

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



7<sup>th</sup> World Health Summit Regional Meeting  
Tehran University of Medical Sciences  
KISH ISLAND, I.R. IRAN | 29-30 April 2019

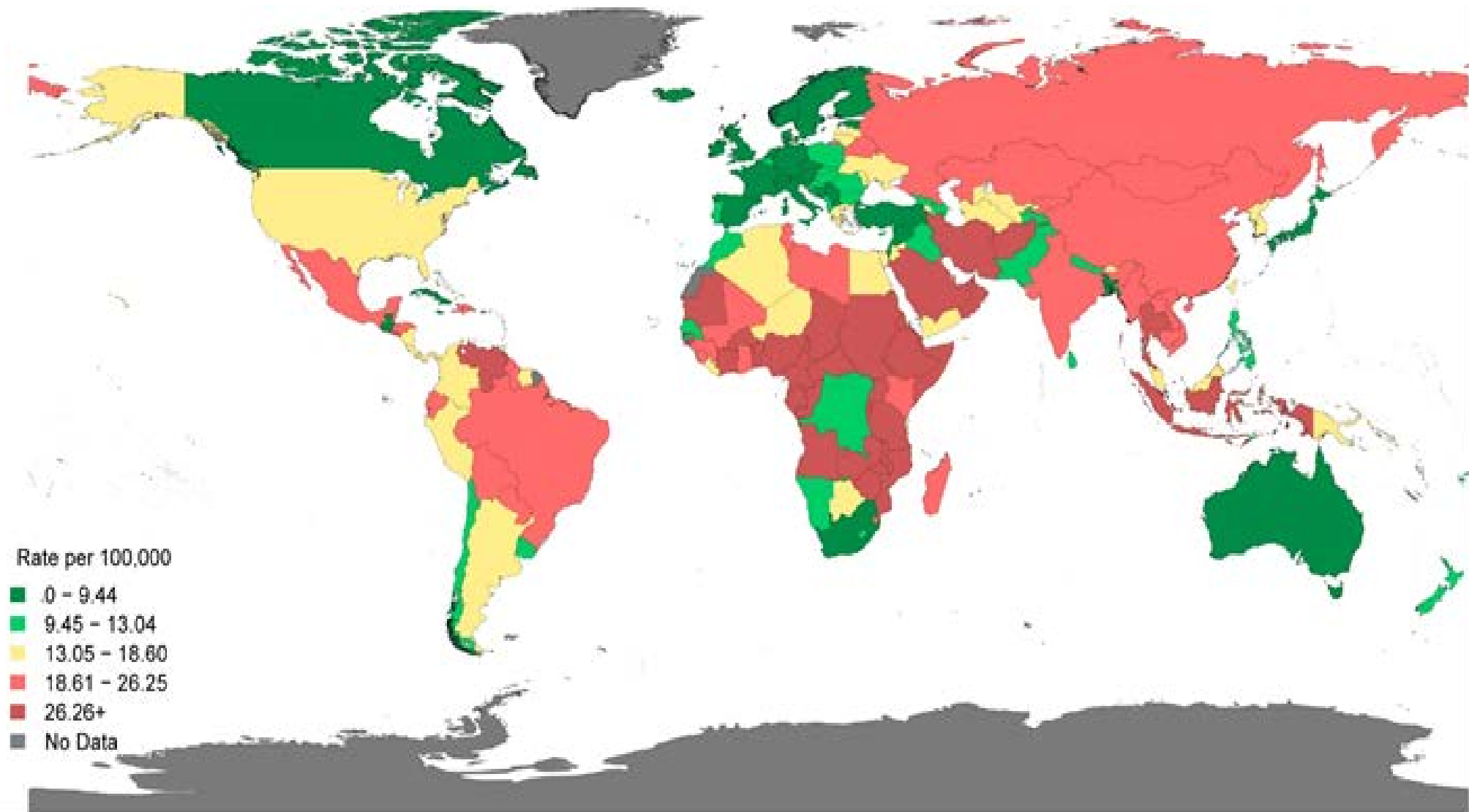
# An Approach Towards Reducing Road Traffic Injuries and Improving Public Health Through Big Data Telematics

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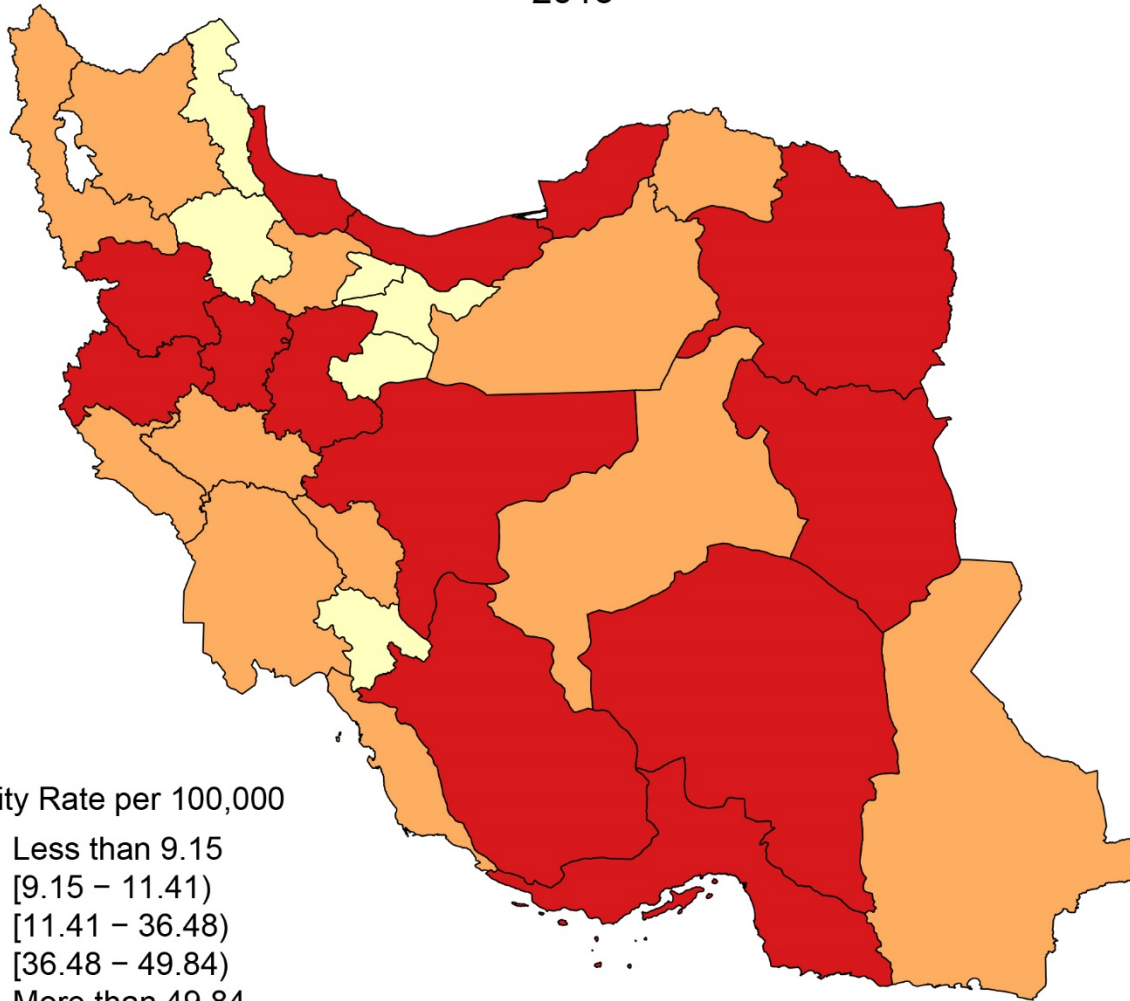
APRIL 29, 2019

# Mortality rates due to road injuries per 100,000 people in the world- 2010

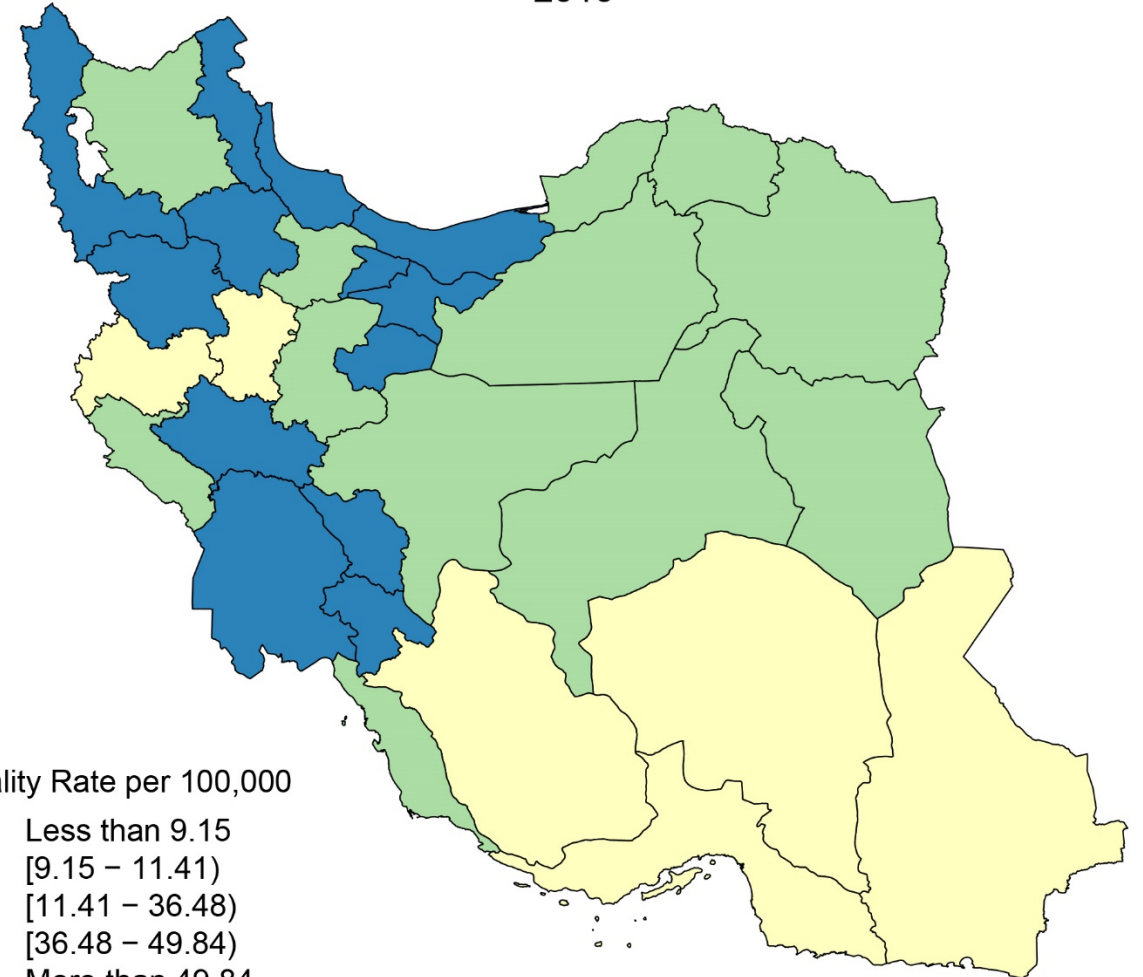


# Road Traffic Injuries in Iran

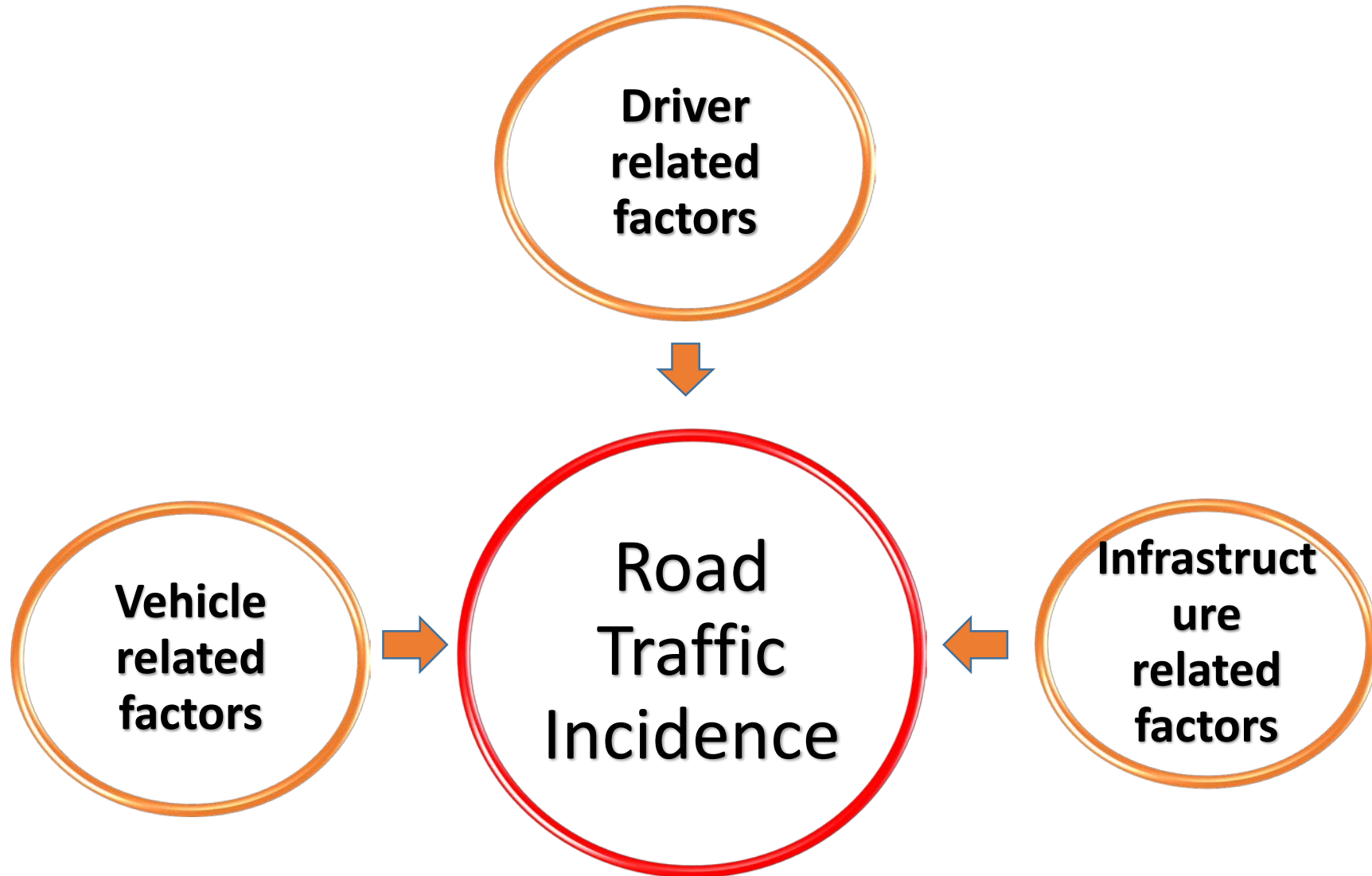
Road Injuries  
Male  
2015



Road Injuries  
Female  
2015



# Major RTI's risk factors

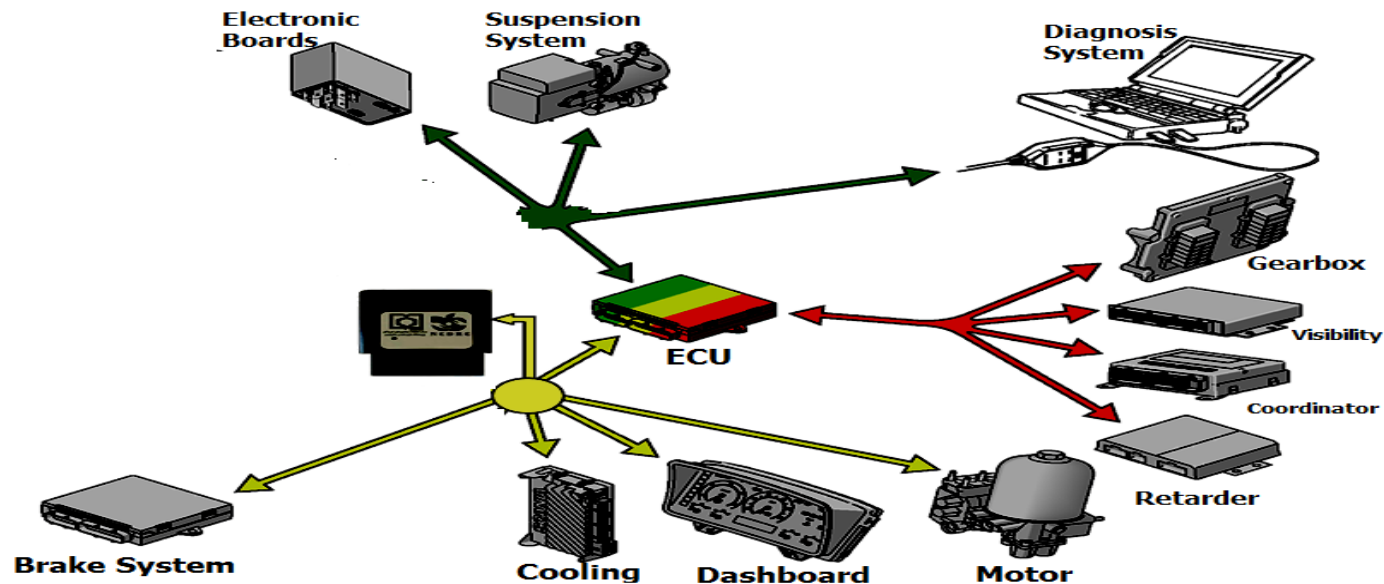


# Hardware Specification

- Telematics device is a plug & play device that can install in cars and trucks.
- It reads data from car ECU, including **mileage, fuel consumption, fuel level, DTC code, VIN and 49 more parameters.**
- It also record driving behavior data and send to server for analysis.
- It can be used widely in fleet management and insurance telematics.
- Also it has online diagnosis capability for safety issues.

# Hardware

- GSM for Communication
- GPS for Position and Speed
- Sensor: 3-D Accelerator sensor and shock sensor
- CAN Reader



# Software specification

- Vehicle tracking and monitoring
- Drivers behavior analysis
- Vehicle Sensory data and analysis
- Vehicle diagnosis data and analysis
- Fleet Management
- Alarm data analysis
- Road data analysis

## Field trial (1)

- 2000 vehicles (1500 buses, 500 taxis)
- Devices were installed for all buses and taxis
- Data were collected for five weeks without any intervention (run-in phase)
- Using numbers of speed violations, harsh accelerations, harsh decelerations, and harsh turning, we defined a score for “driving style”

## Field trial (2)

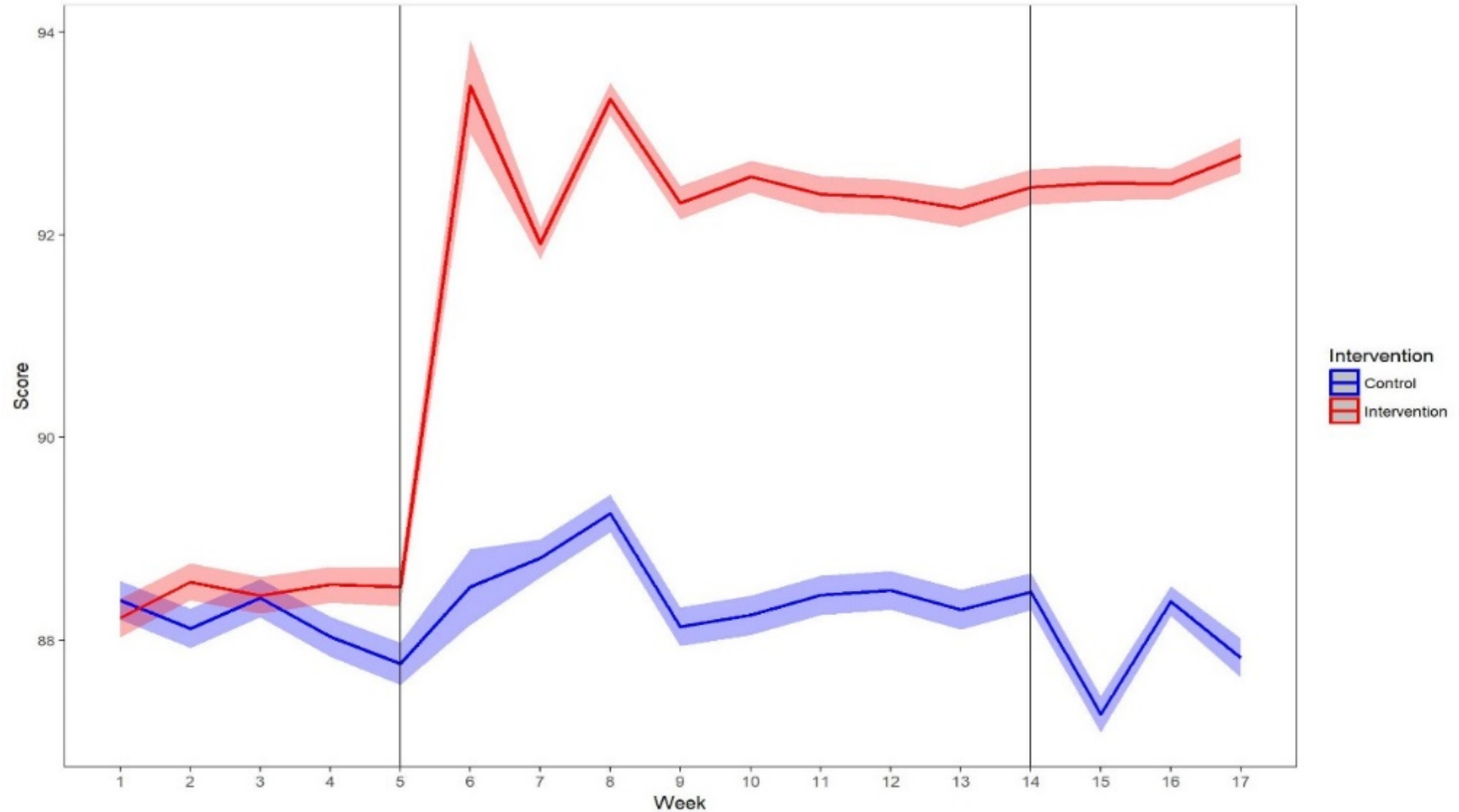
- Intervention was defined as “ sending SMS to drivers and mentioning their ranks and percentile among other drivers in terms of “driving style” for the intervention arm (1000 vehicles) and no SMS to the control arm (the other 1000 vehicles).
- We continued sending SMS for 9 weeks for the intervention arm and then we stopped sending SMS and collected data for 5 more weeks to see the behavior changes among drivers in the intervention arm after stopping SMS.

# Visualization of Data Points Received From Busses Travelling > 20 km/h Using the Telematics Device

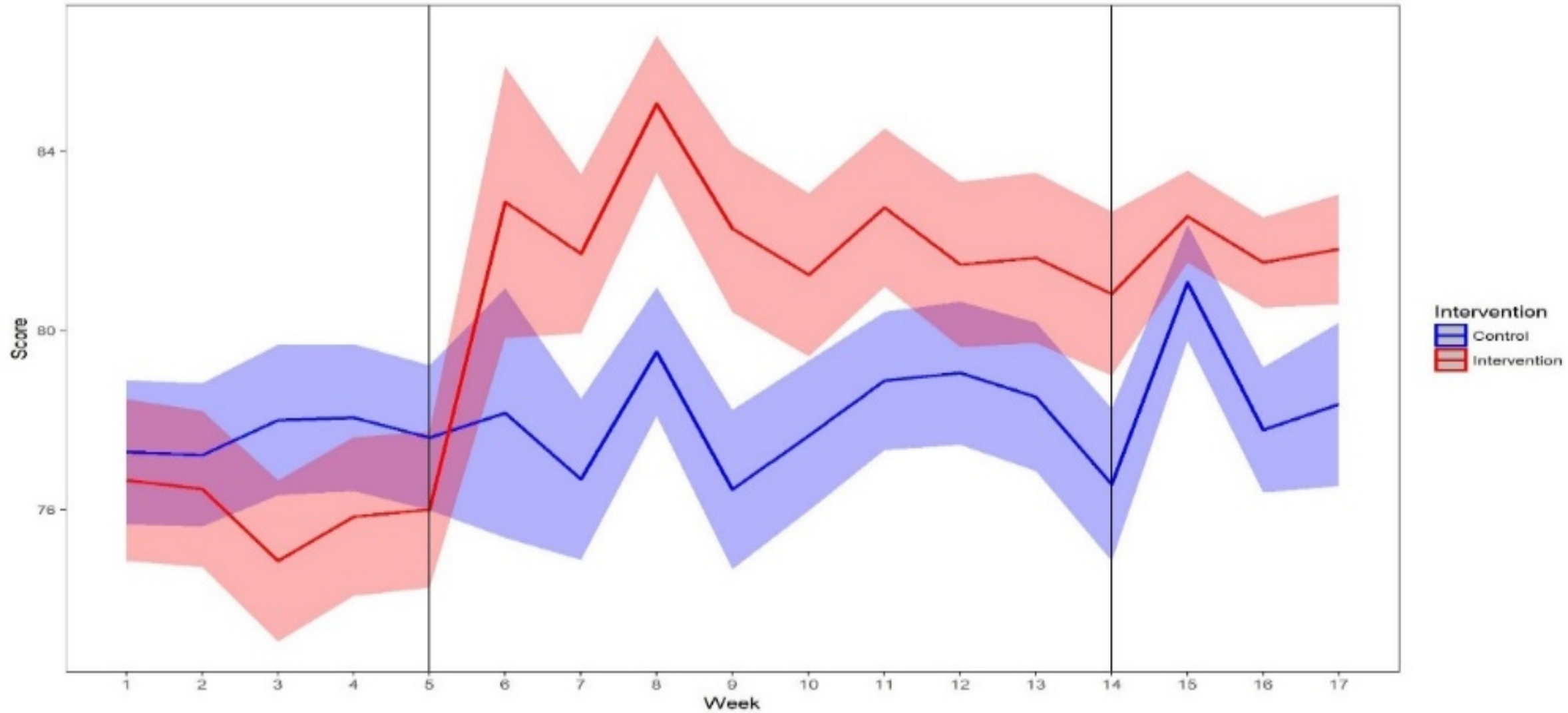


Between Dec 28th 12:00:00  
pm and Dec 29th 12:00:00 pm

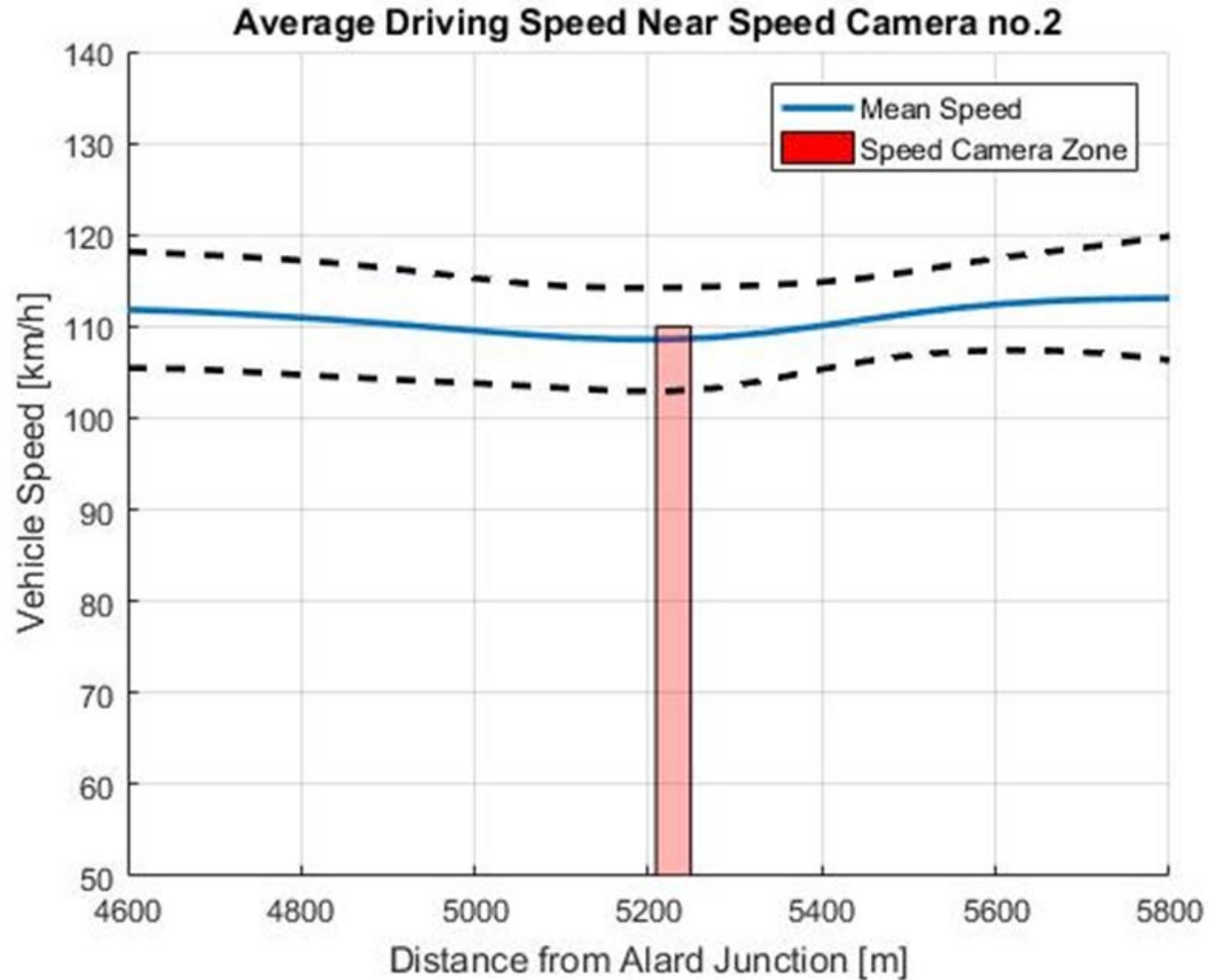
# The effect of the intervention among buses



# The effect of the intervention among Taxis



# Average Driving Speed Near Speed Camera (kangaroo effect)



## Expansion of the intervention

- Now 3700 buses are equipped with Telematics
- In new-year vacation (Nowrouz 1398) 121 buses were stopped based on the Telematics report
- 11 had engine problems
- 110 had lent/break problems
- No incident were reported for buses equipped the Telematics



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# Thank You

# Question/Comment?