



RSA

Serious injuries from single-cyclist collisions in Ireland

Report including data from An Garda Síochána
and Hospital records

Date of publication: 13th October 2025.

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Scope of the report

Serious injuries from single-cyclist collisions in Ireland

- This report describes the characteristics of single-cyclist collisions resulting in serious injuries in Ireland, using data from two different sources:
 - Collision records from the Irish Road Traffic Collision database, transferred from An Garda Síochána (AGS) to the RSA, and
 - Hospital records from the Hospital In-Patient Enquiry (HIPE) database.
- AGS information from 2021 onwards is provisional and subject to change. This means that AGS serious injury numbers presented here may change at a later date when new information becomes available.
- The HIPE database is managed by the HSE and includes demographic and clinical information on casualties admitted to acute hospitals in Ireland. To study hospital data, the RSA is working in collaboration with the HSE National Health Intelligence Unit, and the School of Medicine in Trinity College Dublin (TCD). Please see more information [here](#).
- The EC has requested all EU Member States to report on serious injuries using hospital data, to complement police data on serious injuries. It is internationally acknowledged that police data alone will understate the number of serious injuries from road traffic collisions; therefore it is important that both sources of data are reported in Ireland to provide a holistic picture of the serious injury problem.

What are single-cyclist collisions?

Definition

- A single cyclist collision (SCC) is a crash including one moving vehicle (the bike).
- Frequent scenarios for SCCs according to AGS data (2018-2022) were:
 - an interaction of the bike with the road surface (i.e. oil, debris, potholes, wet surface),
 - the loss of control of the bike,
 - a collision with a kerb/footpath,
 - or avoidance of another vehicle.

Why is it important to study serious injuries from SCCs?



Rationale

- A recent [report](#) from the RSA revealed that above 60% of cyclists who were hospitalised with injuries from road traffic collisions in Ireland over 2014-2022 received their injuries in SCCs.
- SCCs in AGS data for the same period accounted for 17% of the total of cyclist serious injuries.
- This discrepancy between data sources is in line with international evidence suggesting that police-based data on crashes underestimates the number of serious injuries, in particular for certain collision types not involving motorised vehicles- such as SCCs.
- The two data sources, AGS and hospital records, are complementary as each one includes valuable information that adds to the description of SCCs.
- AGS data includes valuable information for describing the collision characteristics. Hospital data is useful for obtaining a better estimation of the number of casualties with serious injuries, and also for describing the profile of casualties, their injuries and clinical outcomes.

What is a serious injury?

Definitions followed in each data source

- In **AGS data**, the definition of a serious injury is as follows:
 - A serious injury is an injury for which the person is detained in hospital as an ‘in-patient’, or has any of the following injuries whether or not detained in hospital: fractures, concussions, internal injuries, crushing, severe cuts and lacerations, or severe general shock requiring medical treatment.
- In **hospital data**, we follow a medical definition of a serious injury based on an international validated injury severity scoring scale, the Abbreviated Injury Scale (AIS*). A casualty may have one or more injuries recorded in their hospital chart. We first assign an AIS score to each injury, from 1 (minor) to 6 (critical), and then determine the maximum AIS (MAIS) score assigned to each casualty:
 - **MAIS3+** casualties sustained injuries with a maximum score of 3 or more, these being the most serious, with a higher probability of having long-term consequences.
 - **MAIS2-** casualties are defined as having injuries of minor-to-moderate severity.
 - We add the number of casualties having MAIS3+ and MAIS2- injuries to obtain the total number of **hospitalised casualties**.

*Association for the Advancement of Automotive Medicine (2016). Abbreviated Injury Scale (c) 2005 Update 2008. (T. Gennarelli, & e. Woodzin, Eds.) Chicago, Illinois. 5



Summary of methodology

AGS data and hospital records

- This report focuses on cyclists who received serious injuries from single-cyclist collisions only.
- Information regarding the circumstances of SCCs recorded by **AGS** was analysed for the preparation of this report. This includes the county, date and time of collision, the area speed limit, and the road type. The age and gender of casualties was also analysed.
- The characteristics of cyclists who were **hospitalised** with injuries from SCCs were analysed using **hospital data**, including the age and gender, date and time of admission to hospital, county of residence, injuries sustained, and clinical outcomes. For this analysis, a specified methodology was followed. Please see the methodology report and FAQs on HIPE hospital data [here](#).
- AGS and HIPE hospital records include casualties who were injured in traffic collisions (i.e. occurring on public roads only).

Report Outline

■ Trends in serious injuries from single-cyclist collisions over 2014-2023

- National trends based on hospital records and AGS data.
- Dublin trends based on hospital records and AGS data.

■ Characteristics of single-cyclist collisions in Ireland (AGS records, 2019-2023)

- Collision location, date and time, road type and characteristics, light conditions.
- Dublin collisions overview.

■ Characteristics of cyclists injured in single-cyclist collisions in Ireland (hospital records, 2019-2023)

- Demographics, date of admission, county of residence, injuries sustained, length of stay at hospital, discharge destination.
- Dublin casualties overview.

Trends in single-cyclist collisions

AGS and Hospital records,
2014-2023

Summary of results

National trends in single-cyclist collisions

- Overall, there was an upward trend in the number of SCCs in Ireland.
- The national trend was explored using AGS and HIPE hospital records over 2014-2023.
- The number of hospitalised cyclists from SCCs more than doubled in 2023 (407) relative to 2014 (155).
- The number of AGS serious injuries from SCCs also increased from less than 5 records in 2014 to over 40 records in 2023.
- The increase in SCCs registered in 2020 relative to 2019 at a national level is noteworthy.
 - There was a 39% increase in the number of hospitalised cyclists from SCCs in 2020 relative to the previous year.
 - In AGS records, serious injuries from SCCs increased by 40% in 2020.
- Although both AGS and HIPE hospital records showed an upward trend, it is important to note that there was a large difference in the total number of SCCs recorded in each data source.
 - Over 2014-2023, there were 9.4 hospitalised cyclists from SCCs for each serious injury from a SCC in AGS data.
 - In 2020, the difference between the two data sources was higher: there were 11.2 hospitalised cyclists from SCCs for each serious injury from a SCC in AGS data.

Summary of results

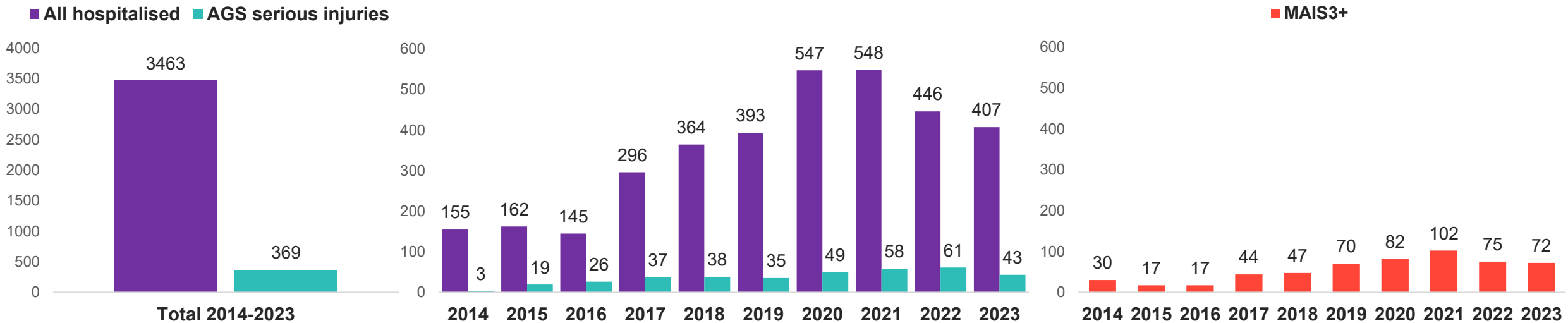
Dublin trends in single-cyclist collisions

- An upward trend in SCCs was also observed in the Dublin area in the two data sources- AGS and hospital data.
- AGS results refer to SCCs occurring in Dublin, whereas HIPE hospital data refers to cyclists in SCCs who were residents in County Dublin.
- HIPE hospital records in 2023 from cyclists who were residents in County Dublin rose by 88% relative to 2014.
- The study of AGS serious injury records indicated that the number of SCCs occurring in County Dublin went from less than 5 records in 2014 to 16 in 2023.

National trends in SCCs

Hospital and AGS data – 2014-2023

- Overall, the number of SCCs was higher in hospital records than in AGS data. There were 9.4 hospitalised cyclists from SCCs for each serious injury from a SCC in AGS data.
- The number of SCCs in hospital records started to increase in 2017. There were 163% more SCCs in 2023 relative to 2014.
- AGS serious injuries from SCCs also increased over the 10-year period, from less than 5 records in 2014 to 43 in 2023.
- The highest number of hospitalised cyclists from SCCs was recorded over 2020-2021, with a 39% increase in 2020 relative to 2019. A similar increase in 2020 was noted in AGS records (40%).
- The number of MAIS3+ cyclists in SCCs - those with clinically serious injuries, with a higher probability of having long-term consequences - also increased over the period, reaching its highest level in 2021 (102).



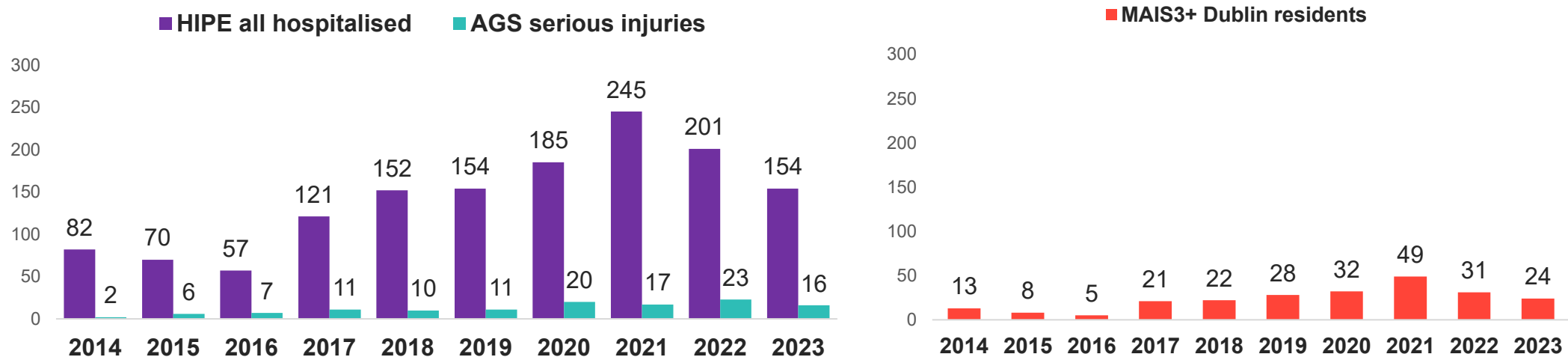
AGS data is current as of 31 July 2025. Figures for 2021 onwards are provisional and subject to change.

Dublin trends in SCCs

Hospital and AGS data – 2014-2023

- Of all hospitalised cyclists with injuries from SCCs over 2014-2023 (n= 3,463), 40% were residents in County Dublin. Of all SCCs resulting in serious injury recorded by AGS over 2014-2023 (n= 369), 33% occurred in County Dublin.
- Overall, there was an increase in the number of SCCs in Dublin county (AGS data), or involving Dublin residents (hospital records).
- The highest annual number of SCCs involving Dublin residents was recorded in 2021 (245). The number of MAIS3+ cyclists in SCCs who were residents in Dublin also peaked in 2021 (49).
- Relative to 2019, the number of SCCs recorded by AGS doubled in 2020 and remained higher in the most recent years.

Single-cyclist collisions occurring in County Dublin (AGS)
or involving County Dublin residents (hospital data)



AGS data is current as of 31 July 2025. Figures for 2021 onwards are provisional and subject to change.

Characteristics of single-cyclist collisions resulting in serious injuries

Collisions records from An Garda Síochána,
2019-2023

Summary of results

AGS data – 2019-2023

- Over 2019-2023, there were 246 serious injuries from single-cyclist collisions recorded by AGS.
- 1 in 5 of seriously injured cyclists in SCCs were aged 45-54 years, and 4 in 5 were male.
- The number of serious injuries from SCCs increased over spring and peaked in summer, and were frequent over the weekend, or from 12pm to 8pm.
- Most SCCs occurred on straight roads, not at a junction, on urban roads, or in daytime.

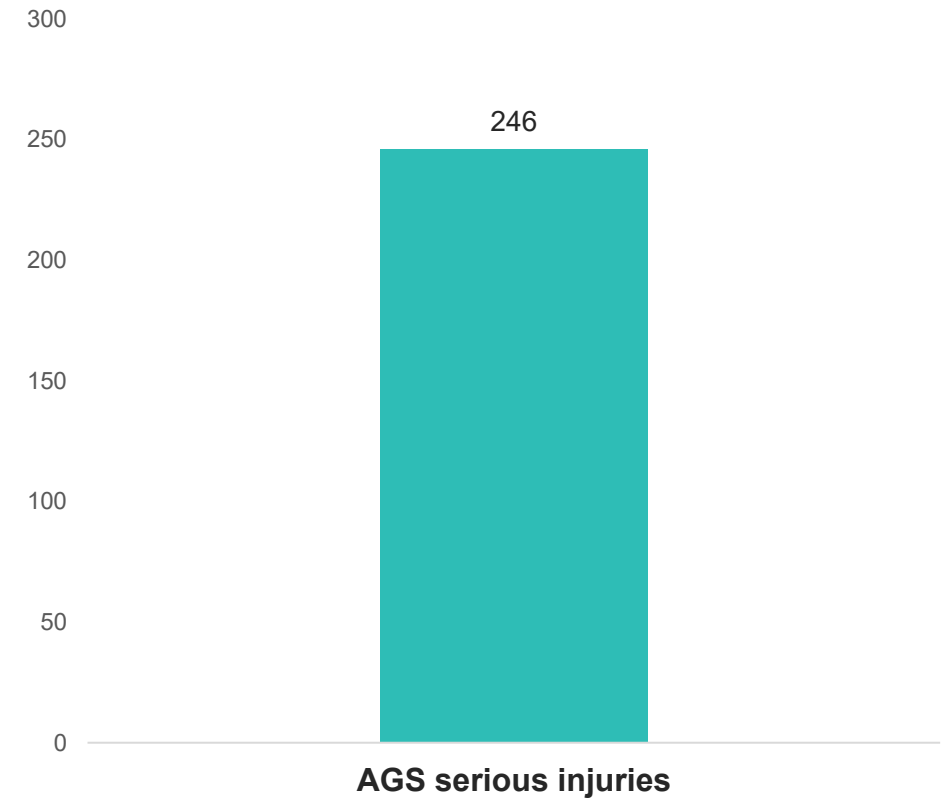


Total of serious injuries from SCCs

AGS data – 2019-2023

- Over 2019-2023, there were 246 cyclists who were recorded by AGS as seriously injured from single-cyclist collisions.
- Seriously injured cyclists injured in SCCs accounted for 17% of all cyclist serious injuries recorded in this period.

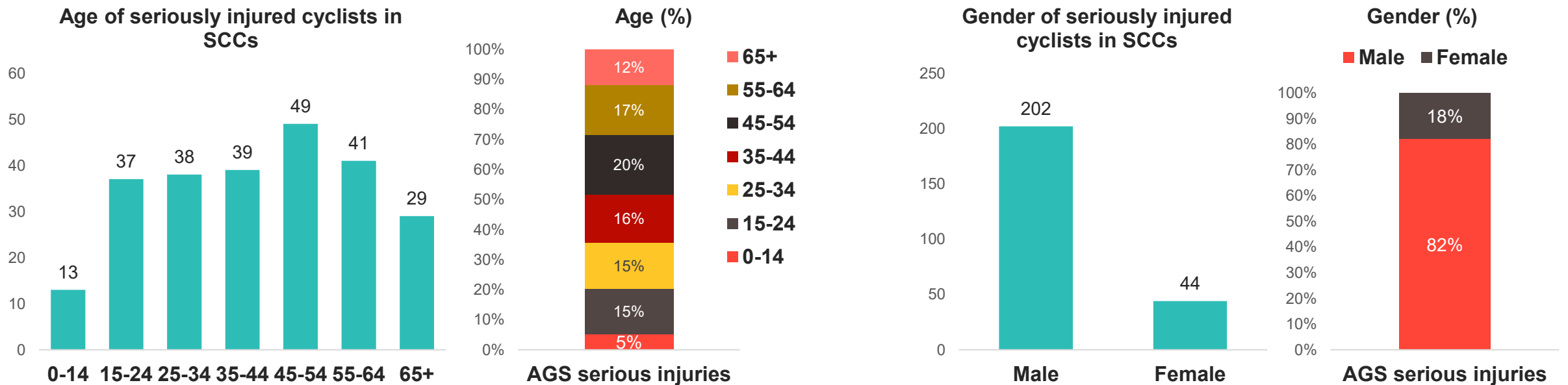
Serious injuries from SCCs over 2019-2023



SCC by age and gender

Cyclist serious injuries from SCCs, AGS data – 2019-2023

- One in five seriously injured cyclists in SCCs were aged 45-54 years.
- Four in five were male.

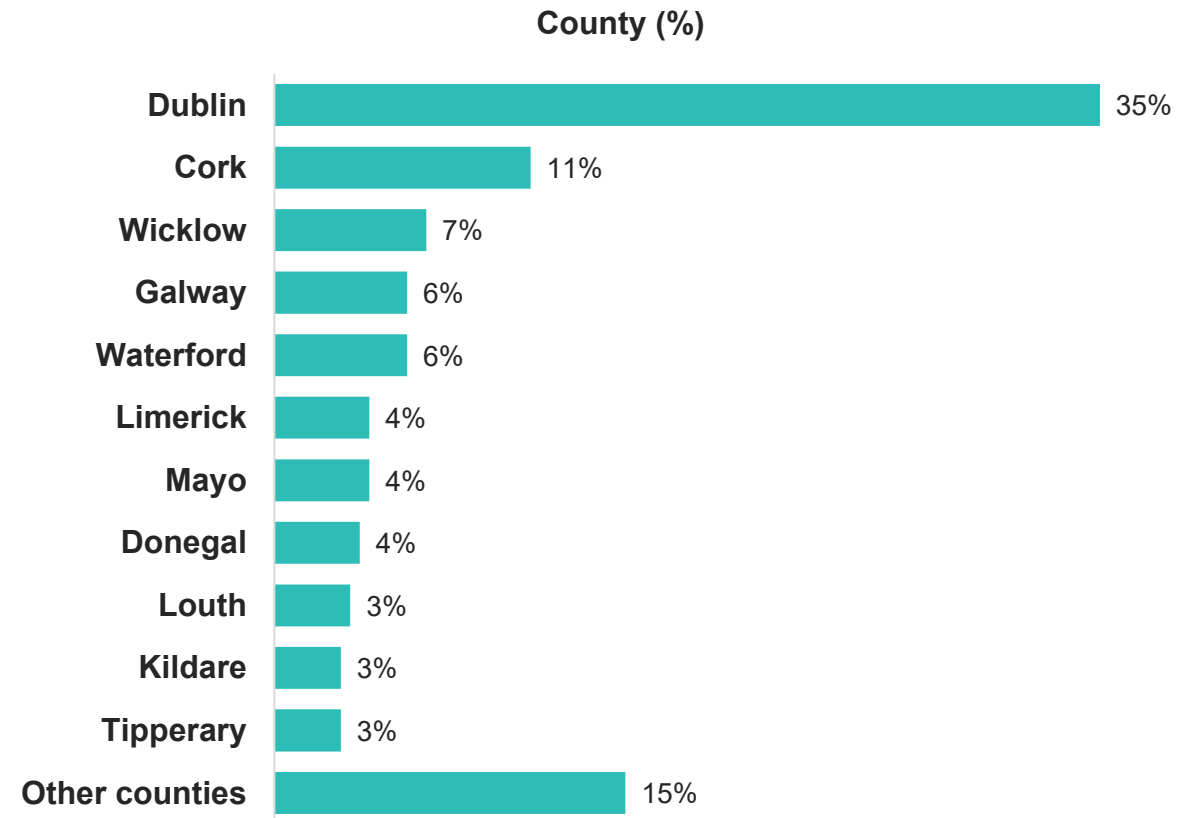


AGS data is current as of 31 July 2025. Figures for 2021 onwards are provisional and subject to change.

County of SCC

Cyclist serious injuries from SCCs, AGS data – 2019-2023

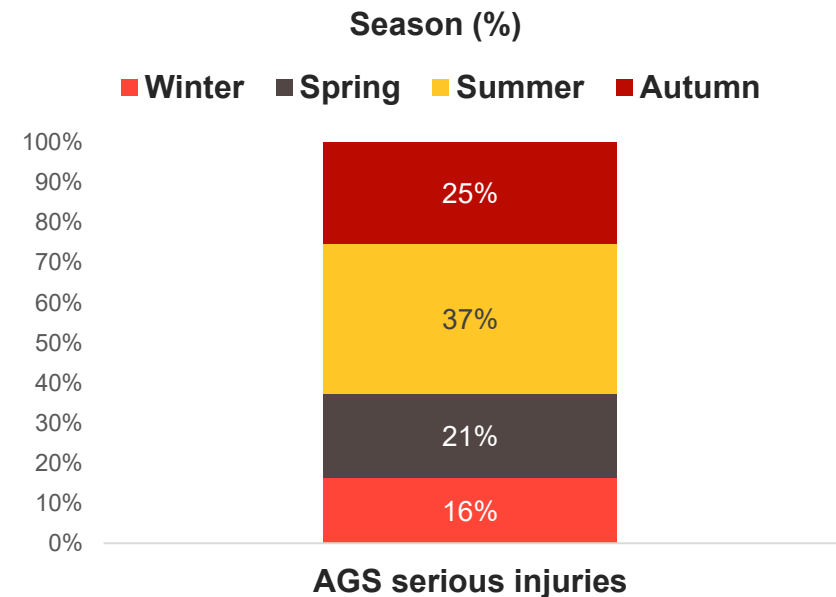
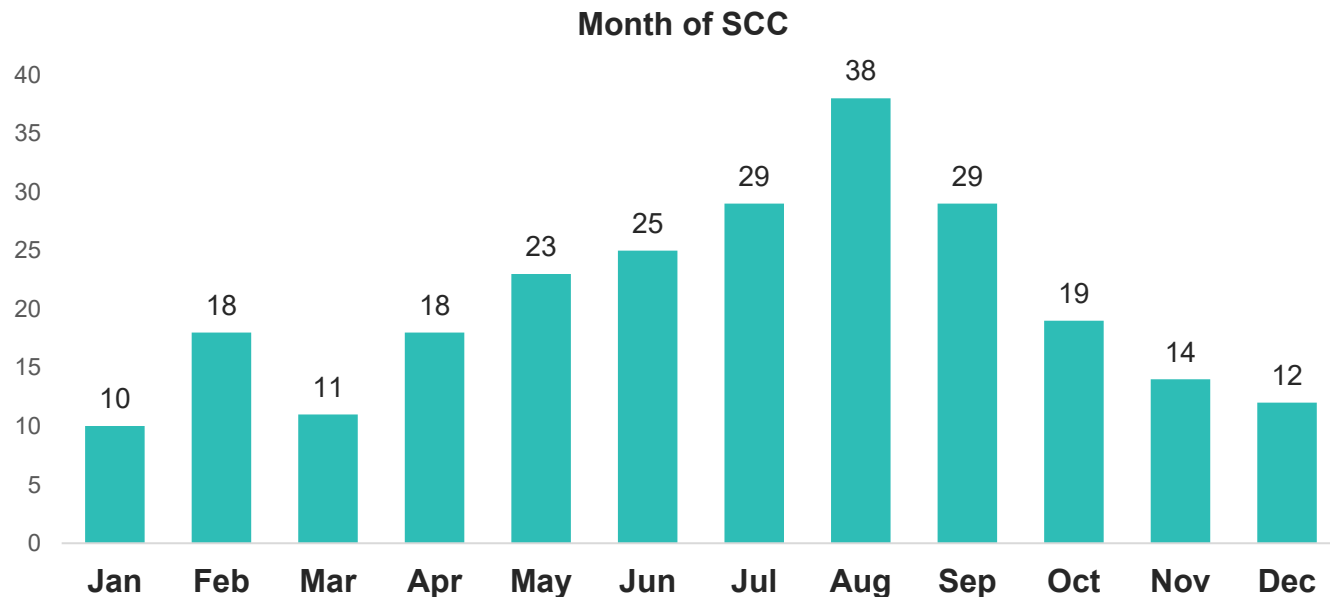
- Dublin was the county with the highest level of SCCs resulting in serious injuries (n= 87, 35%).
- The second highest level of SCCs was recorded in Co. Cork (n= 27, 11%).



Month of SCC

Cyclist serious injuries from SCCs, AGS data – 2019-2023

- The number of SCCs started to increase in spring, to peak in August (n= 38).
- Almost 2 in 5 of SCCs occurred over the summer months.

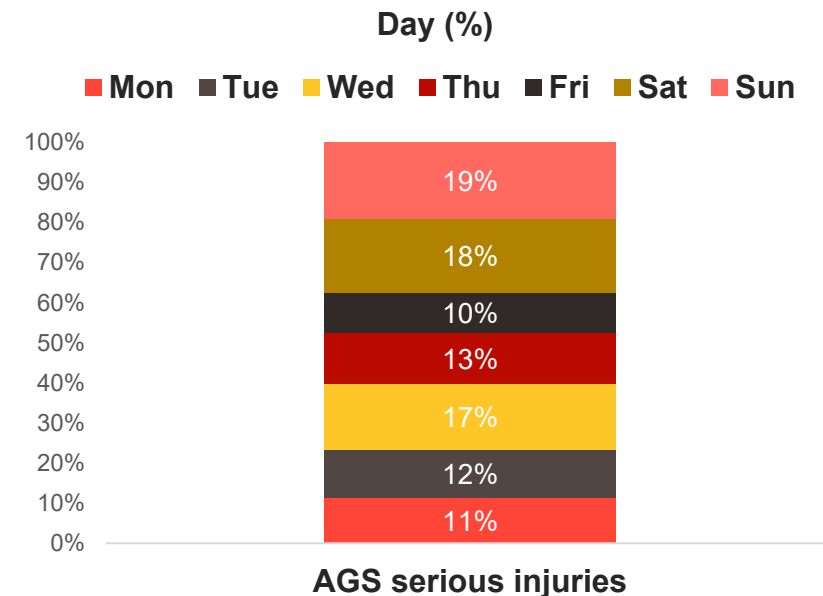
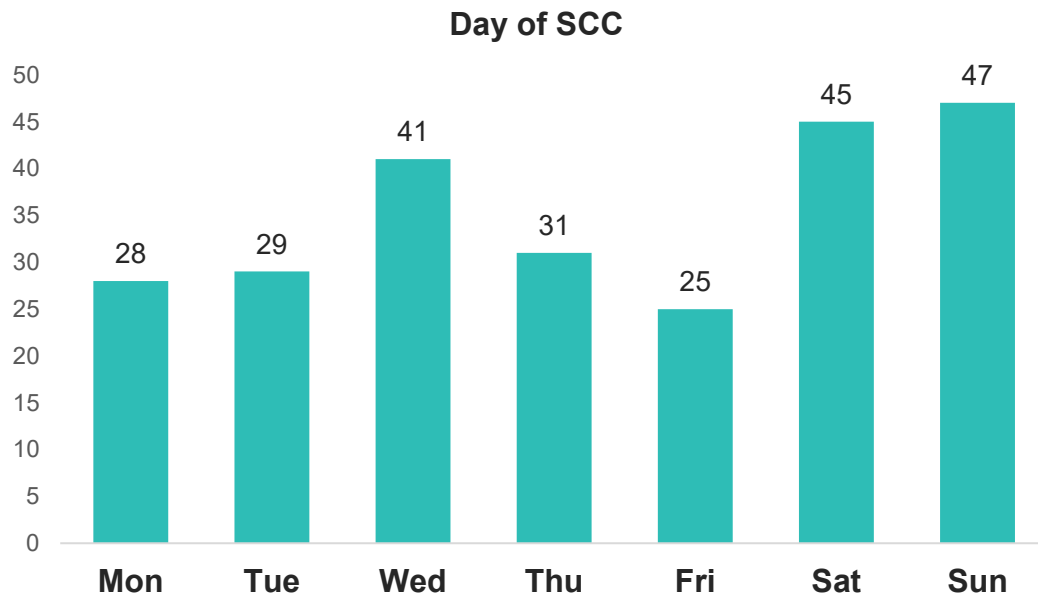


AGS data is current as of 31 July 2025. Figures for 2021 onwards are provisional and subject to change.

Day of SCC

Cyclist serious injuries from SCCs, AGS data – 2019-2023

■ Saturdays and Sundays saw the highest levels of SCCs.

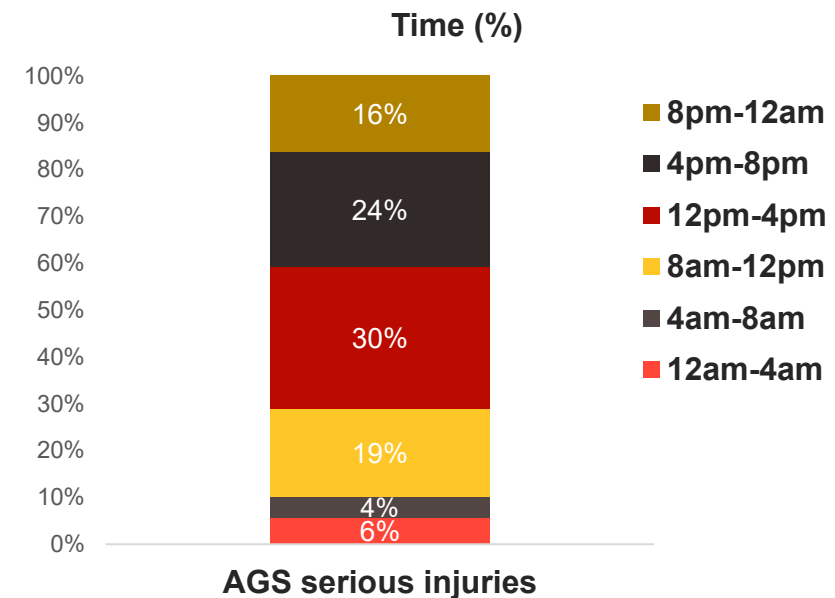
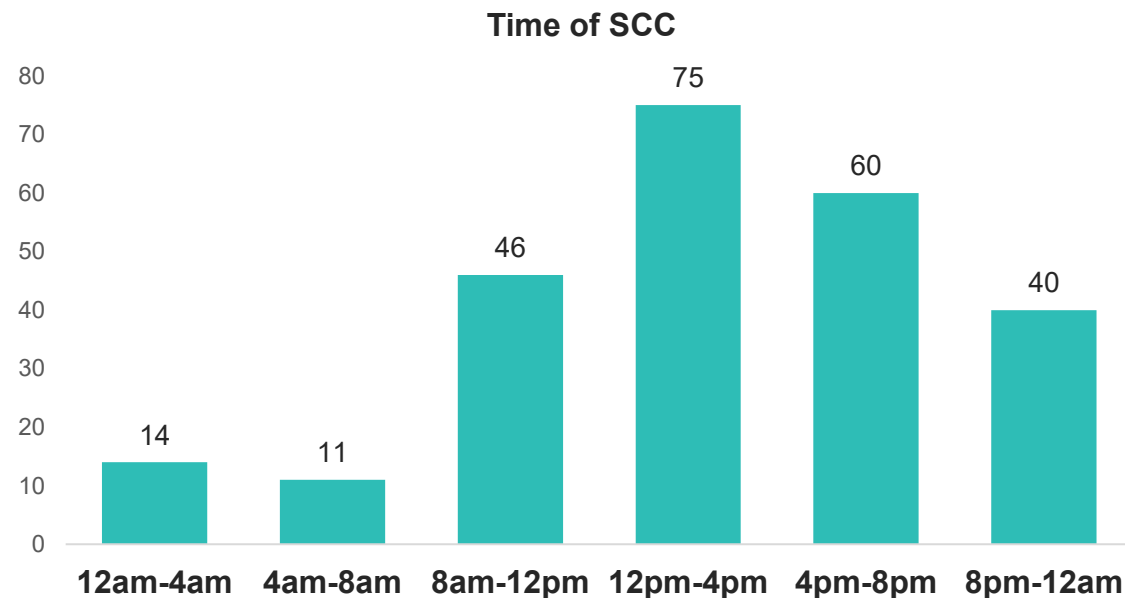


AGS data is current as of 31 July 2025. Figures for 2021 onwards are provisional and subject to change.

Time of SCC

Cyclist serious injuries from SCCs, AGS data – 2019-2023

■ Just over half of SCCs occurred between 12pm-8pm.

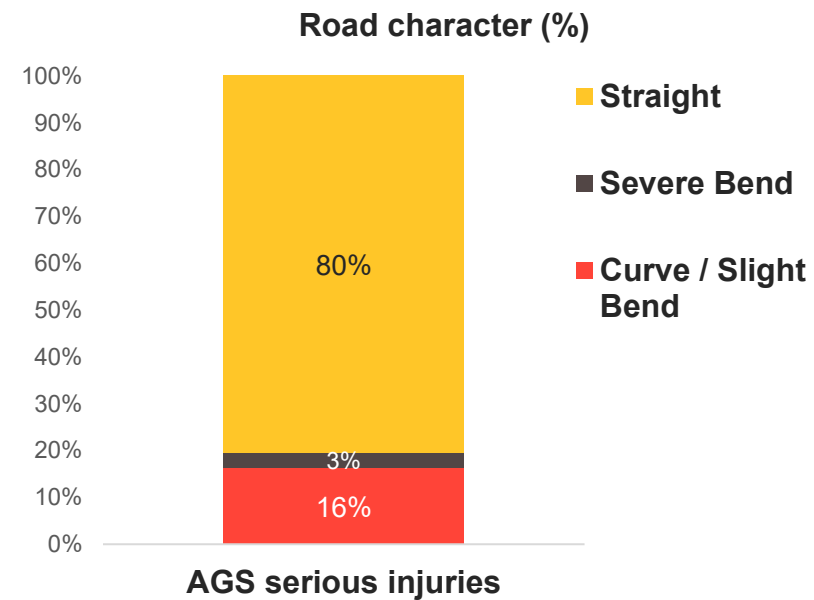
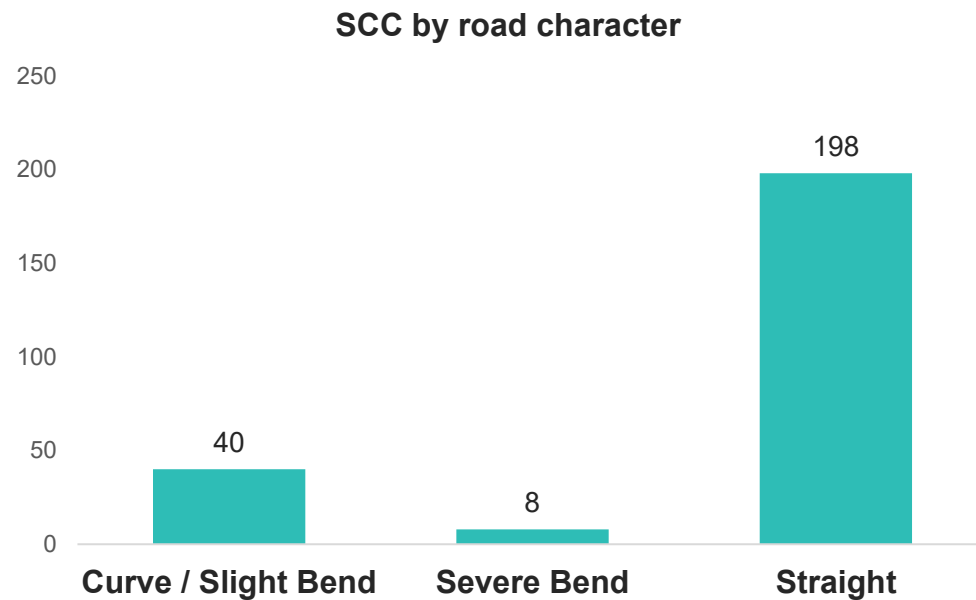


AGS data is current as of 31 July 2025. Figures for 2021 onwards are provisional and subject to change.

Road character

Cyclist serious injuries from SCCs, AGS data – 2019-2023

■ Four in five SCCs occurred on a straight road.

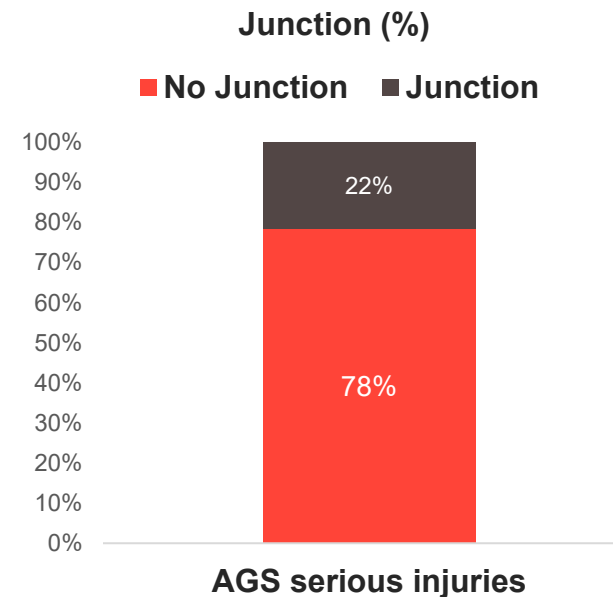


AGS data is current as of 31 July 2025. Figures for 2021 onwards are provisional and subject to change.

Junction

Cyclist serious injuries from SCCs, AGS data – 2019-2023

■ Almost four in five SCCs did not occur at a junction.

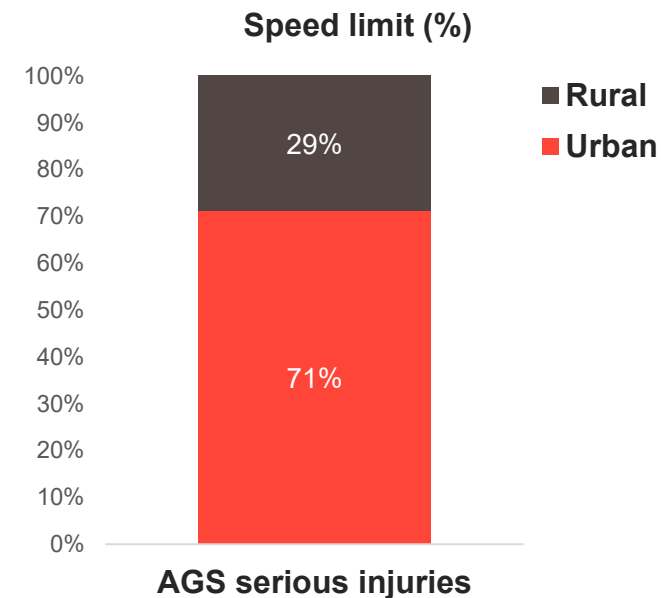
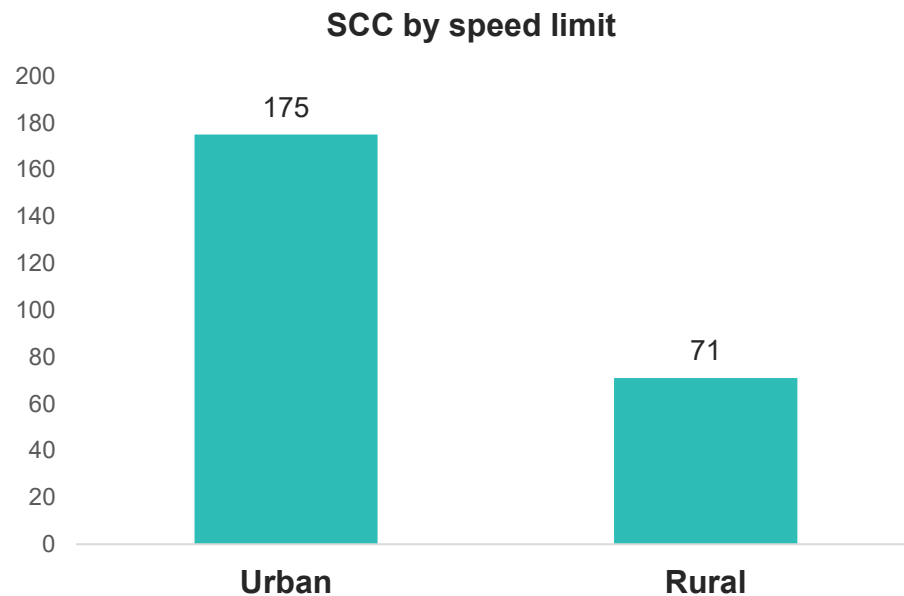


AGS data is current as of 31 July 2025. Figures for 2021 onwards are provisional and subject to change.

Speed limit

Cyclist serious injuries from SCCs, AGS data – 2019-2023

- An urban road has a speed limit of 60km/h or less, while a rural road has a speed limit of 80km/h or more. These categories precede the introduction in 2025 of a default speed limit of 60km/h on rural local roads.
- 7 in 10 SCCs occurred on urban roads.

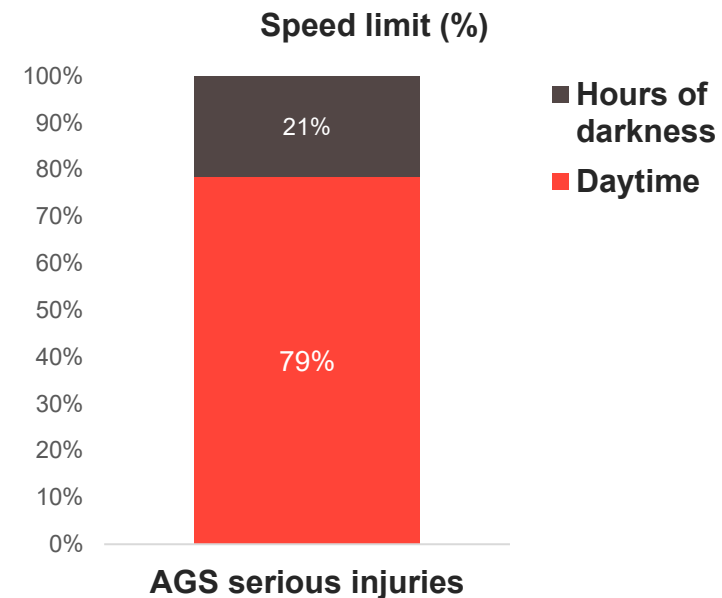
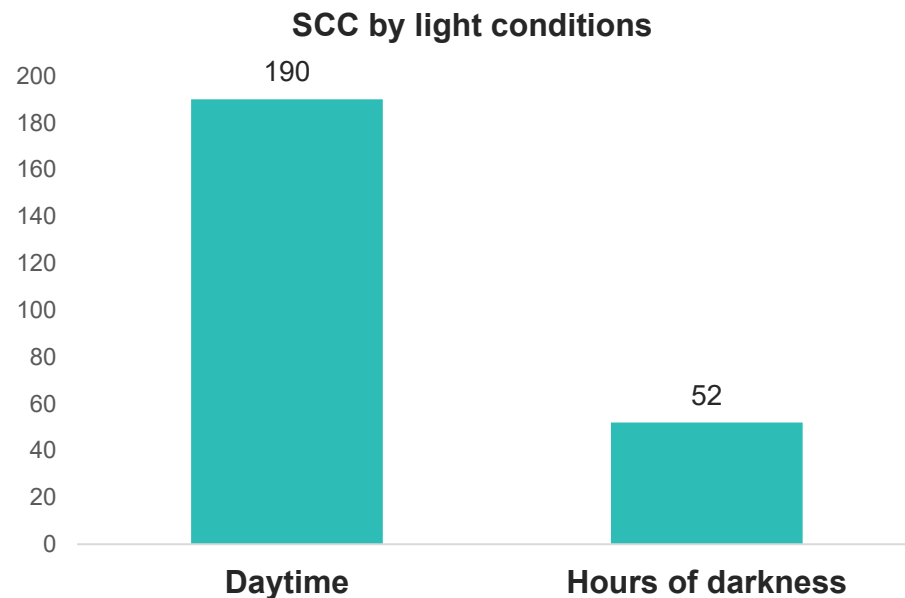


AGS data is current as of 31 July 2025. Figures for 2021 onwards are provisional and subject to change.

Light conditions

Cyclist serious injuries from SCCs, AGS data – 2019-2023

■ Almost 4 in 5 SCCs occurred in daytime.



AGS data is current as of 31 July 2025. Figures for 2021 onwards are provisional and subject to change.

Overview of SCCs occurring in County Dublin



Cyclist serious injuries from SCCs, AGS data – 2019-2023

- Over 2019-2023, there were 87 serious injuries from SCCs recorded by AGS in County Dublin, 35% of the total.
- A quarter of seriously injured cyclists in SCCs in Dublin were aged 25-34 years, 23% were 35-44 years, and just 15% were aged 45-54 years.
- 85% of seriously injured cyclists in SCCs in Dublin were male.
- 20% of serious injuries from SCCs were recorded on Thursdays, 34% over Summer months, and 47% between 12pm-8pm.
- 90% of serious injuries from SCCs occurred on straight roads, 24% at a junction, almost all in urban roads, and 68% in daytime.



Characteristics of cyclists who were hospitalised from single-cyclist collisions

Hospital records,
2019-2023

Summary of results



Hospital data – 2019-2023

- Over 2019-2023, there were 2,341 hospitalised cyclists with injuries from single-cyclist collisions. Of these, 17% sustained MAIS3+ injuries, these being the most serious injuries from a clinical perspective, with a higher probability of having long-term consequences.
- Almost 1 in 5 of hospitalised cyclists in SCCs were aged up to 14 years, and almost three quarters were male.
- Hospital admissions of cyclists in SCCs increased over spring and peaked in summer, and were frequent over the weekend.
- Over half of hospitalised cyclists in SCCs sustained one injury in the upper limbs, and 1 in 5 at least one injury in the head. Almost half of MAIS3+ cyclists injured in SCCs sustained a serious injury in the lower limbs.
- The average number of days that hospitalised cyclists in SCCs spent in hospital as in-patients was of 3 days, whereas those who sustained MAIS3+ injuries stayed in hospital for 7 days on average.
- Most hospitalised cyclists were sent home at discharge from hospital.

Total of cyclists in SCCs

Hospital data – 2019-2023

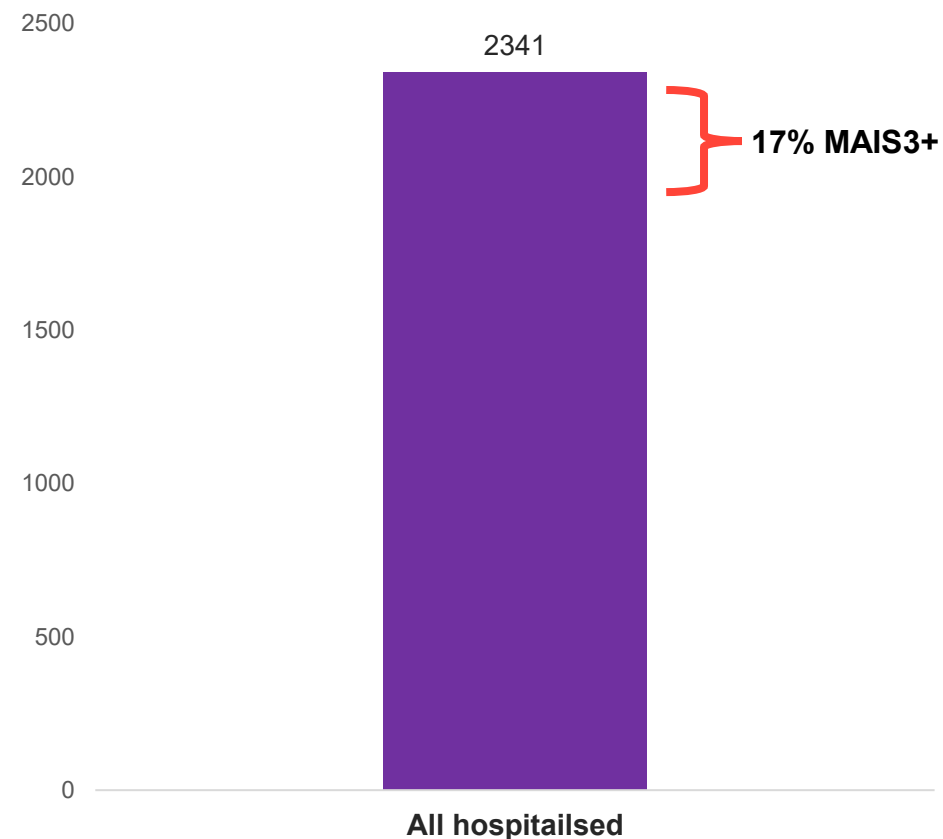
- Over 2019-2023, there were 2,341 cyclists who were hospitalised with injuries from single-cyclist collisions.
- Hospitalised cyclists injured in SCCs accounted for 69% of all hospitalised cyclists over 2019-2023.
- Of all hospitalised, 17% (401) sustained MAIS3+ injuries, these being the most severe injuries from a clinical point of view, with a higher probability of having long-term consequences.



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Hospitalised cyclists from SCCs over 2019-2023



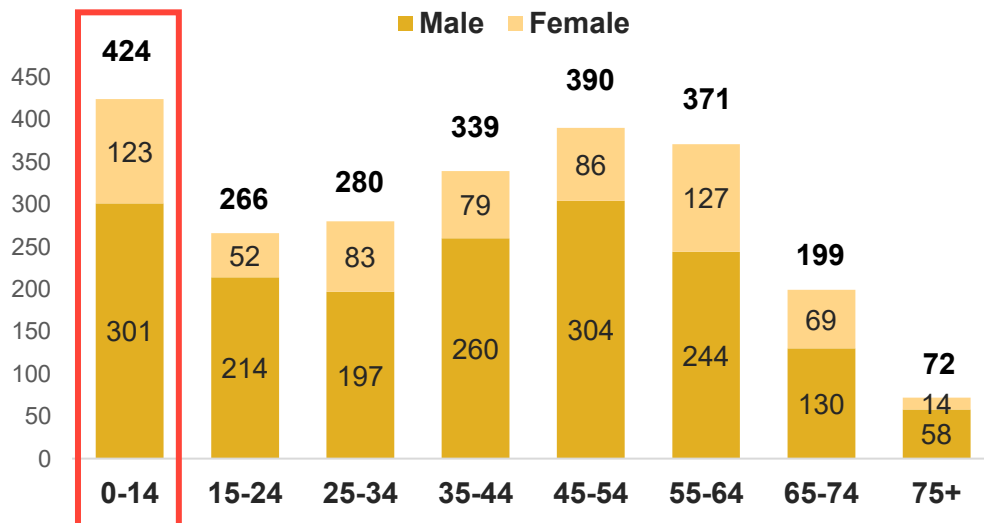
Demographics



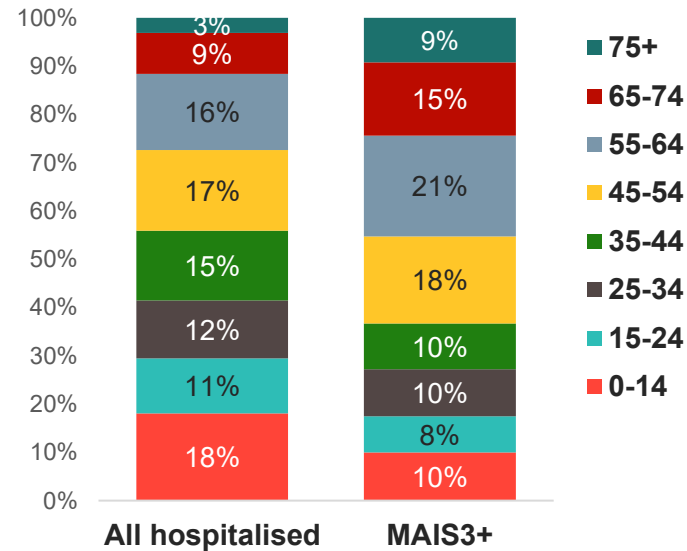
Cyclists in SCCs, hospital data – 2019-2023

- Casualties aged up to 14 years accounted for 18% of all hospitalised cyclists injured in SCCs.
- Most hospitalised cyclists of all ages were male (73% of the total).
- Of the subgroup of cyclists with MAIS3+ injuries who were injured in SCCs (401), 24% were aged 65+ years, and 83% were male.

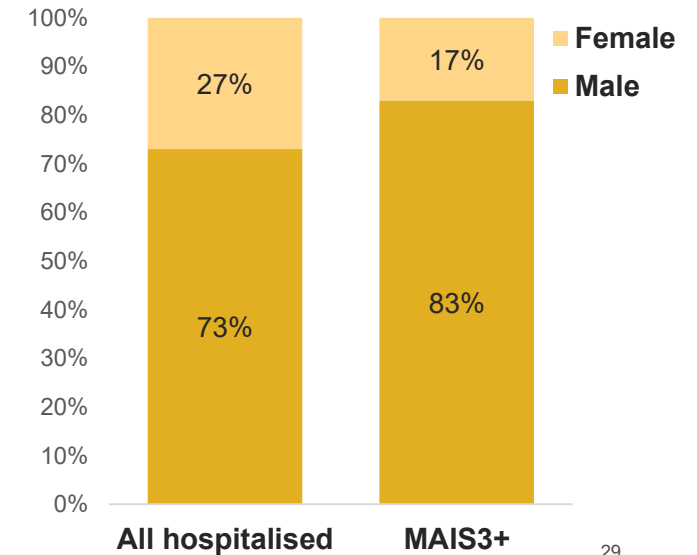
Gender by age group among hospitalised cyclists from SCCs in Ireland



Age of cyclists injured in SCCs



Gender of cyclists injured in SCCs



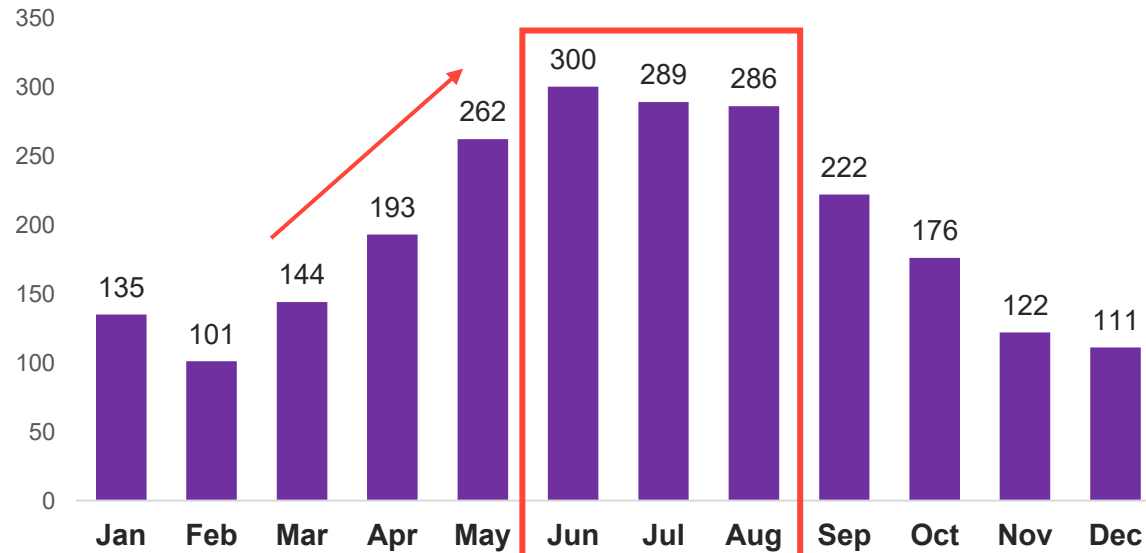


Month of hospital admission

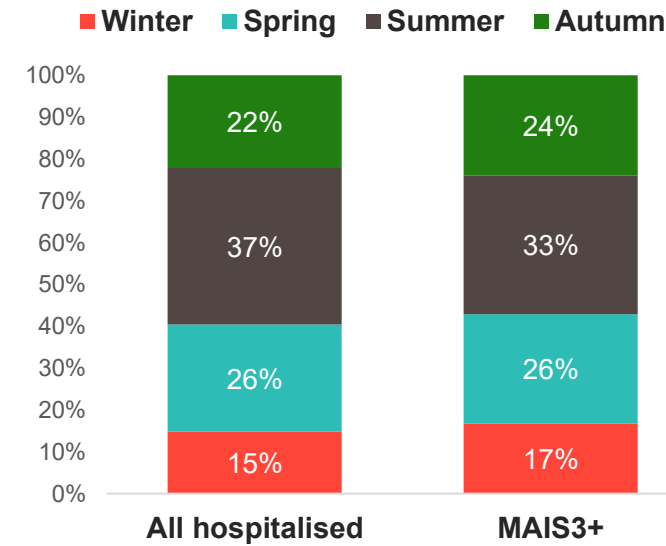
Cyclists in SCCs, hospital data – 2019-2023

- Summer was the season with the highest level of admissions to hospital among cyclists injured in SCCs. This was the case for all hospitalised cyclists and for the subgroup who sustained MAIS3+ injuries.
- Hospital admissions from SCCs started to increase in March to peak in June. They remained high over July and August.

Hospitalised cyclists from SCCs in Ireland



Cyclists injured in SCCs



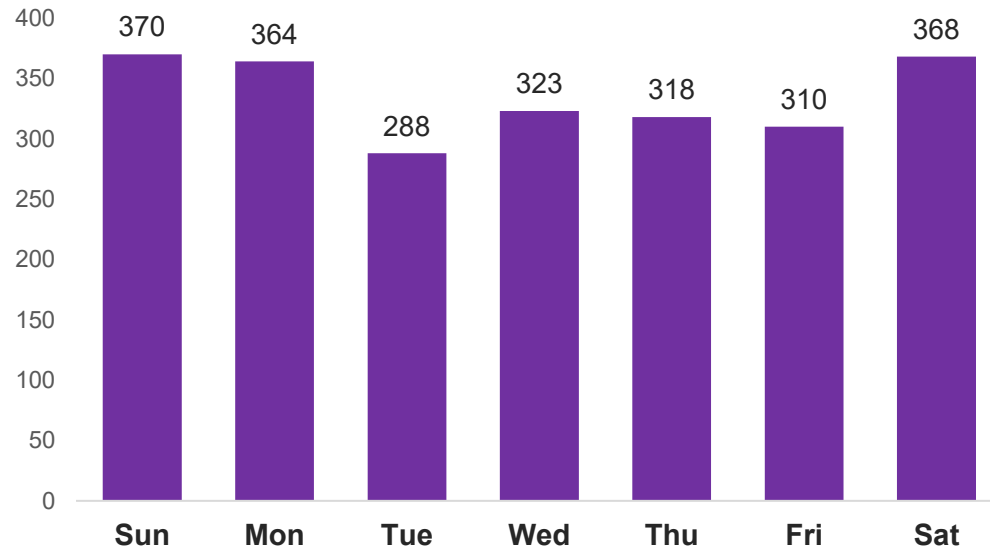


Day of hospital admission

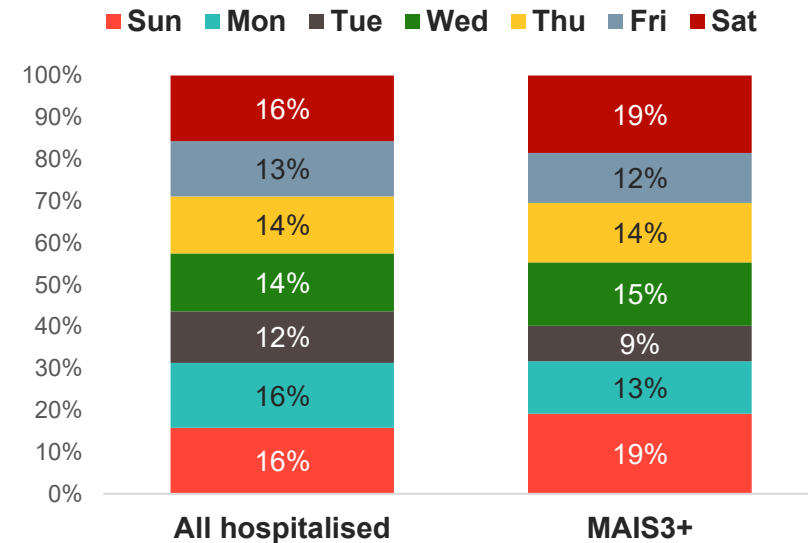
Cyclists in SCCs, hospital data – 2019-2023

- Saturdays, Sundays, and Mondays were the days with the highest levels of admissions to hospital among hospitalised cyclists injured in SCCs.
- For cyclists who sustained MAIS3+ injuries from SCCs, hospital admissions were more frequent on Saturdays and Sundays only.

Hospitalised cyclists from SCCs in Ireland



Cyclists injured in SCCs

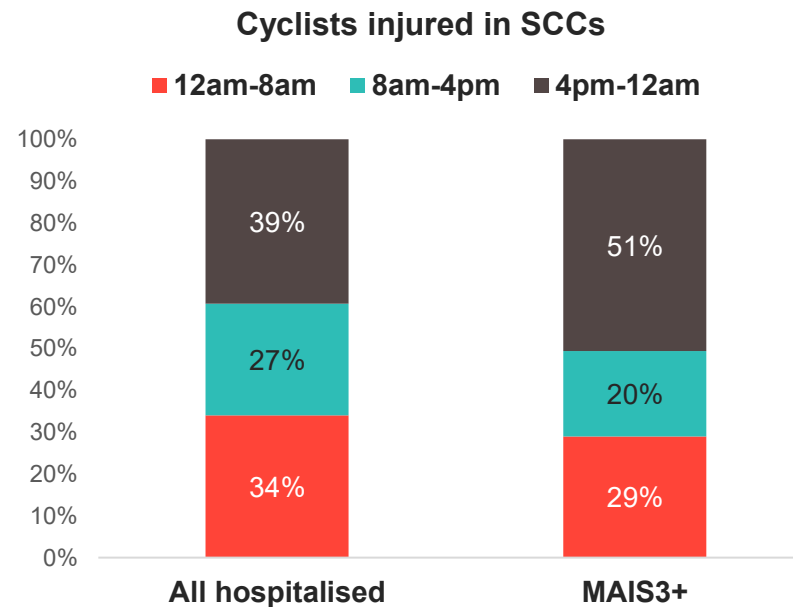
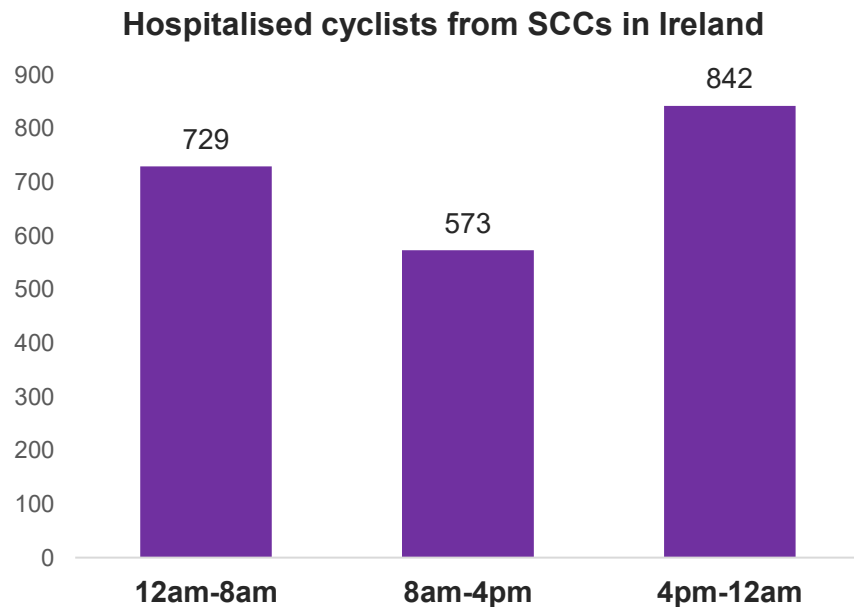




Time of hospital admission

Cyclists in SCCs, hospital data – 2019-2023

■ 39% of all hospitalised cyclists from SCCs, and 51% of those with MAIS3+ injuries, were admitted to hospital between 4pm and 12am.



Injuries sustained*

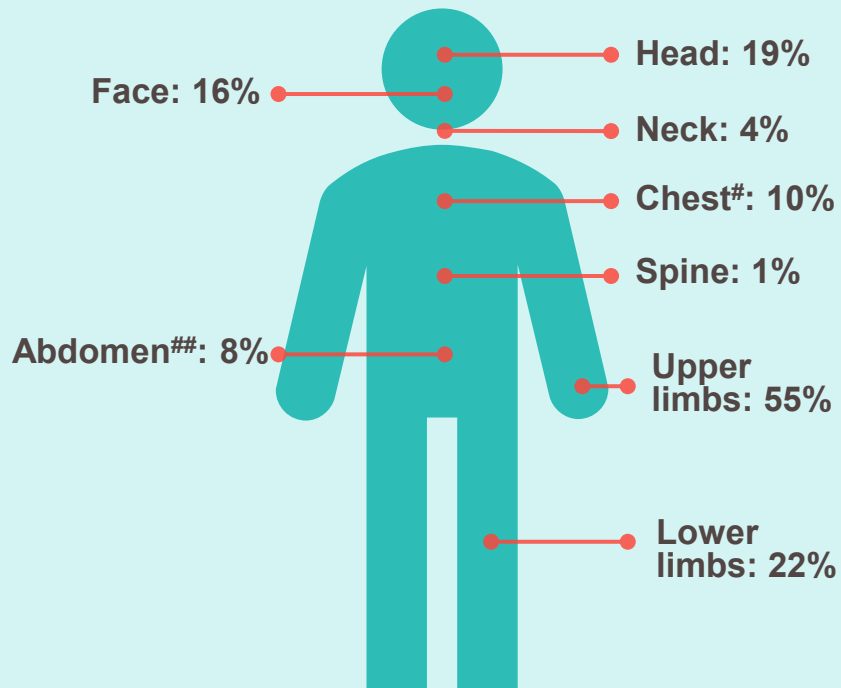
Hospitalised cyclists in SCCs, hospital data – 2019-2023



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Body area where at least one injury was sustained
(% Yes)



- Hospitalised cyclists injured in SCCs may have sustained a single or multiple injuries of any severity.
- 55% of hospitalised cyclists sustained one injury, and 45% sustained 2 or more injuries in the same or in different body areas.
 - The mean number of multiple injuries was of 3.02, with a maximum of 22 injuries.
- 55% of hospitalised cyclists sustained at least one upper limb** injury. Of these, 88% sustained at least one fracture, 11% at least one open wound, and 5% at least one superficial injury.
- 22% of hospitalised cyclists sustained at least one lower limb** injury. Of these, 72% sustained at least one fracture, 17% an open wound, and 12% a superficial injury.
- 19% of hospitalised cyclists sustained at least one head injury. Of these, 53% sustained at least one brain injury, 25% a skull fracture, and 32% an open wound.
- 16% of hospitalised cyclists sustained at least one face injury. Of these, 64% sustained at least one fracture, and 39% at least one open wound.

* Based on information from the ICD-10-AM injury codes recorded for each casualty in HIPE. Percentages represent the proportion of casualties with at least one injury or injury type in each body part.

** The upper limb category include shoulder, upper arm, elbow, forearm, wrist, and hand injuries. The lower limb category includes hip, thigh, lower leg, knee, ankle and foot injuries.

Examples of chest injuries include thorax, sternum, rib, heart, or lung injuries. ## Examples of abdomen injuries include lower back injuries; abdominal organs such as liver or stomach injuries; and pelvic organs such as kidney or bladder injuries.



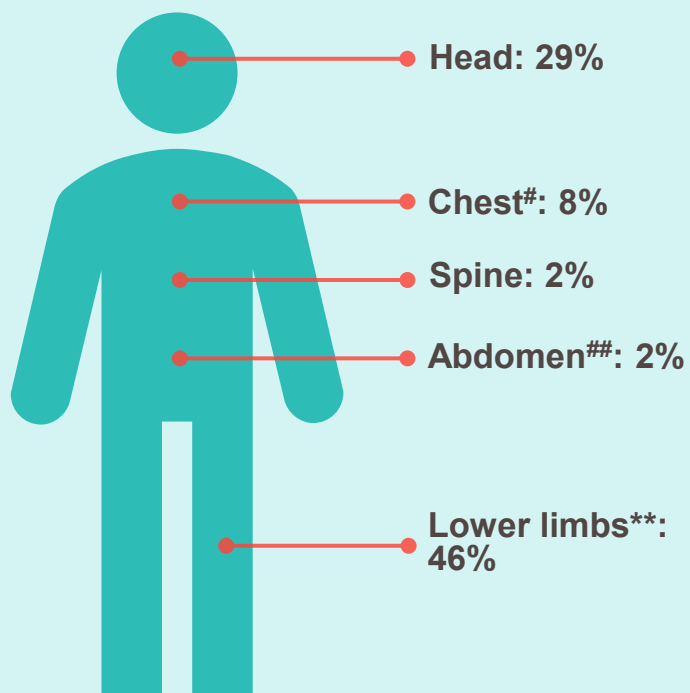
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Injuries sustained*

MAIS3+ cyclists in SCCs, hospital data – 2019-2023

Share per body area for cyclists with a single serious injury:



- Cyclists with MAIS3+ injuries from SCCs may have sustained a single or multiple serious injuries in the same or different body area.
- 89% of them sustained a **single serious injury** (percentages of single serious injuries per body part are displayed in the graph in the left).
 - 29% sustained a serious head injury. 57% of these were serious brain injuries, and 43% were skull fractures.
 - 8% sustained a serious chest injury. 76% of these were serious injuries in internal chest organs.
 - 46% sustained a serious lower limb injury. All of these were serious fractures.
- 11% sustained **multiple serious injuries** in the same or in different body area.
 - The mean number of multiple serious injuries was 2.37, with a maximum of 5 injuries.

* Based on information from the ICD-10-AM injury codes recorded for each casualty in HIPE.

Examples of chest injuries include thorax, sternum, rib, heart, or lung injuries. ## Examples of abdomen injuries include lower back injuries; abdominal organs such as liver or stomach injuries; and pelvic organs such as kidney or bladder injuries. ** The lower limb category includes hip, thigh, lower leg, knee, ankle and foot injuries.



Length of stay in hospital

Cyclists in SCCs, hospital data – 2019-2023

- 47% of all hospitalised cyclists from SCCs stayed in hospital for 1 day or less, with an average number of days of 3.13.
- Of those cyclists who sustained MAIS3+ injuries from SCCs, 49% stayed in hospital for 5 days or more, with an average of almost 7 days.

Length of stay	Cyclists injured in SCCs			
	All hospitalised (n = 2341)		MAIS3+ (n = 401)	
	n	%	n	%
1 day or less	1103	47%	46	12%
2 days	450	19%	63	16%
3-4 days	361	15%	97	24%
5 days or more	427	18%	195	49%
Mean LOS (SD)	3.13 (6.1)		6.89 (11.57)	
1+ days at ICU	57	2%	36	9%
Mean LOS ICU (SD)	7.35 (17.99)		9.89 (22.28)	





Destination at discharge

Cyclists in SCCs, hospital data – 2019-2023

- 93% of all hospitalised cyclists from SCCs were sent home at discharge from hospital.
- Of those cyclists who sustained MAIS3+ injuries from SCCs, 83% were sent home at discharge, and 13% to another hospital for continued care.

Destination at discharge	Cyclists injured in SCCs			
	All hospitalised (n = 2341)		MAIS3+ (n = 401)	
	n	%	n	%
Home	2186	93%	331	83%
Nursing home or other long term accommodation	24	1%	13	3%
Other hospital	104	4%	51	13%
Other destination	27	1%	6	2%



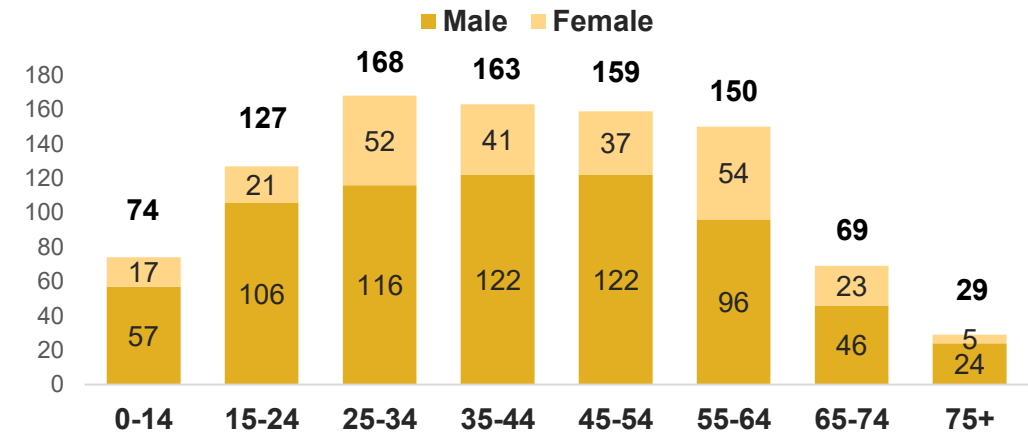
Overview of cyclist residents in County Dublin



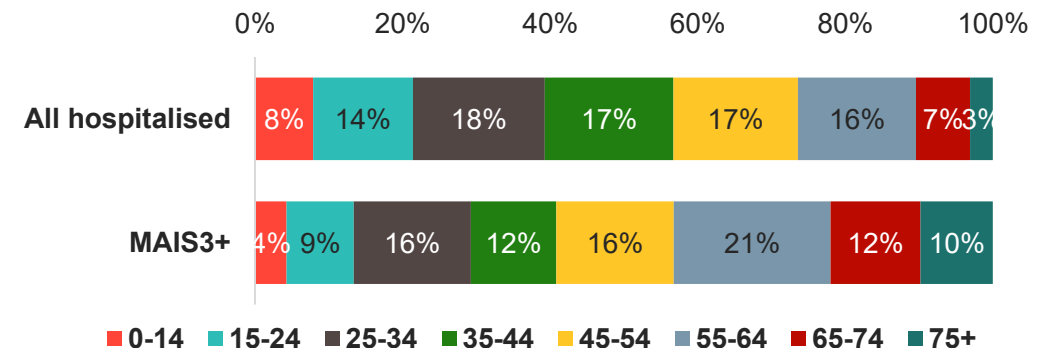
Cyclists in SCCs, hospital data – 2019-2023

- Over 2019-2023, there were 939 hospitalised cyclists with injuries from SCCs who were residents in County Dublin, 40% of the total.
- Of these, 17% sustained MAIS3+ injuries (n= 164).
- 18% of all hospitalised Dublin cyclists were aged 25-34 years, and just 8% were aged 14 years or less. The proportion of hospitalised children residing in Dublin was 10 percentage points smaller than the level registered at a national level for this age group (18%).
- 73% of Dublin hospitalised cyclists were male.
- 17% were admitted to hospital on Sundays and 33% over the summer.
- 56% sustained at least one upper limb injury, and around 20% head or lower limb injuries.
- They spent an average of 3.2 days in hospital as in-patients, and 94% were sent home at discharge from hospital.
- MAIS3+ cyclists injured in SCCs who were residents in County Dublin had similar characteristics to all-Ireland MAIS3+ cyclists described in the previous slides.

Hospitalised cyclists in SCCs residents in Co. Dublin



Cyclists in SCCs residents in Co Dublin



Key messages and conclusions

Key messages and conclusions

Single-cyclist collisions in Ireland

- SCCs are a frequent cause of serious injuries among cyclists in Ireland, requiring admission to hospital as in-patients for a period of time.
- Overall, there was an upward trend in the number of SCCs in Ireland and in the Dublin area. This was registered in the two data sources studied (AGS data and HIPE hospital records).
- Notably, the number of SCCs recorded in AGS data was consistently lower than the number of SCCs recorded in hospital records.
- We acknowledge that the lack of a unique dataset for studying SCCs and the existence of gaps of information in each data source are limitations of this research. However, it was possible to identify some common characteristics of SCCs in the two samples. For instance, these were recorded more frequently in the Dublin area, among male cyclists, and over the summer.
- The study of two data sources provided important information to understand the trends and characteristics of SCCs in Ireland and in the Dublin area. Complementing AGS data with hospital records is a valuable approach to obtain a more accurate estimate of the number of serious injuries from SCCs in Ireland, including complementary information on health outcomes.
- This research provides a valuable evidence-base for road safety policy development to reduce or eliminate the risk of SCCs in the future.

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