MANAGING DATA AND ANALYSIS IN A EUROPEAN PROJECT: INJURY SURVEILLANCE AND BURDEN ASSESSMENT

RONAN A LYONS, SAMANTHA TURNER, ANGHARAD WALTERS, JANE LYONS, ASHLEY AKARI, WIM ROGMANS, RUPERT KISER, BJARNE LARSEN, HUIB VALKENBERG, DRITAN BEJKO, ROBERT BAUER, MONICA STEINER, GABRIELE ELLSAESSER
CROSS NATIONAL COMPARISONS AND ANALYSIS

5 GENERAL APPROACHES

- Centralised analysis of de-identified data
- Design standardisation
- Distributed analysis of harmonised data
- Multi-site replication of harmonised analysis scripts
- Post hoc harmonisation

EU INJURY DATABASE (IDB)

7.3M EMERGENCY DEPARTMENT RECORDS 2009-15 PLUS POPULATION AND MORTALITY DATA ANALYSED DURING BRIDGE HEALTH INCIDENCE DALYs

FARR INSTITUTE AT SWANSEA

INJURY DATABASE (IDB)

7.3M EMERGENCY DEPARTMENT RECORDS 2009-15 PLUS POPULATION AND MORTALITY DATA ANALYSED DURING BRIDGE HEALTH INCIDENCE DALYs

FARR INSTITUTE AT SWANSEA
CROSS NATIONAL COMPARISONS AND ANALYSIS

EU INJURY DATABASE (IDB)
7.3M EMERGENCY DEPARTMENT RECORDS 2009-15 PLUS POPULATION AND MORTALITY DATA ANALYSED DURING BRIDGE HEALTH

FARR INSTITUTE AT SWANSEA INCIDENCE DALYs

CENTRALISED ANALYSIS OF DE-IDENTIFIED DATA

DISTRIBUTED ANALYSIS OF HARMONISED DATA

MULTI-SITE REPLICATION OF HARMONISED ANALYSIS SCRIPTS

DESIGN STANDARDISATION

POST HOC HARMONISATION

5 GENERAL APPROACHES
BACKGROUND

EMERGENCY DEPARTMENT ATTENDANCES

HOSPITAL ADMISSIONS DALY

DEATHS
METHODS

Daly = Years Life Lost (YLL) + Years Lost Due to Disability (YLD)

- **ED Attendances (Not Admitted)**
  - Emergency Department Data Recorded in the IDB Minimum Data Set
  - YLD

- **ED Attendances (Admitted)**
  - Emergency Department Data Recorded in the IDB Minimum Data Set
  - YLD

- **Fatal Injury Data**
  - World Health Organisation European Detailed Mortality Database
  - YLL

- **Disability Weights**
  - Validating and Improving Injury Burden Estimates (INJURY-VIBES) Study
  - YLD

- **Remaining Years of Life**
  - Global Burden of Disease Burden Calculator
  - YLD & YLL
METHODS

STEP 1 – MAP WEIGHTS
MAP NON-HOSPITALISED/HOSPITALISED SHORT AND LONG TERM DISABILITY WEIGHTS TO INJURY CASES IN IDB-MDS

STEP 2 - YLD
MULTIPLY LONG TERM WEIGHTS BY REMAINING YEARS OF LIFE. SUM WITH SHORT TERM WEIGHTS TO PRODUCE HOSPITALISED/NON-HOSPITALISED YLD

STEP 3 - YLL
ASSIGN REMAINING YEARS OF LIFE LOST TO EACH FATAL CASE

\[
YLL = YLD + \text{Long Term} \times \text{Remaining Years of Life}
\]

YLD = \text{Short Term} + \text{Long Term}

ICONS BY ICON8 (https://icons8.com)
FIGURE 1. IDB BASED ALL CAUSE INJURY ANNUAL AVERAGE RATES PER 100,000 POPULATION BY AGE AND GENDER
FIGURE 3. AVERAGE EU28 DALY RATE PER 100,000 POPULATION FOR ALL CAUSE INJURIES BY AGE GROUP.
FIGURE 1. DALY RATE PER 100,000 POPULATION FOR ALL CAUSE INJURIES BY COUNTRY. THE ORANGE DASHED LINE REPRESENTS THE EU28 AVERAGE.
EUROPEAN ED ESTIMATED SELF-HARM INJURY RATE BY AGE/GENDER

FIGURE 3. IDB BASED SELF-HARM ANNUAL AVERAGE RATES PER 100,000 POPULATION BY AGE AND GENDER
EUROPEAN ESTIMATED SELF-HARM DALY RATE BY AGE-GROUP

FIGURE 5. AVERAGE EU28 DALY RATE PER 100,000 POPULATION FOR SELF-HARM INJURIES BY AGE GROUP.
EUROPEAN ESTIMATED DALY RATE BY INTENT/CATEGORY

FIGURE 6. AVERAGE EU28 DALY RATE PER 100,000 POPULATION BY TYPE OF INJURY.

INJURY TYPE

FIGURE 6. AVERAGE EU28 DALY RATE PER 100,000 POPULATION BY TYPE OF INJURY.