



Methodology for State Safety Data Quality (SSDQ)

(Results as of: July 24, 2009)

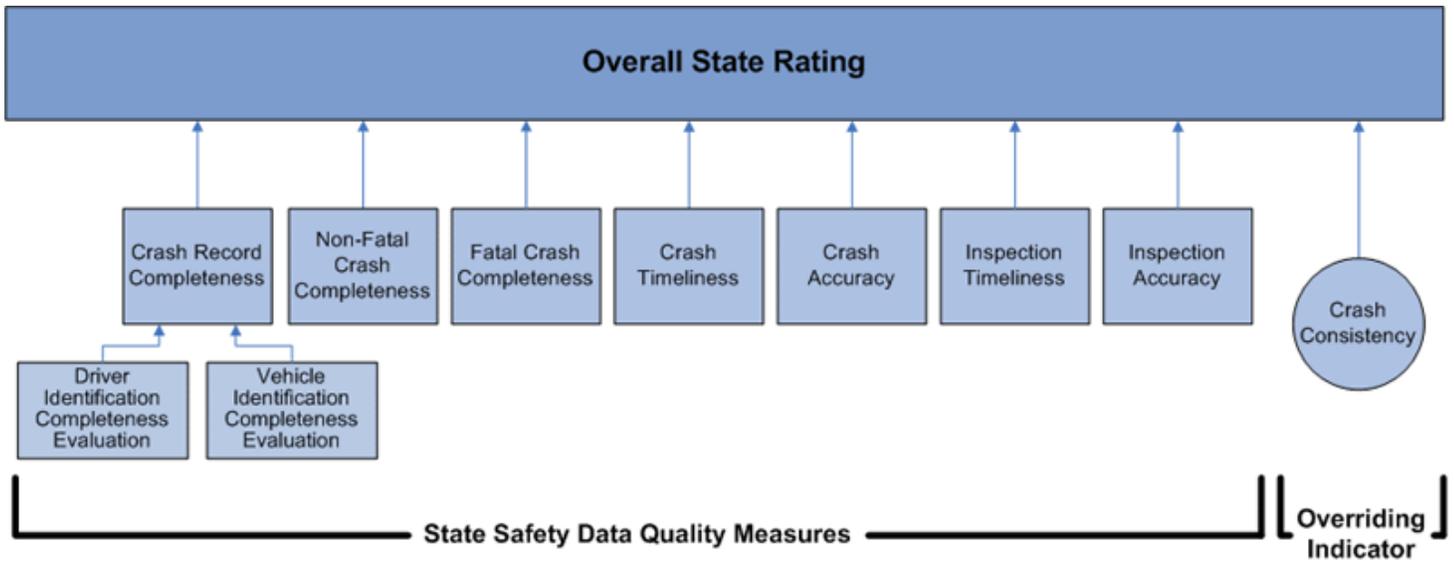
[Definitions](#)
[Revision Notes](#)

The **Methodology for State Safety Data Quality (SSDQ)** was developed by FMCSA to evaluate the completeness, timeliness, accuracy, and consistency of the State-reported commercial motor vehicle crash and inspection records in the Motor Carrier Management Information System (MCMIS). The SSDQ evaluation uses a 12-month time period that ends three months prior to the MCMIS snapshot for each measure, unless otherwise stated in the rating description. Crash and inspection records were used in this evaluation if the date of the event occurred within the 12-month time period, not when the records were uploaded to MCMIS. The quality of this data is evaluated with each monthly snapshot and the States receive ratings of "Good," "Fair," or "Poor" for seven SSDQ Measures. Based on these individual ratings, plus the Overriding Indicator, each State receives an Overall State Rating. States also receive a Crash Rating that considers only the SSDQ Crash Measures and the Overriding Indicator. The methodology used to determine these ratings is provided below.

<u>Overall State Rating</u>	<u>Crash Rating</u>
State Safety Data Quality Measures	State Safety Data Quality Measures
<i>Crash</i>	<i>Crash</i>
1. Crash Record Completeness	1. Crash Record Completeness
a. Driver Identification	a. Driver Identification
b. Vehicle Identification	b. Vehicle Identification
2. Non-Fatal Crash Completeness	2. Non-Fatal Crash Completeness
3. Fatal Crash Completeness	3. Fatal Crash Completeness
4. Crash Timeliness	4. Crash Timeliness
5. Crash Accuracy	5. Crash Accuracy
<i>Inspection</i>	
6. Inspection Timeliness	
7. Inspection Accuracy	
Overriding Indicator	Overriding Indicator
1. Crash Consistency	1. Crash Consistency

State Safety Data Quality Ratings

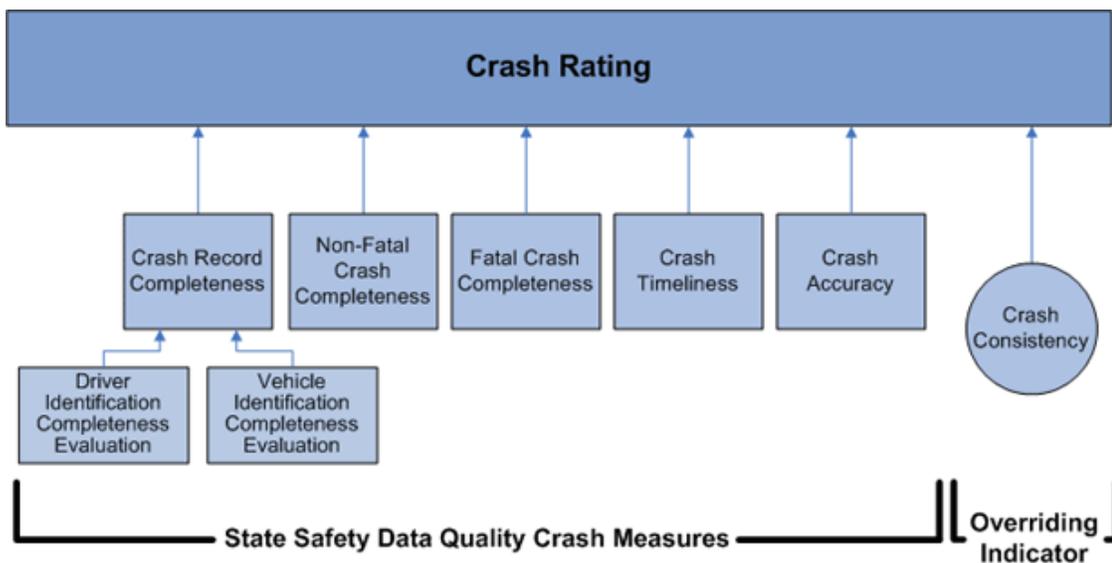
Overall State Rating: Considers all seven SSDQ measures and the Overriding Indicator, except measures with a rating of "Insufficient Data." States receive an overall score based on ratings in each of the measures and the Overriding Indicator. A State that has received a "red flag" will be automatically rated "Poor". A State with at least one "Good" measure and no "Poor" measures receives a "Good" rating. A State with only one "Poor" measure will receive a "Fair" rating, and any State with two or more "Poor" measures will receive a "Poor" rating. (See image below.)



The Overall State Rating is determined as follows:

Rating	Criteria
Good G	Minimum of 1 Good AND 0 Poor
Fair Y	Maximum of 1 Poor
Poor R	2+ Poor OR Red Flagged
* States that are red flagged are automatically rated POOR overall.	

Crash Rating: Considers the five SSDQ crash measures and the Overriding Indicator, except measures with a rating of "Insufficient Data." States receive an overall score based on ratings in each of the crash measures and the Overriding Indicator. A State that has received a "red flag" will be automatically rated "Poor". A State with at least one "Good" measure and no "Poor" measures receives a "Good" rating. A State with only one "Poor" measure will receive a "Fair" rating, and any State with two or more "Poor" measures will receive a "Poor" rating. (See image below.)



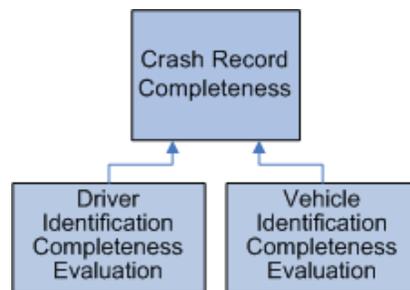
The Crash Rating is determined as follows:

Rating		Criteria
Good	G	Minimum of 1 Good AND 0 Poor
Fair	Y	Maximum of 1 Poor
Poor	R	2+ Poor OR Red Flagged
* States that are red flagged are automatically rated POOR overall.		

State Safety Data Quality Measures: Crash

Crash Record Completeness: Average of Driver and Vehicle Identification Completeness Evaluations

The Crash Record Completeness Measure evaluates fatal and non-fatal crash records that represent interstate and intrastate carriers and includes large truck and bus vehicle types. This measure determines a rating based on the completeness of driver and vehicle crash data reported to FMCSA. A State's rating is determined by evaluating the completeness of the driver data and vehicle data separately and then averaging these results together. The completeness of the driver data is determined by the **Driver Identification Completeness Evaluation** and the completeness of the vehicle data is determined by the **Vehicle Identification Completeness Evaluation**.



Driver Identification Completeness Evaluation

This evaluation determines the percentage of State-reported **fatal and non-fatal** crash records in the MCMIS database with complete driver information (i.e., the number of crash records with complete driver information divided by the number of crash records reported) over a 12-month time period. A State-reported crash record is considered complete when the following information is provided: driver license number, driver date-of-birth, driver first name, driver last name, and license class. If **any** of this information is missing, a record is considered incomplete.

Vehicle Identification Completeness Evaluation

This evaluation determines the percentage of State-reported **fatal and non-fatal** crash records in the MCMIS database with complete vehicle information (i.e., the number of crash records with complete vehicle information divided by the number of crash records reported) over a 12-month time period. A State-reported crash record is considered complete when the following information is provided: vehicle identification number, license plate number, vehicle configuration, cargo body type, and gross vehicle weight rating. If **any** of this information is missing, a record is considered incomplete.

The Crash Record Completeness rating is determined as follows:

Rating		Criteria
Good	G	Percentage of completed driver and vehicle information is $\geq 85\%$
Fair	Y	Percentage of completed driver and vehicle information is 70 - 84%
Poor	R	Percentage of completed driver and vehicle information is $< 70\%$

Non-Fatal Crash Completeness: *Percentage of Non-Fatal Crash Records Reported*

The Non-Fatal Crash Completeness Measure evaluates crash records that represent interstate and intrastate carriers and includes large truck and bus vehicle types. This measure determines a rating based on a ratio of reported to predicted non-fatal crash records reported to MCMIS. The number of reported non-fatal crash records was calculated using a 12-month time period that ends **six months** prior to the MCMIS snapshot date.

A statistical model was developed using data from eight States to predict the number of non-fatal reportable crash involvements. A three-year average of fatal crash records was entered into this model to derive the predicted non-fatal crash record values. Due to the inherent variability of crash data reporting by individual States, the Non-Fatal Crash Completeness Measure is intended to serve as a guideline to assess whether a State's non-fatal crash reporting falls within an expected range, as determined by the model.

As data from more States become available for analysis, the sample size for the model will increase, which should result in more precise predictions.

The percent non-fatal crash completeness is determined by dividing the number of reported non-fatal crash records by the number of predicted non-fatal crash records:

$$\% \text{ Non-Fatal Crash Completeness} = \frac{\# \text{ Reported Non-Fatals}}{\# \text{ Predicted Non-Fatals}}$$

The Non-Fatal Crash Completeness rating is determined as follows:

Rating		Criteria
Good		Percentage of non-fatal crash records reported is >= 75%
Fair		Percentage of non-fatal crash records reported is 50 - 74%
Poor		Percentage of non-fatal crash records reported is < 50%
Insufficient Data		State has < 15 average # of fatal crash records AND Percentage of non-fatal crash records reported is < 50%

Fatal Crash Completeness: *Percentage of Fatal Crash Records Reported*

The Fatal Crash Completeness Measure evaluates only those records that represent **large trucks** involved in fatal crashes that occurred within the calendar year. This measure determines a rating based on a comparison of the **number** of State-reported fatal crash records in MCMIS to the **number** of fatal crash records reported in the Fatality Analysis Reporting System (FARS). FARS is the national database of fatal motor vehicle crashes maintained by the National Highway Traffic Safety Administration (NHTSA).

The Fatal Crash Completeness rating is determined as follows:

Rating		Criteria
Good		MCMIS as a % of FARS is >= 90%
Fair		MCMIS as a % of FARS is 80 - 89%
Poor		MCMIS as a % of FARS is < 80%
Insufficient Data		State has < 15 FARS records AND MCMIS as a % of FARS is < 80%

Crash Timeliness: *Percentage of Crash Records Reported within 90 Days*

The Crash Timeliness Measure evaluates fatal and non-fatal crash records that represent interstate and intrastate carriers and includes large truck and bus vehicle types. This measure determines a rating based on the percentage of crash records reported to FMCSA within 90 days over a 12-month period.

The Crash Timeliness rating is determined as follows:

Rating		Criteria
Good		Percentage reported within 90 Days is >= 85%
Fair		Percentage reported within 90 Days is 60 - 84%
Poor		Percentage reported within 90 Days is < 60%
Insufficient Data		State has < 15 records reported in current timeframe AND percentage reported within 90 Days is < 60%

Crash Accuracy: *Percentage of Matched Crash Records*

The Crash Accuracy Measure evaluates fatal and non-fatal crash records that represent interstate carriers and intrastate carriers transporting hazardous material and includes large truck and bus vehicle types. This measure determines a rating based on the percentage of crash records reported by the State over a 12-month period that were matched to a company registered in MCMIS. (Crash records entered per FMCSA's "[Procedures for Entering Crashes without Carrier Identification into SAFETYNET](#)" are not evaluated by this measure.)

The Crash Accuracy rating is determined as follows:

Rating		Criteria
Good		Percentage of matched records is $\geq 95\%$
Fair		Percentage of matched records is 85 - 94%
Poor		Percentage of matched records is $< 85\%$
Insufficient Data		State has < 15 records reported in current timeframe AND percentage of matched records is $< 85\%$

State Safety Data Quality Measures: *Inspection*

Inspection Timeliness: *Percentage of Inspection Records Reported within 21 Days*

The Inspection Timeliness Measure evaluates inspection records that represent interstate and intrastate carriers and includes large truck and bus vehicle types. This measure determines a rating based on the percentage of inspection records reported to FMCSA within 21 days over a 12-month period.

The Inspection Timeliness rating is determined as follows:

Rating		Criteria
Good		Percentage reported within 21 Days is $\geq 85\%$
Fair		Percentage reported within 21 Days is 60 - 84%
Poor		Percentage reported within 21 Days is $< 60\%$

Inspection Accuracy: *Percentage of Matched Inspection Records*

The Inspection Accuracy Measure evaluates inspection records that represent interstate carriers and intrastate carriers transporting hazardous material and includes large truck and bus vehicle types. This measure determines a rating based on the percentage of inspection records reported by the States over a 12-month period that were matched to a company registered in MCMIS.

The Inspection Accuracy rating is determined as follows:

Rating		Criteria
Good		Percentage of matched records is $\geq 95\%$
Fair		Percentage of matched records is 85 - 94%
Poor		Percentage of matched records is $< 85\%$

Overriding Indicator

Crash Consistency*: *Percentage of State-Reported Non-Fatal Crash Records*

The Crash Consistency Overriding Indicator evaluates non-fatal crash records that represent interstate and intrastate carriers and includes large truck and bus vehicle types. This "red flag" indicates States that have reported less than 50% of non-fatal crash records for the current 12-month period compared to the yearly average, based on the previous 36-months.

The Crash Consistency Overriding Indicator "flag" is determined as follows:

Rating		Criteria
No Flag		Estimate Reported is $\geq 50\%$
Red Flag		Estimate Reported is $< 50\%$
Insufficient Data		State has < 15 records reported in current timeframe AND State has < 15 records reported in previous 3 year average AND Estimate Reported is $\leq 50\%$

* States that have an obvious and significant decline in crash record reporting will be categorized as Poor in the Overall State Rating and Crash Rating, without regard to their rating on other measures.

Definitions:

Large truck: Any truck having a gross vehicle weight rating (GVWR) of more than 10,000 pounds or a gross combination weight rating (GCWR) over 10,000 pounds.

Bus: A motor vehicle with seats for at least nine (9) people, including the driver's seat.

Interstate Carrier: Carriers that transport a commodity outside the state of its place of business.

Intrastate Carrier: Carriers that transport a commodity only within the state of its place of business.

Fatal Crash: A crash where one or more persons dies within 30 days of the crash. The fatality does not have to occur at the scene of the crash. It includes any person involved in the crash, including pedestrians and bicyclists, as well as occupants of the passenger cars and trucks.

Non-fatal crash: A crash where one or more persons has non-fatal injuries requiring transportation by a vehicle for the purpose of obtaining immediate medical attention; or one or more of the vehicles were towed away from the scene due to "disabling damage". The towed vehicle need not be the truck involved in the crash.

Revision Notes: Improvements or changes made to the "State Safety Data Quality" methodology are documented below.

October 30, 2007

The SSDQ Overall State Rating methodology has changed. It now includes the Crash Record Completeness Measure and the Non-Fatal Crash Completeness Measure. A Crash Rating has been developed to evaluate only crash data quality.

June 23, 2006

The Crash Accuracy Measure has changed. The crash accuracy analysis will now exclude all "Carrier Non-Identifiable" crash records. Changing this analysis will prevent records that are entered using FMCSA's guidelines on entering crash records without carrier identification from being included in the calculation of a State's accuracy measure.

March 31, 2006

The Crash and Inspection Timeliness Measure has changed. The timeliness analysis will now include "all" (both 'add' and 'change') records. Changing this analysis will allow all crash and inspection records uploaded to MCMIS within a specific timeframe to be evaluated. Previous releases only included 'add' records.

December 23, 2004

The crash and roadside inspection accuracy measures will include interstate carriers and intrastate hazardous material carriers in its analysis to determine the percentage of records reported in the MCMIS database that were matched to a motor carrier in MCMIS. Previous releases only included interstate carriers.