

CIEM/RIEM Update

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ANALYSIS,
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Carrier Intervention Effectiveness Model (CIEM)

- Primary FMCSA Tool for Measuring Compliance, Safety, Accountability (CSA) Program Effectiveness
- Model uses following types of interventions
 - Onsite Comprehensive Investigations
 - Onsite Focused Investigations
 - Offsite Focused Investigations
 - Warning Letters
 - Other Non-Ratable Reviews

Data Evaluated by CIEM

- **Pre-intervention period:**

- *Treatment group's combined Crash Rate (crashes per PU) during the 1-year period immediately prior to their interventions.*

- **Post-intervention period:**

- *Treatment group's combined Crash Rate during the 1-year period immediately following their interventions.*

Adjusted Crash Rate Change for Carriers Receiving Interventions

Δ Treatment Grp.

Δ Comparison Grp.

$$= (\text{Cr. Rate}_{\text{post}} - \text{Cr. Rate}_{\text{pre}})_{\text{trmt}} - (\text{Cr. Rate}_{\text{post}} - \text{CR. Rate}_{\text{pre}})_{\text{contrl}}$$

i.e., How Much of the Treatment Group Crash Rate Change Can We Attribute to the Interventions?

CIEM Estimated Net Crash Rate Reductions for FY19

Carrier Size Group	Reduction
1 (1–5 PUs)	50.3%
2 (6–20 PUs)	34.1%
3 (21–100 PUs)	18.7%
4 (100+ PUs)	1.6%

Percent Carriers Over Crash Basic “Intervention Threshold” for Carriers Receiving Onsite Comprehensives (2015 data)

Carrier Size	No. Carriers Receiving Onsite Comprehensive in 2015	Pre-Intervention Crash Rate (crashes per 100 PU)	% Carriers with Crash BASIC Over Threshold
1-5 PU	1,353	7.4	9.6%
6–20 PU	933	6.1	20.7%
21–100 PU	513	4.8	26.9%
GT 100 PU	137	2.2	38.0%

FY19 CIEM-Estimated Benefits from Interventions*

Fiscal Year	Number of Interventions	Crashes Prevented	Injuries Prevented	Lives Saved
2019	38,678	8,379	4,519	246

**Based on Federal and State carrier investigations/reviews and warning letters combined.*

Roadside Intervention Effectiveness Model (RIEM)

- Model looked at benefits associated with correcting driver and vehicle violations cited at roadside inspections (*from fixed inspection sites and traffic enforcement*).
- Measured incremental crash risk for groups of violations -- by comparing violations found in Post-Crash inspections to those found in Non-Crash inspections.
- FY2013 was the last year for which estimates were produced -- due to concerns about the model methodology.

RIEM Challenges: Baseline Prevalence Rates for Traffic Enforcement Violations

- **For drivers not involved in crashes, model needs “baseline” prevalence rates for LT drivers engaging in**
 - **Speeding** (*some data available*)
 - **Speaking on Phone** (*not readily available*)
 - **Texting** (*not readily available*)
 - **Etc., etc.**

RIEM Challenges: Quality of Post-Crash Inspection Data

- **Post-Crash inspections may not do a good job of capturing certain types of violations (e.g., speeding, various brake violations).**
- **Post-Crash inspection data include crashes where the truck driver may not be at fault, creating a bias in the estimated crash risks calculated by the model for the various violation groups.**

Contact Information

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