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The Rhône Road Trauma Registry

What is a registry?

Definition:

- A registry is an organization for the systematic collection, storage, analysis, interpretation and reporting of data on subjects with a specific disease in a specific geographic area

- Main registries are on cancer and cardiovascular diseases

The Rhône road crash trauma registry

- Population-based registry on injuries and fatalities from raod crashes
- Data collection on all cases of road crash injuries within the Rhône department (county)

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Main objectives

- **Comprehensive survey of all injury and fatal road crashes and corresponding casualties**

- **Description of each injury by a medical staff using the Abbreviated Injury Scale (AIS)**

- **Assessment of corresponding public health issues**

The Rhône Registry structure

Geographic area: Rhône department

- >1.8 M inhabitants
- Lyon = 2nd French metropolitan area

Started in 1996

- >25 years of data

Population:

- All victims of road crashes in the Rhône department who went or were brought to a private or public healthcare facility because of their injuries
- Hospitalized / non hospitalized
- Injured or fatally injured

Healthcare network

- >250 units in 50 hospitals or clinics
- Includes emergency medical mobile units, emergency rooms, resuscitation rooms, surgery departments, trauma centers, specific medical specialties (neurology, cardiology, etc.), up to rehabilitation departments

Paris

Lyon

ARVAC

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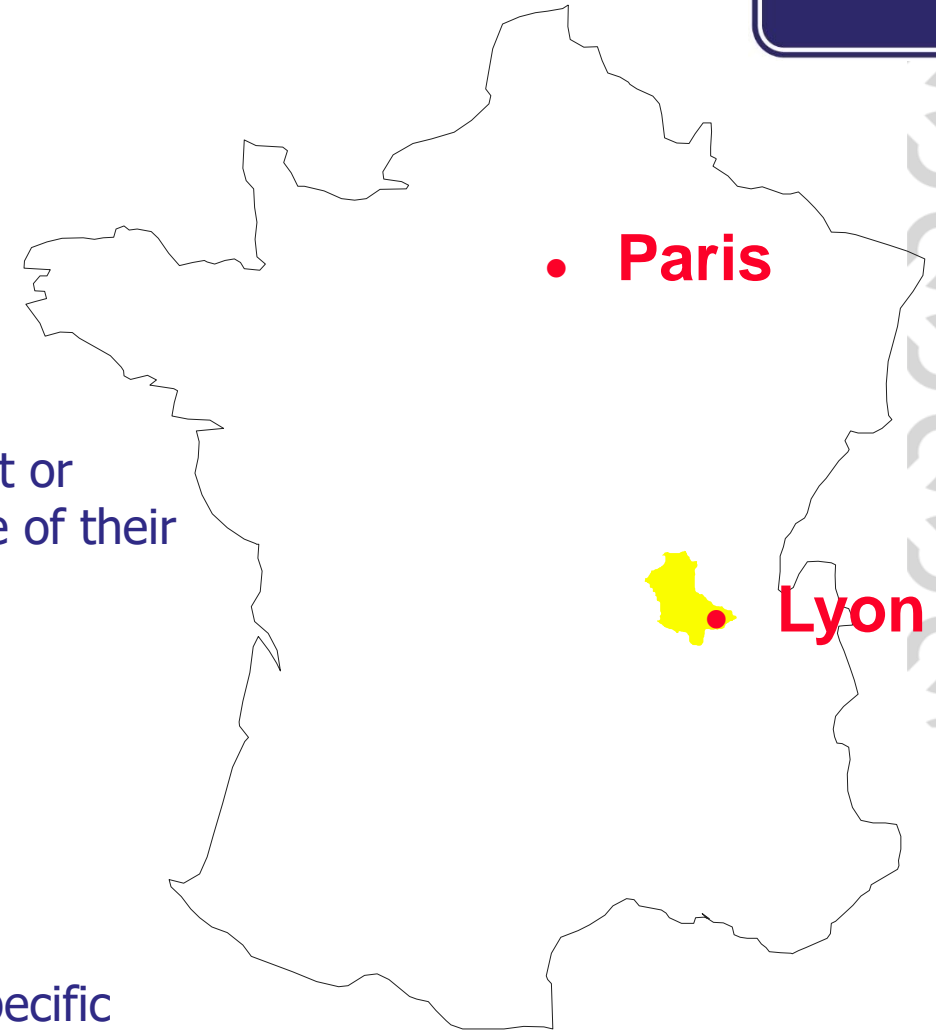
Data collection sheet

Victim and crash information

Injury description (text)

Hospitalization: other services or not

Injury assessment

Injury data collection

- Assessment of all injuries based on all diagnoses established by the different care teams during the entire hospital stay
- Medical expertise on injuries and injury classification

Abbreviated Injury scale AIS 2005 since 2015

- Medical expertise on injuries and injury classification
- AIS 90 and AIS 2005 since 2015

X X XX XX + Severity X

R
Body area

T Type of anatomic structure

S Body area or anatomic structure specification

N Specific type of lesion
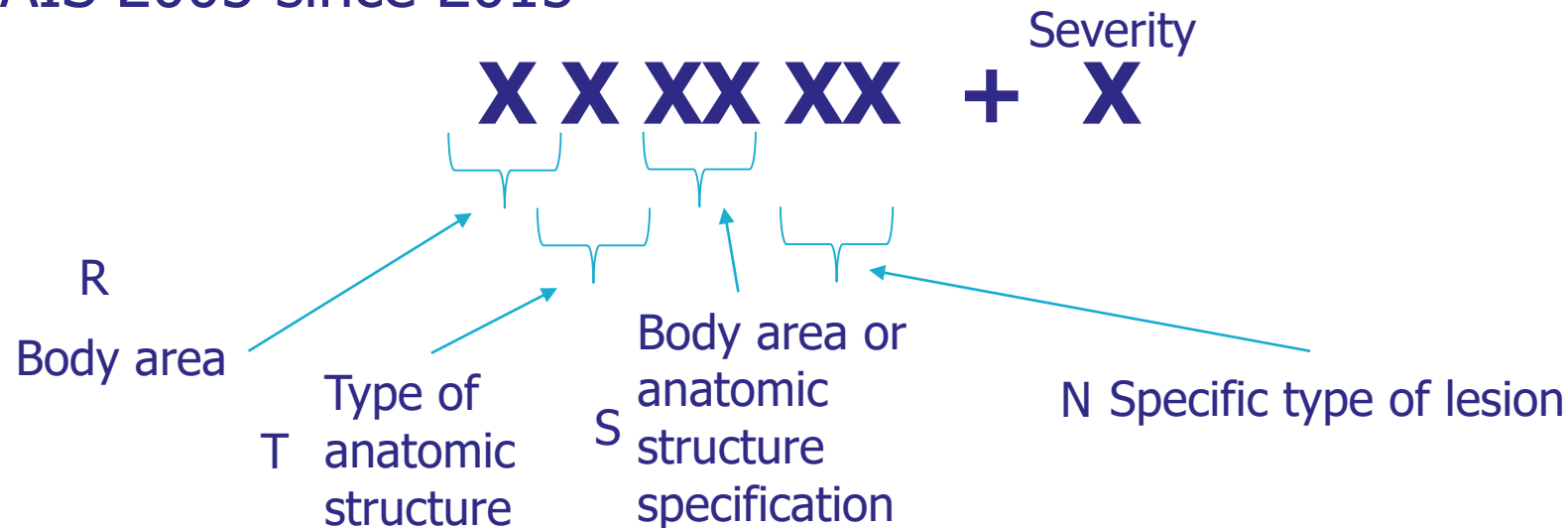
Additional data sources

The French national police database of road traffic crashes

- Police records of road crashes involving:
    - At least one vehicle
    - At least one injured casualty
- Combined with the Rhône Registry data when available (using common information)

+ : add more precise information on the crash, vehicles and people involved

- : little information on injuries
    under-reporting of casualties (and bias)

➔ **Presentation on September 28th, 11h-12h30: Analysis of road safety data**

- "Linked police and health data: how to apply capture-recapture to correct for under-reporting and bias"   *Emmanuelle Amoros*

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Additional data sources

French hospital data

- Programme National de Médicalisation des Systèmes d'Information (PMSI)
- Pathologies described by:
  - A principal diagnosis (+ secondary diagnoses)
- French version of ICD 10
  - **+** : Precise medical information at the national level
  - **-** : Missing external cause
    No severity coding, need of conversion matrices between ICD and AIS

➔ **Two presentations in this session:**
- "Estimating the number of seriously injured road users using the national hospital data, France, 2010-2019" *Emmanuelle Amoros*
- "Linking a road trauma registry and hospital discharge data to improve the ICD-AIS mapping, France, 2015-2021" *Mélanie Yvroud*

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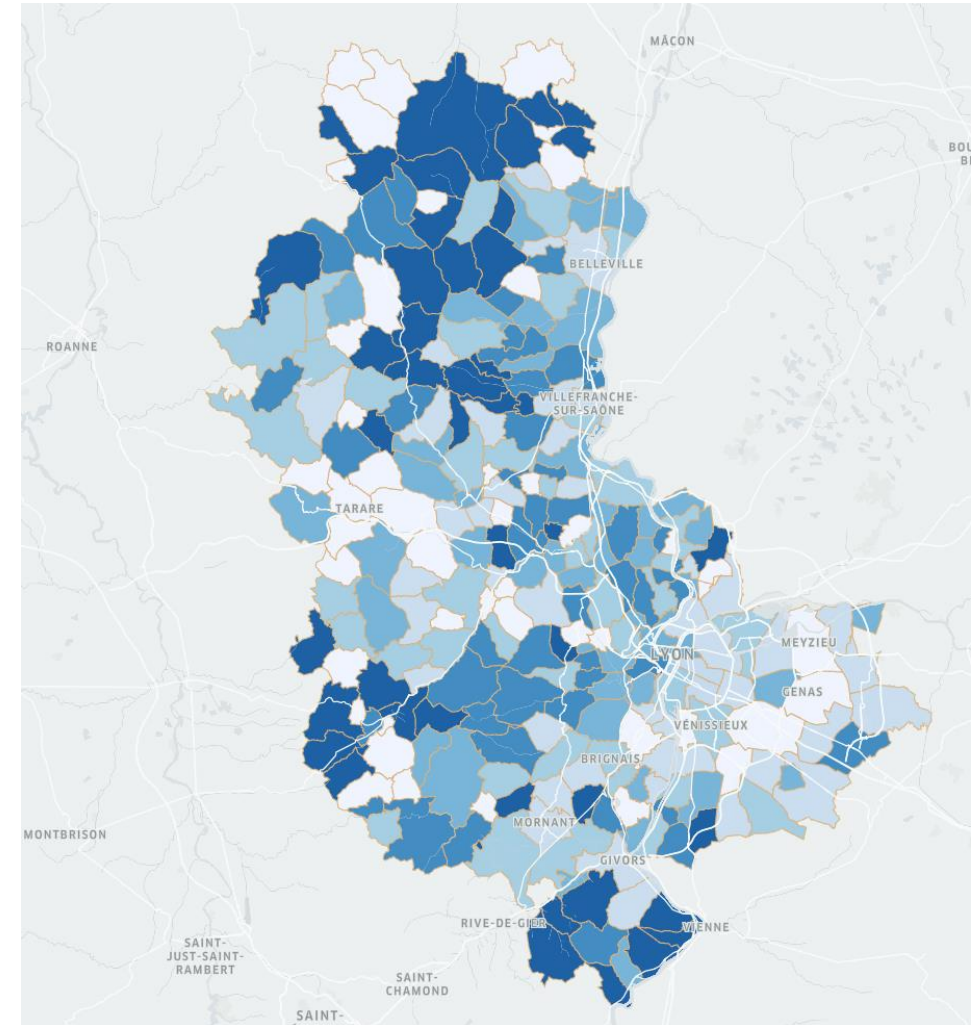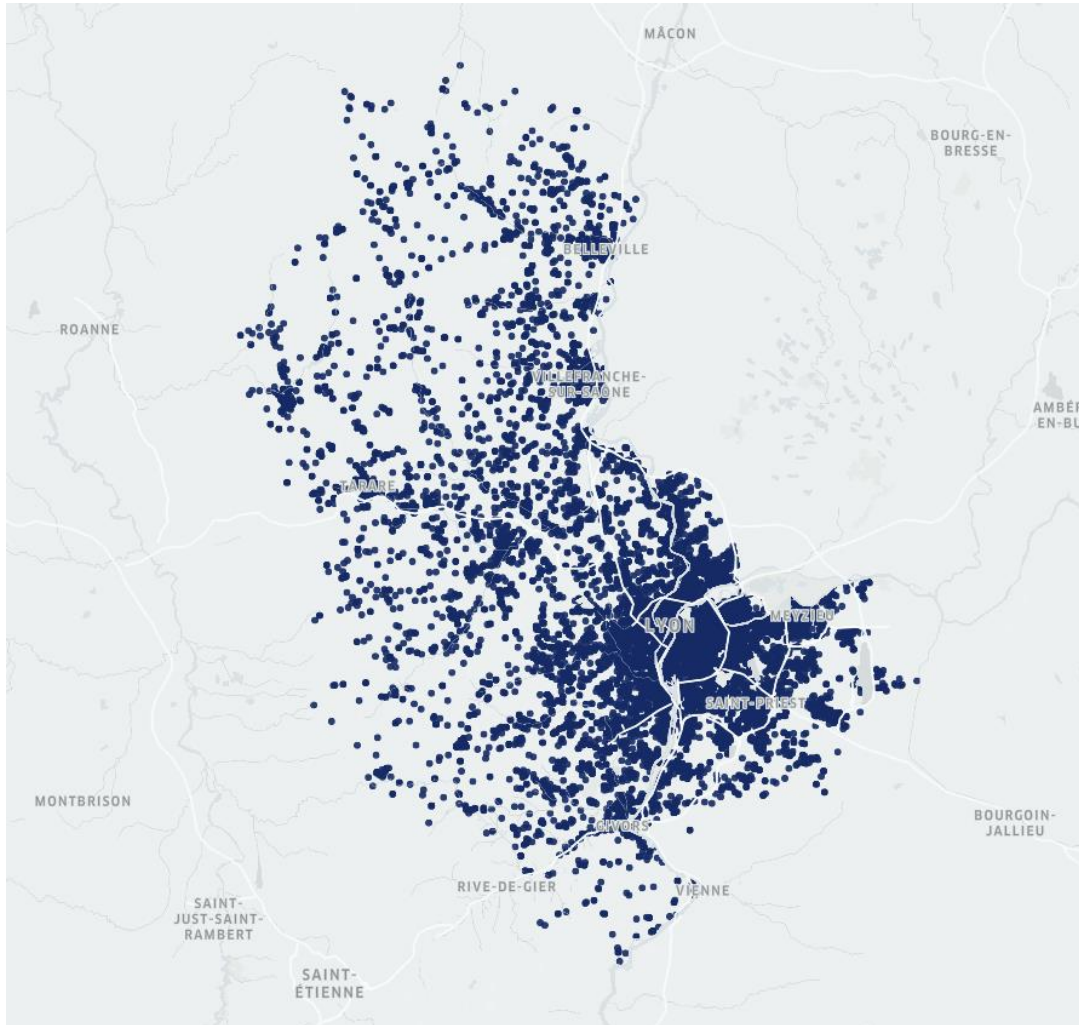
Some results from the Rhône Registry
Comprehensive survey of all injury and fatal crashes

Some results from the Rhône Registry
Comprehensive survey of all injury and fatal crashes

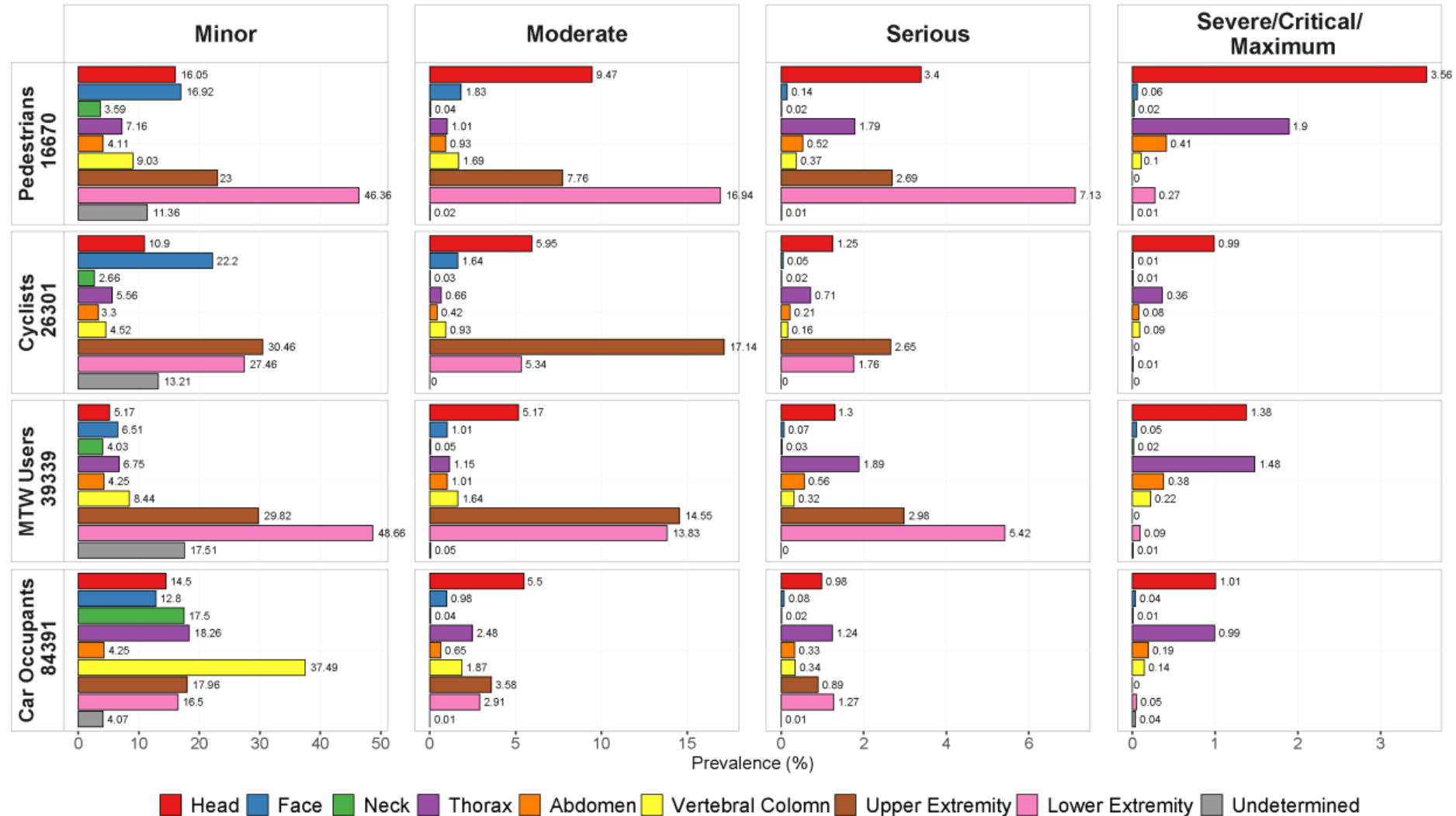Injured body areas according to severity - proportion of casualties by road user type - The Rhône Road Trauma Registry 1996-2014

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Some results from the Rhône Registry
Health data

Legend:

- **End of healthcare pathway** (square)
- **Unit in the healthcare pathway** (circle)

Mobile units	Trauma ICU
ER	Ped ER
resuscit	Ped-resuscit
surgery	Ped-surgery
neuro	Ped-neuro
medecine	Pediatry
cardio	pneumo
rehab	nss
convalesc.	rehab
Forensic	geriatry
other	Ped-other

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Some results from the Rhône Registry

Health data and public health issues
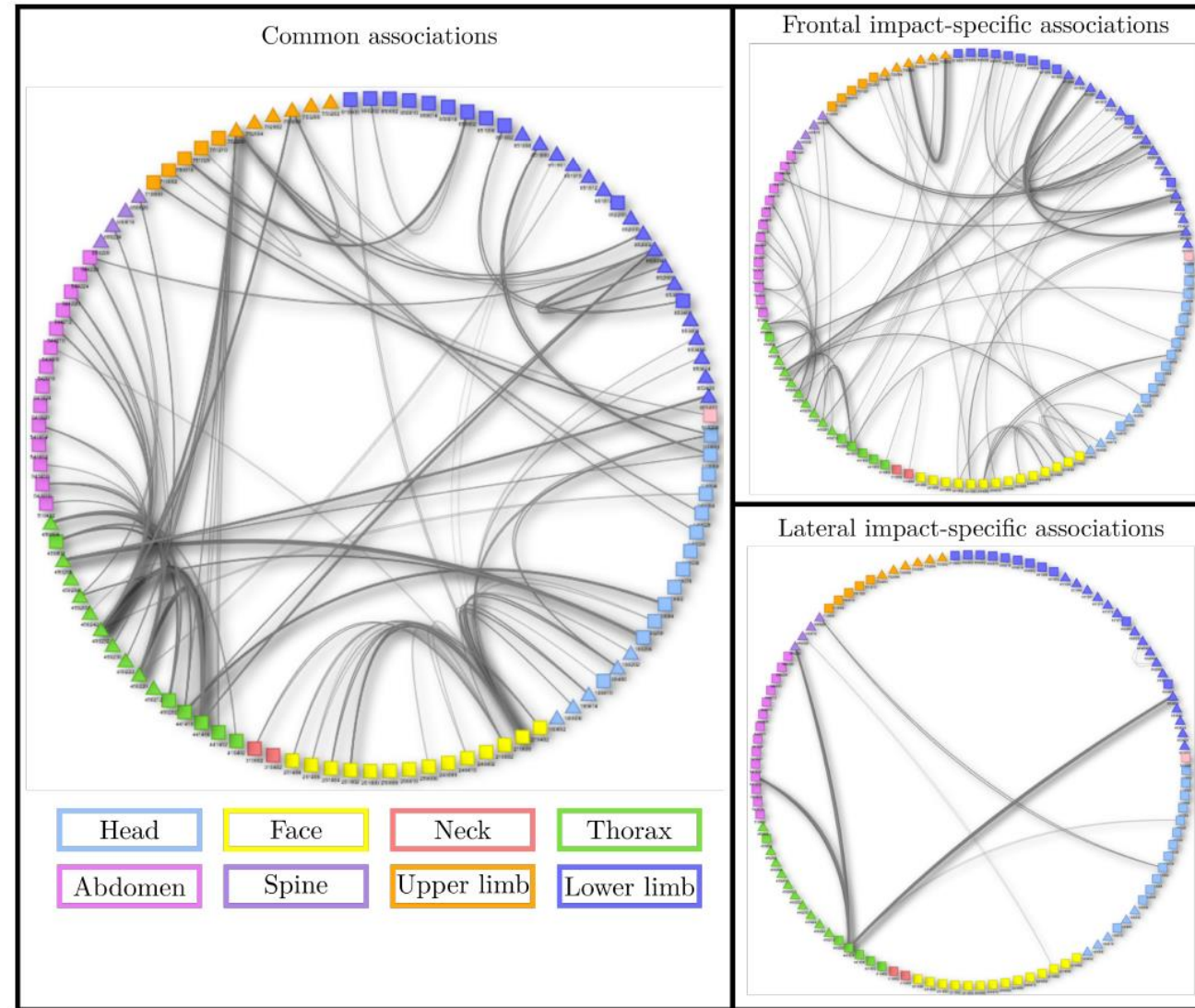
Injury associations among car drivers and passengers using the RTSN classification in crashes with frontal and lateral impacts – (Bruna-Rosso C et al., submitted)
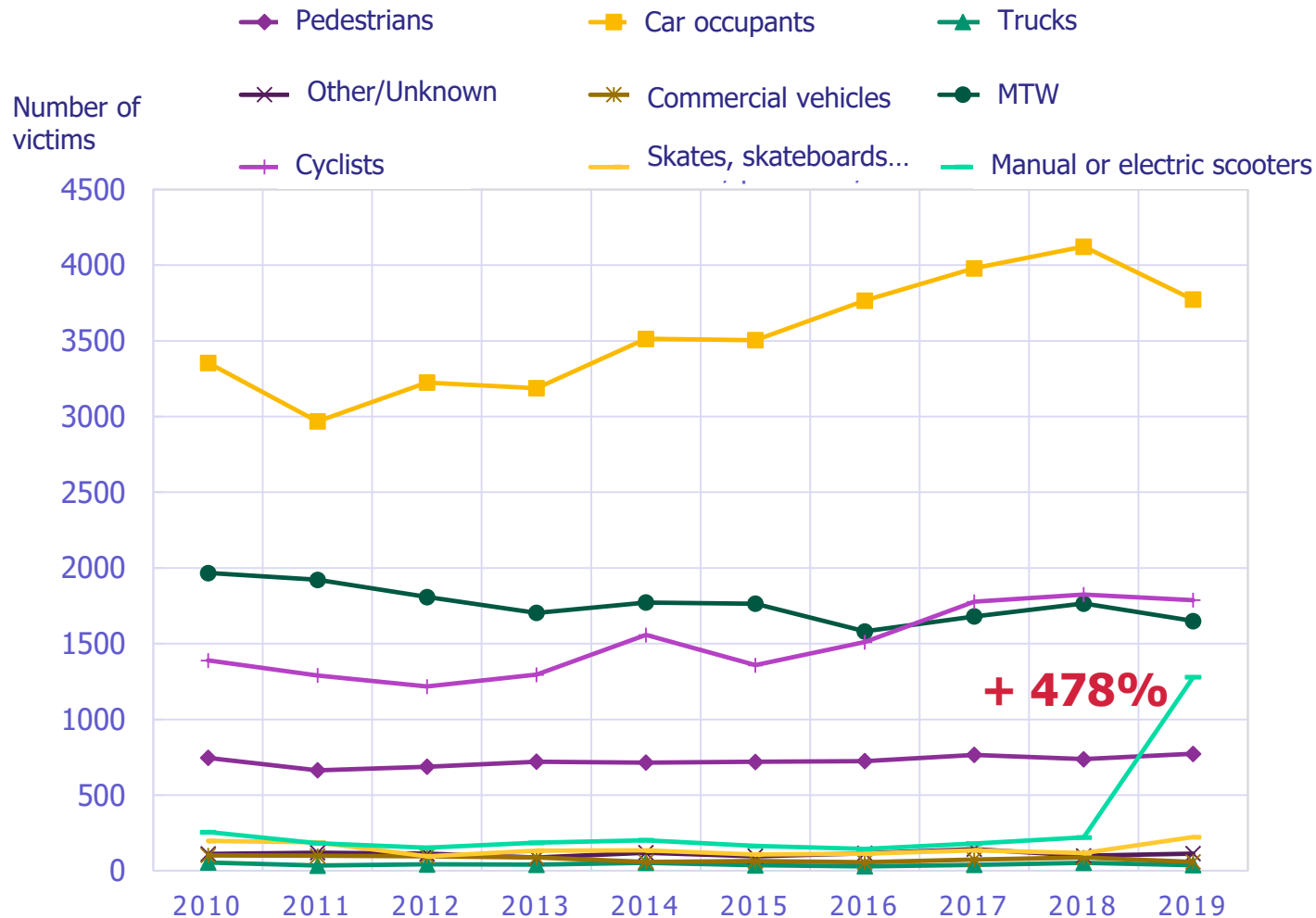
Some results from the Rhône Registry
Public health issues

Number of victims

Legend:
- Pedestrians
- Other/Unknown
- Cyclists
- Car occupants
- Commercial vehicles
- Skates, skateboards...
- Trucks
- MTW
- Manual or electric scooters

+ 478%

Complementary surveys

- Additional information on crash circumstances
- Additional information on mobility
- Additional information on short/long-term effects of injuries
- ...

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Thank you!

Céline Vernet, Jean-Louis Martin, Florian Robinet, Amina Ndiaye, Hélène Tardy, Emmanuelle Amoros, Blandine Gadegbeku, The Rhône Road Trauma Registry team, and the medical staff in the ARVAC network

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