



Fatal CRASH

Fatal collisions on the road and safety
and health

Summary report 2016

IOSH, the Chartered body for safety and health professionals, is committed to evidence-based practice in workplace safety and health. We maintain a Research for Public Benefit Fund to support research and inspire innovation as part of our work as a thought leader in safety and health.

All recipients of funding from our Research for Public Benefit Fund are asked to compile a comprehensive research report of their findings, which is subject to peer review.

For more information, visit our [research page](#).

In this document, you'll find a summary of the independent study 'Fatal CRASH! Fatal collisions on the road and safety and health: Using narrative data from coroners' files to determine the extent of underestimation of fatal work-related road collisions in the Republic of Ireland', which we commissioned from researchers at University College Dublin.



What's the problem?

Road traffic accidents are one of the leading causes of death globally. They are a matter of serious public health concern and have an impact at the individual, family, community and population level. National road traffic collision data collection systems exist globally, and because definitions are well harmonised, statistics are accurate and comparable, and performance trends can be tracked over time.

Most people realise that the risk of being involved in a fatal road traffic accident is greater for workers who drive for a living (eg professional drivers of trucks, buses, taxis) than for the general public. However, other workers are also at greater risk than the public. These include people whose work requires them to drive as part of their work (deliveries, sales personnel, self-employed skilled trades' personnel and those who drive their own vehicles to work appointments, visits, meetings and so on). They also include people who work on or at the side of the road (road maintenance workers or farmers moving livestock).

In the Republic of Ireland, road traffic fatalities (RTFs) are reported to the police, although for a variety of reasons, the Health and Safety Authority (HSA) is not always notified. The police collection of RTF data is robust, but the only question in the post-accident survey about the purpose of the journey of the deceased is not always completed and, at present, doesn't translate into useful information for accident prevention.

Estimates from other countries suggest that between a quarter and a third of all RTFs involve someone driving for work (worker deaths, or deaths in which the 'other party' driver was a worker). The research team suspects that the figures are underestimated because of deficiencies in the systematic collection of data. Since the early 2000s, researchers in Australia and New Zealand have found that coroner inquests, which establish facts about certain types of death, are an important source of data in determining the extent of the underestimation of work-related road traffic fatalities (WR-RTFs).

What did our researchers do?

The research team approached every coroner in the 45 districts in Ireland and requested permission to review their district's RTF inquest files. Because UK and Irish coroner, road traffic and workplace health and safety systems are very similar, it is likely that any lessons learned in Ireland will apply equally to the UK. The 915 road traffic deaths that occurred in Ireland in 2008, 2009, 2010 and 2011 were selected, because it was likely that most of the inquests would have been completed by the time the researchers collected the data in 2015.

From preliminary work, the research team found that data from 44 of 45 coroner districts were potentially available. This comprised 895 (98 per cent) of the 915

RTFs. There are reasons why an inquest file might not be available, including delayed or incomplete inquests, sometimes due to other legal proceedings, eg criminal or ombudsman investigations. Following visits to the districts, the researchers found that 833 (93 per cent) of the potential 895 files were available to review.

The researchers designed, piloted and used a standardised decision form. First, they identified RTF files and checked whether each was work-related. They found 193 work-related cases and for each one they completed a standard case report form. They collected data factors that were considered important to work-related safety about the person who died (the decedent), about the principal 'other party' to the collision, and about the circumstances of the collision. In occupational safety and health (OSH) statistics, fatality data are collected about decedents who are workers, or people not at work but whose death was associated with the work activity of a worker (the 'other party'). People in the second group are called 'non-workers' in Irish OSH statistics; 'members of the public' in UK OSH statistics; and 'bystanders' in the work-related road traffic research literature. The researchers used the term 'bystanders'.

The research team looked at three areas for analysis:

- underestimation checking – the team compared its numbers of WR-RTFs with those notified to the HSA
- rates – the team calculated rates per 100,000 workers and per 1 million registered vehicles, in case results were influenced by changes in the number of workers or vehicles over time (data were collected in the transition period in Ireland from an economic boom to a recession)
- description – the team used descriptive statistics to show the characteristics of collisions and work factors.

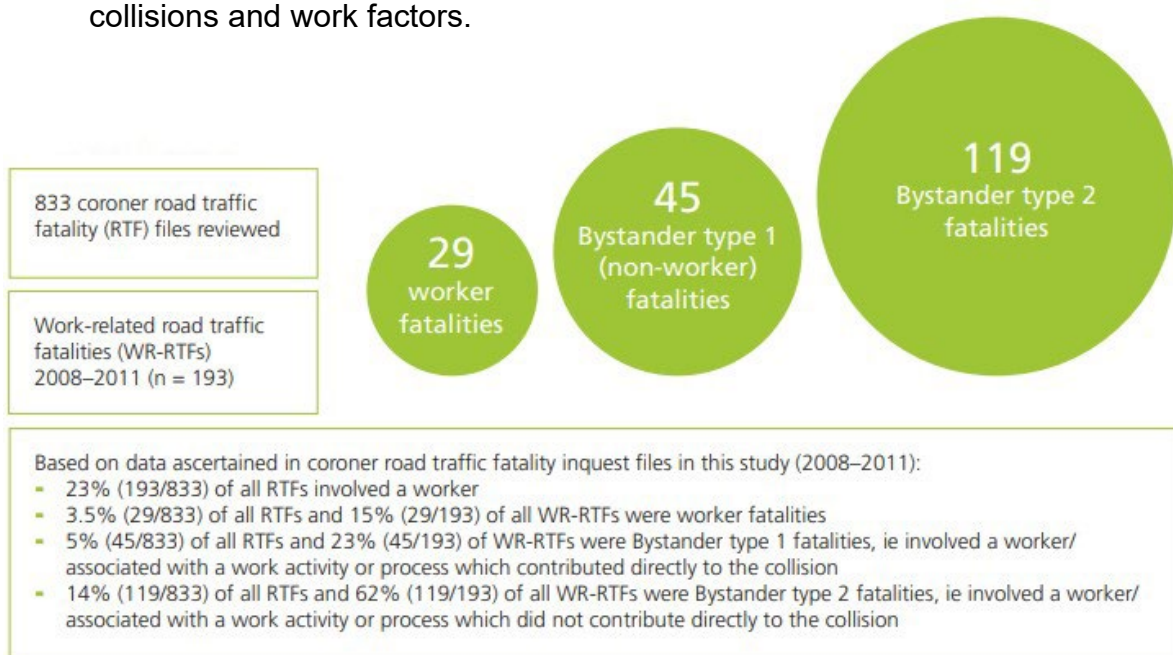


Figure 1 Work-related RTFs (2008–2011) identified through coroner inquest files

What did our researchers find out?

The research team found that 193 (23 per cent) of the 833 RTF inquest files they reviewed involved a worker (see Figure 1). This was broadly in keeping with literature estimates. Among the 193 WR-RTFs:

- 29 decedents were workers (15 per cent)
- 45 decedents were not at work (23 per cent), but the other party to the collision was working; work contributed directly to these collisions, ie work was a primary factor (Bystander type 1)
- 119 decedents were not at work (62 per cent), but the other party to the collision was working; in these cases there was no, or insufficient, evidence that work contributed directly to the collision, ie work was a secondary factor (Bystander type 2). However, a worker was involved in the fatal collision and likely to have been traumatised by it.

Underestimation

Ireland's Road Safety Authority (RSA) had recorded all of the fatalities that the research team had found. Like coroners, the RSA receives data from the police. However, the RSA couldn't identify work-related cases. The HSA had been notified of 15 WR-RTFs; the research team found all of them in the inquest files. However, they also found another 178 cases that involved a worker, so underestimation was confirmed as a problem. In fact, they found nearly one and a half times as many worker fatalities, and nearly 10 times as many Bystander type 1 fatalities, than had been notified to the HSA. When the researchers included all three categories (ie worker, Bystander types 1 and 2), there were 11 times as many WR-RTFs than had been notified. Of course, a WR-RTF is only one type of work-related death, so if previously identified WR-RTFs had been included in the national work-related fatality toll for the period, then the number of WRFs in Ireland from any cause would have doubled.

Rates

When the research team looked at crude rates per 100,000 workers, the inclusion of coroner-identified work-related cases in both worker and Bystander type 1 categories (A and B in Figure 2) greatly increased the rates compared to those reported to the HSA in worker and non-worker categories (C and D in Figure 2).



Figure 2 Work-related road traffic fatality rates (HSA and coroner) 2008–2011 per 100,000 workers

The rates shown in Figure 3 illustrate that WR-RTFs (C) comprised a good proportion of all work-related fatalities (A shows work-related fatalities, including the study's workers and Bystander type 1s; B shows all work-related fatalities notified to the HSA). The study WR-RTF rates (C) are also a lot higher than the WR-RTF rates notified to the HSA (D). This confirmed expectations set by studies carried out in other countries. The impact of work on RTFs and the impact of road traffic on work fatalities was very clear.

Description

Overall, the 193 fatalities occurred following 175 collisions; 66 per cent involved more than one vehicle. In half of the worker fatality collisions, the other party to the collision was also at work. The most common months for collisions were January, February and July (all about 10 per cent); and the most common days were Thursdays (22 per cent), followed by Mondays (19 per cent) and Fridays (15 per cent).

The vast majority of decedents died on the day of the collision (91 per cent) and most were men (78 per cent). More than a quarter of the victims were older people or children, and nearly a third were cyclists or pedestrians.

Twenty-nine workers died following 28 collisions, most frequently in May and on Thursdays, during daytime working hours. Most worker decedents were driving and travelling alone. They were predominantly men (97 per cent), with an average age of 41; around half were driving trucks or vans. Just over a third were professional drivers. In 7 per cent of cases, the decedent was working on the road; in 62 per cent of cases, the worker vehicle was on the wrong side of the road, or the driver had lost control or had stopped unexpectedly. In most of the remaining cases, the other party to the collision was on the wrong side of the road for similar reasons.

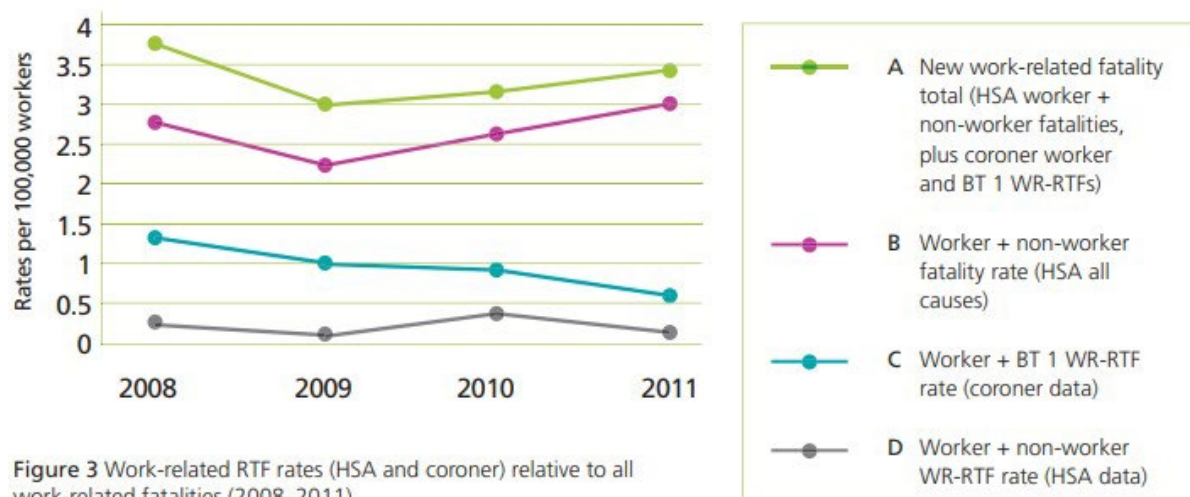


Figure 3 Work-related RTF rates (HSA and coroner) relative to all work-related fatalities (2008–2011)

More than half (56 per cent) of the 45 Bystander type 1 cases were ‘blind spot’ incidents, involving large vehicles (mostly trucks) and elderly or child pedestrians. The remaining cases involved loss of control of the worker vehicle, poor or dangerous driving or stopping practices, or farming activity on the road. A work activity or process was a contributory factor to the collision in all Bystander type 1 cases.

In 16 of the 119 Bystander type 2 cases, there was insufficient information to determine whether work contributed to the collision. In the remaining 87 per cent of cases (n = 103), evidence suggested that the collisions were unavoidable from the perspective of the worker driver. In most cases, decedents collided with the worker vehicle, having lost control of their own vehicle, or a pedestrian/ cyclist decedent fell, staggered, or wobbled into, or appeared unexpectedly in, the path of the worker’s vehicle. Contributory factors included dark clothing, lack of high visibility gear and intoxication.

In the majority of Bystander type 1 ‘blind spot’ cases and in Bystander type 2 collisions, there was evidence of absolute shock and trauma on the part of the workers involved. Most workers who died (70 per cent) and the majority of the other party drivers who were bystander fatalities (84 per cent) were driving vehicles that spent a lot of time on the road (vans, buses, taxis and trucks), revealing a high-risk status for occupational drivers.

What does this research mean?

Workers who drive for a living are at a significant risk of being killed in a road traffic accident. Many of the messages for prevention emerging from this study are not new, because the issues are known, and prevention strategies already exist within occupational safety, road safety and public safety domains, either individually or collectively. But the particular risk of a WR-RTF needs to be highlighted and

prevention interventions targeted to the right group by relevant stakeholder representative groups.

Understanding each category of WR-RTF and its characteristics could be the key to administering prevention strategies in a way that recognises and acknowledges workers as being at risk of dying as a result of a road traffic collision or of their work contributing to the death of a member of the public. Reducing the risks associated with work-related driving will contribute to collision prevention for all road users. Existing prevention strategies could be targeted specifically at people who drive for work and at relevant vulnerable road users, and be delivered and promoted through the appropriate agency or combination of agencies (HSA, RSA, police, employer and employee representative groups and road transport stakeholders).

The Bystander type 1 and 2 categories identified in this study are important because they show that prevention lies in a multi-faceted approach. Primary prevention of collisions should occur through road and public safety campaigns, such as blind spot awareness campaigns directed at the public, the use of safety features such as mirrors, and advanced driving skills training for drivers through the HSA and employers.

Tertiary prevention should occur by raising awareness of the risk in the work setting and in providing support for workers who are injured or traumatised in Bystander type 2 collisions. The 'other parties' to these collisions, ie the workers, are a group that has been almost hidden in terms of the risk of both physical and psychological trauma. This risk needs to be recognised, assessed and controlled by employers and health and safety stakeholder groups, including OSH professional bodies.

This study has confirmed work-related road safety as a serious issue that needs to continue to be addressed at national and organisational level. What the researchers found in coroner inquest files has added to existing knowledge that, in terms of fatality notification through the HSA, WR-RTFs in Ireland have been underestimated by a factor of 1.4 for workers, by a factor of 10 for Bystander type 1 fatalities, and by a factor of 3.7 for both combined. Most Bystander type 2 fatalities are not captured or classified under current data collection systems.

WR-RTFs can be depicted in an accident triangle pattern (Figure 4), with worker deaths at the top, Bystander type 1 deaths in the middle and Bystander type 2 deaths at the base. If we follow the same metaphor, fatalities represent only the tip of a work-related road traffic collision triangle, with serious and minor injury patterns for workers remaining unknown. Coroner data have proved to be a very valuable source of information on work-related fatal collisions, but identifying and examining the data is time-consuming and is not a sustainable means of researching or monitoring the problem. In the future, RSA data – if the 'purpose of journey' question for all parties is rigorously collected by the police, and possibly provided to the HSA for analysis –

may be able to provide answers to create a more complete risk profile to inform risk management.

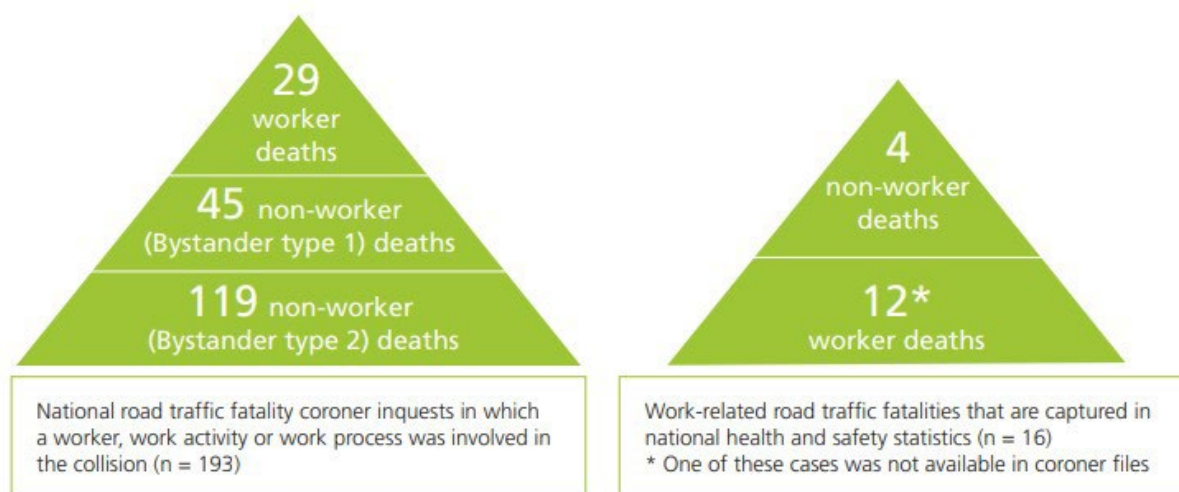


Figure 4 Work-related road traffic fatalities in Ireland 2008–2011: triangles

Don't forget

While the methods used to collect data were robust and could be repeated in the same way in future studies, from a practical perspective, they were a time-consuming and labour-intensive way of collecting data, and realistically could not be the way this aspect of OSH is monitored on an ongoing basis.

Second, the researchers set out to review every RTF inquest file in Ireland in order to identify work-related cases; they didn't quite achieve this. They couldn't access data in one small district; in another district, one work-related inquest was incomplete; and it's possible that in a small number of cases a criminal trial was held so no inquest was needed. Notwithstanding these issues, the team reviewed 93 per cent of all RTFs in Ireland, which represents almost national coverage. It's also worth noting that small numbers in certain categories precluded in-depth analysis.

Third, this study examined only the fatality part of the WRRTF triangle; workers are also exposed to the risk of being involved in traffic accidents that result in serious injuries.

Given these issues, the extent of the risk to workers of being involved in a WR-RTF might be even greater than the research team identified.

Our summary gives you all the major findings of the independent project report by University College Dublin. If you want to read about the study in more depth, you can download the full report at [iosh.com/research](https://www.iosh.com/research).

IOSH is the Chartered body for health and safety professionals. With over 50,000 members in more than 130 countries, we're the world's largest professional health and safety organisation.

We set standards and support, develop and connect our members with resources, guidance, events and training. We're the voice of the profession and campaign on issues that affect millions of working people.

IOSH was founded in 1945 and is a registered charity with international NGO status.

IOSH
The Grange
Highfield Drive
Wigston
Leicestershire
LE18 1NN
UK
+44 (0)116 350 0700
www.iosh.com

 twitter.com/IOSH_tweets
 facebook.com/IOSHofficial
 linkedin.com/company/iosh
 youtube.com/IOSHchannel
 instagram.com/ioshofficial
 tiktok.com/@ioshofficial

Reg Office: IOSH, The Grange, Highfield Drive, Wigston, Leicestershire, LE18 1NN, United Kingdom © 2023
IOSH. Registered charity in England and Wales No. 1096790 and Scotland No. SC043254. VAT registration
number 705 3242 69. IOSH Services Limited company registration number 01816826