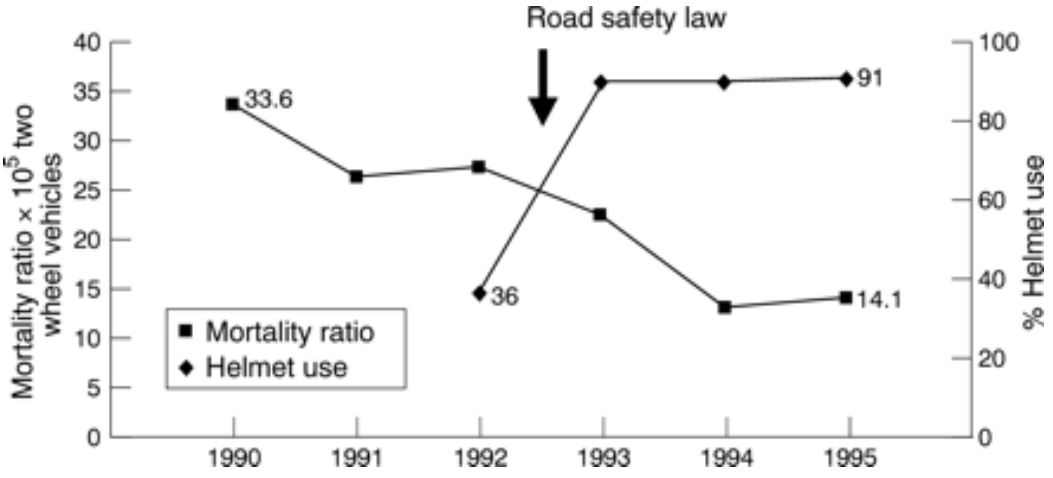
BP3: Enforcement

Reference: BP3 011	Title of Project:	**Change in Helmet Law in Barcelona**
Version: 1	**Website:**	www.injuryprevention.bmj.com/cgi/content/full/6/3/184
Brief Description of Project:	In Spain, a federal road safety law came into effect in the autumn of 1992 extending the compulsory use of approved safety helmets for motorcycle riders and passengers to urban areas. The change in legislation was accompanied by a campaign, including targeted enforcement by the Police, to encourage compliance. This study assesses the effect of the mandatory use of helmets for all types of PTW user using datasets complied by the Barcelona Forensic Institute and the Barcelona City Police department to compare conditions in the 3-year periods before and after the change in Spanish law which came into effect in 1992. The study period compared all fatalities of PTW users from January 1990 to December 1992 (pre-law period) with those from January 1993 to December 1995 (post-law period). The photographs below show the difference in the level of helmet use in Barcelona over 2 decades. **1986** **2006** 	

<table>
<tr><td></td><td colspan="2">The variables considered in the analysis were demographic (age and gender) user position (driver or pillion) and the anatomic location and severity of injury.

All injuries were coded by trained personnel using the 1990 version of the abbreviated injury scale (AIS). The CARE database definition of ‘serious’ injury, also used by the MAIDS study, is a Maximum Abbreviated Injury Scale (MAIS) score of 3 or greater.

Specifically, the modelling allowed the estimation of the expected mortality ratios for 1993-95 based on the observed trends for the 1990-92 period (pre-law) and then allowing for the calculation of the difference between the number of observed and expected deaths for the post-law period to provide estimates of the number of lives saved.</td></tr>
<tr><td rowspan="2">Monitoring Data:</td><td>Before
1990-92</td><td>After
1993-95</td></tr>
<tr><td>PTW Deaths = 170
Head Injury MAIS 3+ = 147</td><td>PTW Deaths = 110
Head Injury MAIS 3+ = 86</td></tr>
<tr><td>Results:</td><td colspan="2">The annual number of fatalities decreased from 60 in 1990 to 32 in 1995. There was also a decrease in serious head injuries The data allows for changes in the KM covered by PTWs in each period.
The effectiveness of any change in legislation is closely linked to compliance. The chart below shows the decrease in deaths and the increase in helmet use in Barcelona between 1990 and 1995.

The increase in helmet use from 36% pre-legislation to 91% post legislation confirms the link between use and decreased head injury/mortality.</td></tr>
</table>

Key Effective Conclusions:	This study offers a statistical evaluation of the effects of a helmet law using combined forensic and police data in a large south European urban area where there is widespread use of motorcycles. The results confirm the effectiveness of the helmet law, as measured by the reduction in the number of deaths and mortality ratios after implementation. The findings reinforce the public health benefits of mandatory motorcycle and moped helmet use, even in urban areas with lower traffic speeds.
Projects for Comparison:	BP3 001 Italian Helmet Law. The study cites the results of reductions reported in US studies (Louisiana, California and Texas) and concludes that – despite methodological differences – the results are similar. Further, the study highlights an increase in mortality and head injury where helmet laws have been reversed confirming the conclusions of this and similar studies. BP1 036 Cambodia/Vietnam Helmet Programmes. BP1 037 Thailand Community Youth Helmet Project. BP3 005 Netherlands Moped Ride Helmet Enforcement.
Justification:	The evidence of the effectiveness of this counter measure, based on casualty data, appears conclusive. The universal introduction of the mandatory use of helmets for all PTW users in all circumstances would make a significant contribution to eSUM objectives.