International Transport Forum

OECD

Pedestrians road safety trends in Barcelona city, 2002-2009 (OECD Group)

Effectiveness of zones 30 in the number of road traffic injuries in Barcelona

Katherine Peréz, Elena Santamariña-Rubio, Ana M Novoa, Marta Olabarria, Carme Borrell, Manuel Haro, Mercè Navarro
Agència de Salut Pública de Barcelona; Àrea de Prevenció, Seguretat i Mobilitat de l'Ajuntament de Barcelona.

• Background

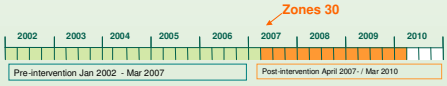
- Speed is a risk factor for both the probability of collision and the probability of collisions resulting in serious injuries.
- Zones with a 30 km/h speed limit have been shown to reduce the number of people injured and killed in a traffic collision by 10% and 19%, respectively.
- In Barcelona, in 2007, 5 areas with a speed limit of 30 km / h were implemented.

• Objetive

- To assess the effectiveness of 30 km / h zones in reducing the number of people injured in a road traffic collision in the city of Barcelona three years after their implementation.

• Methods

- **Design**: A pre-post evaluation study was performed using an interrupted time-series design with comparison groups.
  - **Intervention:**
    - ✓Zones with a 30k/h speed limit implemented in 2007.
  - **Comparison Groups:**
    - ✓Zone 1: Zones with a 30k/h speed limit implemented in 2009.
    - ✓Zone 2: Zones adjacent to the intervention areas.
    - ✓Zone 3: Local road network - excluding the 30 km/h zones
- **Population**: People injured in a road traffic crash in Barcelona from January 2002 to March 2010.
- **Sources of information**: Local Police of Barcelona (Guardia Urbana de Barcelona)
- **Study Period**:

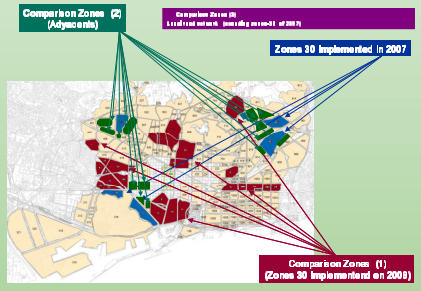


- **Statistical Analysis:** Quasi-Poisson regression model were fitted adjusting for time trend and seasonality. Relative risks (RR) and their 95% confidence intervals (95% CI) were derived from the adjusted models which indicate the change in the mean number of people injured during the post-intervention period compared to the pre-intervention period.

  Each injured person has been assigned to an area by means of geocoding the location of the crash, according to the police database.

• Results

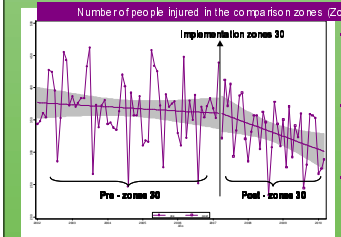
Zones-30 & comparison zones



% of mean and trend change of the number of people injured before and after the implementation of zones km/h

	Trend pre %	p	Trend post %	p	Year 2009 regardi %	p
Total						
Zone 30-2007 S. March 2010	1,3	0,609	-12,2	0,067	**-28,6**	0,01
Adjacents Zones	0,2	0,928	-4,1	0,431	-4,8	0,60
Local road network	-0,8	0,341	**-5,4**	0,014	-4,5	0,22
Pedestrians						
Zone 30 2006-2007 S. March 2010	-0,8	0,836	-8,7	0,372	12,4	0,34
Adjacents Zones	-0,1	0,979	2,6	1,020	-3,7	0,85
Local road network	**-3,5**	0,006	**-8,3**	0,013	-7,1	0,24
Motorcycle and Moped users						
Zone 30 2006-2007 S. March 2010	1,6	0,632	**-28,2**	0,000	**-40,5**	0,00
Adjacents Zones	4,0	0,11	-4,3	0,45	-4,6	0,66
Local road network	**2,1**	0,04	**-6,6**	0,01	**-9,3**	0,03
Intersections Collisions						
Zone 30 2006-2007 S. March 2010	-0,8	0,841	-18,5	0,086	**-34,8**	0,03
Adjacents Zones	2,0	0,530	**-15,7**	0,049	-22,1	0,10
Local road network	-2,0	0,061	-8,1	0,002	-6,5	0,17

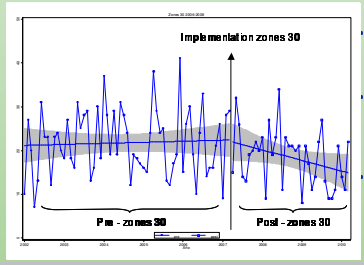
Number of people injured in the comparison zones (Zone 3, Local road network) NO ZONES 30



- Previously to the implementation of zones 30 the number of people injured was stable:
  - **0,8% annual** (p=0,34)
- From the implementation of zones 30 there is reduction of the trend of people injured:
  - **- 6,4% annual** (p=0,01)
- Regarding the pre-intervention period, in 2009 there is no change in the number of people injured.

INTERVENTION ZONES

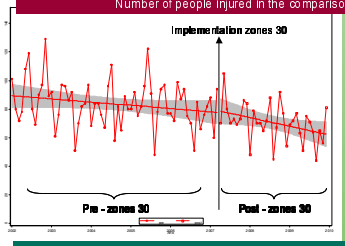
Number of people injured in zones 30
(Follow-up until March 2010)



- Previously to the implementation of zones 30 the trend in the number of injured was stable **+1,3% annual** (p=0,61)
- From the implementation of zones 30 there is a change in the trend towards a reduction:
  - **- 12,2% annual** (p=0,07)
- Regarding the pre-intervention period, in 2009 there is a significant decrease in the number of people injured:
  - **- 28,6%** IC95% [- 43,9% - 8,9%]

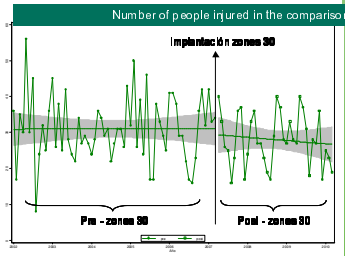
COMPARISON ZONES

Number of people injured in the comparison zones (Zone 1) NO ZONES 30



- Previously to the implementation of zones 30 the there was a significant negative trend in the number of people injured
  - **- 2,7% annual** (p=0,048)
- After the implementation of zones 30 the trend is stable:
  - **- 8,5% annual** (p=0,158)
- In 2009 there was no changes regarding the pre-intervention period.

Number of people injured in the comparison zones (Zone 2) NO ZONES 30



- Previously to the implementation of zones 30 the number of people injured was stable:
  - **+ 0,2% annual** (p=0,93)
- From the implementation of zones 30 there is no change in the trend:
  - **- 4,1% annual** (p=0,43)
- Regarding the pre-intervention period, in 2009 there is no change in the number of people injured.

• Conclusions

- The evaluation of the effectiveness of 30 km/h speed zones implemented in 2007 showed a change in the time trend of people injured, from a stable to a significant 12.2% annual decrease.
- Similarly, after adjusting for time trend and seasonality, the monthly average number of people injured in 2009 was significantly lower than that in the pre-intervention period (- 28.6%, 95% CI: -43.9%, - 8,9%).
- A significant reduction was also observed in 2009 in the mean number of two-wheel users injured (-40.5%) and in the number of people injured at intersections (-34.8%) compared to the pre-intervention period.
- In a general context of reduction in the number of injury accidents in the city, the implementation of 30 km/h speed zones in 2007 has had a significant impact in reducing the number of people injured in a traffic crash.

CSB Consorci Sanitari de Barcelona

Agència de Salut Pública

Working Group on Pedestrian Safety, Urban Space and Health
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