GDL Framework
Safety Center

GDL Framework Data Input Template

Establishing the need: Night driving restriction at 9 pm or 10 pm

Introduction

Data illustrating the size or prevalence of a problem is essential to inform decision-making regarding elements of the Graduated Driver Licensing (GDL) Framework that may be relevant in each jurisdiction. This general tool was developed to help states gather important data indicators to examine the involvement of novice drivers in night driving crashes and that are useful to support a 9 or 10 pm night driving restriction.

Each data input template has an associated answer template. The data input template helps calculate the numbers you will need, and the answer template summarizes all the answers from the data template for ease of analysis. The data metrics are part of a suggested template and can be modified if more practical metrics exist. (e.g., other age groups, range of data years or a rolling average when values are small). Please consult with data management or statistical analysis staff in your agency when interpreting the results from the template.

In some cases, these data are routinely collected and available in a state, and in other cases resources may be needed to capture these data. If this is not feasible, jurisdictions may consider relying on studies and data from other jurisdictions that have used these data to make the case for a 9 or 10 pm night driving restriction, and answered important research and policy questions related to this topic.

TIRF

Teen crashes by hour of day

In your jurisdiction, how many teen drivers age 16 and 17 are involved in crashes of different severity in each hour of the day for the most recent data year available?

Hour of day	# of teen drivers age 16 and 17 involved in crashes	# of teen drivers age 16 and 17 involved in injury and fatal crashes
6 am- 9 am		
9 am-noon		
Noon-3 pm		
3 pm-6 pm		
6 pm-9 pm		
9 pm-10 pm		
10 pm - 11 pm		
11 pm -12 am		
12 am-3 am		
3 am-6 am		

Night driving crash rates by severity of crash

Step 1

Calculate night driving (9 pm to 6 am) per-driver crash rates in your jurisdiction for the most recent data year available and, for comparison, five years ago. Complete this calculation for crashes of different severity and for teen drivers as well as older driver age groups (16-17, 18-20, 25-44).

Night driving crashes

a. Drivers aged 16 to 17 years

Most recent data year

i. What is the total # of night driving crashes for drivers aged 16 to 17 ?

ii. What is the total # of drivers aged 16 to 17 in your jurisdiction?

Calculate the night driving crash rate for the most recent year:
# of night driving crashes/ # of drivers aged 16 to 17 =

X 100,000

TOTAL 1

5 years ago

iii. What is the total # of night driving crashes for drivers aged 16 to 17?

iv. What is the total # of drivers aged 16 to 17 in your jurisdiction?

Calculate the night driving crash rate for 5 years ago:
# of night driving crashes/ # of drivers aged 16 to 17 =

X 100,000

TOTAL 2

b. Drivers aged 18 to 20 years

Most recent data year

i. What is the total # of night driving crashes for drivers aged 18 to 20 ?

ii. What is the total # of drivers aged 18 to 20 in your jurisdiction?

Calculate the night driving crash rate for the most recent year:
# of night driving crashes/ # of drivers aged 18 to 20 =

X 100,000

TOTAL 3

5 years ago

iii. What is the total # of night driving crashes for drivers aged 18 to 20?

iv. What is the total # of drivers aged 18 to 20 in your jurisdiction?

Calculate the night driving crash rate for 5 years ago:
# of night driving crashes/ # of drivers aged 18 to 20 =

X 100,000

TOTAL 4

c. Adult drivers aged 25 to 44 years

Most recent data year

i. What is the total # of night driving crashes for drivers aged 25 to 44 ?

ii. What is the total # of drivers aged 25 to 44 in your jurisdiction?

Calculate the night driving crash rate for the most recent year:
# of night driving crashes/ # of drivers aged 25 to 44 =

X 100,000

TOTAL 5

5 years ago

iii. What is the total # of night driving crashes for drivers aged 25 to 44?

iv. What is the total # of drivers aged 25 to 44 in your jurisdiction?

Calculate the night driving crash rate for 5 years ago:
# of night driving crashes/ # of drivers aged 25 to 44 =

X 100,000

TOTAL 6

Night driving injury and fatal crashes

a. Drivers aged 16 to 17 years

Most recent data year

i. What is the total # of night driving injury and fatal crashes for drivers aged 16 to 17 ?

ii. What is the total # of drivers aged 16 to 17 in your jurisdiction?

Calculate the night driving injury and fatal crash rate for the most recent year:
# of night driving injury and fatal crashes/ # of drivers aged 16 to 17 =

X 100,000

TOTAL 7

5 years ago

iii. What is the total # of night driving injury and fatal crashes for drivers aged 16 to 17 ?

iv. What is the total # of drivers aged 16 to 17 in your jurisdiction?

Calculate the night driving injury and fatal crash rate for 5 years ago:
# of night driving injury and fatal crashes/ # of drivers aged 16 to 17 =

X 100,000

TOTAL 8

b. Drivers aged 18 to 20 years

Most recent data year

i. What is the total # of night driving injury and fatal crashes for drivers aged 18 to 20 ?

ii. What is the total # of drivers aged 18 to 20 in your jurisdiction?

Calculate the night driving injury and fatal crash rate for the most recent year:
# of night driving injury and fatal crashes/ # of drivers aged 18 to 20 =

X 100,000

TOTAL 9

5 years ago

iii. What is the total # of night driving injury and fatal crashes for drivers aged 18 to 20?

iv. What is the total # of drivers aged 18 to 20 in your jurisdiction?

Calculate the night driving injury and fatal crash rate for 5 years ago:
# of night driving injury and fatal crashes/ # of drivers aged 18 to 20 =

X 100,000

TOTAL 10

c. Adult drivers aged 25 to 44 years

Most recent data year

i. What is the total # of night driving injury and fatal crashes for drivers aged 25 to 44 ?

ii. What is the total # of drivers aged 25 to 44 in your jurisdiction?

Calculate the night driving injury and fatal crash rate for the most recent year:
# of night driving injury and fatal crashes/ # of drivers aged 25 to 44 =

X 100,000

TOTAL 11

5 years ago

iii. What is the total # of night driving injury and fatal crashes for drivers aged 25 to 44?

iv. What is the total # of drivers aged 25 to 44 in your jurisdiction?

Calculate the night driving injury and fatal crash rate for 5 years ago:
# of night driving injury and fatal crashes/ # of drivers aged 25 to 44 =

X 100,000

TOTAL 12

Step 2

How do the night driving crash rates of novice drivers age 16-17 compare to the rates of the older driver age groups in the most recent year and 5 years ago? Take the crash rates calculated in the previous step and insert them in the table below.

Age categories	Night driving crash rates		Night driving injury and fatal crash rate	
	Most recent year	5 years ago	Most recent year	5 years ago
Drivers aged 16 to 17 years				
Drivers aged 18 to 20 years				
Drivers aged 25-44 years				

Step 3

For each age group, determine the percentage of change in crash rates for all night driving crashes, and injury/fatal crashes in the past 5 years. Use the current and past rates from the previous question to calculate the percentage of change between current and past years for each age group.

**If the answer for the percentage change is negative, then this means that there was a decrease in the night driving crash rate. If the answer is positive, then there was an increase in the rate of night driving crashes.*

Calculate night driving crash percentage of change for each age group

a. Drivers aged 16 to 17 years

Night driving crash rate percentage of change

i. Night driving crash rate for 5 years ago (aged 16 to 17) ☐

ii. Night driving crash rate for the most recent year (aged 16 to 17) ☐

Calculate percentage of change for night driving crash:

$$\frac{\text{Night driving crash rate (most recent year) - Night driving crash rate (5 years ago)}}{\text{Night driving crash rate (5 years ago)}} = \square$$

X 100

TOTAL 19 ☐

TOTAL 20 Increase / Decrease

b. Drivers aged 18 to 20 years

Night driving crash rate percentage of change

i. Night driving crash rate for 5 years ago (aged 18 to 20) ☐

ii. Night driving crash rate for the most recent year (aged 18 to 20) ☐

Calculate percentage of change for night driving crash:

$$\frac{\text{Night driving crash rate (most recent year) - Night driving crash rate (5 years ago)}}{\text{Night driving crash rate (5 years ago)}} = \square$$

X 100

TOTAL 21 ☐

TOTAL 22 Increase / Decrease

c. Adult drivers aged 25 to 44 years

Night driving crash rate percentage of change

i. Night driving crash rate for 5 years ago (aged 25 to 44) ☐

ii. Night driving crash rate for the most recent year (aged 25 to 44) ☐

Calculate percentage of change for night driving crash:

$$\frac{\text{Night driving crash rate (most recent year) - Night driving crash rate (5 years ago)}}{\text{Night driving crash rate (5 years ago)}} = \square$$

X 100

TOTAL 23 ☐

TOTAL 24 Increase / Decrease

Calculate night driving injury and fatal crash rate percentage of change for each age group

a. Drivers aged 16 to 17 years

Night driving injury and fatal crash rate percentage of change

i. Night driving injury and fatal crash rate for 5 years ago (aged 16 to 17)

ii. Night driving injury and fatal crash rate for the most recent year (aged 16 to 17)

Calculate percentage of change for night driving injury and fatal crash:

Night driving injury/fatal crash rate (most recent year) - Night driving injury/fatal crash rate (5 years ago) =
Night driving injury and fatal crash rate (5 years ago)

X 100

TOTAL 25

TOTAL 26 Increase / Decrease

b. Drivers aged 18 to 20 years

Night driving injury and fatal crash rate percentage of change

i. Night driving injury and fatal crash rate for 5 years ago (aged 18 to 20)

ii. Night driving injury and fatal crash rate for the most recent year (aged 18 to 20)

Calculate percentage of change for night driving injury and fatal crash:

Night driving injury/fatal crash rate (most recent year) - Night driving injury/fatal crash rate (5 years ago) =
Night driving injury and fatal crash rate (5 years ago)

X 100

TOTAL 27

TOTAL 28 Increase / Decrease

c. Adult drivers aged 25 to 44 years

Night driving injury and fatal crash rate percentage of change

i. Night driving injury and fatal crash rate for 5 years ago (aged 25 to 44)

ii. Night driving injury and fatal crash rate for the most recent year (aged 25 to 44)

Calculate percentage of change for night driving injury and fatal crash:

Night driving injury/fatal crash rate (most recent year) - Night driving injury/fatal crash rate (5 years ago) =
Night driving injury and fatal crash rate (5 years ago)

X 100

TOTAL 29

TOTAL 30 Increase / Decrease

Step 4

How does the percentage change in night driving crashes and injury/fatal crashes for drivers aged 16 to 17 years compare to the percentage change in the crash rates of the other two age groups? Use the percentage of change calculated in the previous question to compare each crash type percentage change by age group.

Compare

a. Night driving crash rate percentage of change

i. Percentage of change for night driving crash rate (aged 16 to 17)

ii. Percentage of change for night driving crash rate (aged 18 to 20)

iii. Percentage of change for night driving crash rate (aged 25 to 44)

b. Night driving injury and fatal crash rate percentage of change

i. Percentage of change for night driving injury and fatal crash rate (aged 16 to 17)

ii. Percentage of change for night driving injury and fatal crash rate (aged 18 to 20)

iii. Percentage of change for night driving injury and fatal crash rate (aged 25 to 44)

Traffic Injury Research Foundation

The mission of the Traffic Injury Research Foundation (TIRF) is to reduce traffic-related deaths and injuries. TIRF is a national, independent, charitable road safety institute. Since its inception in 1964, TIRF has become internationally recognized for its accomplishments in a wide range of subject areas related to identifying the causes of road crashes and developing programs and policies to address them effectively.

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