [Show time in my time zone](#)

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[Register](#)

Information

[Summary](#) [Hotel & Travel](#) [Agenda](#) [Staff](#)

EMS (Emergency Medical Services) Summit and Midyear Meeting

October 29, 2009
Keck Center - Washington, D.C.

Ambulance transport is a complex interface between emergency medical care, transportation, public safety and public health. The technical information required to support the transport management decisions of such a complex system are in the purview of a spectrum of diverse and disparate professions and disciplines. The safety issues that are involved in this unique system bridge data capture, transport systems safety engineering, fleet management, occupant protection, automotive biomechanics, clinical decision priorities and management, occupational safety and health, economics, ethics, and standards and policy development.

The goal of this Summit is to bring these diverse fields of technical expertise together to assist EMS systems to have access to objective and optimal technical information that relates to transportation safety issues in EMS. This Summit provides an independent forum for the exchange of this information among these diverse fields of technical expertise, to develop a means of accessing optimal, most reliable and valid data upon which EMS Systems may base their management, purchase and operational decisions."

Speakers at this Summit include the representatives from the NTSB, NHTSA, lead EMS Services, Policy makers, Automotive Engineering experts and researchers.






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Please do go and access this information, it comes from technical and operational experts and it is gratis



Its out there NOW

- There have been two TRB Summits held, 2008, 2009 and both with vehicle engineering and transportation systems technical expertise
- See www.trb.org, and for the Summit archives:
www.objectivesafety.net/TRBSummit2008.htm
www.objectivesafety.net/TRBSummit2009.htm



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EMS Safety Systems, Strategies and Solutions Summit, February, 29, 2012

- How do we measure system safety?
- What metrics drive safety decision making?
- What are the safety hazards this system faces?
- How do we balance the system safety for the patient provider and public?
- How much should a medic lift?
- What is a safe speed?
- How many hours are safe before we are impaired?
- How many hours of EVOC makes the system safer?
- What are the cost and risk benefits of simulators ?





EMS Safety, Systems, Strategies and Solutions Summit, February, 29, 2012

- What benchmarks in other industries are relevant to EMS?
- What are the determinants of system safety?
- What technologies enhance system safety performance?
- How do we reach out to all personnel levels?
- What strategies work best with reaching out to each generation?
- What are global best practice models?
- How can we translate global interdisciplinary best practice initiatives to North American EMS?



1980's Then....



**And
NOW!...**



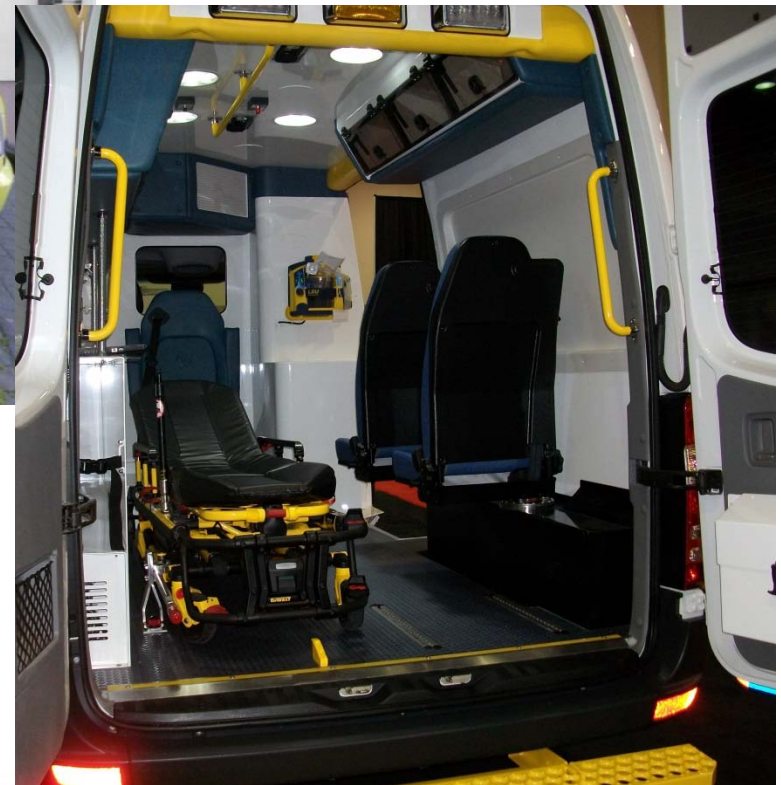
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1980's Then....



And 2009...

Now...



Innovative vehicles

<http://www.emssafetyfoundation.org/NAEMSP2012poster.pdf>



Safety and Operational Innovation: Integrating Global Best Practice and Interdisciplinary Technical Expertise into Ambulance Design

Levick M, Fitzgerald C, Swartz J, Lukianov G, Roflsen K, Cooper A and the Innovation Consortium of the EMS Safety Foundation



Abstract

Introduction: Ambulance design has fundamentally not changed in 50 years historically and to date in the USA, ambulance design is the domain of health care providers and input from technical science of automotive safety and operational ergonomics expertise has been limited at best.

Methods: In this study an interdisciplinary team integrating technical expertise from automotive engineering, mechanical ergonomics and human factors, clinical EMS and patient transport, epidemiology and ambulance manufacturing was assembled. Identification and analysis of ambulance design from 6 countries was conducted over 24 months with focus on inspection of 179 different ambulance vehicle types and configurations. The strengths and weaknesses of each design was assessed based on technical principles of human biomechanical tolerance and vehicle dynamics. The optimal features were integrated into the design of two ambulance fleets, the first in Dallas, Texas, USA and the second in Oslo, Norway.

Results: The vehicles developed were built into an OEM test but our stronger global safety and operational performance testing, and that had electronic stability control. Ambulance design was configured around range of reach and operations task analysis, with rotatable forward and rear facing seating and an open bench. Head impact hazards were reduced with creative use of portable equipment go-bags which minimized need for extensive cabinetry. Reducing of heavy equipment was low in exterior compartments to also minimize potential back injury when lifting. Overall vehicle cost was less than for the standard current ambulance vehicles designs previously used in each service, to purchase price alone – not considering the overall cost savings in increased fuel efficiency.

Limitations: These fleets were developed by innovative EMS and medical transport services and ambulance manufacturers. There are substantive cultural obstacles relating to conceptual change that do exist in many services that would need to be addressed for broad based dissemination.

Conclusions: Ambulance design is a complex integration of the technical realms of a number of diverse disciplines. Integrating these fields and global best practice can be achieved to develop and implement enhanced ambulance design that is both operationally and cost effective.

Introduction:

Ambulance design has not fundamentally changed in 50 years (Fig. 1), despite great strides in automotive safety and occupant protection over that time. Historically and to date in the USA, ambulance design is the domain of health care providers, and input from technical science of automotive safety and operational ergonomics expertise has been limited at best. The majority of the 480,000 ambulance vehicles in the USA are an "aftermarket box fitted to a chassis, built by an aftermarket retrofitter without input of injury data or accepted independent occupant protection or crashworthiness science – even though there is clear evidence in the scientific literature that current ambulance design practices have both occupant protection and ergonomic design hazards that are predictable and unacceptable (Fig. 2).



Fig. 1 Ambulance vehicles 1960 & 2011



Fig. 2 Technical data

Methods:

This study was conducted under the umbrella of the EMS Safety Foundation, a global interdisciplinary innovation, collaboration, and knowledge transfer platform. In this study an interdisciplinary team integrating technical expertise from automotive engineering, operational ergonomics and human factors, clinical EMS and patient transport, epidemiology and ambulance manufacturing was assembled. Identification and analysis of ambulance design from 6 countries was conducted over 24 months from May 2009–May 2011, with hands on inspection of 179 different ambulance vehicle types and configurations. Participation in 3 successive large international EMS Congresses of ~20,000 delegates – Rettmobil, in Jülich, Germany, 2009–2011 – facilitated detailed access to the 179 vehicles (Fig. 3). Additional analytical, interdisciplinary interactive workshops across this spectrum of disciplines were held in Washington DC, USA, and Jülich, Germany (Fig. 4). The strengths and weaknesses of each design were assessed based on technical data and principles of human biomechanical tolerance, vehicle dynamics, crashworthiness (Fig. 5a), human factors analysis and ergonomics (Fig. 5b). The optimal features were integrated into the design of two ambulance fleets, the first in Dallas, Texas, USA (Fig. 6) and the second in Oslo, Norway (Fig. 7). Subsequent to vehicle design and development, a further operational hands-on interdisciplinary workshop was held with each vehicle model, respectively in Dallas, Texas, USA and, for the Norwegian vehicle, Jülich, Germany to which it was transported.



Fig. 4 – Interdisciplinary Workshops and Podcasts



Fig. 6 – Fleet X Dallas, Texas USA



Fig. 5 – Rettmobil Delegations 2009-2011



Fig. 5a – Task Analysis measurements



Fig. 7 – Fleet Y Oslo, Norway



Fig. 5b – Occupant Safety performance

Results:

The vehicles developed, Fleet X in Dallas Texas (Fig. 6) and Fleet Y in Oslo, Norway (Fig. 7) were all built into an OEM van type and model that had undergone stringent global safety and crashworthiness testing to meet automotive safety standards for occupant protection and destructive crashworthiness safety performance as a vehicle (Fig. 5a), and subsequently after the ambulance retrofit Fleet Y models have undergone additional operational performance impact testing to meet the CEV standards. These vehicles also had electronic stability control, as well as high fuel efficiency. Interior design was configured around occupant protection priorities, a spectrum of range of reach and operational task analysis (Fig. 5a), with rotatable forward and rear facing seating and an open bench. Head impact hazards were reduced with creative use of portable equipment go-bags which minimized need for extensive cabinetry. Loading height was 27 inches, to minimize any potential back strain during patient loading and unloading. Heavy equipment was positioned low in exterior compartments to also minimize potential back injury when lifting. Overall vehicle cost was less than for the standard current ambulance vehicles designs previously used in each service, to purchase price alone – not considering the overall cost savings in increased fuel efficiency.

Limitations:

These fleets were developed by innovative EMS and medical transport services and ambulance manufacturers. There are substantive cultural obstacles relating to conceptual change that do exist in many services that would need to be addressed for broad based dissemination.

Conclusion:

Ambulance design is a complex integration of the technical realms of a number of diverse disciplines. Integrating these fields and global best practice can be achieved to develop and implement enhanced ambulance design that is both operationally and cost effective.

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Alternate vehicles

IMPROVED RESPONSE TIMES WITH MOTORCYCLE BASED FAST RESPONSE PARAMEDICS IN AN URBAN SETTINGS

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Chan YH, PhD

Head Biostatistics, Clinical Trials and Epidemiology Research Unit, Ministry of Health

A/P V Anantharaman, MBBS, MRCP, FRCS Ed (A&E), FAMS

Senior Consultant and Head, Department of Emergency Medicine, SGH Clinical Associate Professor, Faculty of Medicine, NUS



aims/objectives

To see if response intervals can be improved with motorcycle based Fast Response Paramedics (FRP) compared with standard ambulances in an urban setting.

methods

A prospective, observational study.
Simultaneous dispatch of motorcycles based FRP's equipped with Automated External Defibrillators and standard ambulances for cardiac arrest, cardiac, respiratory conditions and road traffic accidents.

introduction

Pre-hospital response intervals are known to be an important factor in the level of care provided by any Emergency Medical System.
In big cities, response intervals are known



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OMSZ

Mentőmotoros Szolgálat

Főoldal

Hírek, aktualitások

A kezdetektől napjainkig
Szakmai információk

Motor

M0

M3

Pécs és környezete

Tiszaújváros és környezete

A motorok

Motorjaink

Megkülönböztető jelzés

Egészségügyi felszerelés

Navigáció

Védőruházat

Extrák

A motorosok

Robogó

Bemutakozás

Budai Vár

Római part

Robogóink

A robogósok

Képek

Videók

Magyar Mentőmotor Alapítvány

Partnereink, támogatóink

Külföldi mentőmotorosok

Toborzó

Üzenőfal

Sajtó

Kapcsolat



/motorsho



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Rules/Policies Addressing Known Hazards

- Federal Motor Carrier Safety Administration (FMCSA)
 - Cell phone use – November 2011
 - Hours of Service – December 2011

Nov 2011, Hand Held Cell Phone Ban

<http://www.fmcsa.dot.gov/about/news/news-releases/2011/Secretary-LaHood-Announces-Step-towards-Safer-Highways.aspx>

The screenshot shows the FMCSA website with a navigation menu at the top including 'HOME', 'RULES & REGULATIONS', 'REGISTRATION & LICENSING', 'SAFETY & SECURITY', 'FACTS & RESEARCH', and 'ABOUT FMCSA'. A search bar is located in the top right corner. The main content area is titled 'News Release' and features a sidebar on the left with various links such as 'About FMCSA', 'Contact Us', 'FMCSA Roadmap', 'Public Affairs', 'Chief Counsel', 'Outreach & Education', 'IT Development Division', and 'Other'. The main text of the news release is as follows:

U.S. Department of Transportation
Office of Public Affairs
1200 New Jersey Ave., S.E.
Washington, DC 20590
www.dot.gov/briefing-room.html

FMCSA 35-11
Wednesday, November 23, 2011
Contact: Candice Tolliver Burns
Tel: 202-366-9999

U.S. Transportation Secretary LaHood Announces Final Rule That Bans Hand-Held Cell Phone Use by Drivers of Buses and Large Trucks
Today's Action is the Latest by the Department to End Distracted Driving

WASHINGTON - U.S. Transportation Secretary Ray LaHood today announced a final rule specifically prohibiting interstate truck and bus drivers from using hand-held cell phones while operating their vehicles. The joint rule from the Federal Motor Carrier Safety Administration (FMCSA) and the Pipeline and Hazardous Materials Safety Administration (PHMSA) is the latest action by the U.S. Department of Transportation to end distracted driving.

"When drivers of large trucks, buses and hazardous materials take their eyes off the road for even a few seconds, the outcome can be deadly," said Transportation Secretary Ray LaHood. "I hope that this rule will save lives by helping commercial drivers stay laser-focused on safety at all times while behind the wheel."

The final rule prohibits commercial drivers from using a hand-held mobile telephone while operating a commercial truck or bus. Drivers who violate the restriction will face federal civil penalties of up to \$2,750 for each offense and disqualification from operating a commercial motor vehicle for multiple offenses. Additionally, states will suspend a driver's commercial driver's license (CDL) after two or more serious traffic violations. Commercial truck and bus companies that allow their drivers to use hand-held cell phones while driving will face a maximum penalty of \$11,000. Approximately four million commercial drivers would be affected by this final rule.

Related Links:
Final Rule: Drivers of CMVs Restricting the Use of Cellular Phones
Frequently Asked Questions (FAQ) - Ban on Hand Held Cellular Phones
Current News Releases
Archived News Releases (1996-2010)



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Dec 2011, New FMCSA Hours of Service

<http://www.fmcsa.dot.gov/rules-regulations/topics/hos/index.htm>

U.S. Department of Transportation
Federal Motor Carrier Safety Administration

FORMS | CONTACT US | MEDIA | FMCSA PORTAL | DOT.GOV

Search All FMCSA Sites

HOME | RULES & REGULATIONS | REGISTRATION & LICENSING | SAFETY & SECURITY | FACTS & RESEARCH | ABOUT FMCSA

Home > Rules & Regulations > Hours-of-Service Regulations

Hours-of-Service Regulations

Overview

Federal Regulations

- All
- Driver
- Vehicle
- Company
- FMCSA Hazmat
- Regulatory Guidance

Rulemakings and Notices

- Final Rules
- Interim Final Rules
- Proposed Rules
- Notices

Topics of Interest

- Current HOS Regulations
- HOS Proposed Rule Summary of Changes
- Hours-of-Service (HOS) Final Rule Summary
- Hazardous Materials
- Intermodal Equipment Providers (IEP)

NOTE: A new Hours-of-Service (HOS) Final Rule was issued on December 22, 2011. For details, visit the HOS Final Rule page to view the complete rule, summary of changes, questions & answers, and other related information.

The Hours-of-Service regulations (49 CFR Part 395) put limits in place for when and how long commercial motor vehicle (CMV) drivers may drive. These regulations are based on an exhaustive scientific review and are designed to ensure truck drivers get the necessary rest to perform safe operations. FMCSA also reviewed existing fatigue research and worked with organizations like the Transportation Research Board of the National Academies and the National Institute for Occupational Safety in setting these HOS rules.

The regulations are designed to continue the downward trend in truck fatalities and maintain motor carrier operational efficiencies. Although the HOS regulations are found in Part 395 of the Federal Motor Carrier Safety Regulations, many States have identical or similar regulations for intrastate traffic.

Who must comply with the Hours-of-Service Regulations?
Most drivers must follow the HOS Regulations if they drive a commercial motor vehicle, or CMV.

In general, a CMV is a vehicle that is used as part of a business and is involved in interstate commerce and fits any of these descriptions:

- Weighs 10,001 pounds or more
- Has a gross vehicle weight rating or gross combination weight rating of 10,001 pounds or more
- Is designed or used to transport 16 or more passengers (including the driver) not for compensation
- Is designed or used to transport 9 or more passengers (including the driver) for compensation
- A vehicle that is involved in Interstate or intrastate commerce and is transporting hazardous materials in a quantity requiring placards is also considered a CMV.

Print e-Subscribe

Related Links

- Retention of Supporting Docs & Use of Electronic Mobile Devices Policy
- HOS Regulations
- Maximum Driving Time for Passenger-carrying Vehicles



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New Fleet Operations Standards

- ISO 39001
- ANSI/ASSE Z.15

New Vehicle Standards

- NFPA 1917

New Equipment Mounting Testing Standards

- SAE 2917, 2956

New National and International Platforms

- NAEMT National (and International!) Safety Course
- ACEP Safety Culture Project
- NIST/DHS/NIOSH initiatives
- EMS Safety Foundation Innovation Consortium
- Rettmobil

Sharing Information with International Colleagues Rettmobil 2012 – May 9-11th



Visitor

Exhibitors

Education Event

Actions

Press / News

Review

Downloads

Arrival / Hotels / Parking

Picture Gallery

Links

The Fair of Records

The results of the 11th RETTmobil in Fulda: 21,850 trade visitors, satisfied exhibitors and organizers

The 11th RETTmobil, after a successful course, came to an end on last Friday the 13th (!) at 5 P.M. The "overwhelming and total success" of the 11th RETTmobil from Wednesday to Friday in Fulda had not been expected by the makers of the exhibition. They are happy to report that the European trade fair for rescue and mobility has set new records. Never before have there been so many visitors and exhibitors. 21,850 trade visitors have been counted throughout the three opening days, accounting for a 10 percent increase over the previous year.

On the 70,000 square meter site with 16 buildings and a perfected off-road area were presented nearly 400 exhibitors and 45 companies from 17 nations. The majority of visitors - about 8,500 - came on Thursday to find out about the extensive range of goods and services.

This year's highlights in the area of mobility were the height rescue demonstrations as well as real-life crashes with stuntmen in prepared cars. The training sessions and workshops were very well attended, sometimes even overbooked.

The expectations have been exceeded, Manfred Hommel emphasized to the press. As the chairman of the Association of Manufacturers of Ambulances and Emergency Vehicles (IKR), the ideal sponsor of the event, said, the success confirmed the very good concept. The RETTmobil, which brings together an enormously high level of expertise in just three days, and for which there is no comparison in the world, has obtained additional relevance with regard to the content

Home Impressum Contacts Login

News >> 31.05.2011

[Standanmeldung RETTmobil 2012](#)

Standanmeldungen zur RETTmobil 2012 sind ab sofort...

News >> 22.05.2011

[Bildergalerie RETTmobil 2011 online](#)

Unter dem Menüpunkt 'Bildergalerie' finden Sie ab...



12th RETTmobil 2012 will come May 9th - 11th 2012

RETTmobil 2012

9th - 11th May 2012 (Wednesday to Friday)

Daily 9 am - 5 pm

Admission: 10 Euros

Parking free for visitors

8 guests are online at the moment



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No longer are the manufacturers left holding the baby – there is now active interdisciplinary collaboration



Change and Innovation

- Improved data systems for injury
- Enhanced data on denominator
- New technologies
- New policies/standards
- Interdisciplinary collaboration