

Summary:

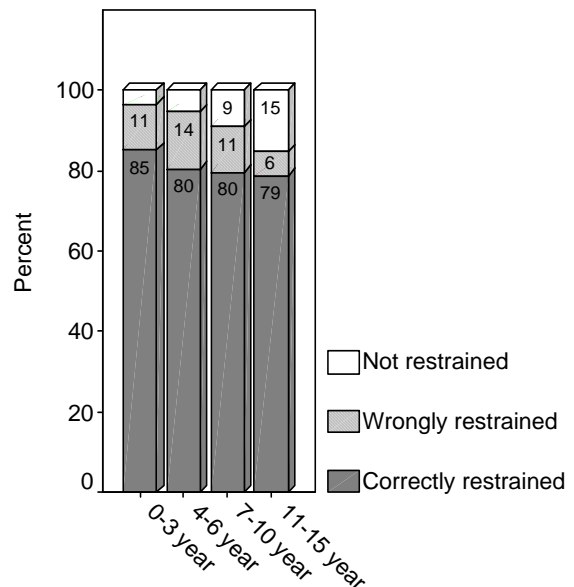
## Use of child restraint systems in Norway

In the period from 2002 to 2004 extensive information activity and enforcement was implemented in 6 Norwegian counties, as a part of the project “Restraining children in cars”. As a part of the enforcement, restraint use was recorded as the children was delivered to kindergarten. The percentage of un-restrained children was reduced from 10 percent in 2002 to 5 percent in 2004. But the percentage of children aged 0-3 year restrained illegally was more or less stable on 10 percent in the same period. The use of rearward-facing seats among the youngest has increased from 10 to 14 percent. The percentage of children placed in front of an active airbag has been reduced from 5 to 3 percent.

The project “Restraining children in cars” was initiated in 2001. As a part of the project, information on how best to restrain small children (mainly 5 years and younger) in cars was spread to kindergartens and child-care-centres in 6 of Norway’s 19 counties. The main goal of the project was to increase the percentage of children restrained in an appropriate condition. The focus was on the advantages of restraining children in rearward-facing seats as long as possible, and on the danger of placing small children in front of an not deactivated airbag.

To evaluate the effect of the project, questionnaires were answered by parents and child-care-personnel and checks on how the children was restrained when delivered to kindergarten were performed.

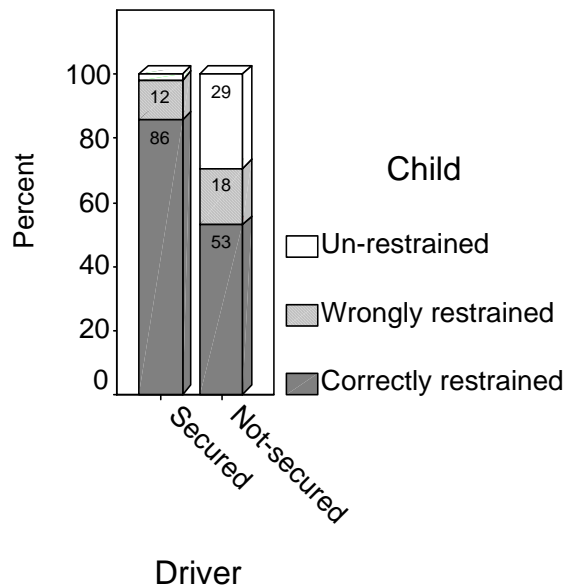
Results from the 2004-checks show that 82 percent of the children were correctly restrained and 13 percent were wrongly restrained, se table S.1. The percentage of un-restrained children was reduced from 10 percent in 2002 to 5 percent in 2004.



Source: TØI report 732/2004

Figure S.1: Percentage of restrained, wrongly restrained and not-restrained children in 2004. By age-group. N=3149

Figure S.1 show that the percentage of children not restrained increased with age. There is also a higher percentage of not restrained children sitting in the front-seat, compared to that of in the rear-seat. Parents who are not using seat-belts fail to restrain their children more often than parents using seat-belts, se figure S.2.

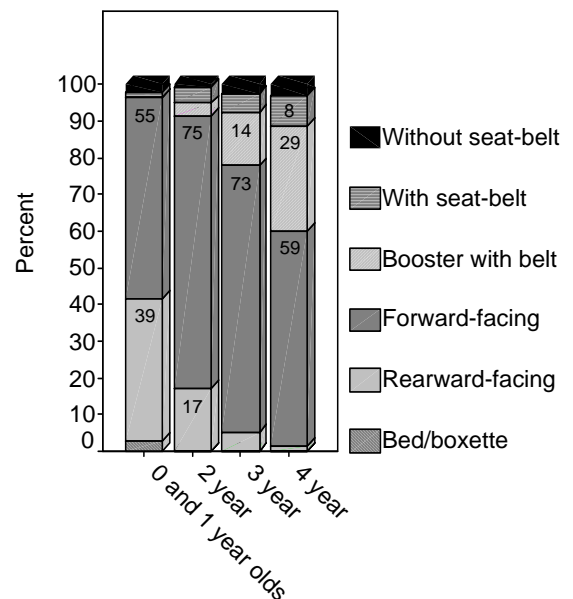


Source: TØI report 732/2004

Figure S.2: Percentage not restrained, wrongly-restrained and correct restrained children compared to driver's seat-belt use. N=3125

Parents knowledge regarding regulations and restraint systems that are best suitable is generally good, but this does not mean that parents necessarily use this knowledge when restraining their children. About 80 percent of the parents state that they know that restraining their children in rearward-facing seats is the safest for children under 4 years. Nevertheless just 14 percent of the children (0-3 years of age) are restrained in rearward-facing seats.

The use of rearward-facing seats in the project-counties is about 40 percent for children under 2 years, about 20 percent for the 2-year-olds and 5 percent among the 3-year olds, see figure S.3. This is higher than in countries like the US, but far below Sweden. In Sweden about 80 percent of the children from 1-2 year are restrained in rearward-facing child seats.



Source: TØI report 732/2004

Figure S.3: Use of different types of CRS for rear-seat passengers in 2004. By age, in percent. N=1635.

There was an increased percentage of the children aged 0-3 year seated in rearward-facing seats (from 10 to 14 percent) in the project period. Even if the percentage of rearward-facing has increased some, forward-facing seats are still preferred by most parents.

The percentage of children placed in front of an active airbag has been reduced from 5 percent in 2002 to 3 percent in 2004.

Even if most of the children now are restrained some way or other, many are still wrongly restrained. Common errors when restraining small children are among others:

- Placing small children in front of an not de-activated airbag.
- Wrong use of the three-point-seat-belt (behind the back, above the throat, under the arms, over the abdomen).
- Using restraint systems not suitable for the child's age/weight.

Table S.1 gives an overview of some of the results from the evaluation.

Table S.1: Comparing result from controls in 2002, 2003 and 2004. In percent.

	2002	2003	2004
Child restraint use:	<b>N=3251</b>	<b>N=4373</b>	<b>N=3302</b>
Correctly restrained	70.2	72.4*	82.0**
Not restrained	10.3	6.9**	5.0**
Wrongly restrained	19.6	20.6	13.0**
<i>Children wrongly restrained:</i>	<b>N=609</b>	<b>N=805</b>	<b>N=344</b>
In front-seat with airbag	27.9	26.6	30.5
In loose or badly fastened seat	16.7	9.3	6.7
The belt under arm, behind the back, over the abdomen.	31.7	27.0	34.3*
Twisted belt	13.8	11.4	7.8
Other types of errors	9.9	25.7**	20.6

Source: TØI report 732/2004

\*\* The difference compared to the previous year is significant at 1 percent-level

\* The difference compared to the previous year is significant at 5 percent-level

The percentage of children not restrained (aged 0-3 year) was low both in the project-counties and in Norway in general. In this study, just 3.3 percent were not restrained. But a further 6.4 percent was restrained by using the car's seat-belt only. This means that 10 percent of the children in this age-group was restrained in a way not accepted by the Norwegian CRS regulations. In addition, others were restrained in a way not suitable for the child's age.

The project has had a positive effect on the use of CRS as more children are restrained. There has

also been an increased use of rearward-facing CRS for children 3 years and younger and a reduction of small children placed in front of an active airbag. But there is still a long way to go.

We therefore recommend increased enforcement of CRS. When controlling CRS use it is also a advantage if the percentage of wrongly-restrained children also are registered (and the parents told what they are doing wrong). Since many children are being restrained in a way not suitable to their age/weight, more information of how best to restrain children is also necessary.