The aim of the study was to estimate the impacts of an automatic emergency call system (eCall) on accident consequences in Finland. More specifically, the study estimated: the annual number of fatalities that could be avoided using the eCall system; the effects of eCall on emergency response times; and the effects of real-time information about the vehicle location and accident type on the consequences of the accident.

In its evaluation of current practices, the study discusses the critical importance of timing and speedy action in treating trauma injuries. It also defines the procedures currently undertaken by the authorities in traffic accidents and the presumable impact of eCall on those actions. A general description of the functionality of the automatic emergency call system is included.

The estimated number of fatalities that could be avoided using the eCall system is based on the case reports of Road Accident Investigation Teams covering the period 2001–2003. The time interval between the accident and notification of the emergency response centre was evaluated using three methods: based on the case reports of the Road Accident Investigation Teams, based on a questionnaire from the operators of emergency response centres, and by comparing the time of the accident estimated by the Road Accident Investigation Teams with the phone log of emergency response centres.

The results showed that, in most accidents involving motor-vehicle occupants (82%), the emergency call had been made within five minutes of the accident. However, in 14% of the cases the emergency call had been made 5–30 minutes after the accident and in approximately 4% of the cases more than 30 minutes after the accident. In the accidents involving fatal unprotected road user, the delays were slightly shorter.

The eCall system could very probably have prevented 4.7% of the fatalities in accidents involving motor-vehicle occupants. In the accidents involving fatal unprotected road user, however, the system could probably have prevented no fatality. In all, eCall system was estimated to be able to reduce 4–8% of road fatalities in Finland.

The benefit-cost ratio of the eCall system examined in this study was 0.5–2.3. The benefit-cost ratio would have been higher if the indirect benefits of the eCall system could have been taken into consideration.

Based on the main findings of this study, the eCall system is recommended for immediate and widespread implementation in Finland. The thesis also indicated a need for developing statistics on severely injured accident casualties.