Graduated driver licensing for reducing motor vehicle crashes among young drivers (Review)

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This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in The Cochrane Library 2011, Issue 10

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Graduated driver licensing for reducing motor vehicle crashes among young drivers

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Editorial group: Cochrane Injuries Group.
Publication status and date: Edited (conclusions changed), published in Issue 10, 2011.
Review content assessed as up-to-date: 13 October 2009.

Citation: Russell KF, Vandermeer B, Hartling L. Graduated driver licensing for reducing motor vehicle crashes among young drivers. Cochrane Database of Systematic Reviews 2011, Issue 10. Art. No.: CD003300. DOI: 10.1002/14651858.CD003300.pub3.

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ABSTRACT

Background
Graduated driver licensing (GDL) has been proposed as a means of reducing crash rates among novice drivers by gradually introducing them to higher risk driving situations.

Objectives
To examine the effectiveness of GDL in reducing crash rates among young drivers.

Search strategy
Studies were identified through searching MEDLINE, EMBASE, CINAHL, Healthstar, Web of Science, NTIS Bibliographic Database, TRIS Online, SIGLE, the World Wide Web, conference proceedings, consultation with experts and reference lists in relevant published literature. The searches were conducted from the time of inception to May 2009, and the Cochrane Injuries Group conducted an updated search of the TRANSPORT database in September 2009.

Selection criteria
Studies were included if: 1) they compared outcomes pre- and post-implementation of a GDL program within the same jurisdiction, 2) comparisons were made between jurisdictions with and without GDL, or 3) both. Studies had to report at least one objective, quantified outcome.

Data collection and analysis
Results were not pooled due to substantial heterogeneity. Percentage change was calculated for each year after the intervention, using one year prior to the intervention as baseline. Results were adjusted by internal controls. Analyses were stratified by denominators (population, licensed drivers). Results were calculated for the different crash types and presented for 16 year-olds alone as well as all teenage drivers.
Main results

We included 34 studies evaluating 21 GDL programs and 2 analyses of >40 US states. GDL programs were implemented in the US (n=16), Canada (n=3), New Zealand (n=1), and Australia (n=1) and varied in their restrictions during the intermediate stage. Based on the Insurance Institute for Highway Safety (IIHS) classification, eleven programs were good, four were fair, five were marginal, one was poor and two could not be assessed. Reductions in crash rates were seen in all jurisdictions and for all crash types. Among 16 year-old drivers, the median decrease in per population adjusted overall crash rates during the first year was 15.5% (range -27 to -8%, five studies). There was a decrease in per population adjusted injury crash rates (median -21%, range -46 to -2%, five studies). Results for all teenage drivers, rates per licensed driver, and rates adjusting for internal controls were generally reduced when comparing within jurisdictions.

Authors’ conclusions

GDL is effective in reducing crash rates among young drivers, although the magnitude of the effect varies. The conclusions are supported by consistent findings, temporal relationship, and plausibility of the association. Stronger GDL programs (i.e. more restrictions or higher quality based on IIHS classification) appear to result in greater fatality reduction. Future studies should focus on which components and combination of components yield the greatest reductions.

**Plain Language Summary**

Graduated driver licensing for reducing motor vehicle crashes among young drivers

Young drivers are at high risk of involvement in motor vehicle crashes. Graduated driver licensing (GDL) has been proposed as a means of reducing crash rates among novice drivers by gradually introducing them to higher risk driving situations. This review found 34 studies that have evaluated various types of GDL programs. All of the studies reported positive findings, with reductions for all types of crashes among all teenage drivers. However, the size of the reductions varied and, based on the included studies it is not possible to say which aspects of GDL programs have the biggest effect. Future research on GDL should evaluate the relative impact of different program components.