

# Red Light Camera Interventions for Reducing Traffic Violations and Accidents: A Systematic Review

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## TITLE OF THE REVIEW

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Red Light Camera Interventions for Reducing Traffic Violations and Accidents: A Systematic Review

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## BACKGROUND

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Road traffic accidents are a major and increasing cause of injury and death around the world, with almost 1.24 million people dying annually and between 20 and 50 million more suffering non-fatal injuries, including permanent disabilities. (WHO, 2013) There were over 5.8 million vehicular crashes in the U.S. in 2008 and about 40 percent of these occurred at intersections; most of these crashes were due to driver-related causes, including violations of traffic signals (Choi, 2010). According to the National Highway Traffic Safety Commission (2014), there were 33,561 traffic fatalities in the U.S. in 2012 (10.7 per 100,000 population). During 2012, 683 people were killed and approximately 133,000 were injured in traffic accidents that involved running red lights (Insurance Institute for Highway Safety 2014),

Traffic light violations appear to be very common. A recent survey by the AAA Foundation for Traffic Safety Culture (2014) found that over 35 percent of drivers admitted to having driven through a red traffic light in the past month.

The use of red-light cameras to enforce relevant traffic laws is increasing. Unlike other methods, such as police observation, red-light cameras operate continually, do not involve potentially dangerous pursuits, and are free from any potential human bias or discrimination.

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## OBJECTIVES

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- Do red-light cameras affect the incidence of red-light violations?
  - Do red-light cameras affect the incidence and severity of traffic accidents, injuries, and fatalities?
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## EXISTING REVIEWS

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There has been one previous systematic review of the effect of red-light cameras on road traffic crashes (Aeron-Thomas and Hess, 2005). However, this review includes only studies published in 2002 or earlier and is no longer considered up-to-date by the Cochrane Collaboration. No update is in progress.

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## **INTERVENTION**

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Eligible interventions will include cameras designed to detect red-light violations and violators. This includes both cameras installed at intersections and area-wide programs in which some but not all junctions have cameras in operation.

Comparison conditions will include those intersections and/or areas that do not have red light cameras installed.

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## **POPULATION**

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The population under study will include all road users at all intersections and areas that have red light cameras installed.

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## **OUTCOMES**

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- Red-light violations, as determined by the number of vehicles that enter and pass through an intersection on a red light. This does not include vehicles that enter an intersection on a yellow light.
- Traffic accidents resulting from red-light violations, by severity, including the incidence of injury and fatal accidents.

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## **STUDY DESIGNS**

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Studies to be included will be place-based studies (see e.g., Weisburd and Gill, 2014, for a detailed discussion of issue involved in place-based randomized trials). Studies employing the following research designs will be included:

- Randomized controlled trials – studies in which areas are randomly assigned to experimental (red-light cameras) and control (no cameras) conditions; after-only measures
- After-only quasi-random allocation – studies in which experimental areas are matched with control areas, with after-only measures
- Before/after quasi-random allocation – studies in which experimental areas are matched with control areas; using both before and after measures

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## REFERENCES

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World Health Organization (2013, March). Road traffic injuries. Retrieved December 4, 2014 from the World Health Organization Web site: <http://www.who.int/mediacentre/factsheets/fs358/en/>

## Review Authors

**Lead review author:** The lead author is the person who develops and co-ordinates the review team, discusses and assigns roles for individual members of the review team, liaises with the editorial base and takes responsibility for the on-going updates of the review.

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## ROLES AND RESPONSIBILITIES

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Please give a brief description of content and methodological expertise within the review team. It is recommended to have at least one person on the review team who has content expertise, at least one person who has methodological expertise and at least one person who has statistical expertise. It is also recommended to have one person with information retrieval expertise. Please note that this is the *recommended optimal* review team composition.

- Content: Ellen G. Cohn and David P. Farrington
- Systematic review methods: Ellen G. Cohn and Suman Kakar
- Statistical analysis: Suman Kakar and David P. Farrington
- Information retrieval: Ellen G. Cohn and Suman Kakar

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## FUNDING

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**External:** We do not anticipate the need for external funding to conduct this research.

**Internal:** We plan to apply for a Faculty Development Award from Florida International University College of Arts and Sciences.

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## POTENTIAL CONFLICTS OF INTEREST

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There are no potential conflicts of interest.

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## PRELIMINARY TIMEFRAME

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Note, if the protocol or review are not submitted within 6 months and 18 months of title registration, respectively, the review area is opened up for other authors.

- Date you plan to submit a draft protocol: April 17, 2015
- Date you plan to submit a draft review: December 18, 2015

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## AUTHOR DECLARATION

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By completing this form, you accept responsibility for preparing, maintaining, and updating the review in accordance with Campbell Collaboration policy. The Coordinating Group will provide as much support as possible to assist with the preparation of the review.

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**Form completed by: Ellen G. Cohn & Suman  
Kakar**

**Date: December 15,  
2014**