

When is it safe to drive? Supplemental data

Calculating an individual's accident risk ratio (ARR) compared to general population can use the formula (1):

$$\text{ARR} = (\text{COSY} \cdot \text{D} \cdot \text{X}) / \text{F} + 1$$

where:

COSY = Chance of Occurrence of Seizure in the next Year (as a ratio)

D = Driving time (as a proportion of time spent driving)

X = probability of a seizure at the wheel causing a fatal accident

compared to:

F = overall community Fatal accidents per driver/year

The unit of time used is usually one year, but this formula is applicable to other time periods.

The formula can be rearranged to derive the equivalent acceptable COSY:

$$\text{COSY} = (\text{ARR} - 1) \cdot \text{F} / (\text{D} \cdot \text{X})$$

As an example, for an ARR of 3, a COSY of 0.37 (37%) can be derived with the following assumptions, used by the European Working Group on Epilepsy and Driving (7):

D = driving time of 1 hour per day (as a proportion = 0.042).

X = 0.018 (A proportion of seizures occurring whilst driving leading to accidents of 60%, 3% of these accidents fatal ($X = 0.6 \times 0.03 = 0.018$))

F = 0.00014 (An overall community fatal accident per driver/yr of 1 in 7,000).

References

1. EWGED. *A report of the second European working group on epilepsy and driving, an advisory board to the driving license committee of the European Union. Epilepsy and driving in Europe*. Final report; 3 April 2005
ec.europa.eu/.../epilepsy_and_driving_in_europe_final_report_v2_en.pdf Brussels, 2005.