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Trendline project. Report on KPI Post-crash Care

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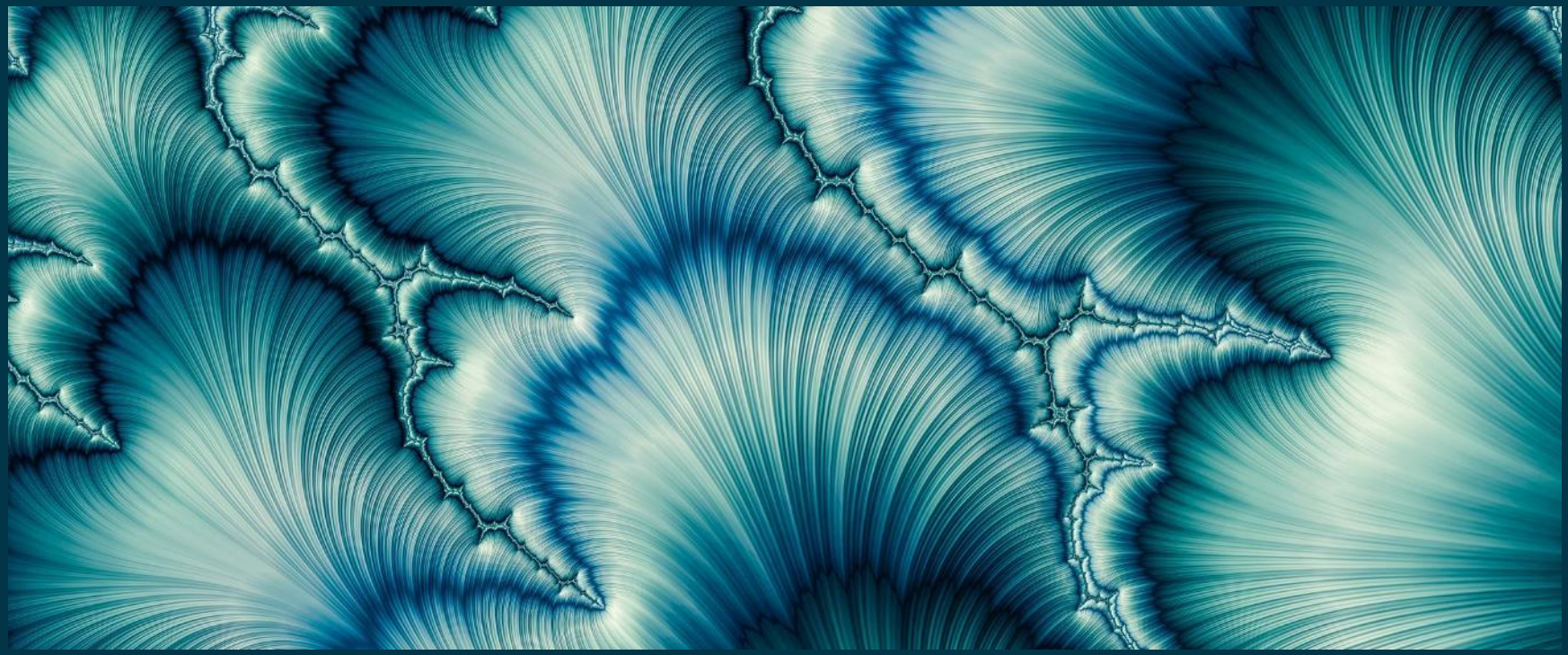
Content

Trendline

Context



Trend line

Purpose and objectives of Trendline

- The purpose of the Trendline project (2022-2025) is to promote the use of road safety KPIs (Key Performance Indicators) within the European Union.
- Collecting such KPI data on a regular basis will underpin and support road safety policies and interventions.
- By using common methodologies, the KPI values of countries can be compared with those of other countries.
- Trendline is supported by the European Commission, who funds 100% of the coordination costs and up to 50% of the costs for data collection and analysis in the EU Member States.
- Trendline is the successor project of "Baseline" (2020-2022).

Trendline

Main components of Trendline

8

Data collection and analysis for the 8 initial KPIs

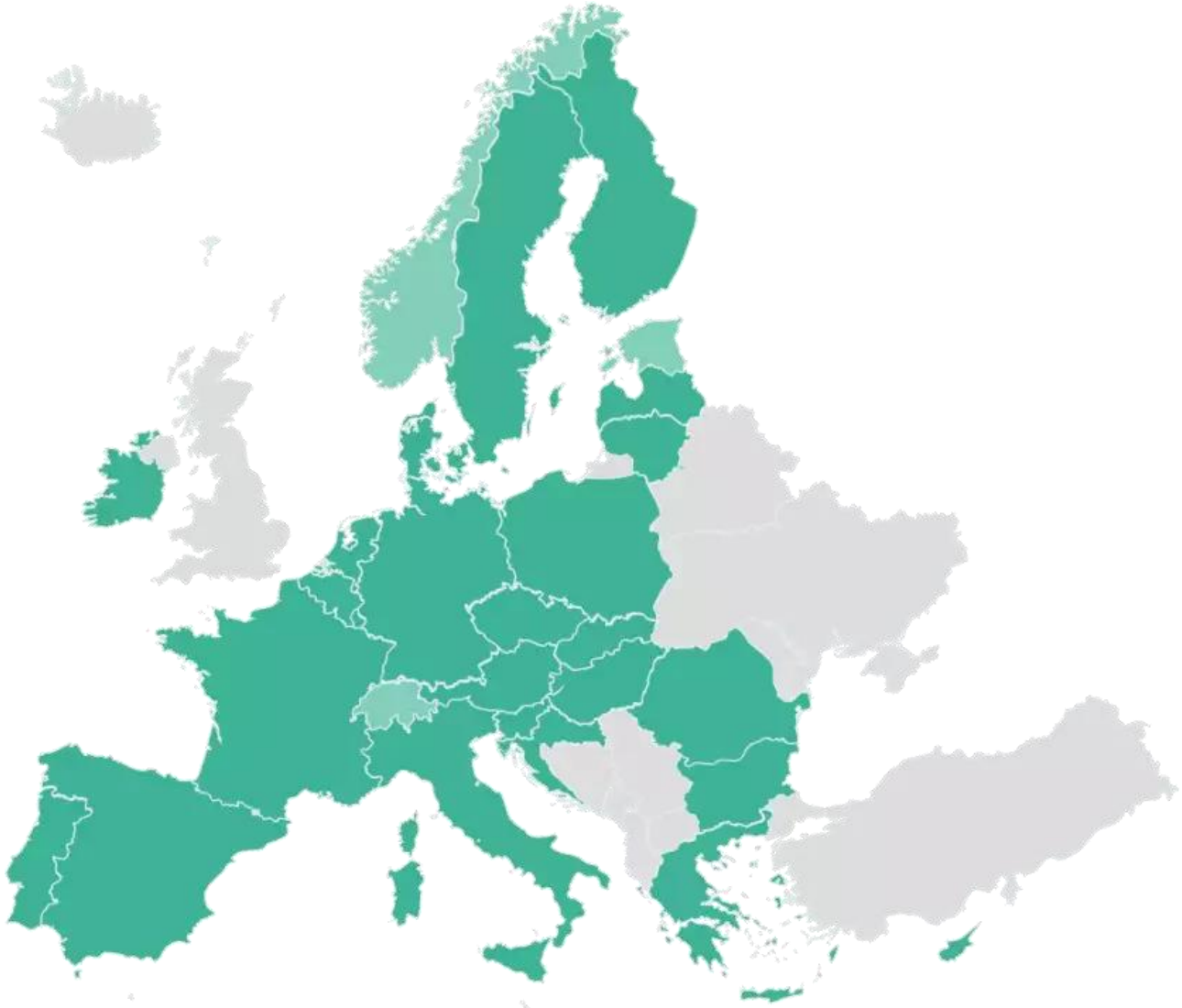
Define and test methodologies for 10 experimental indicators

Promote the use of road safety KPIs in road safety policies

Trendline

Countries participating in Trendline

- 25 EU countries (out of 27)
- 4 observers: Estonia, Malta, Norway and Switzerland



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The eight initial KPIs in Trendline

- Speeding
- Safety belt
- Helmets
- Drink driving
- Distraction
- Vehicle safety
- *Infrastructure**
- Post-crash

** Trendline did only support methodological development; no funding was available for data collection and analysis*

Ten 'experimental' indicators

- Purpose: to examine whether the standard set of European indicators should be larger:
  - by extending the scope of existing indicators, or
  - by accepting alternative definitions, or
  - by extending the range of acceptable methodologies, or
  - by addressing new topics.

- Status
  - 10 possible new indicators have been selected.
  - KEGs (Key Expert Groups) have established methodological guidelines.
  - Pilots and tests have been conducted for each indicator in several Member States,
  - Final output are methodological guidelines, lessons learned, and recommendations.

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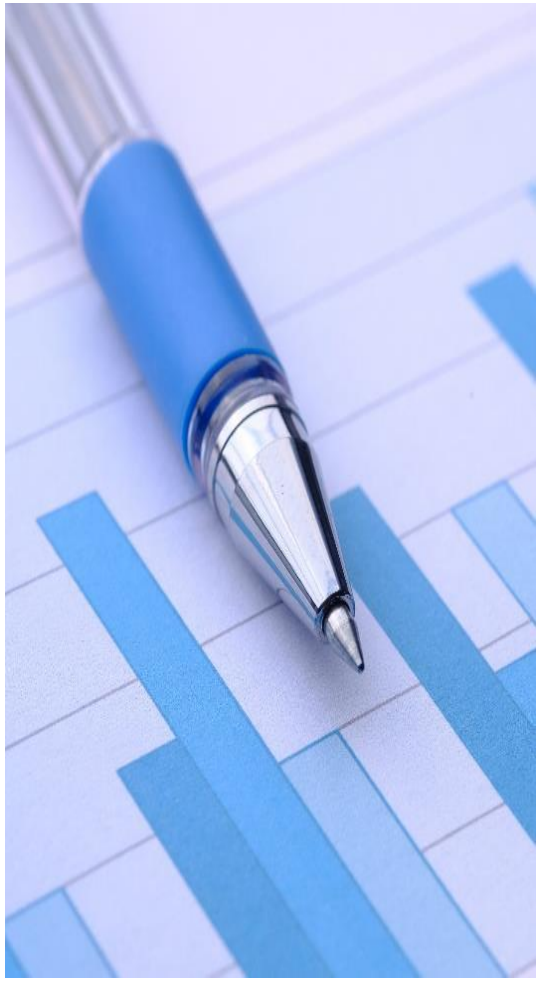
The ten experimental indicators



- Driving under the influence of drugs
- 30km/h on urban roads
- Compliance with traffic rules on signalized pedestrian crossings and intersections
- Compliance with traffic rules on unsignalized pedestrian crossings and intersections
- Helmet wearing by PMD (Personal Mobility Device) riders
- Self-report behaviour
- Attitudes
- Light use by cyclists in the dark
- Enforcement of traffic regulations
- Alternative speeding KPIs

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Methodology and participants

KPI Expert Group (KEG) for KPI Post-crash Care

- Purpose of the KEGs
  - to review and adapt the methodological guidelines developed within the Baseline project
  - to advice on the interpretation and possible deviations of the common guidelines
  - to verify the quality of the data collected
  - to draft and review the report on the KPI

- Members of the KEG Post-Crash Care:
  - Wendy Weijermars, SWOV (The Netherlands)
  - Wouter Van den Berghe, SWOV (The Netherlands)
  - Åsa Forsman, VTI (Sweden)
  - Nina Nuyttens, Vias institute (Belgium)
  - Katerina Folla, NTUA (Greece)
  - Maria Segui Gomez (Spain)

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Definition and scope

- The time needed for the Emergency Medical Services to arrive at the crash scene plays an essential role to minimise the consequences of the crash.

- The KPI Post-Crash Care is defined as:

  The time elapsed in minutes and seconds between the emergency call following a road crash resulting in personal injury and the arrival at the scene of the road crash of the emergency services (to the value of the 95th percentile).

- The KPI does NOT cover
  - the time interval between the crash occurrence and the emergency call (or the notification of the crash to the dispatching centre)
  - the time required for the delivery of the first medical services.

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Methodological requirements

- Required: KPI value for the 95th percentile for a whole year
  - This should be the most recent value available as well as all other available years
- Specifications:
  - KPI value should refer to all road crashes (involving any type of vehicle) and not include any other medical intervention.
  - Only the arrival of the first emergency medical units should be included.
  - All types of medical interventions included (with and without a medical doctor)
- Breakdowns required (if available): by road type (urban road, rural road, motorway) or type of area
- Methodology
  - Based on analysis of national database
  - Sampling is allowing but not recommended. It is also challenging to calculate a 95% confidence interval on a 95 percentile

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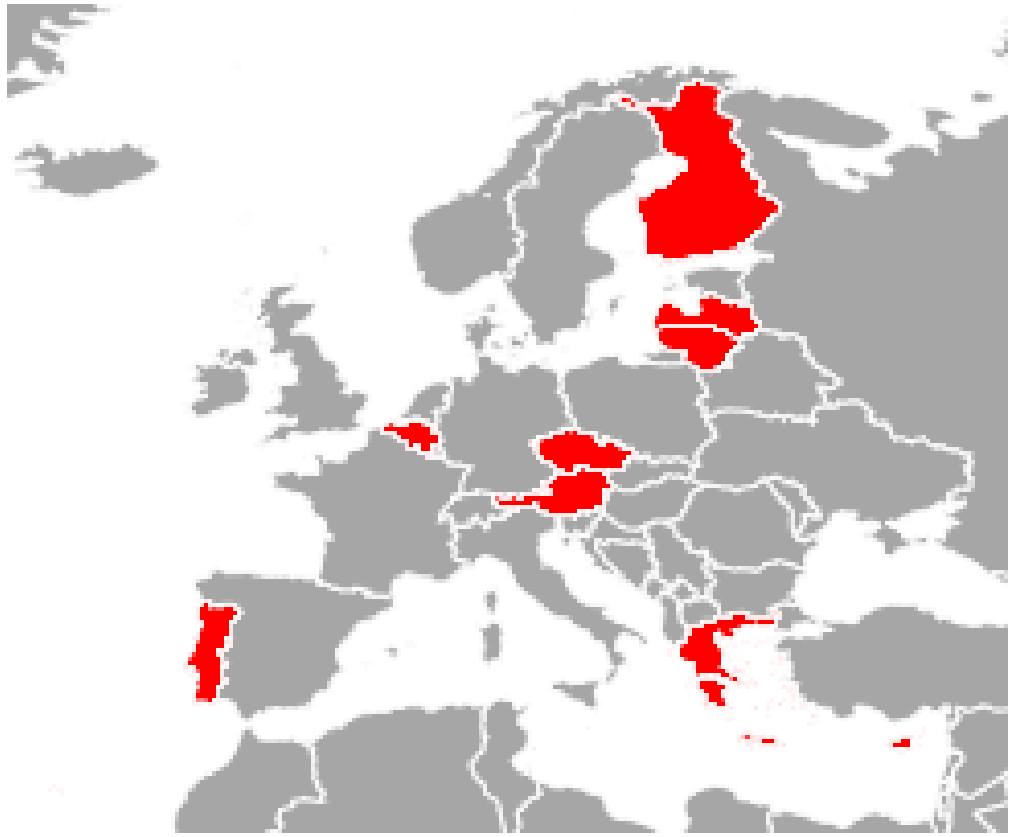
Countries collecting data on Post-Crash Care

Country	Years covered
Austria	2023
Belgium	2024
Cyprus	*
Czechia	2023
Finland	2021/2022/2023
Greece	*
Latvia	2022/2023
Lithuania	2022
Portugal	2022/2023/2024/2025



** Data was not delivered in time for the publication of this report*

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Limitations of the data provided

- Cyprus, Finland, Latvia and Portugal provided data for two or more years
- Data for Czechia is for only 2 regions within the country
- There is no breakdown by road type in Belgium, Portugal, Cyprus
- No P50 values are available for Belgium and Portugal
- Data for Cyprus 2024 and Portugal 2025 cover only the first half of the year
- Data for Belgium cover the second half of 2024, because a new and more accurate methodology has been used since.
- Data for Cyprus does not include interventions longer than 15 minutes and is not shown.
- Except for Lithuania and Portugal, over 90% of the interventions the response time is known (see next graph). For Lithuania, an additional data set was provided, in which missing values have been estimated (however, in this report, the original data has been used).

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Optional data delivery

Delivered by at least two countries:

- Additional percentile values: 25th percentile (1st quartile); 50th percentile (median); 75th percentile (3rd quartile); 85th percentile; 99th percentile.
- KPI values for more than one year, preferably starting with the data that was already provided in Baseline (if applicable)

Delivered by one country only:

- Breakdown by aggregations of time of arrival.
- Whether the dispatching centre was notified of the crash via e-call or not.

Not provided by any country:

- Whether or not motorized vehicles were involved
- Data at record level (extract of national database).
- Breakdown by type of emergency services.
- Breakdown by transport mode of the casualties.

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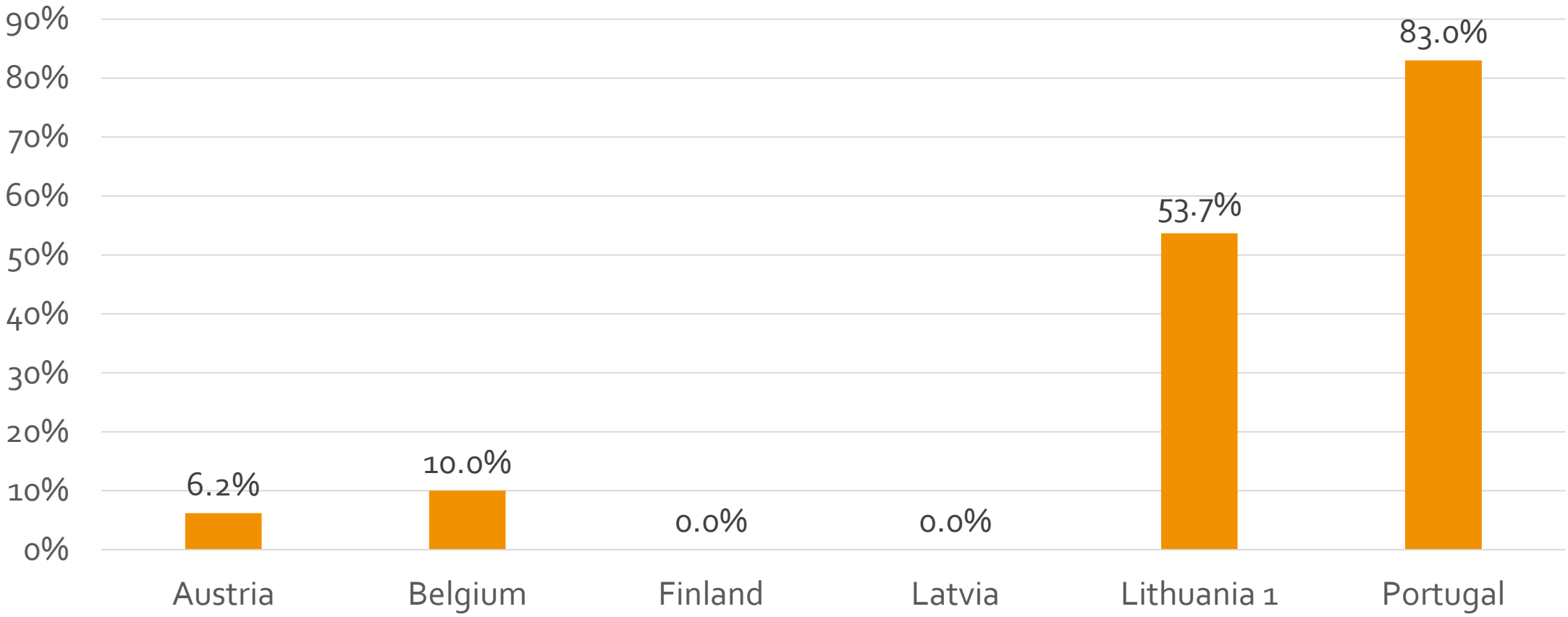
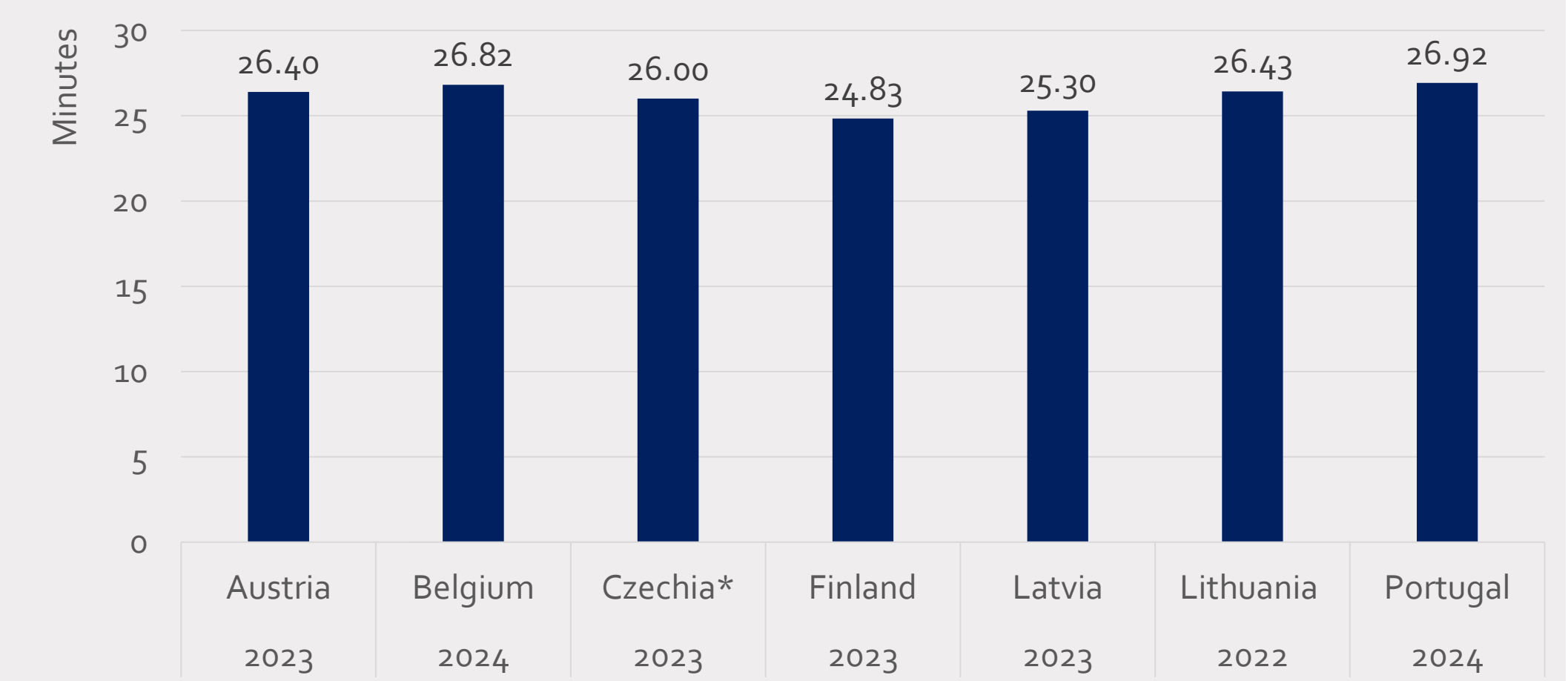
Proportion of interventions for which the response time is unknown



Key results

KPI values for the whole road network



** Only one region in Czechia*

Note: data in all graphs show minutes and fractions of minutes (e.g., 23 minutes and 30 seconds = "23.50")

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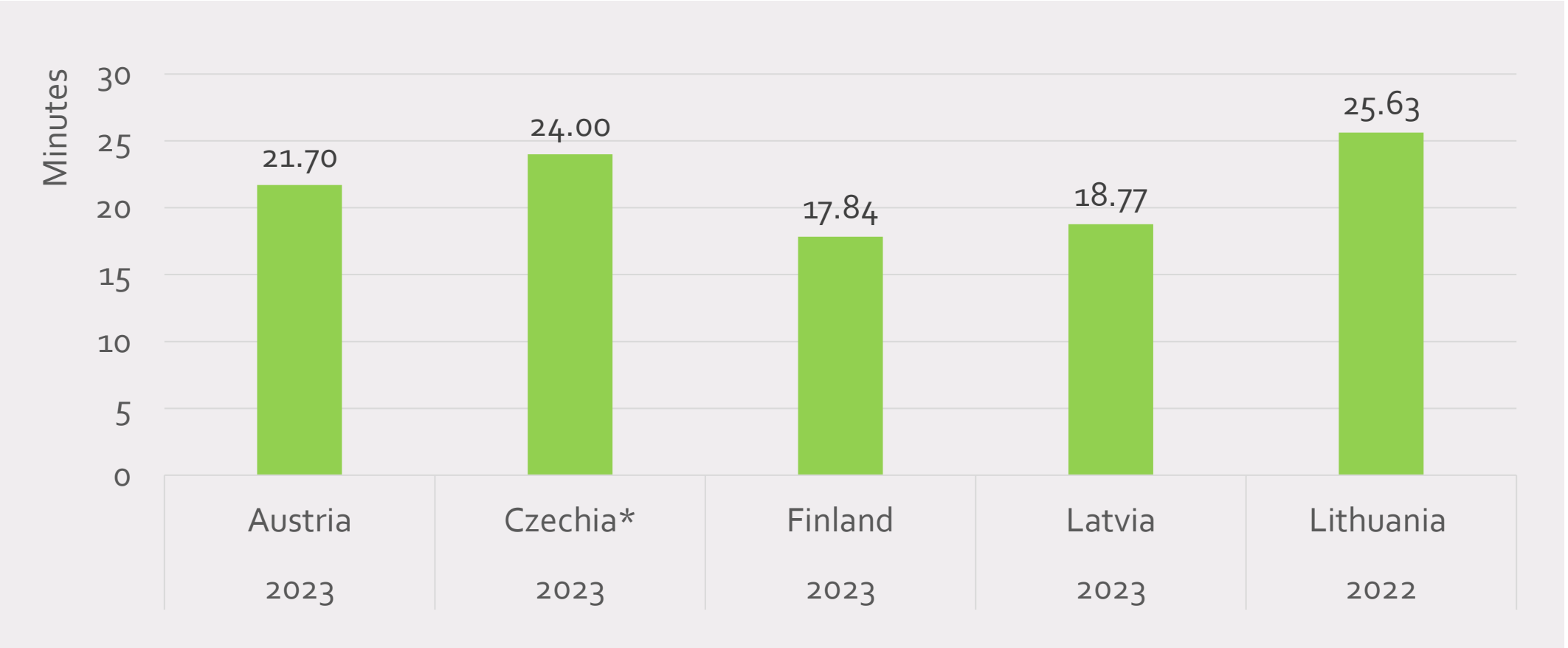
KPI Values for urban roads



** Only one region in Czechia*

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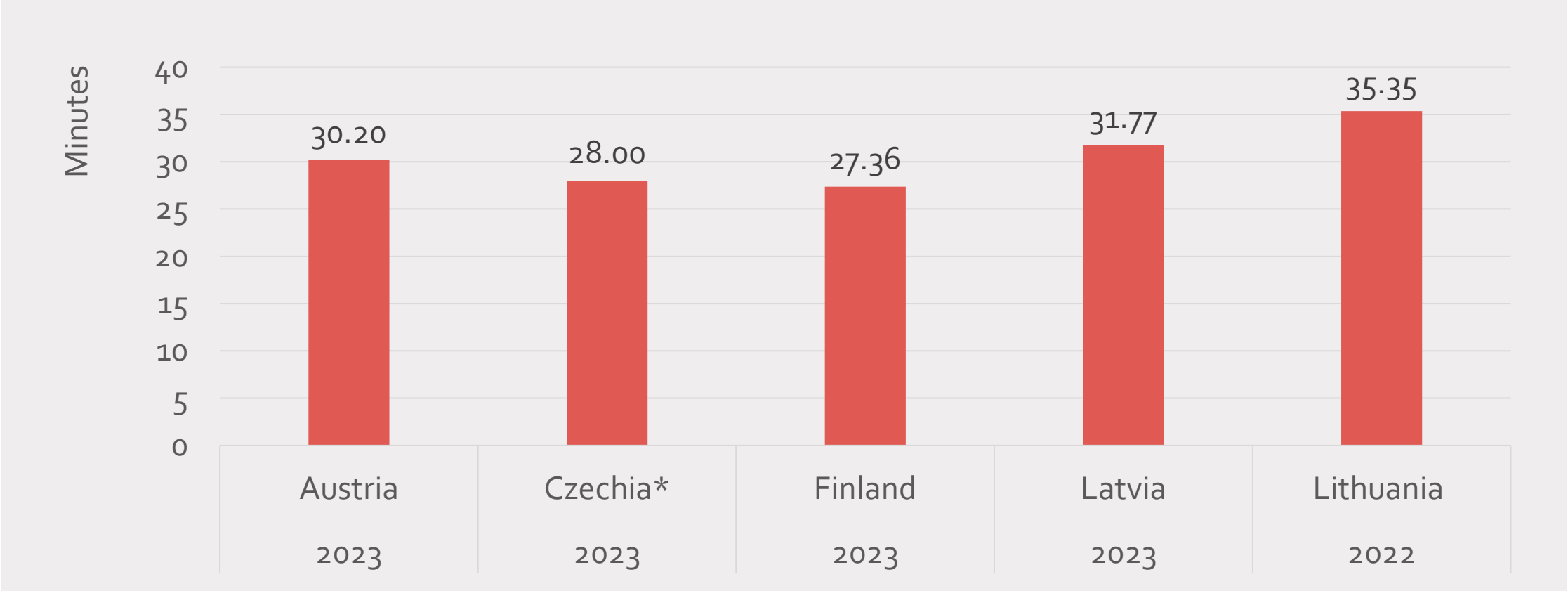
KPI Values for rural roads



** Only one region in Czechia*

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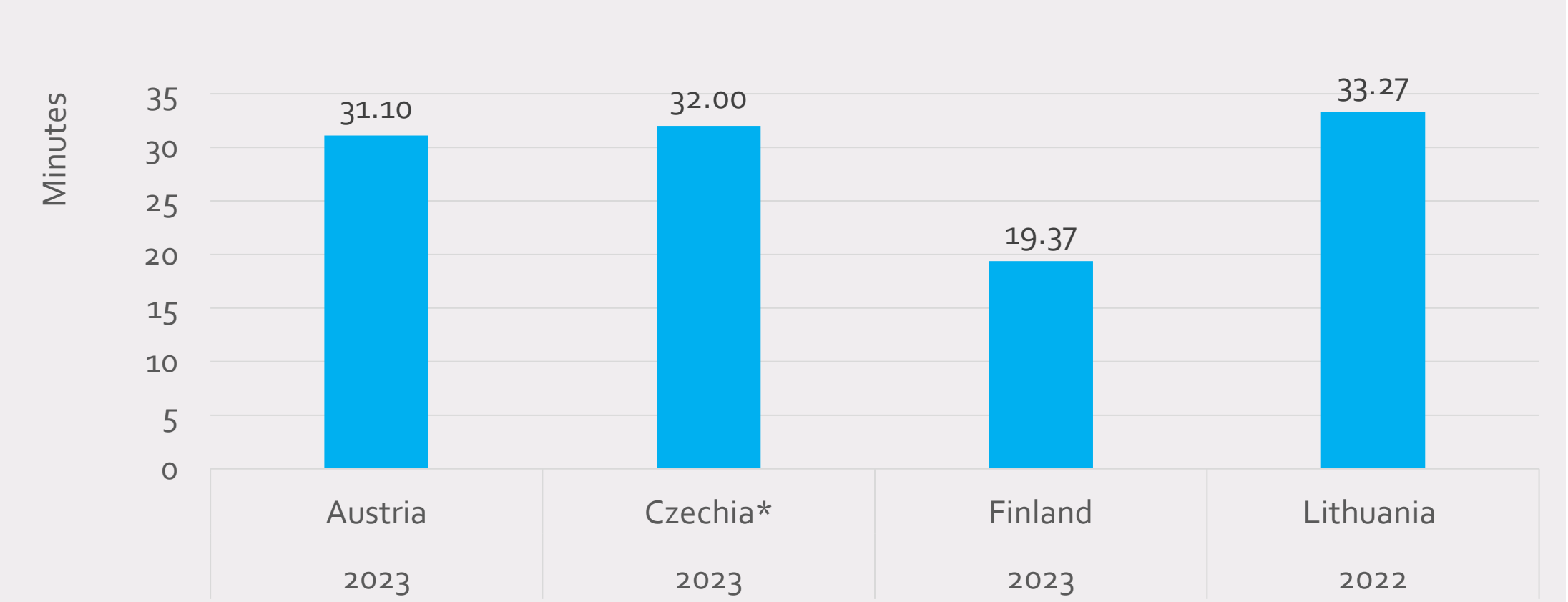
KPI Values for motorways



** Only one region in Czechia*

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Main results

- The typical P95 value is around 26 minutes and is very similar across countries
- The lowest values can be observed for urban roads. In Latvia and Finland, the P95 value for the response time is below 20 minutes.
- The longest P95 response time on rural roads is recorded in Lithuania (over 35 minutes), the lowest in Finland (less than 28 minutes).
- The P95 response times on motorways are similar to those on rural roads, except in Finland, where the response time is much lower (under 20 minutes) and not very different from the value on urban roads.

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Comparability of results across countries

- Only 9 out of 25 EU countries were able to deliver data for the post-crash KPI, and only 7 on time. Thus, comparisons are only possible within these countries.
- However, even within this group, comparability is challenging, because of data limitations.
  - No breakdown by road type is available in Belgium and Portugal.
  - The values for Czechia only apply to a small part of the country.
  - For 83% of the Portugues interventions, the response time is not known
  - There are no motorways in Latvia.
- Definitions and classifications of road types or urban/rural areas differ between countries.

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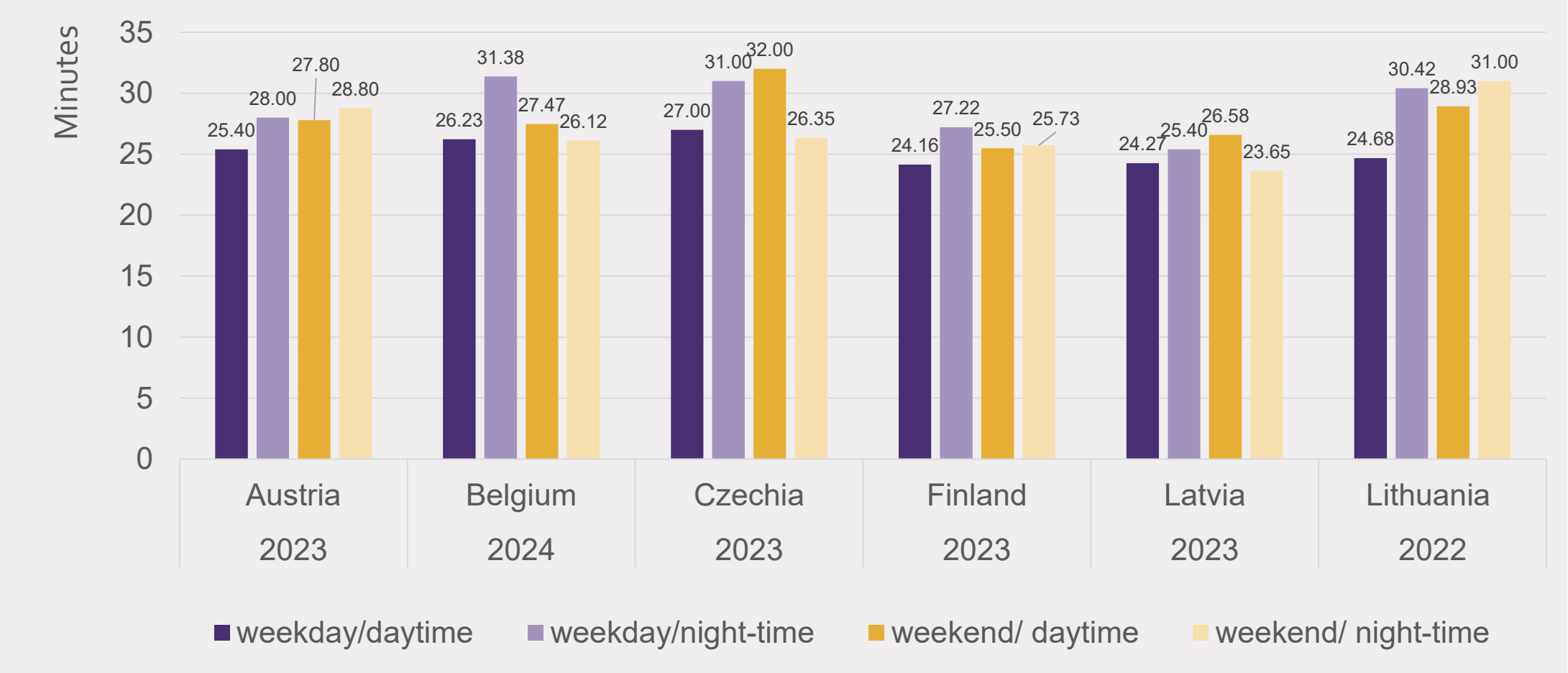
Additional results

Differences by part of the week



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Main observations on time related differences

- On weekdays, the P95 values tend to be higher during the night than during the day.
- On weekends, there is no consistent pattern in the differences between the P95 values during the day and at night (in some countries the P95 value is higher, in some it is lower).
- During daytime, the P95 values tend to be slightly higher during weekends then during weekdays.
- During night-time, there is no consistent pattern in the differences between the P95 value during weekdays and during weekends (in some countries the P95 value is higher, in some it is lower).

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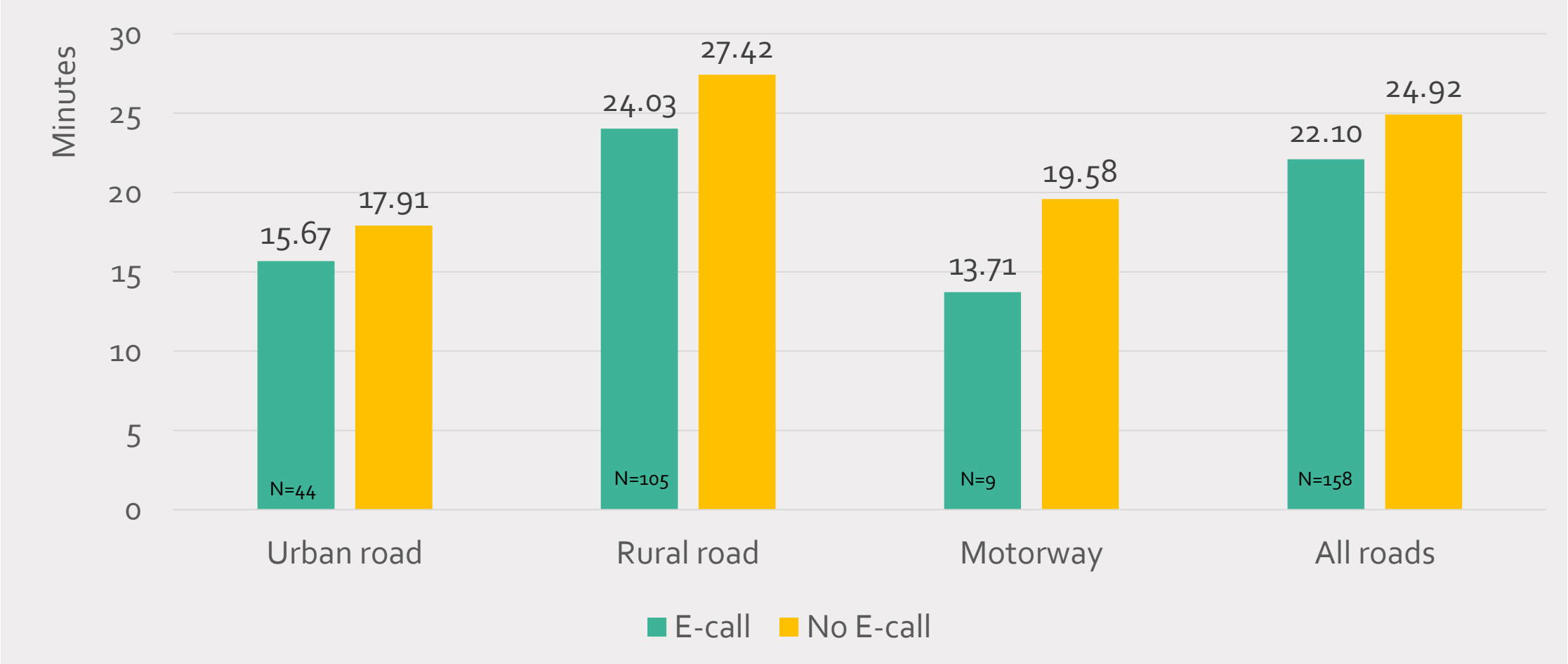
Use of E-call (2023 - Finland only)



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Main observations on the use of E-call

- Data was only provided by one country (Finland).
- The results show that in Finland the use of E-call reduces the response time with several minutes; the gain is highest on motorways.
- However, in 2023 only 3.3 % of emergency calls were made by E-call (it was 1.1% in 2021). The number of E-call warnings was 44 on urban roads (2.7%), 105 on rural roads (3.7%) and 9 on motorways 4.0%.
- It is therefore not possible to generalise the results, even in Finland, because the results could be affected by random variation.

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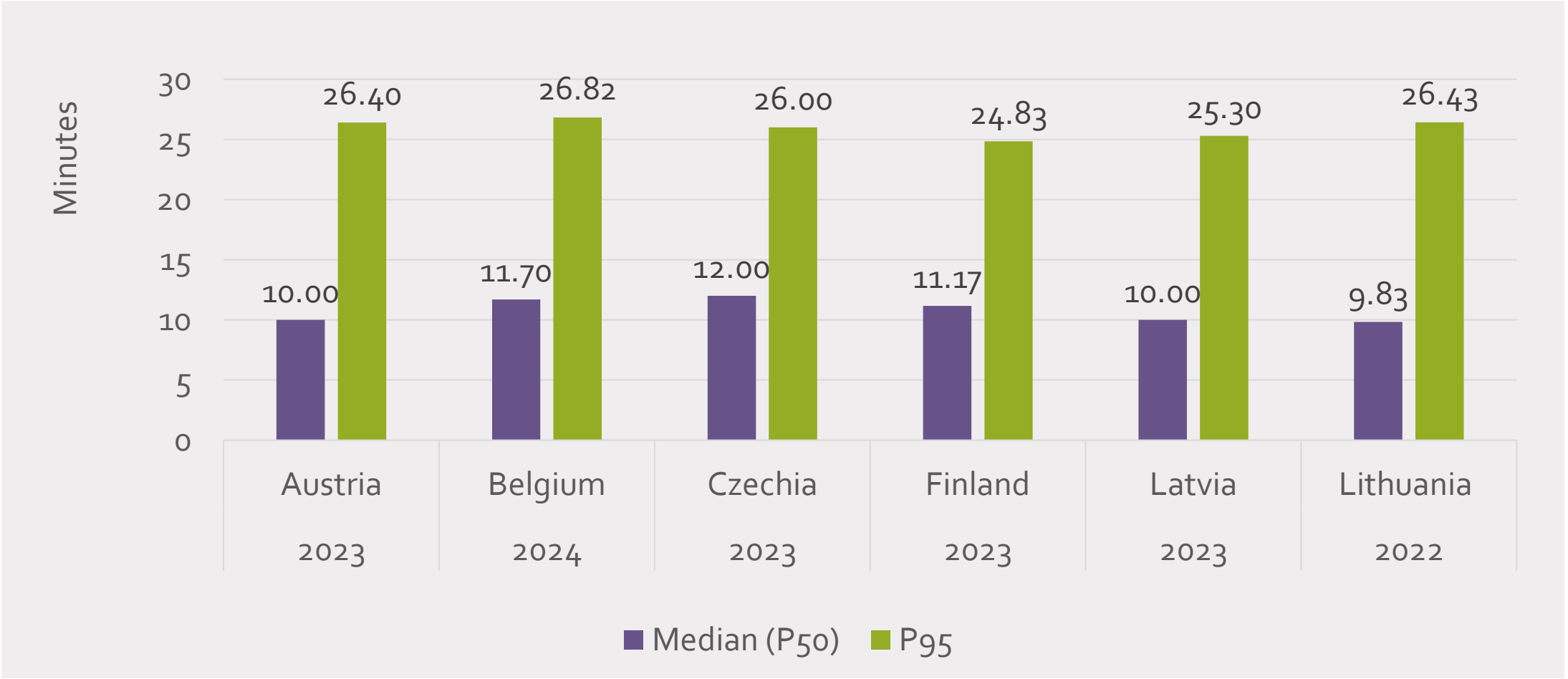
Difference Median value (P50) and P95



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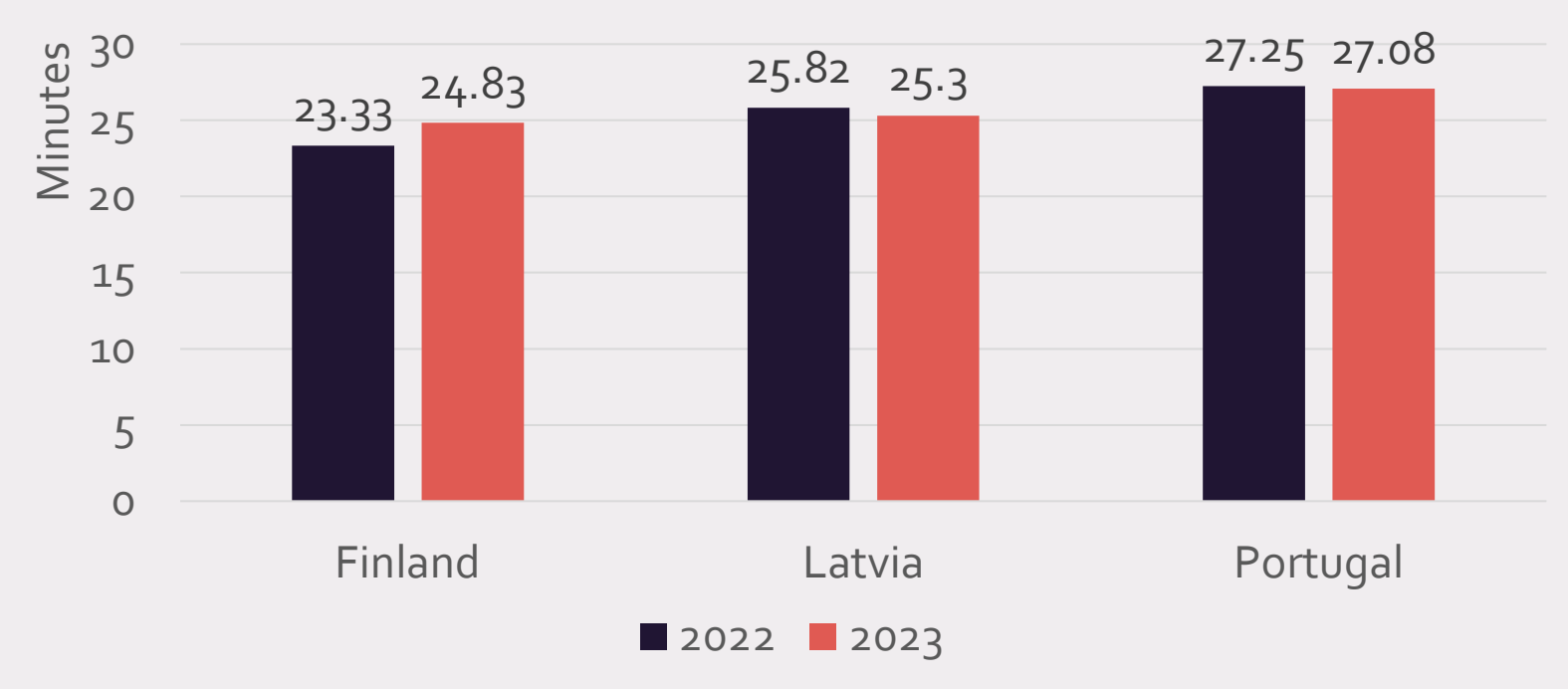
Main observations on the median values

- Data is available for six countries.
- The results show that the median value is much lower than the P95 value.
- The median value is about 11 minutes and does not vary a lot between countries.
- If these results would also hold for other EU countries, it would imply that for about half of the injury crashes, the medical emergency services arrive at the crash location within 11 minutes or less.

Differences between 2022 and 2023



- Data for at least two years is available for three countries.
- The results illustrate that the P95 values hardly vary between subsequent years.
- There is no consistent pattern or trend visible.

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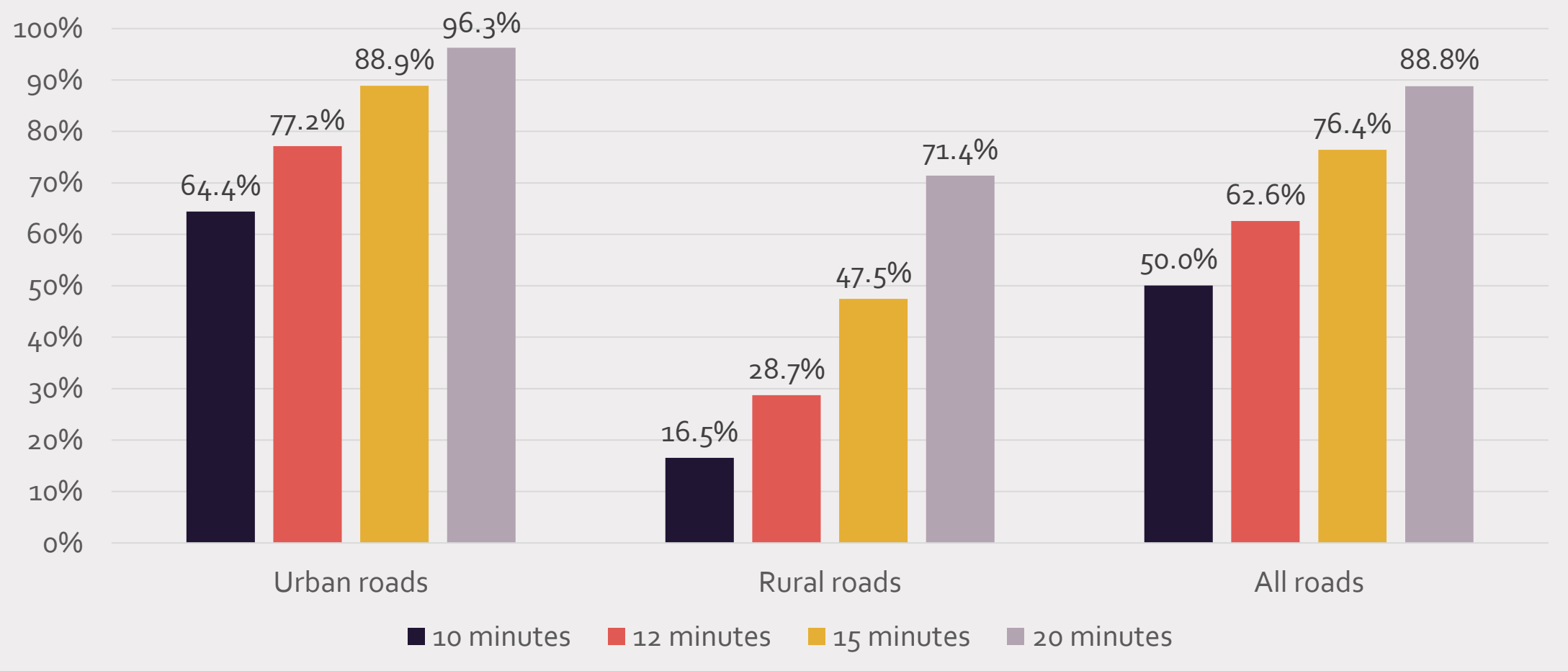
Share of response times (Latvia 2023)



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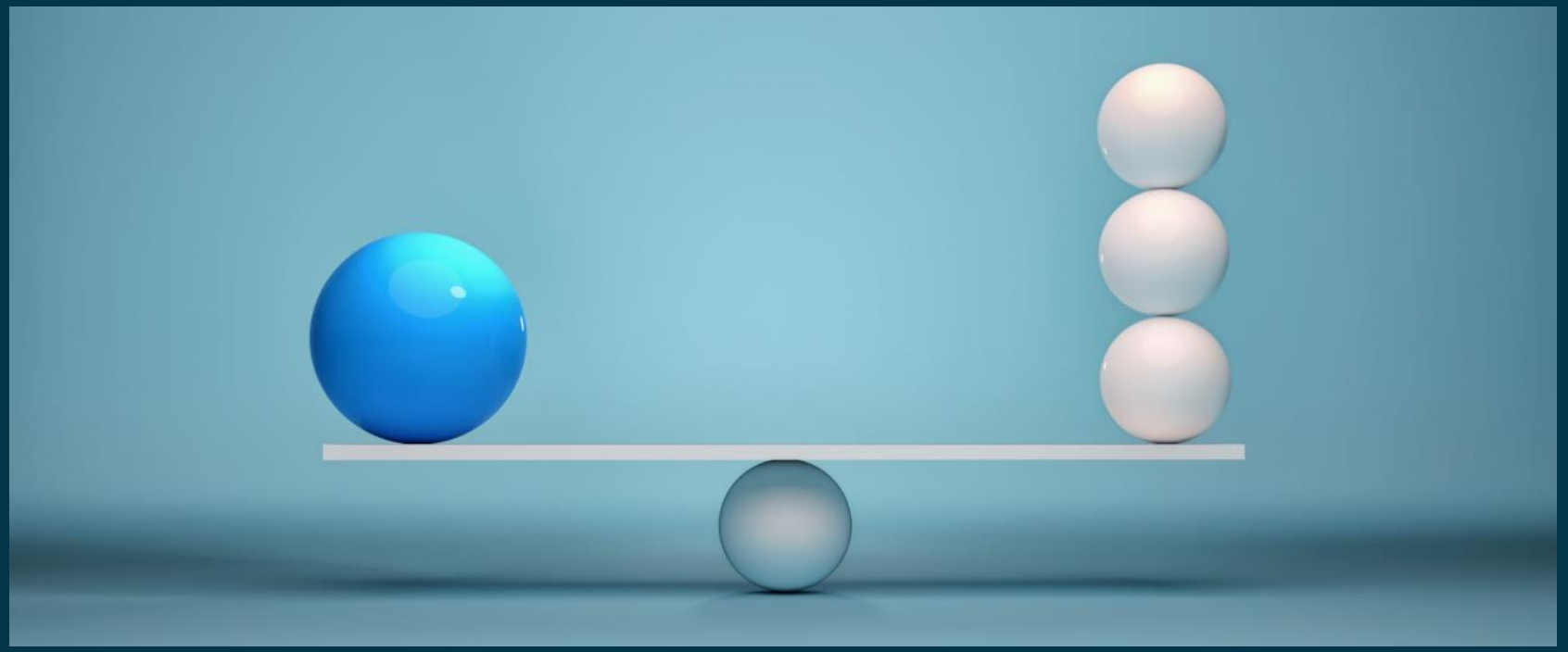
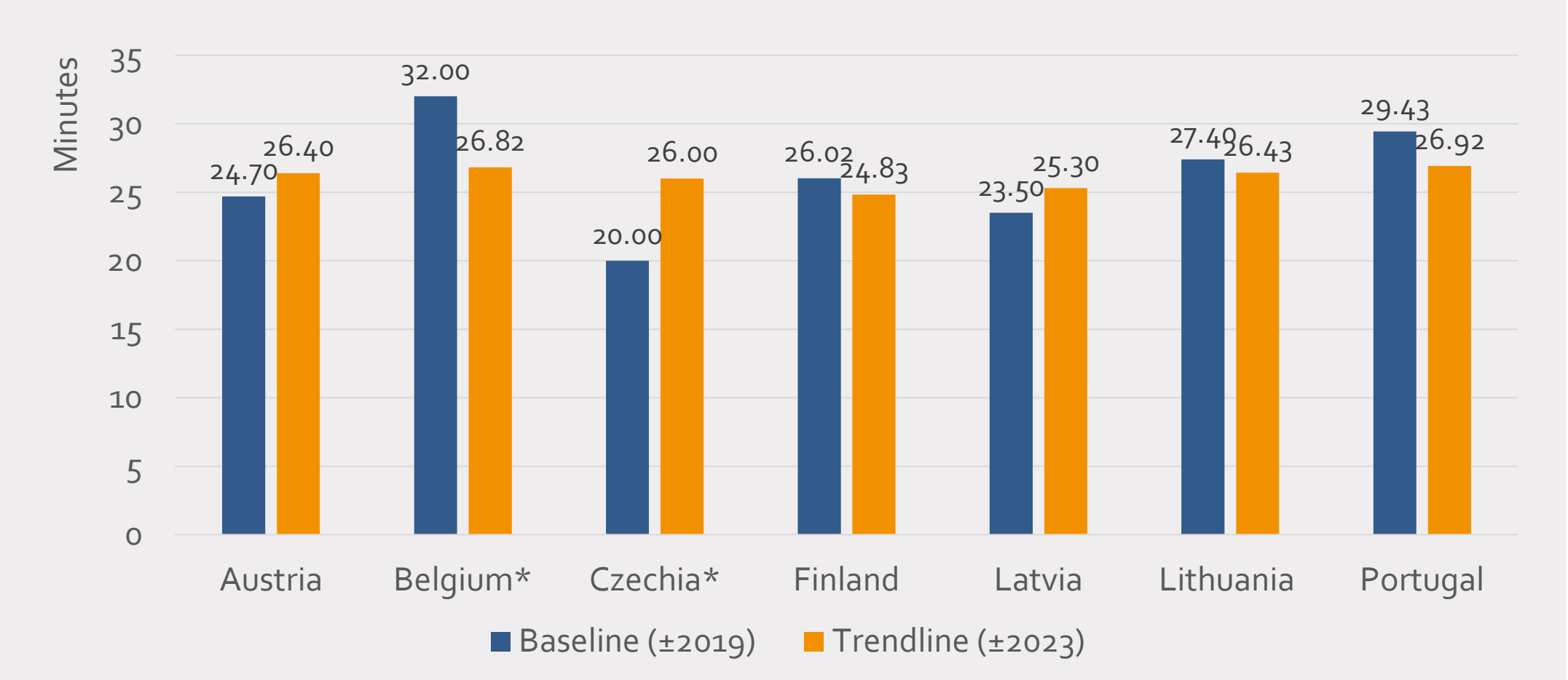
Main observations on the response times

- Data is available for one country (Latvia) and two years (2022 and 2023).
- The performance in urban areas is much better than on rural roads.
  - On urban roads, in 2/3 of the cases, the medical emergency service arrives at the crash scene within 10 minutes or less
  - On rural roads, this is only the case in 1 arrival out of 6.
- Using such percentages might be easier to communicate then P95 values. This is actually the case in some EU countries, such as Belgium.

Comparison with Baseline



Comparison Baseline - Trendline



**Belgium: methodology has changed *Czechia: only one region*

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Main observations on the Baseline-Trendline comparison

- A Baseline-Trendline comparison is possible for 7 countries.
  - Please note that in Belgium the method has changed and has become more accurate.
  - It is reminded that the data for Czechia only relates to a small part of the country.
- In 3 countries there has been an increase in P95 values (which is negative), in 4 countries a decrease (which is positive). But in general differences are small.
- The small and inconsistent differences are in line with the previously made observation that differences between consecutive years are small.

Conclusions and Recommendations

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Conclusions and Recommendations

- Only 7 European countries were able to deliver data in time for the post-crash KPI. Moreover, most of these had problems in applying the methodology strictly and to provide breakdowns. This reduces the usefulness of the KPI Post-Crash Care and also limits the added value of intra-European comparisons. Member States should adapt their databases to allow for more breakdowns.
- For the countries for which data is available, the P95 response time value is about 26 minutes and the median value (P50) about 11 minutes.
- Response times are lowest in urban areas.
- The use of E-call looks promising for reducing the response times somewhat, but results from more than one country are required to conclusively determine this.
- It is recommended to include the P50 value in the KPI reporting and also to present the results additionally under the form of proportions of response times (10-12-15-20 minutes).

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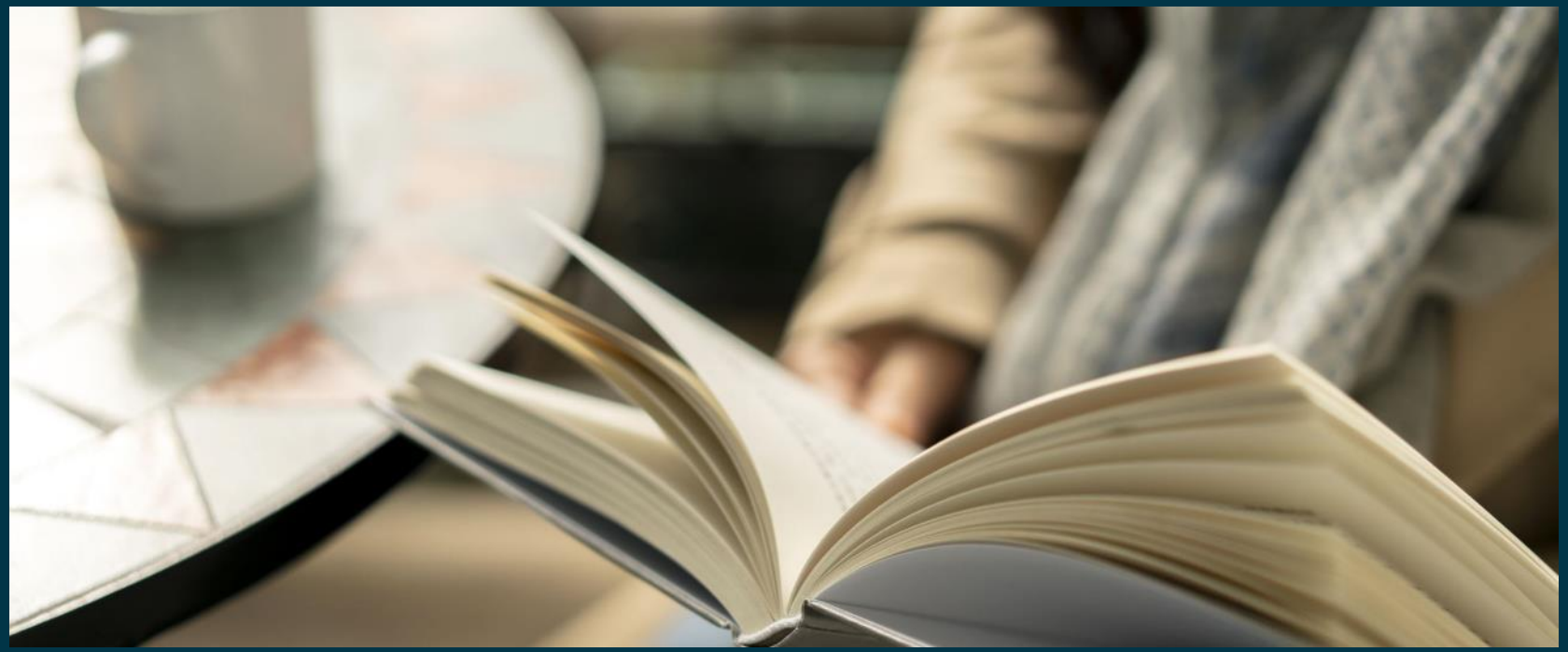
References and further reading



References and further reading

- Weijermars, W.; Van den Berghe, W.; Bijleveld, F.; Nuyttens, N., Forsman, Å; Folla, K., Segui Gomez, M. (2024). *KPI Post-crash Care, Methodological Guidelines. Report produced as part the Trendline project, supported by the European Union*. The Hague, SWOV Institute for Road Safety Research.
- Van den Berghe, W., Nuyttens, N., Segui Gomez, M., Bijleveld, F., Weijermars, W. (2021). *Methodological guidelines – KPI Post-crash Care.* Baseline project. Brussels, VIAS institute.
- Nuyttens, N. (2022). *Baseline report on the KPI Post-Crash care. Baseline project.* Brussels, Vias institute.
- Van den Berghe, W. & Stelling , A. (Eds.) (2025). *Trendline 2022-2025 - Data collection and analysis of road safety KPIs in Europe. Report produced as part the Trendline project, supported by the European Union*. The Hague, SWOV Institute for Road Safety Research.
- European Commission (2023). *Road Safety Thematic Report – Post-impact care.* European Road Safety Observatory. Brussels, European Commission, Directorate General for Transport.

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For more information:

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