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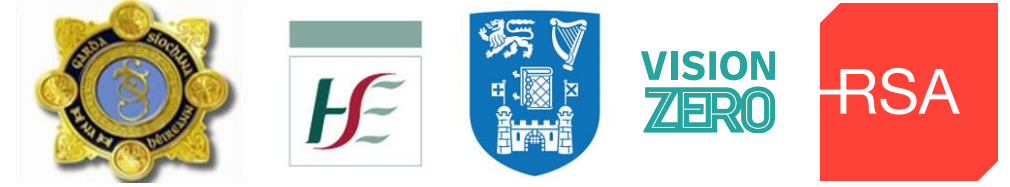
Serious injuries among pedal cyclists in hospital and An Garda Síochána data

Period 2020-2024

Date of publication: 26 May 2026

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Background



- This report provides an overview of serious injuries among cyclists over 2020-2024.
- 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.
- For the preparation of this report series, two sources of data were used:
 - **Hospital records** from the **Hospital In-Patient Enquiry (HIPE) database**, and
 - **Collision records** from the **Irish Road Traffic Collision database**, transferred from An Garda Síochána (AGS) to the RSA.
- The HIPE database is managed by the HSE and includes demographic and clinical information on casualties admitted to acute hospitals in Ireland.
- AGS information from 2022 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.
- Details on the **methodology** that we use to report on serious injuries from hospital data can be found [here](#).



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Definitions of injury

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)***.
- The AIS scale allows to assign an injury severity score between 1 (minor) to 6 (critical) to each hospitalised casualty.
- A casualty may have one or more injuries recorded in their hospital chart. We first assign an AIS score to each injury, and then determine the maximum AIS score assigned to each casualty.
- **Seriously injured casualties are those with at least one injury with a maximum AIS score of 3 or more (MAIS3+).**
- Casualties with a maximum AIS score of 2 or less (**MAIS2-**) are defined as having injuries of minor-to-moderate severity.
- We add the number of casualties having MAIS3+ and MAIS2- scores to obtain the total number of **hospitalised casualties**.
- Please see the [methodology report](#) for more details on the definitions of injury.



Definitions of injury

An Garda Síochána data

- The definition of a serious injury followed by AGS 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.
 - All hospitalised casualties fall into the AGS definition of a serious injury, as they are all 'in-patients'.
 - Please see the [methodology report](#) and [FAQs on hospital data](#) for more details.

Report Outline

- Trends
- Characteristics of all hospitalised cyclists and comparison with AGS serious injuries (2020-2024)
 - Demographics: age and gender
 - County
 - Collision type
 - Characteristics of injuries sustained, length of stay at hospital, and discharge destination (hospital data only)
- Characteristics of MAIS3+ cyclists in hospital records (2020-2024)
 - Demographics: age and gender
 - Month, Day of week and Time of day of admission to hospital
 - County of residence
 - Collision type
 - Characteristics of injuries sustained, length of stay at hospital, and discharge destination

All hospitalised and AGS serious injuries

(2020-2024)



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Summary of results

All hospitalised cyclists and AGS serious injuries – 2020-2024

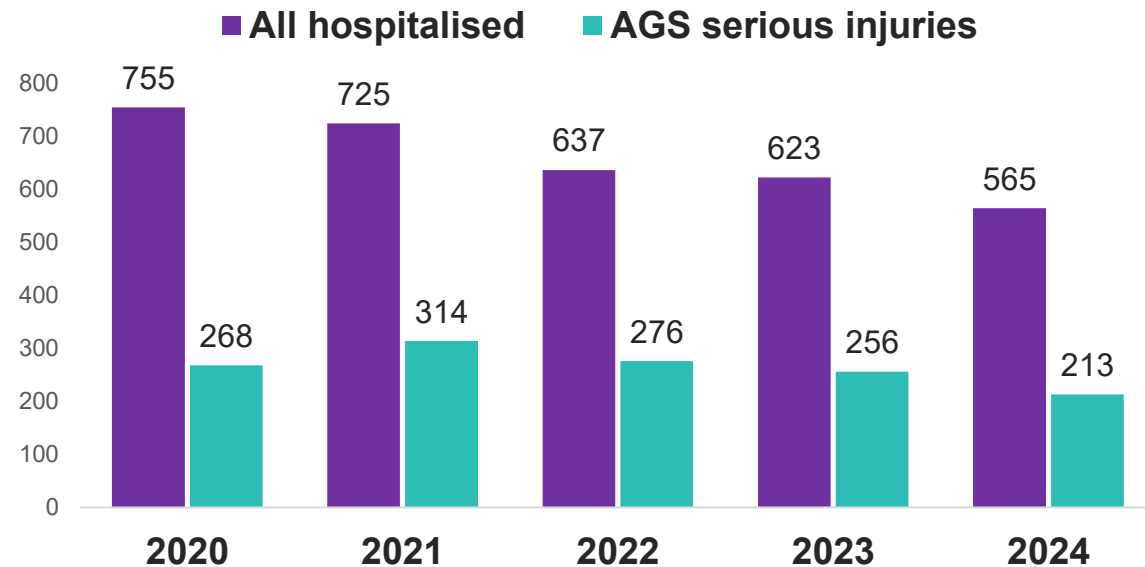
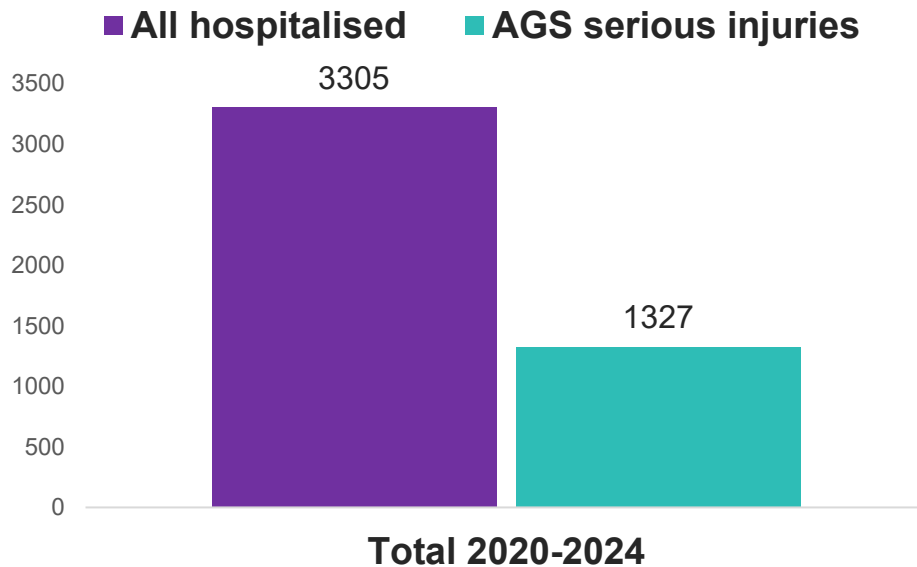
- The total of hospitalised cyclists over 2020-2024 was 3,305, while the total of AGS recorded serious injuries was 1,327.
- The number of injured cyclists in both data sources declined in most recent years, being the lowest in 2024.
- There may be multiple factors explaining the difference in the total number of cyclists recorded in each data source. For instance, some of the collisions recorded in hospital data might not have been reported to AGS. In addition, the definition of a serious injury used by AGS is broad, is not based on a medical assessment, and will include injuries not requiring admission to hospital.
- A single-cyclist collision is a crash including one moving vehicle (the bike). For each single-cyclist collision recorded by AGS, there were 9 single-cyclist collisions recorded in hospital records. This difference between data sources is noteworthy and may also contribute to explain the overall difference in the number of cyclists between police and hospital records.
- Hospitalised cyclists were more frequently male, aged 36-65 years, and residents of County Dublin.
- Over half of hospitalised cyclists sustained at least one upper limb injury, these being more frequently fractures. One in five hospitalised cyclists sustained at least one head injury.
- Hospitalised cyclists were 4 days on average in hospital as in-patients, and 6% of the total were transferred to another hospital at discharge.



Total and trends

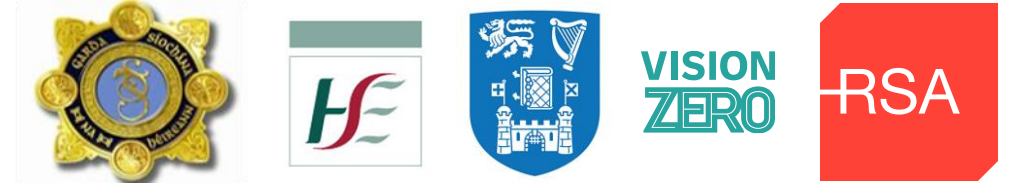
All hospitalised and AGS serious injuries – 2020-2024

- Over 2020-2024, a total of 3,305 cyclists were admitted to hospital as in-patients with injuries from road traffic collisions. Over the same period, AGS records indicated that 1,327 cyclists were seriously injured.
- For each seriously injured cyclist recorded by AGS over 2020-2024, there were 2.5 hospitalised cyclists.
- The number of injured cyclists in both data sources declined in most recent years, being the lowest in 2024.



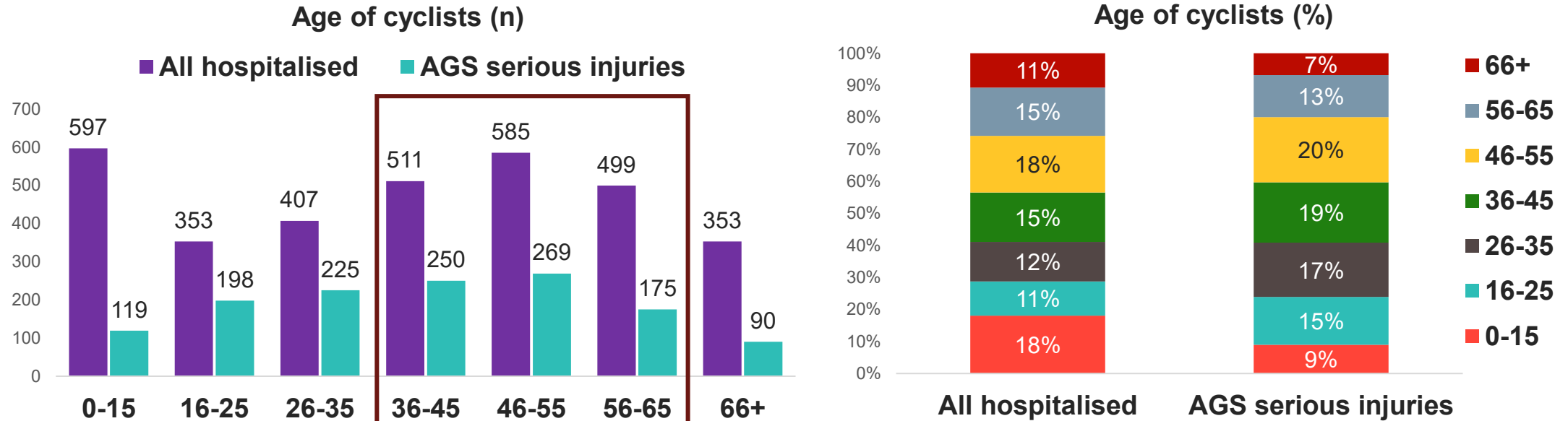
AGS data is current as of 1 March 2026. AGS data for 2022 onwards is provisional and subject to change.

Age



All hospitalised and AGS serious injuries – 2020-2024

- Around half of cyclists in both data sources were aged 36-65 years.
- There were 5 hospitalised children aged 15 and younger for each seriously injured child recorded by AGS.
- There was also a large difference between data sources in the number of older cyclists recorded, with 4 hospitalised cyclists aged 66+ years for every serious injury recorded by AGS in this age group.



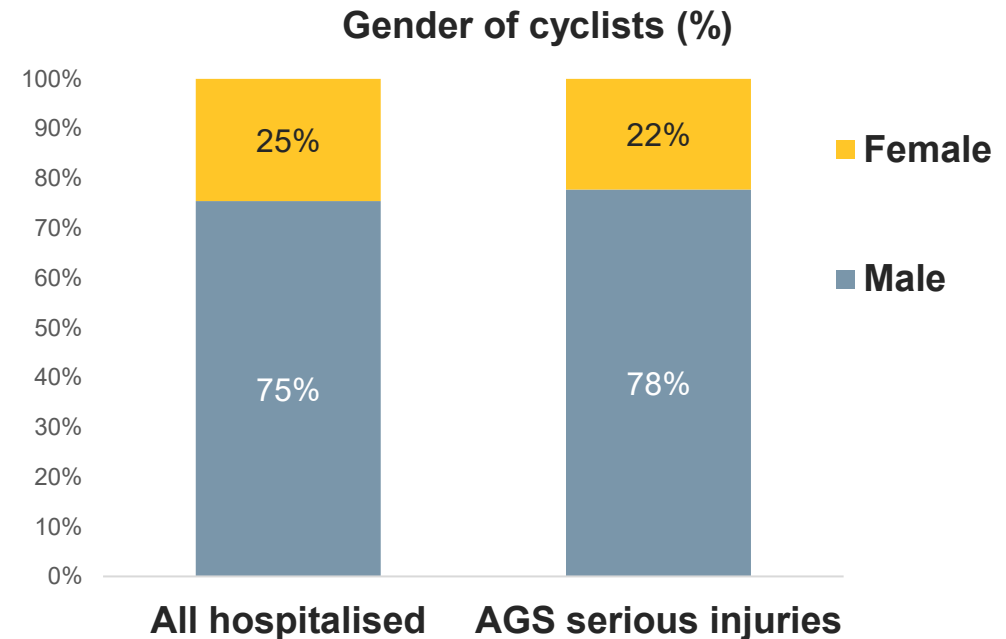
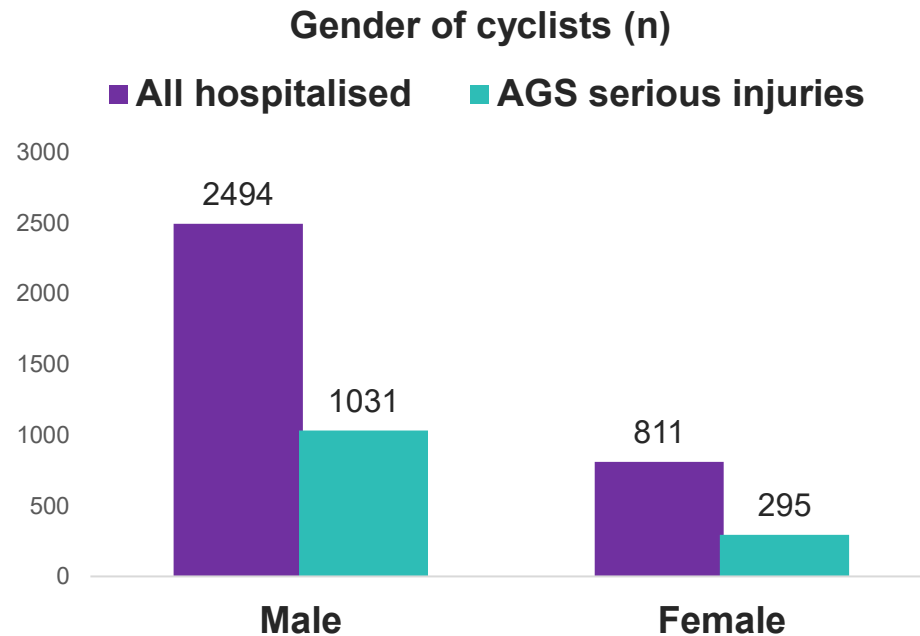
AGS data is current as of 1 March 2026. AGS data for 2022 onwards is provisional and subject to change.

Gender



All hospitalised and AGS serious injuries – 2020-2024

- Most cyclists in both data sources were male.
- In hospital records, the level of hospitalised female cyclists declined from 29% in 2020 to 21% in 2024.



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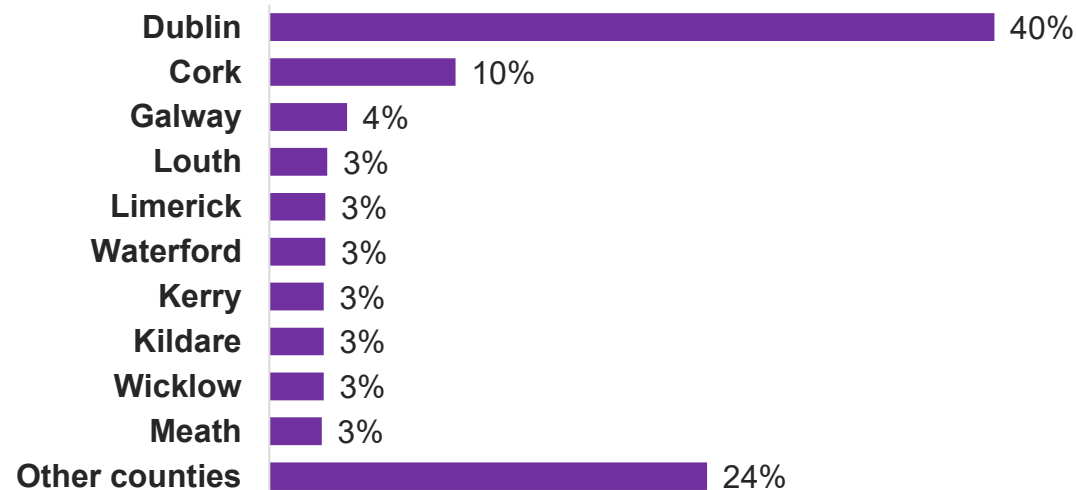
County



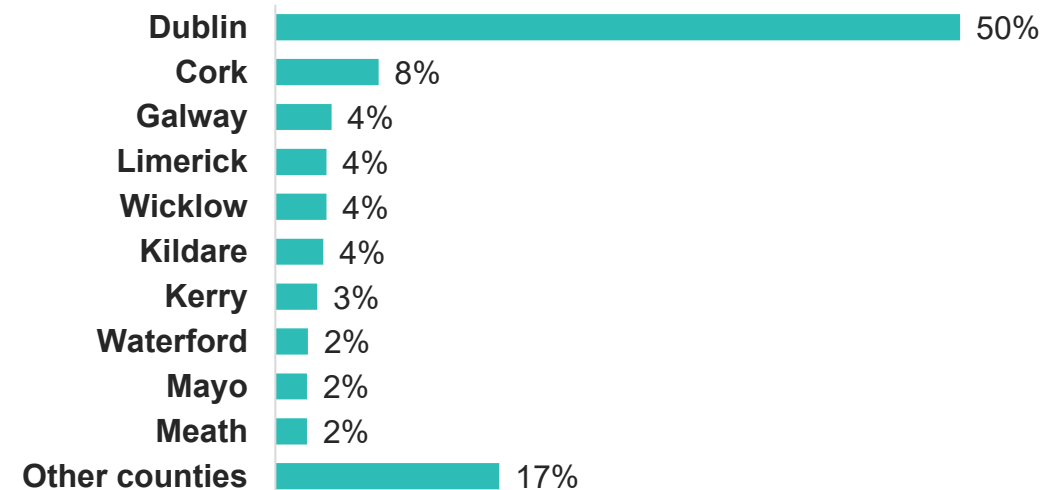
All hospitalised and AGS serious injuries – 2020-2024

- Dublin was the county with the highest number and share of hospitalised cyclists (1,326, 40%) and AGS serious injuries (670, 50%), followed by Cork.
- In hospital data, the county indicates the residence of the casualty, whereas in AGS records it refers to the collision location.
- ‘Other counties’ include casualties who were resident or who were in a collision in counties with smaller representation in each data source (less than 2~3% of cases).

County of residence of hospitalised cyclists (%)



County of collision AGS cyclists (%)



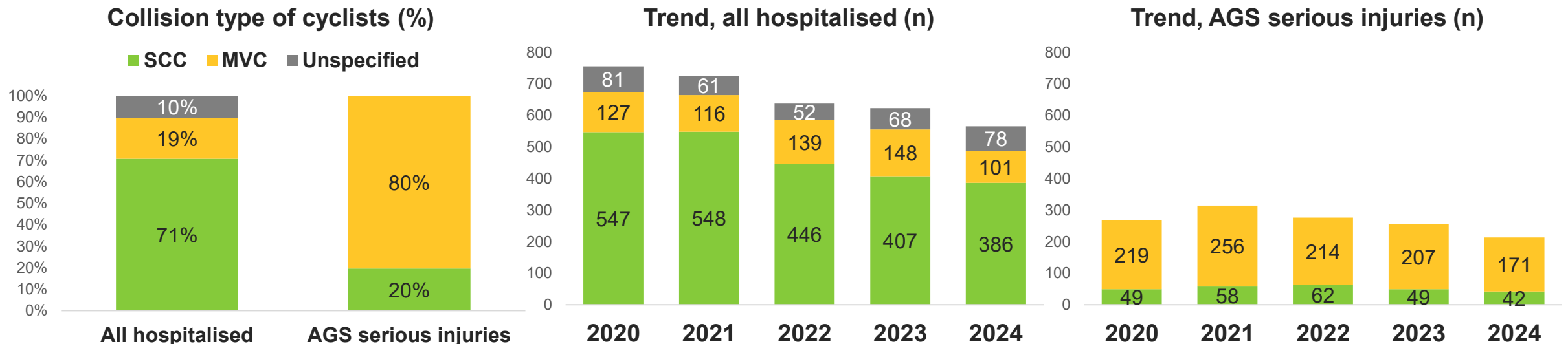
AGS data is current as of 1 March 2026. AGS data for 2022 onwards is provisional and subject to change.

Collision type



All hospitalised and AGS serious injuries – 2020-2024

- 71% of hospitalised cyclists (2,334) were injured in single-vehicle or single-cyclist collisions (SCCs). This collision type accounted for 20% of serious injuries (260) in AGS records.
- A SCC is a crash including one moving vehicle (the bike). Frequent scenarios for SCCs according to AGS data (2020-2024) were an interaction of the bike with oil, debris, potholes, or a wet surface; avoidance of another vehicle; or a collision with a kerb/footpath.
- In hospital records, 76% of multi-vehicle collisions (MVCs) were collisions with a car, truck or van; 10% were collisions with another cyclist, and 6% with an HGV or bus.

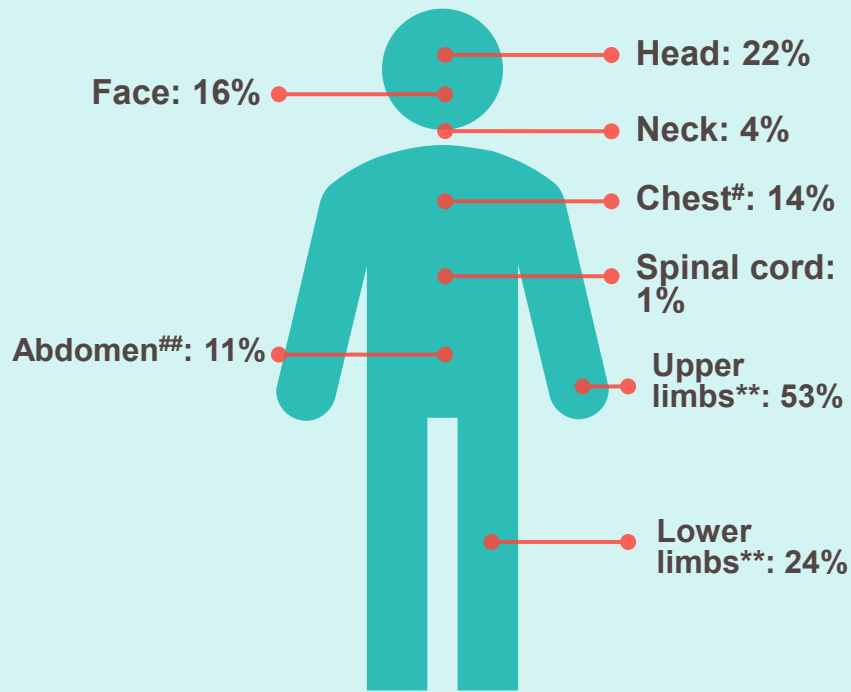


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Injuries sustained*

All hospitalised – 2020-2024

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



- Hospitalised cyclists may have sustained one or more injuries of any severity.
- 50% sustained 2 or more injuries in the same or different body areas, with an average of 3 injuries, and a maximum of 22 injuries.
- 53% of hospitalised cyclists sustained at least one upper limb injury. Most of them sustained fractures (87%), 11% open wounds, and 6% superficial injuries.
- 24% of hospitalised cyclists sustained at least one lower limb injury. Most of them sustained fractures (69%), 22% open wounds, and 14% superficial injuries.
- 22% of hospitalised cyclists sustained at least one head injury. Over half of them sustained brain injuries (53%), 26% skull fractures, and 30% open wounds.
- 14% of hospitalised cyclists sustained at least one chest injury. Most of them sustained fractures (86%), and 45% injuries in intra-thorax organs.

* 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 area.

** 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.



Length of stay at hospital

All hospitalised – 2020-2024

- 44% of hospitalised cyclists stayed 1 day or less at hospital as in-patients.

| All hospitalised cyclists | | |
|-------------------------------|--------------|-----|
| Number of days | All (3305) | % |
| 1 day or less | 1441 | 44% |
| 2 days | 633 | 19% |
| 3 to 4 days | 530 | 16% |
| 5 days or more | 701 | 21% |
| Mean (SD) | 4.13 (10.68) | |
| Stayed at ICU 1+ days (% yes) | 136 (4%) | |
| Mean LOS at ICU (SD) | 8.51 (13.35) | |

Destination at discharge

All hospitalised – 2020-2024

- At discharge from hospital, 91% of hospitalised cyclists were sent home and 6% were transferred to another hospital for continued care.



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All hospitalised cyclists

| Destination at discharge | All (3305) | % |
|---|------------|-----|
| Home | 3020 | 91% |
| Nursing home or other long-term accommodation | 40 | 1% |
| Transfer to hospital | 205 | 6% |
| Other | 40 | 1% |

Injury severity

2020-2024 – Hospital data



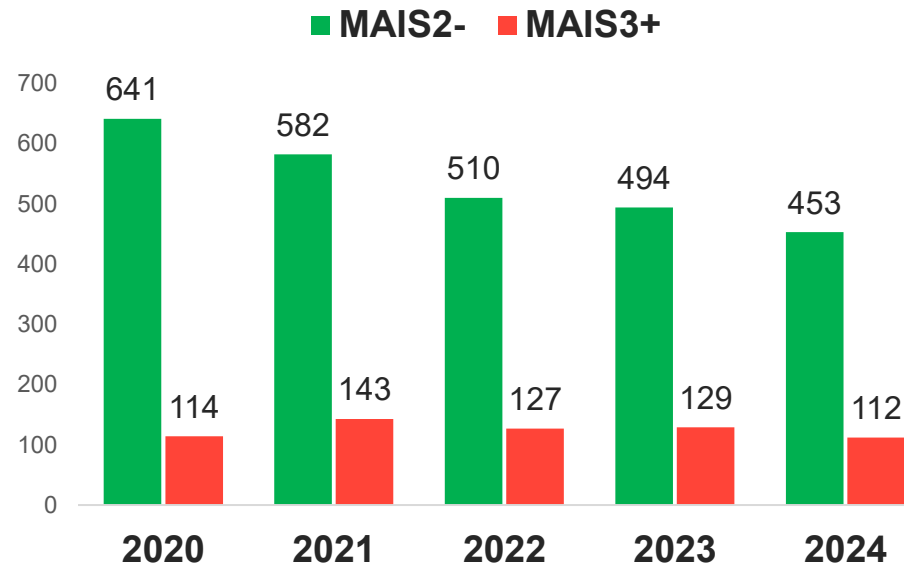
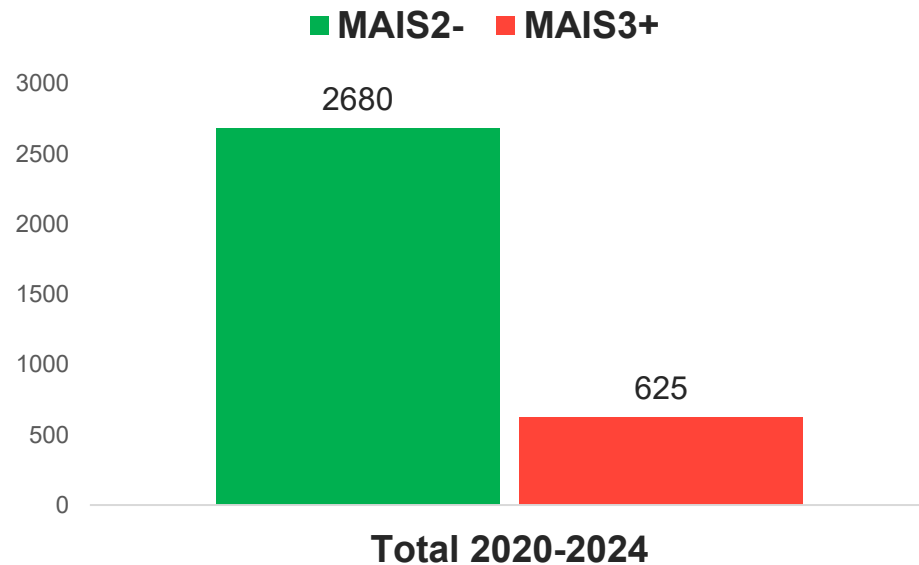
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Total and trend

MAIS2- and MAIS3+ cyclists – 2020-2024

- We assigned an injury severity score to all hospitalised cyclists (3,305) using the AIS scale and determined the maximum score to know the number of casualties who sustained clinically serious injuries (see [methodology report](#)).
- 81% of all hospitalised casualties (2,680) sustained MAIS2- injuries (of minor to moderate severity), and 19% of hospitalised casualties (625) sustained MAIS3+ injuries (clinically serious injuries).
- The number of MAIS2- injuries peaked in 2020, and declined since then. The number of MAIS3+ injuries declined in 2024 relative to 2023.



Characteristics of MAIS3+ Cyclists

2020-2024



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Summary of results

MAIS3+ cyclists – 2020-2024

- 19% of hospitalised cyclists sustained MAIS3+ injuries, these being the most serious from a clinical perspective.
- There was a decline in the number of MAIS3+ cyclists admitted to hospital in 2024 (112) relative to the previous year (129).
- MAIS3+ cyclists were more frequently male, 46 years or older, residents in Co Dublin, admitted to hospital in summer or over the weekend, with an average length of stay at hospital of 10 days.
- They were more frequently involved in single-cyclist collisions, sustained serious lower limb or head injuries, and were sent home at discharge from hospital, although 16% were sent to another hospital for continued care.
- Three quarters of MAIS3+ cyclists aged 66+ years were in hospital as in-patients for 5 days or more, and a third of them were transferred to another hospital at discharge.

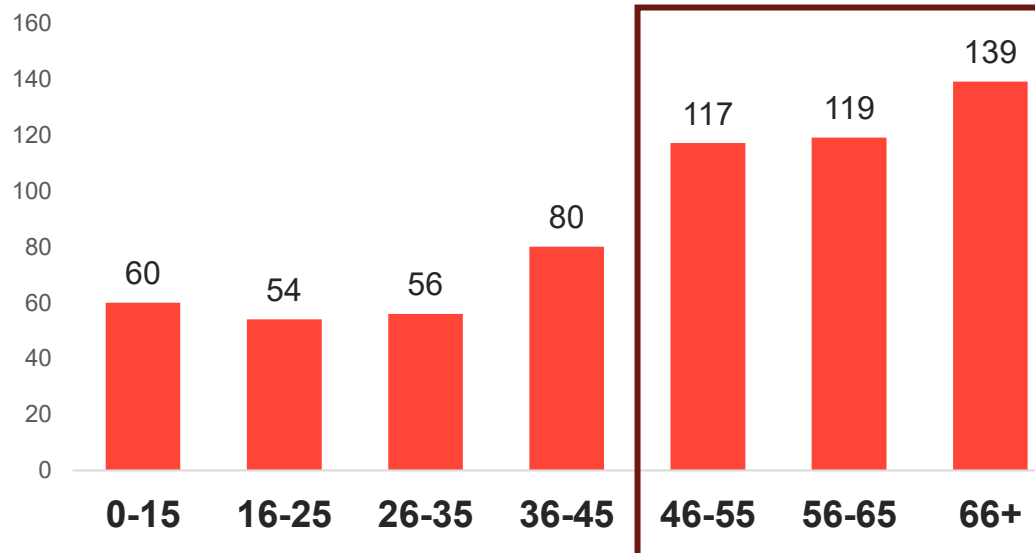
Age

MAIS3+ cyclists – 2020-2024

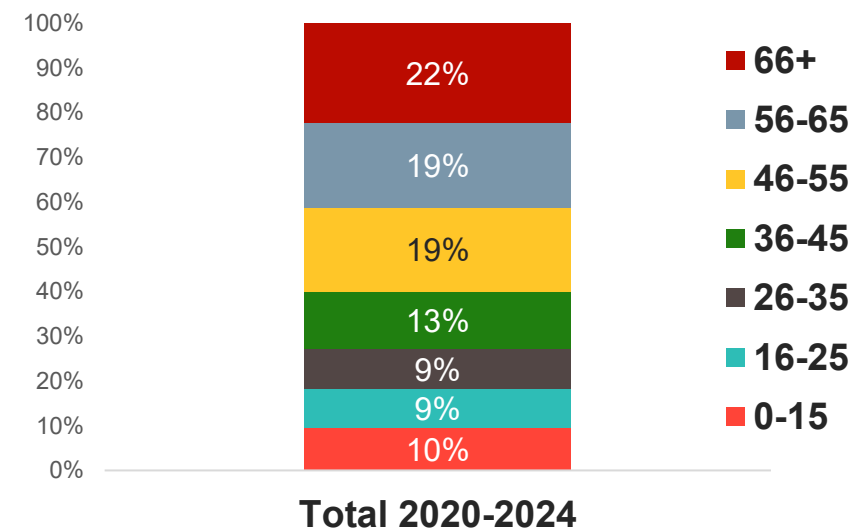
- The number of MAIS3+ cyclists increased with age, with 60% of them being 46 years and older, and 1 in 5 being aged 65+ years.
- The number of children with MAIS3+ injuries is small relative to the total number of child hospitalisations (60/597, 10%).



Age of MAIS3+ cyclists (n)



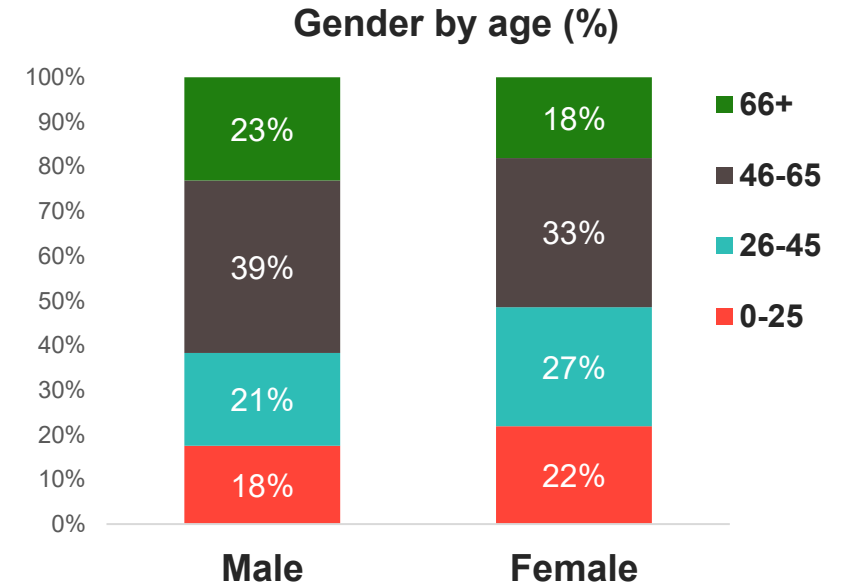
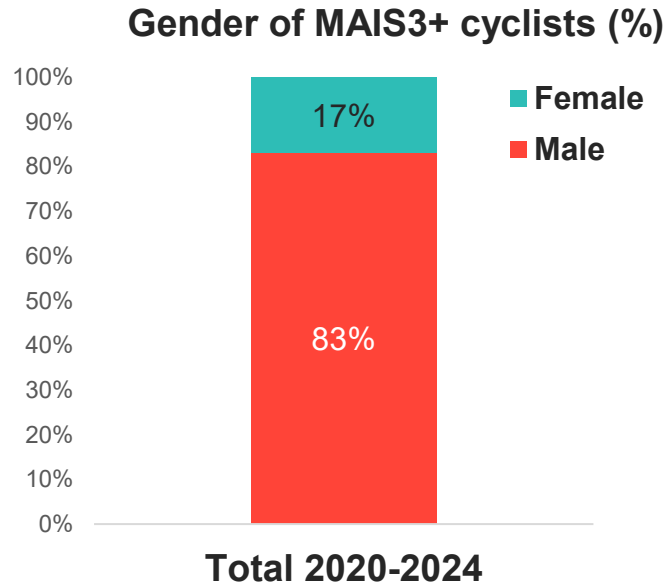
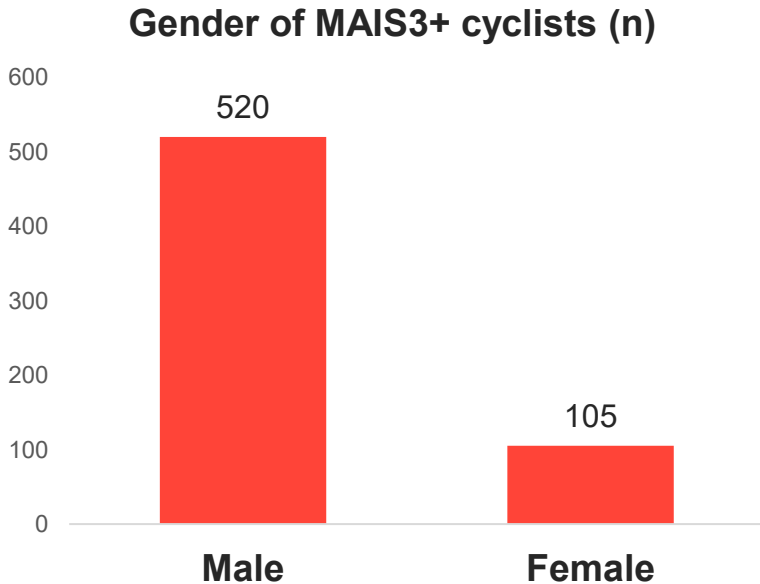
Age of MAIS3+ cyclists (%)



Gender

MAIS3+ cyclists – 2020-2024

- Most MAIS3+ cyclists were male.
- Almost 2 in 5 male cyclists and a third of female cyclists were aged 46-65 years.





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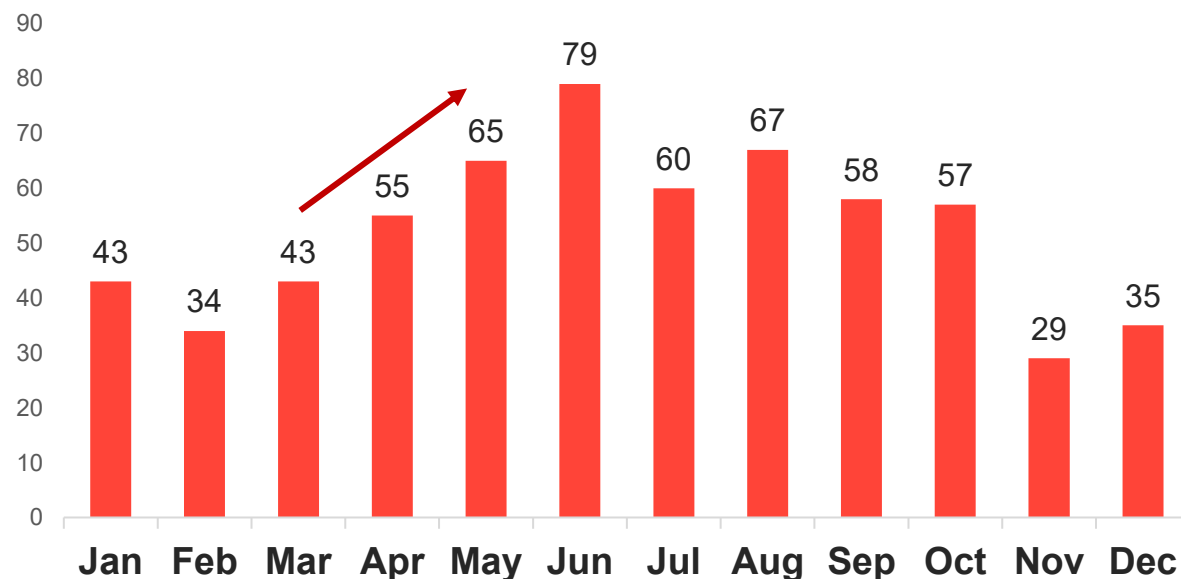


Month of hospital admission

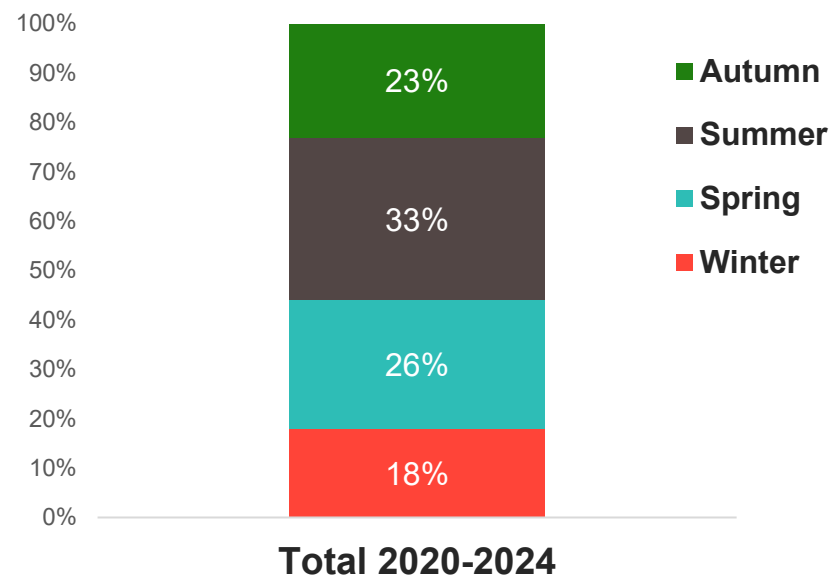
MAIS3+ cyclists – 2020-2024

- The number of MAIS3+ cyclists started to increase over spring, being the highest in June.
- The summer months accounted for a third of MAIS3+ admissions to hospital.
- A quarter of MAIS3+ cyclists were admitted to hospital over spring months.

Admission month of MAIS3+ cyclists (n)



Admission season of MAIS3+ cyclists (%)

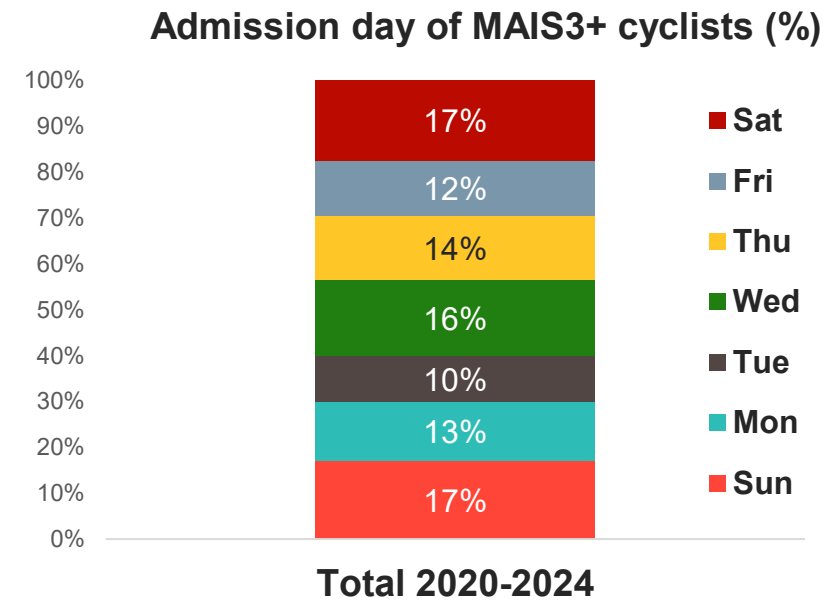
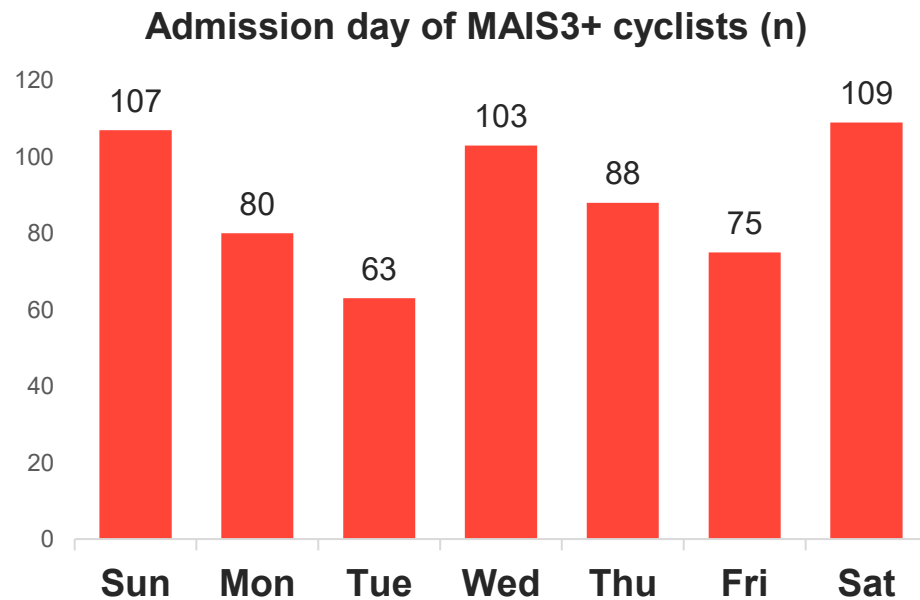


Day of hospital admission

MAIS3+ cyclists – 2020-2024



- Saturdays, Sundays, and Wednesdays had the highest number and share of MAIS3+ admissions to hospital.



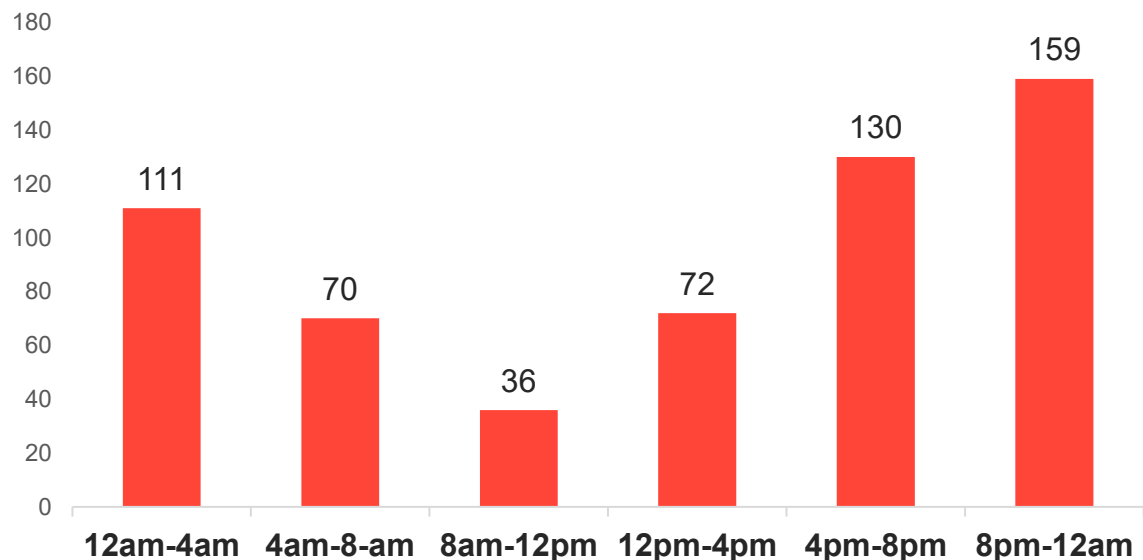


Time of hospital admission

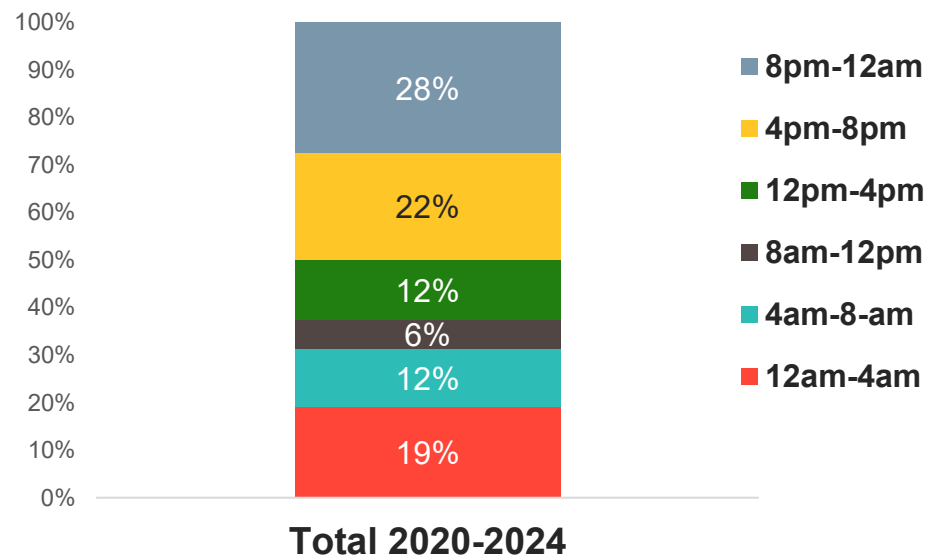
MAIS3+ cyclists – 2020-2024

- Overall, hospital admissions were more frequent after 4pm.
- 28% of MAIS3+ cyclists were admitted to hospital between 8pm-12am.

Admission time of MAIS3+ cyclists (n)



Admission time of MAIS3+ cyclists (%)



County of residence

MAIS3+ cyclists – 2020-2024

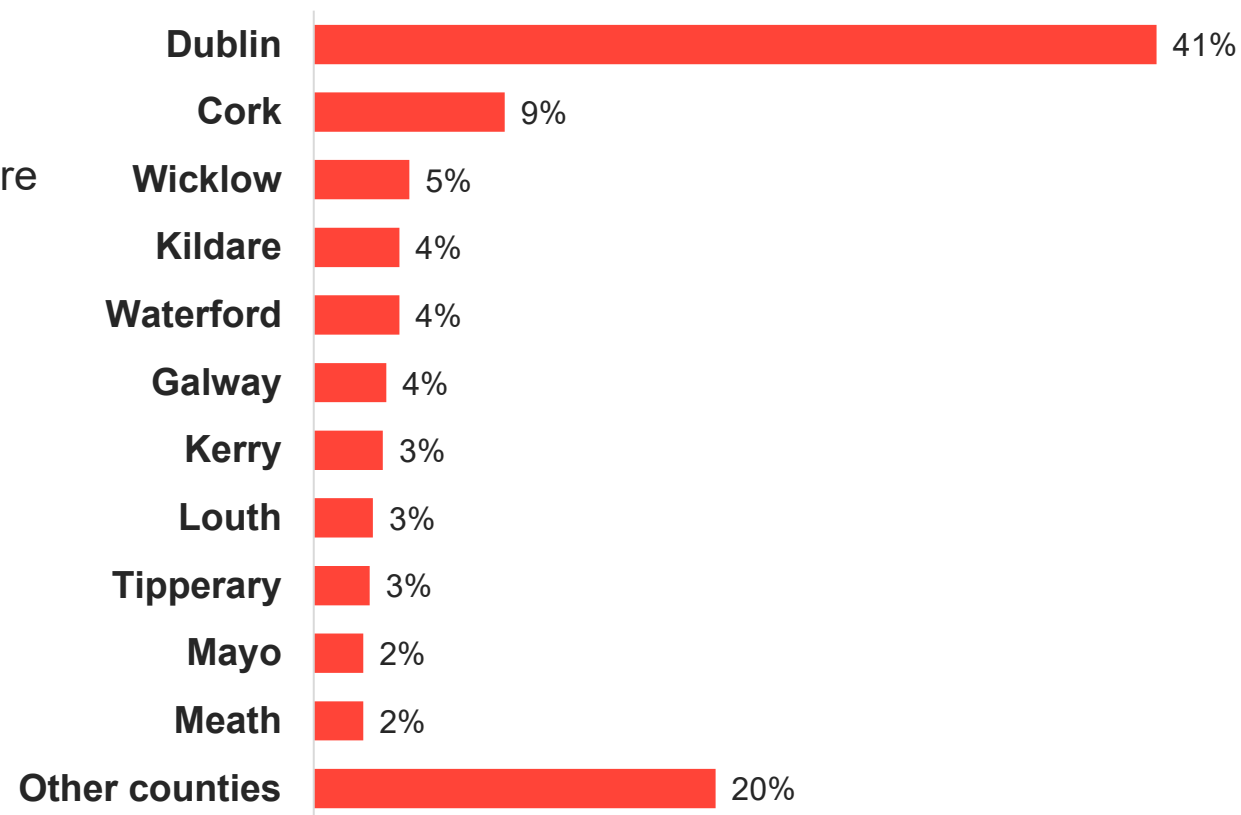
- 41% of MAIS3+ cyclists (256) were County Dublin residents.
- The 'Other county' category includes casualties who were resident in counties with smaller representation.



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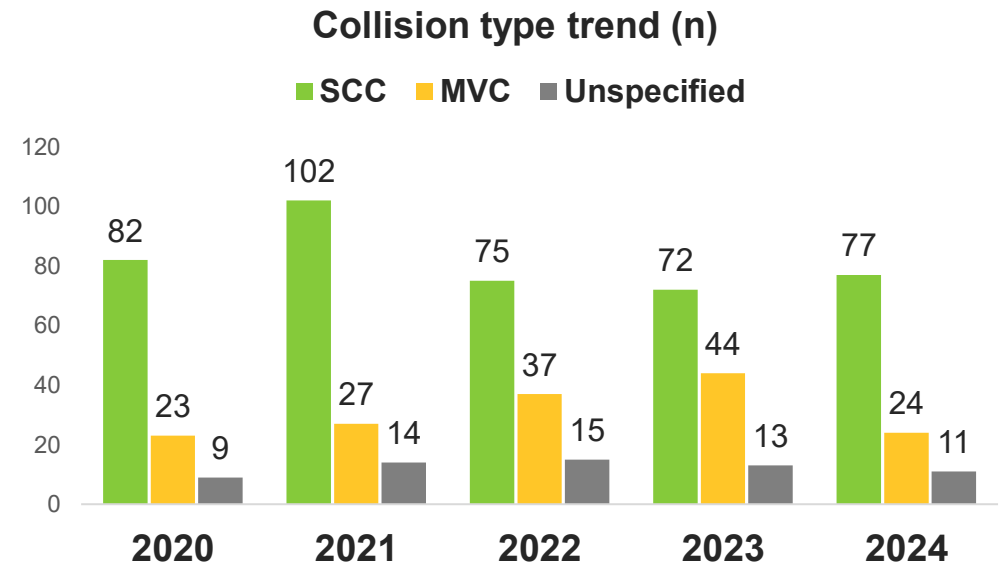
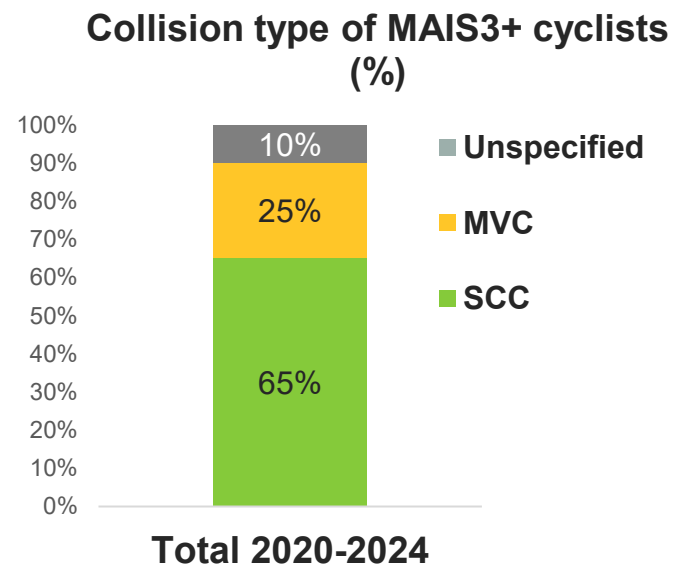
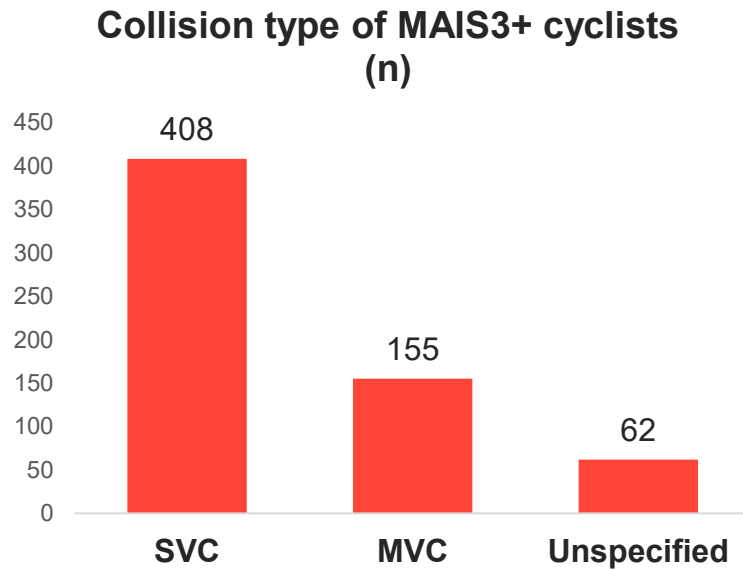
County of residence of MAIS3+ cyclists (%)



Collision type

MAIS3+ cyclists – 2020-2024

- 65% of MAIS3+ cyclists were injured in SCCs.
- A quarter of MAIS3+ cyclists were injured in MVCs. 75% of these cyclists were in a collision with a car, truck, or van, 10% in a collision with a HGV or bus, and 10% in a collision with another cyclist.
- The number of collisions with a car, truck, or van almost halved in 2024 relative to 2023 (18 vs 33).



Injuries sustained

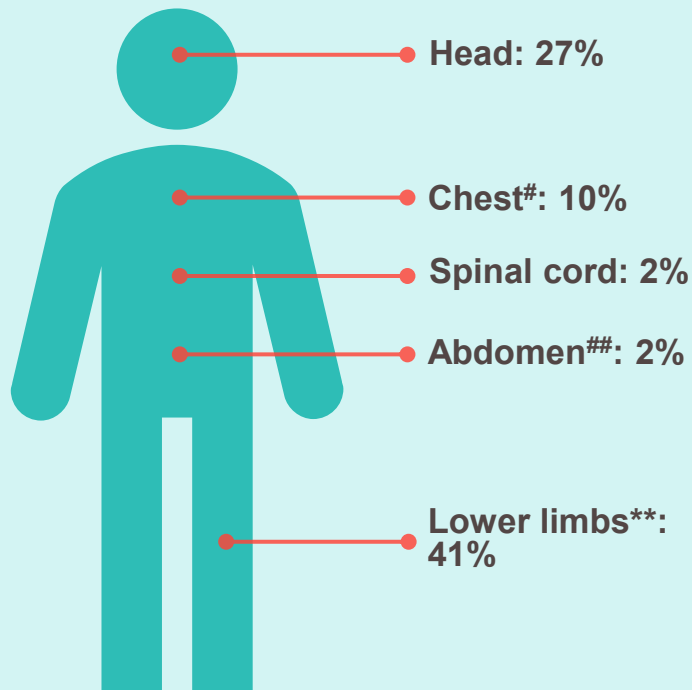
MAIS3+ cyclists – 2020-2024



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



- Casualties may have sustained a single serious injury, or multiple serious injuries in the same or different body areas.
- 83% of MAIS3+ cyclists sustained a **single serious injury** (percentages of single serious injuries per body part are displayed in the graph in the left).
 - 27% sustained a serious head injury. 59% of these were serious brain injuries, and 41% were skull fractures.
 - 10% sustained a serious chest injury. 81% of these were serious injuries in internal chest organs.
 - 41% sustained a serious lower limb injury. All of these were serious fractures.
- 17% sustained **multiple serious injuries** in the same or in different body parts.
 - The mean number of injuries among MAIS3+ cyclists with multiple serious injuries was 2.3, 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.



Injuries sustained

MAIS3+ cyclists – 2020-2024

| MAIS3+ cyclists (n) | | | Age (n) | | | | | |
|----------------------------------|-----------------|-----|------------|-------------|-------------|-----------|-----|-----|
| Body area | All (625) | % | 0-25 (114) | 26-45 (136) | 46-65 (236) | 66+ (139) | | |
| Single serious injury | Head | 167 | 27% | 47% | 33% | 21% | 13% | |
| | Chest | 63 | 10% | * | 11% | 15% | 8% | |
| | Lower limbs | 254 | 41% | 23% | 32% | 42% | 61% | |
| | Other body area | 36 | 6% | ~ | 6% | 5% | 6% | |
| Multiple serious injuries | | | 105 | 17% | 20% | 18% | 17% | 12% |

* denotes less than 5 cases per cell. ~ indicates that further suppression was necessary to ensure that cells with less than 5 cases are not disclosed.

- Almost half of cyclists aged 25 years or younger sustained a serious injury in the head.
- 61% of cyclists aged 66+ years sustained a serious injury in the lower limbs.



Length of stay at hospital

MAIS3+ cyclists – 2020-2024

| MAIS3+ cyclists (n) | Age (n) | | | | | |
|--------------------------|---------------|-----|---------------|--------------|---------------|---------------|
| | All (625) | % | 0-25 (114) | 26-45 (136) | 46-65 (236) | 66+ (139) |
| Number of days | | | | | | |
| 1 day or less | 76 | 12% | 18% | 18% | 11% | 5% |
| 2 days | 84 | 13% | 15% | 17% | 14% | 8% |
| 3 to 4 days | 146 | 23% | 31% | 25% | 26% | 12% |
| 5 days or more | 319 | 51% | 37% | 40% | 50% | 76% |
| Mean (SD) | 10.05 (21.27) | | 10.66 (26.99) | 7.78 (14.00) | 10.14 (23.53) | 11.61 (17.50) |
| ICU stay 1+ days (% yes) | 15% | | 19% | 14% | 12% | 17% |
| Mean LOS at ICU (SD) | 10.64 (15.58) | | 13.00 (27.25) | 8.00 (8.23) | 12.79 (12.26) | 7.96 (5.54) |

- 51% of MAIS3+ cyclists stayed 5 days or more at hospital as in-patients, with an average of 10 days.
- The share of cyclists staying 5+ days increased with age.



Destination at discharge

MAIS3+ cyclists – 2020-2024



| Destination | MAIS3+ cyclists (n) | | Age (n) | | | |
|---|---------------------|-----|------------|-------------|-------------|-----------|
| | All (625) | % | 0-25 (114) | 26-45 (136) | 46-65 (236) | 66+ (139) |
| Home | 495 | 79% | 86% | 82% | 84% | 63% |
| Nursing home or other long-term accommodation | 20 | 3% | * | * | ~ | ~ |
| Transfer to hospital | 100 | 16% | 11% | 13% | 13% | 29% |
| Other | 10 | 2% | * | * | * | * |

* denotes less than 5 cases per cell. ~ indicates that further suppression was necessary to ensure that cells with less than 5 cases are not disclosed.

- At discharge from hospital, 79% of MAIS3+ cyclists were sent home and 16% were transferred to another hospital for continued care.
- Around a third of MAIS3+ cyclists aged 66+ years were sent to another hospital or nursing home at discharge.

Serious injuries among cyclists in hospital and AGS records

2020-2024



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The findings presented in this report will inform evidence-based interventions to promote cyclists' safety and prevent serious injuries.

Acknowledgements

- Members of the MAIS3+ project Board:
 - Dr Fionnuala Donohue, National Health Intelligence Unit, HSE.
 - Prof Noel McCarthy, Department of Public Health & Primary Care, Trinity College Dublin.
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 - Ms Sharon Heffernan, Statistician, RSA.
- RSA Research Department.



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