

Behavioral Traffic Safety Research – a view from 30,000 feet

Jim Hedlund

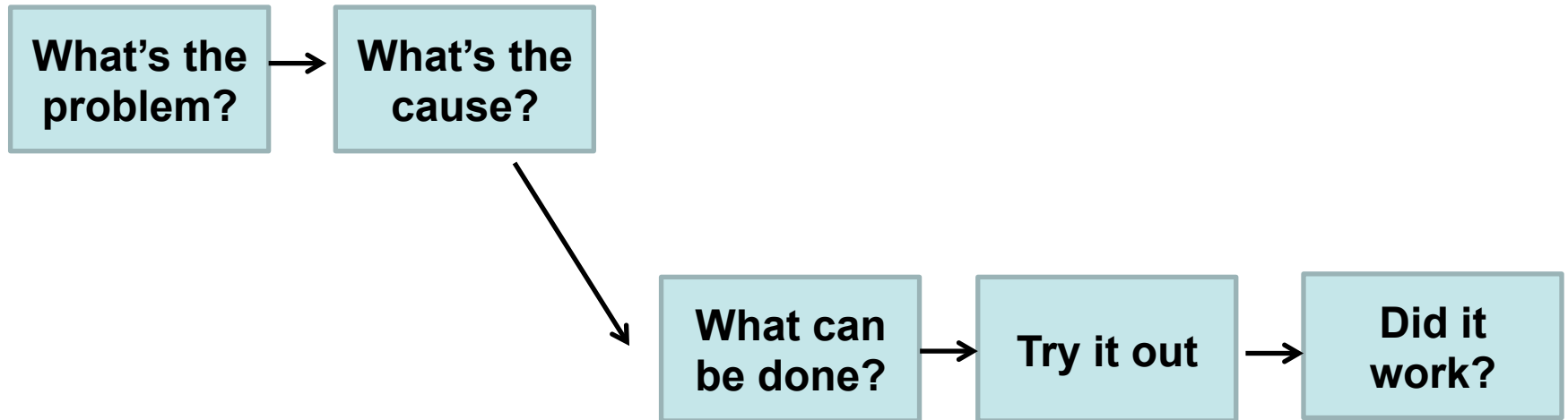
Highway Safety North
GHSA Annual Meeting
Seattle, WA
August 29, 2016

Why research?

Research can answer three critical questions for your highway safety office:

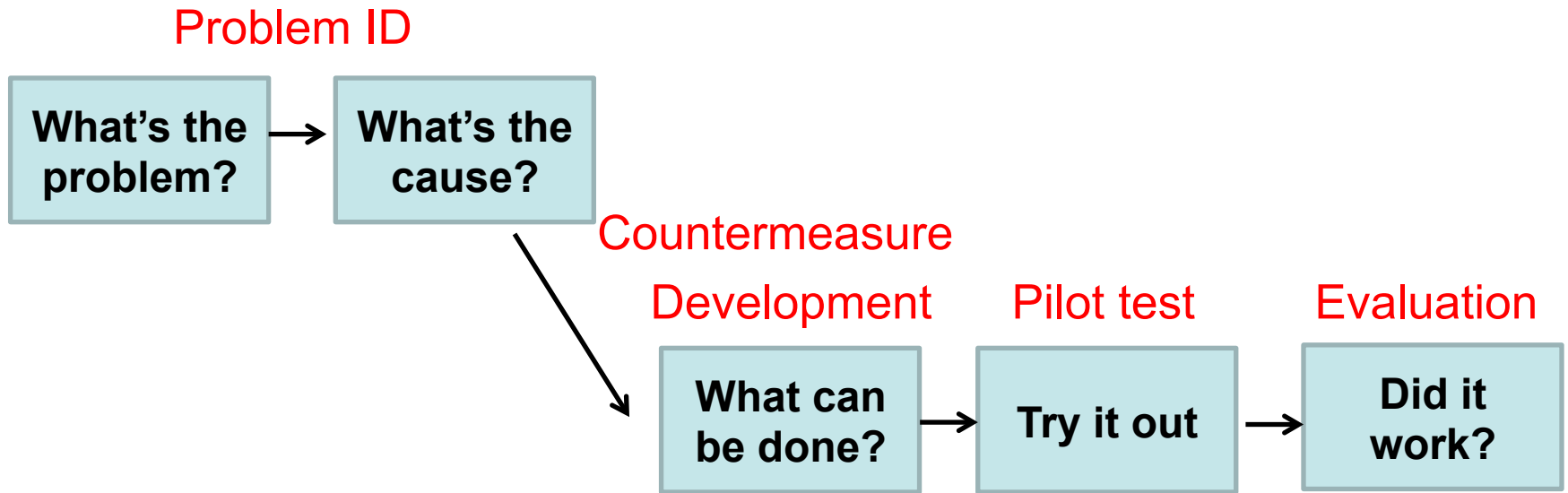
- What are the important problem areas?
- What are the most effective ways to address them?
- How well does what you're doing work?

Behavioral Research 101

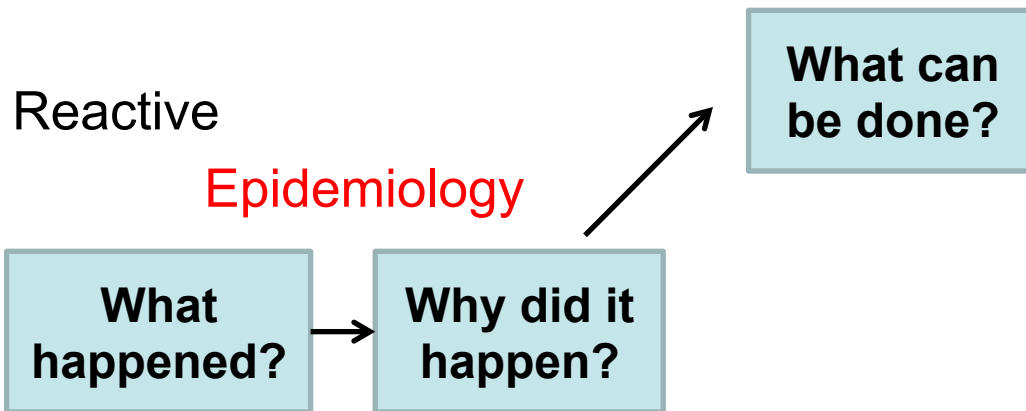


Behavioral Research 101

Proactive



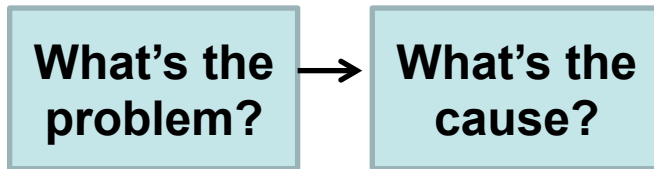
Behavioral Research 101



Behavioral Research 101

Proactive

Problem ID



Countermeasure

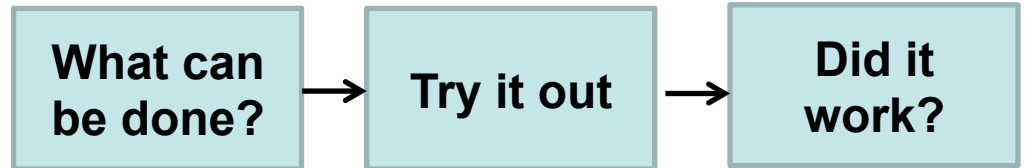
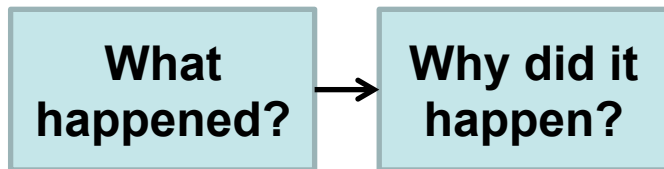
Development

Pilot test

Evaluation

Reactive

Epidemiology



What's the problem?

Crash causes: Indiana Tri-Level

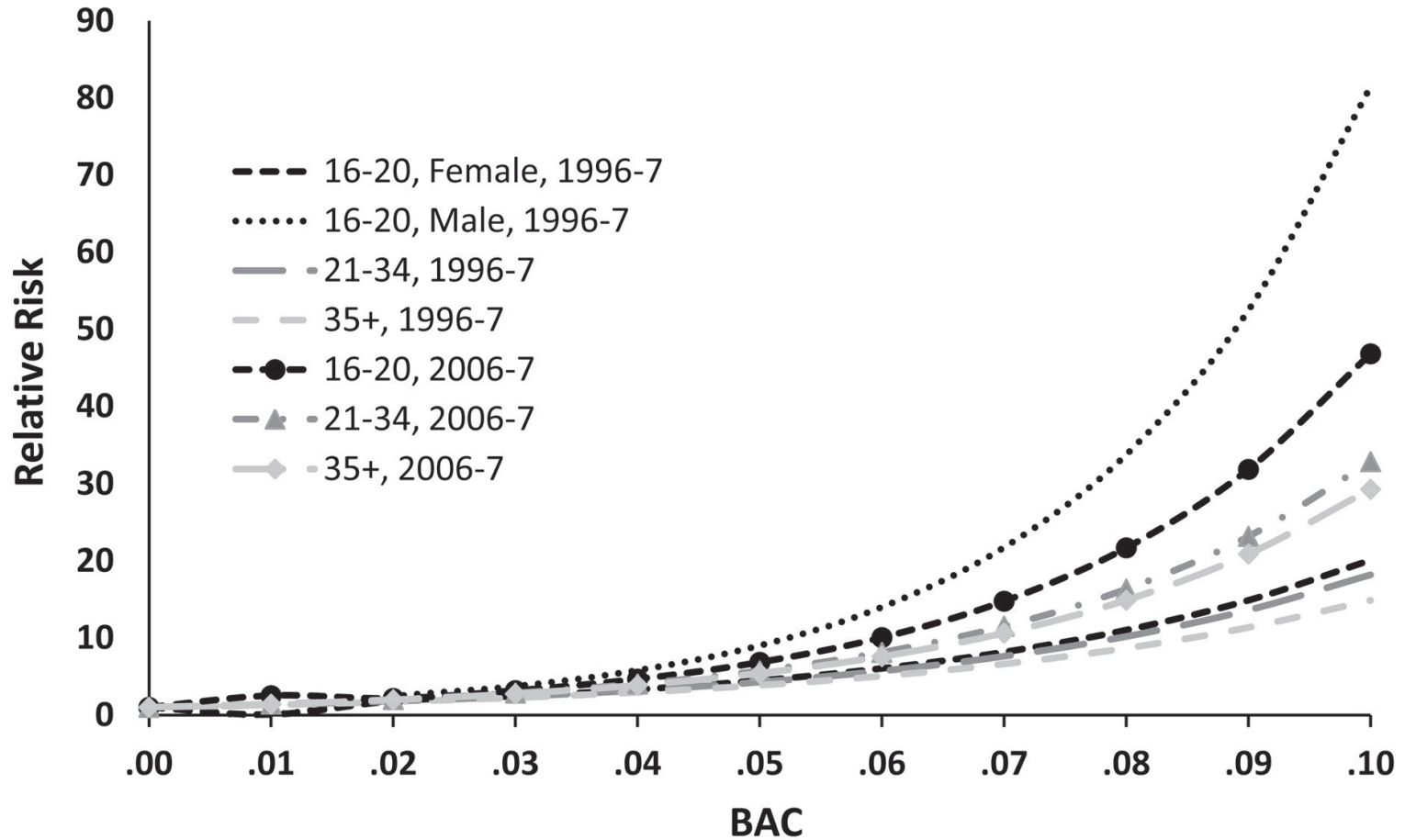
- Question: role of driver, vehicle, environment in crashes
- Treat et al., 1974 – Indiana Tri-Level
 - Method: analysis of 2,258 crashes, detailed multidisciplinary analysis of 420
 - “One or more human factors was cited by the in-depth team as a probable cause in 92.6% of accidents.”
 - “Environmental factors were cited as probable causes in 33.8% of these accidents, while vehicular factors were identified as probable causes in 12.6%.”
- Results: priority for behavioral traffic safety

What's the cause?

Alcohol effects: Grand Rapids

- Question: how does alcohol affect crash risk?
- Borkenstein et al., 1974 – Grand Rapids study
 - Method: analysis of 4,878 crash and 6,289 control driver records
 - “Blood alcohol concentrations (BACs) over 0.04% are definitely associated with an increased accident rate.”
 - “The probability of accident involvement increases rapidly at BACs over 0.08%, and becomes extremely high at BACs above 0.15%.”
- Results: greater attention to alcohol, *per se* laws

Crash risk by age and sex, 1996-97 and 2006-07

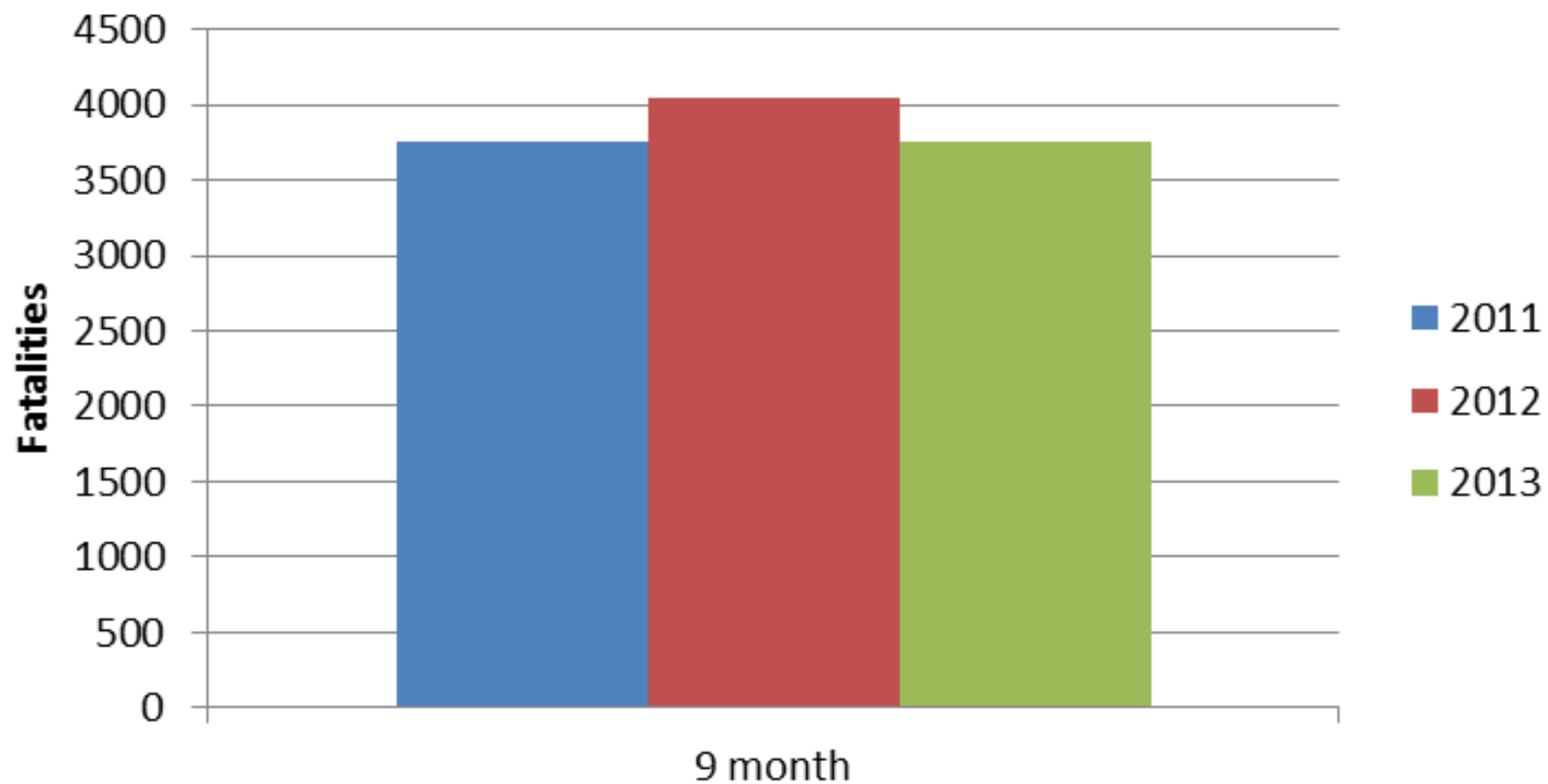


What happened, and why?

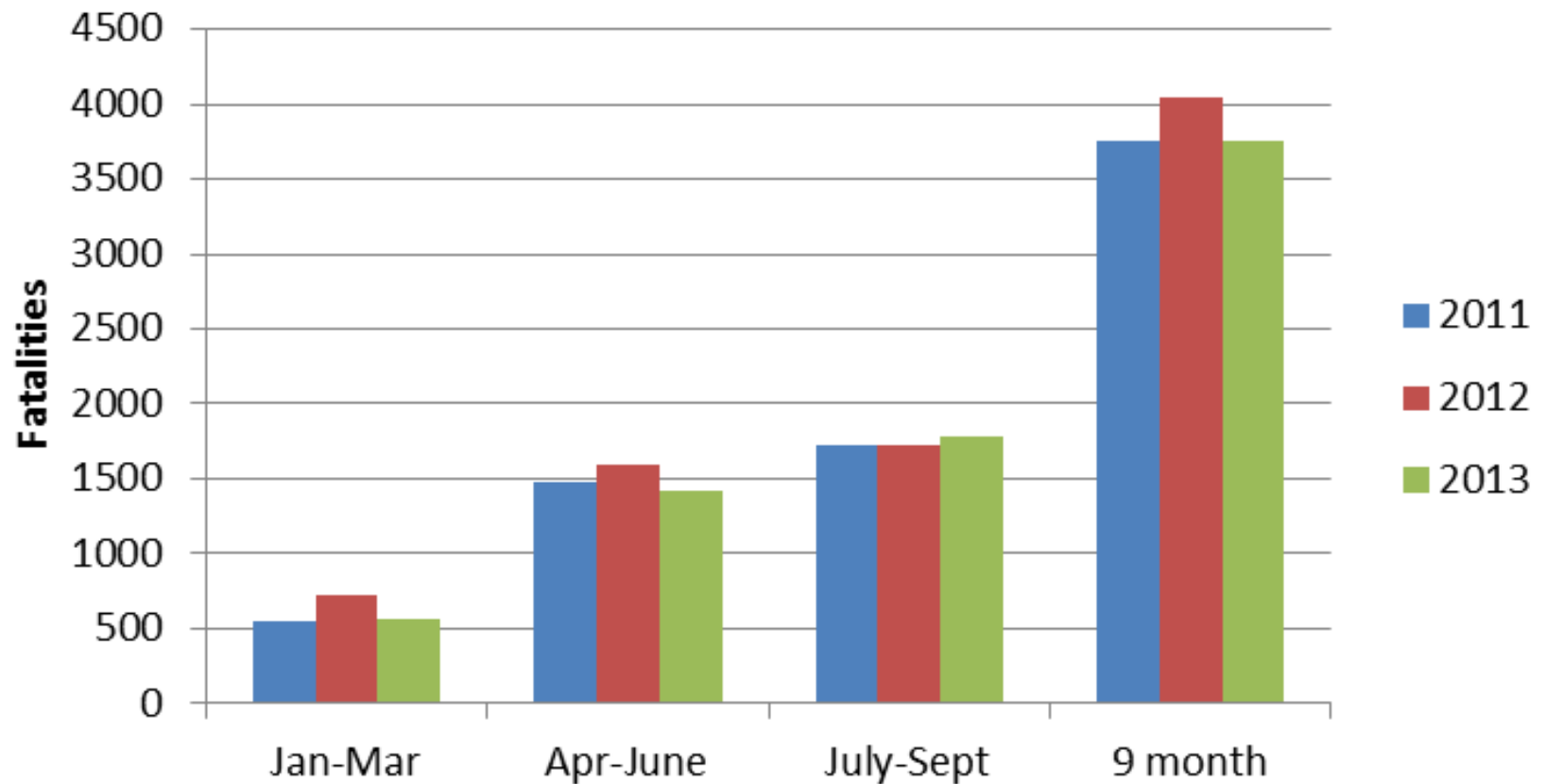
Fatality trends: Motorcycles

- Question: why did motorcycle fatalities increase substantially in 2012 and the drop in 2013?
- Hedlund, 2013 and 2014 GHSA Spotlights
 - Method: look at the data

Motorcyclist fatalities, 9 months

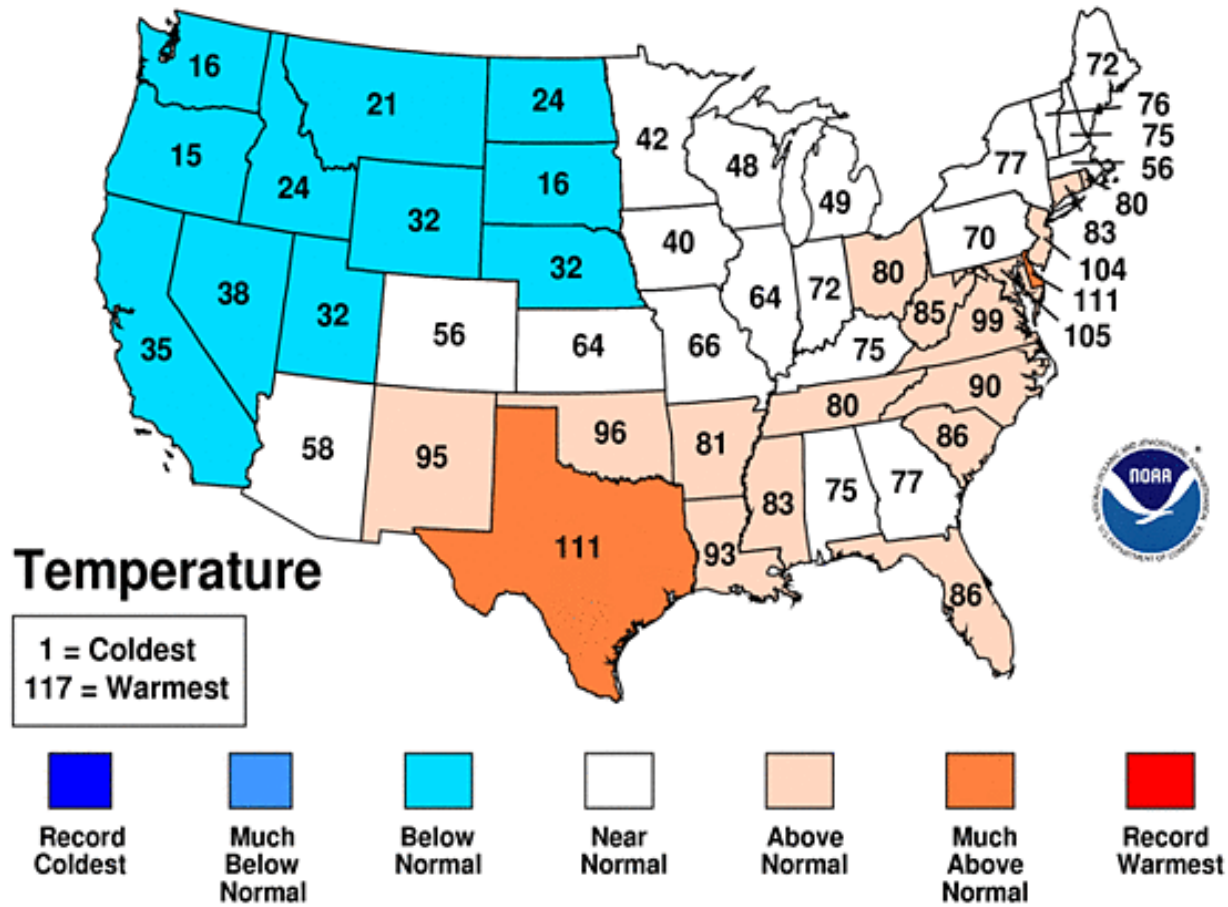


Motorcyclist fatalities by quarter

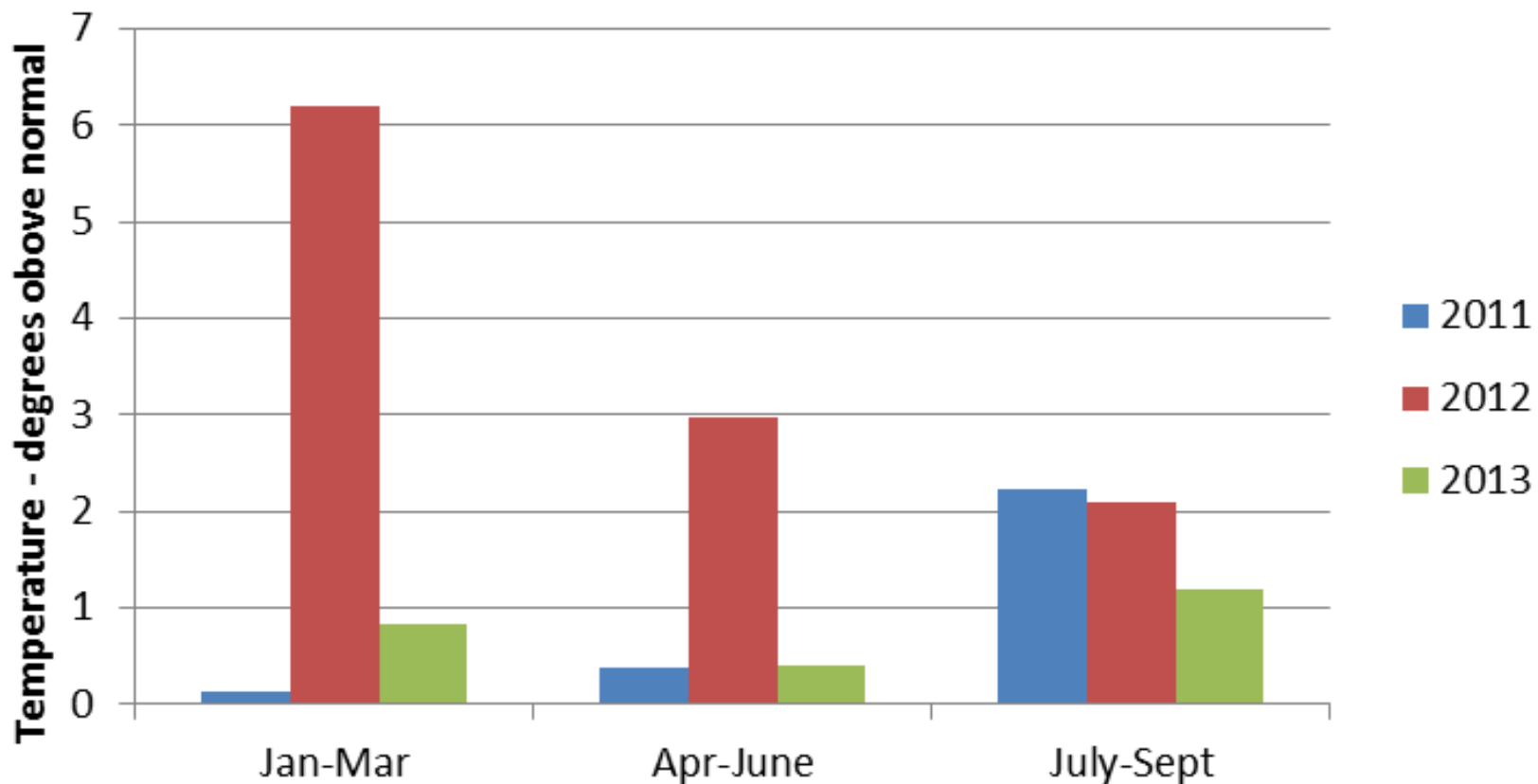


January-June 2011 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



Degrees above normal, nationwide



What can be done?

Let's make a PSA: media research

- How to develop an effective media campaign
 - What's the message? Overall; message points
 - Who's the target audience?
 - What motivates them?
 - What style works best? Fear? Humor? Peer behavior? ...
 - How best to reach them? Delivery methods
- How to do all this
 - Focus groups
 - Creative options
 - Prototypes
 - Pilot test
 - Back to the drawing board and try again ...
- Results: to be effective, do the research first

Try it out

Does driver ed work: DeKalb

- Question: how effective is high school driver education?
- Lund et al., 1986
 - Method: random assignment to enhanced driver ed, regular driver ed, or no driver ed
 - “Students assigned to an enhanced driver education program (Safe Performance Curriculum) were more likely to obtain drivers licenses, to be in car crashes and to have traffic violations than control students not assigned to driver education.”
- Results: driver ed won't make young drivers safer – led to the rise of graduated licensing, which does make young drivers safer

Did it work?

How to raise belt use: CIOT

- Question: how effective is CIOT at increasing belt use?
- Solomon et al., 2002
 - “Belt use increased 8.6 percentage points averaged across the ten CIOT states; 2.7 percentage points across the four limited paid advertisement placement states; versus 0.5 percentage points across the four states using no specific paid advertisement placement.”
- Tison & Williams, 2010
 - “While average media expenditures were similar, enforcement rates were almost twice as high in the States showing the greater increases.”
- Results: highest increases when both publicity and enforcement are highly visible

How can you access the research you need?

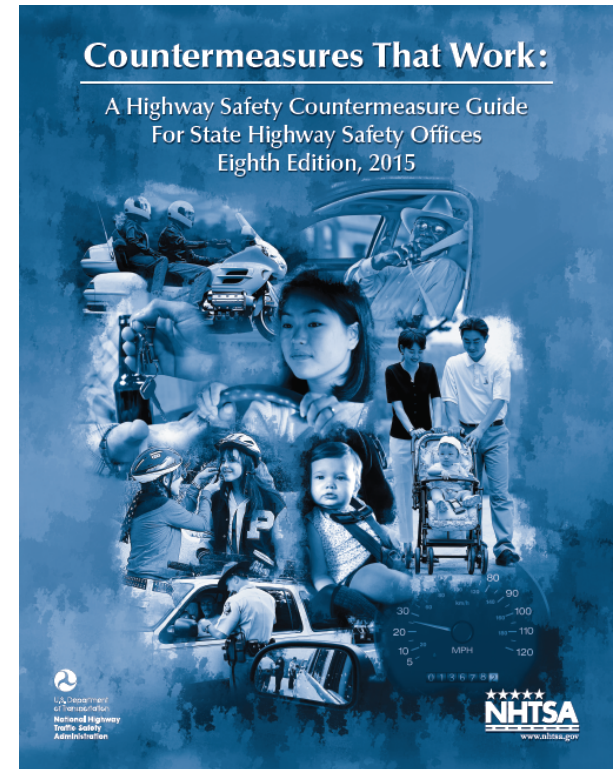
- Too many studies
 - 1,420 papers since 2000 with “drugged driving” in text
- Written by and for academics, sometimes hard to understand
- How to make sense of it all

Brilliant idea: Countermeasures That Work

- GHSA's idea in 2004
- Goals: for strategies and countermeasures relevant to SHSOs
 - Briefly describe them
 - Summarize their use, effectiveness, costs, and time to implement
 - Give references to the key research summaries and studies
- Two advisory panels – GRs and researchers
 - Identify the most important topics
 - Identify the most important research for each

Countermeasures That Work

- First edition in 2005
- Updated regularly: 8th edition in 2015
- Seven initial topics
 - Alcohol
 - Belts
 - Aggressive and speed
 - Distraction and fatigue
 - Motorcycles
 - Young drivers
 - Older drivers
- Pedestrians and bicyclists added in 2007



What's next for Countermeasures That Work?

- Heidi Coleman from NHTSA will tell you
- Jim Hedlund
 - jhedlund@sprynet.com