Title: Speed calming measures and how they affect speed violations and driving pattern

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Background:
Inappropriate speeding is one of the most important reasons for fatalities and injured in the traffic. Despite many years of education, police control, information, and speed limit signs spread on the road network, more than 50% of the Danish car drivers are speeding regularly on urban roads, while it is nearly 75% on rural roads. Moreover, nor speed-regulation or speed-preventing Intelligent Transport Systems, nor serious enhanced enforcement are expected to be implemented in the next decade. Hence, speed bumps, elevated surfaces, and narrowing are spread out on significant parts of the Danish road network to reduce the speeding problems.

Aim:
The speed-calming measures are made as different types and with different interval. The selected solutions are often not selected due to their safety effects, but rather on other basics, which are not clear in all cases. On decision taker level are all solution seen as suitable solutions to improve road safety. However, former studies have shown that the effect from different types of solutions differs significantly and that not all are reducing the speed, as it is required. The aim is to study the effect on speed and speed variation of the most used speed-calming solutions.

Method or methodological issues:
The method is based on GPS data from driving cars, called Floating Car Data (FCD). From a large number of cars FCD from the passage of the speed-calming measures are analysed. In total speed-calming measures in 14 minor towns covered by nearly 31,000 trips on the basis of 63-220 unique vehicles are analysed. Roads with speed calming measures in big towns and cities are not included as the data might be less reliable for two reasons. Congestion problems in a big town might overshadow any effect on speeding. Also, the number of functions, which might result in deviations in the driving behaviour in a big town, is high and too many of such deviations might also shadow the effect from the speed calming measures.

Results obtained or expected:
The FCD are still in analysis, but the preliminary outcome is the effect on driving from each of the most used types of speed-calming measures. The effect will be measured by speed at the passage, speed variation at the passage, and how lasting the effect is (in distance from the measure).

Conclusions:
The expected results are that speed bump and narrowing overall have sufficient effect on speeding, while the effect from elevated surfaces is expected to be smaller. Also, it is expected that speed bumps and elevated surfaces result in rather low speed variation while it is expected to be high regarding narrowing. The latter due to the fact that a narrowing has it clearest effect when oncoming vehicles pass each other near the narrowing, and limited effect might be the case, if no oncoming vehicle appear during passage. For each of the measures it is expected that the effect only is lasting for a short distance.