

RSA

SERIOUS INJURIES IN ROAD TRAFFIC COLLISIONS

Progress to date

Road Safety, Research and Driver Education
October 2017

Údarás Um Shábháilteacht Ar Bhóithre
Road Safety Authority

Overview of the Road Safety Authority's work in applying a medical definition of serious injuries to collision data

Medical Definition of Serious Injuries: MAIS 3+

In March 2013, the High Level Group of the European Commission (EC) requested that all EU countries improve on reporting of serious injuries. A common medical definition was agreed: MAIS3+, (Maximum Abbreviated Injury Scale). The European Commission formally requested that all member states put procedures in place to address the issue of under-reporting of serious injuries by reporting on serious injuries using a medical definition and also to allow for comparability across EU countries. For Ireland, and many other countries, to report on the number of road collision injuries using the MAIS system requires that a number of transformations be applied to existing medical data. The end point of this process is to translate medical diagnoses, currently provided in Ireland using a system called ICD-10 AM, into a MAIS score.

The EU, through the CARE expert group, has provided countries with a system of translating the data. The original Abbreviated Injury Severity Scale (AIS) system, from which MAIS is derived, was developed by the American Medical Society (AMA), the Society of Automotive Engineers (SAE) and the Association for the Advancement of Automotive Medicine (AAAM). At the EU's request, they have produced the algorithm, which is proprietary information, for use by member states in this project.

Ireland's Current Position

Long-term aim

A feasibility study, conducted in 2014, concluded that it will be possible for Ireland to comply with the EU requirement to match these two datasets to improve injury reporting. However, a key challenge of this matching exercise is the fact that neither the Garda Pulse system nor HIPE (hospital in-patient enquiry) have a common unique identifier (such as a PPS number).

Arising from this challenge, a number of issues need to be addressed. The first is to gain access to common variables, such as a person's name, to improve the matching process. The second is the identification of an independent third party to conduct the matching; this third party organisation should have protocols in place to allow the safeguard of sensitive information. The third

issue is to address satisfactorily the data protection concerns which would be partly met by using an independent party

The RSA submitted a formal proposal to the Data Protection Commissioner (DPC) in 2014 to seek approval for the proposed plan of work to statistically match the two datasets. At the time, the DPC signalled to the RSA that the proposed plan of work could be approved from a data protection perspective under certain conditions. These include:

- Strengthening the current regulations in the Road Safety Authority Act to allow for a transfer of personal data, such as names, with approval from An Garda Síochána
- Commissioning an independent third party to conduct the matching.

An appropriate third party willing to conduct this work has not yet been identified, and legal advice will be necessary to investigate the proposed amendment to the regulations. Further collaboration with An Garda Síochána and the Health Intelligence Unit (HIU) of the HSE is required to progress with this complex work.

Short-term aim

In the meantime, and in order to comply with the EU requests for the provision of serious injury figures using a medical definition, Ireland has provided the European Commission (EC) with serious injury figures in MAIS3+ format for the period 2005–2014 derived from hospital data only. The work was conducted by the Health Intelligence Unit (HIU) of the HSE on behalf of the RSA, whereby HIPE data for road traffic collisions was translated to a MAIS score. While the first transformation is complete and a provisional set of figures has been sent by the RSA to the EC, further work is required to improve this methodology across the EU. Further refinement of the processes involved in the MAIS transformation is ongoing within the CARE expert group and the HIU (<http://www.safetycube-project.eu/wp-content/uploads/SafetyCube-D7.1-Leaflet.pdf>).

While this complex work is taking place, the RSA and An Garda Síochána continue to use the historic definition of serious injuries:

An injury for which the person is detained in hospital as an 'in-patient' or any of the following injuries whether or not detained in hospital: fractures, concussion, internal injuries, crushing, severe cuts and lacerations, severe general shock requiring medical treatment.

Table 1 shows a comparison of all injury types reported in road traffic collisions on public roads using garda data, as reported to the RSA, and hospital data based on information provided to the RSA by the HIU for the period 2005–2012. An analysis of this data is relevant to inform the discussion on the setting of a revised target for serious injuries.

The hospital (HIPE) data shows:

- the number of admissions from road traffic collisions that have occurred on public roads involving a hospital stay of 24 hours or more
- the number of people injured based on MAIS3+ using hospital data only.

Further refinement of the methodology to translate HIPE data to MAIS3+ is required as discussed previously. This is supported by the fact that the analysis below indicates that MAIS3+ data, based on the recent transformation of hospital data, shows a lower level of serious injuries in Ireland compared to the data compiled by the RSA based on garda reports. This is counter-intuitive; the reverse trend is what would be expected. However, a review of the data provided to the RSA by the HIU on hospital stays of 24 hours or more following road traffic collisions has shown a trend that is more in line with what had been anticipated for Ireland, and more in line with trends evident in Europe, namely that the number of serious injuries based on police reports is underestimated. Between 2005 and 2012, the ratio of road traffic collision injuries with an LOS >1 compared to serious injuries is 2.3.

It is important to state that the RSA believes that the optimum method of establishing the true incidence of serious injuries is to statistically match hospital and garda collision data, and this piece of work has not yet been initiated due to the challenges outlined previously. This matching exercise would need to be completed before the RSA would be satisfied to use MAIS to establish a target on serious injuries for 2020.

Table 1 Comparison of numbers with a serious injury in garda and HIPE data

Year	Serious injuries (AGS)	HIPE all RTA-injuries with LOS (length of stay) > 1 day	HIPE MAIS3+ injuries
2005	1021	1976	398
2006	907	2001	439
2007	860	1880	428
2008	835	1818	409
2009	640	1621	403
2010	561	1410	348
2011	472	1286	334
2012	474	1234	346
Total	5,770	13,226	3,105
% change 2005–2012	–53.6%	–37.6%	–13.1%

Table 2 *Garda serious injury data 2013–2015*

Year	No. of serious injuries (RSA/garda)
2013	508
2014	759*
2015	825†

* From 1 January 2014, the RSA received collision data in an electronic format.

† Provisional data subject to change.

There was a 49% increase in serious injuries between 2013 and 2014. This increase is attributable in part to the enhanced reporting and validation systems introduced in 2014. It is important to note that there was a change in the way in which the RSA received collision data from 1 January 2014. This involved a move away from a paper based form sent to the RSA by the gardaí, to a daily electronic transfer of data directly to the RSA, which incorporates a two-way communication system between the RSA and the gardaí to improve the validation process.

The target for serious injuries set out in the strategy (330 or fewer by 2020) was based on an analysis of garda data using the paper based system of data collection and the historic definition of serious injuries. Given that the way in which the RSA receives garda collision data has now been updated, and also that an increase in serious injuries is evident, a discussion is now warranted as to the appropriateness of continuing to use the 2011 baseline figure of 472.

The RSA is in the process of developing a revised target on serious injuries. The new target will be set before the end of 2017.

In the longer term, MAIS3+ could be used in the development of Irish targets on serious injuries. Even if not used for the purposes of developing targets, it has a value in facilitating comparisons in serious injury reporting across Europe.

While a number of countries in the EU have made progress in reporting on serious injuries in MAIS3+, most countries have experienced challenges unique to their own country. The RSA believes it is important for Ireland to make progress in this area, and is committed to working with the relevant stakeholders to develop a protocol for conducting the data matching and delivering on the requirements as set out by the European Commission.

Working To Save Lives

Údarás Um Shábháilteacht Ar Bhóithre Road Safety Authority

Páirc Ghnó Ghleann na Muaidhe, Cnoc an tSabhaircín, Bóthar Bhaile Átha Cliath, Béal an Átha, Co. Mhaigh Eo
Moy Valley Business Park, Primrose Hill, Dublin Road, Ballina, Co. Mayo
local: 1890 50 60 80 fax: (096) 25 252 email: info@rsa.ie website: www.rsa.ie