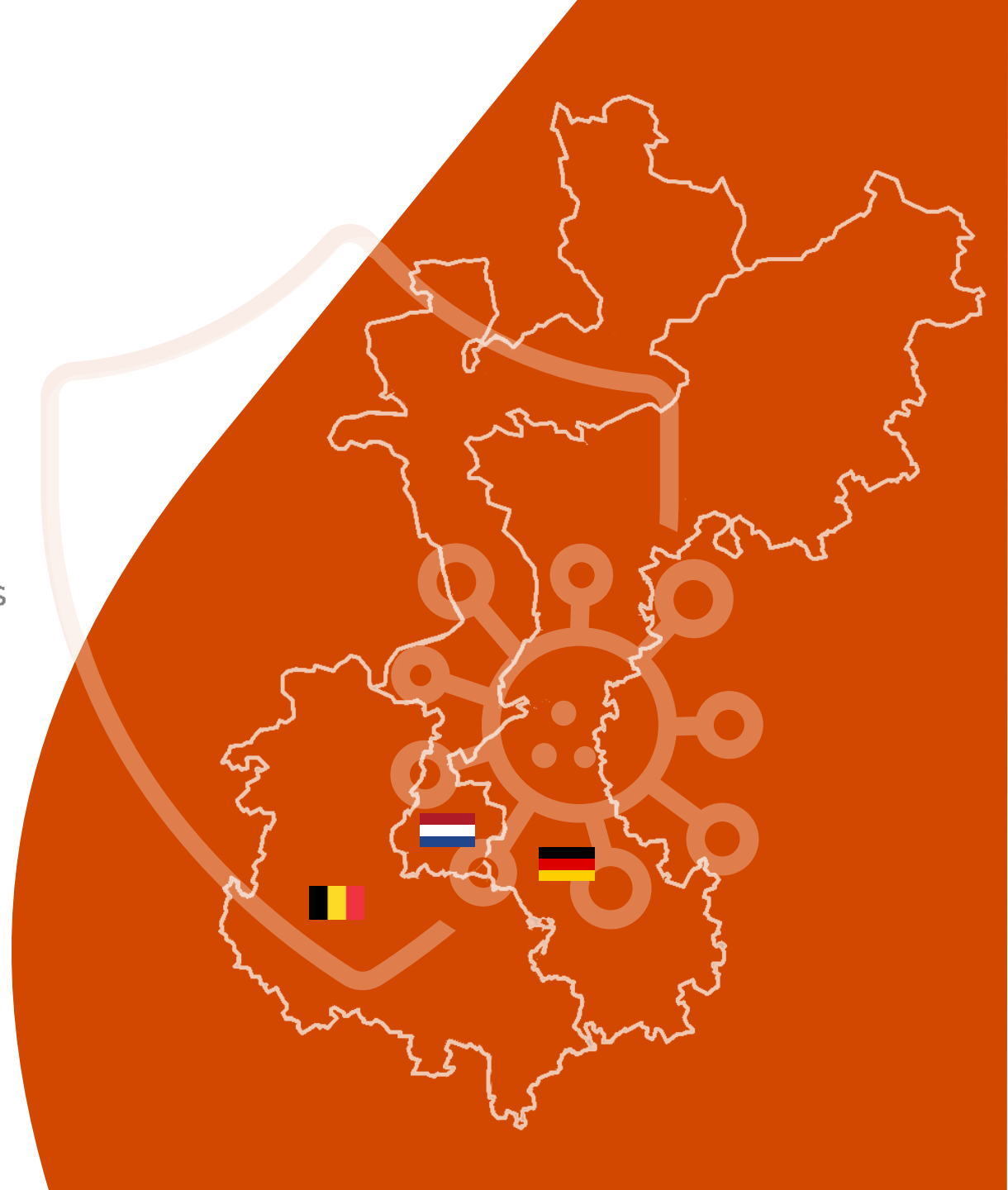


► FACTSHEET

GRENS impact

Impact of cross-border COVID-19 transmission in border regions



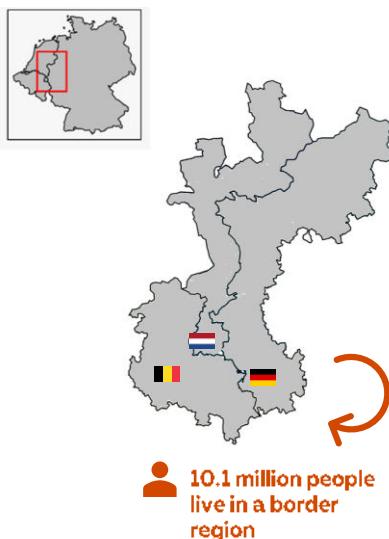
► Why this study?

Border regions and the impact of COVID-19 measures

About **35% of Europe's population** lives in **border regions**, where daily cross-border mobility plays a crucial role in relation to work, care and social contacts.

This study examined **four major border regions** between the Netherlands, Germany and Belgium, home to **about 10.1 million people** (3.3 million in the Netherlands, 4.8 million in Germany and 2 million in Belgium).

During the COVID-19 pandemic, many countries implemented **border closures and travel restrictions** to limit the spread of the virus. This caused major disruptions in the daily lives of citizens in these regions. The effectiveness of these measures was, however, often questioned.



► Purpose of the study






Investigating cross-border transmission, COVID-19 as a case study

The research team looked at whether **cross-border spread** played a major role in the COVID-19 outbreaks within the three countries (the Netherlands, Germany and Belgium).

The lessons from this study are applicable to future health crises in border regions between the Netherlands, Germany and Belgium.

► Approach

Data analysis

-  Spatial distribution of COVID-19 cases analysed and mapped using **geographical analysis**.
-  Over **4 million COVID-19 cases** analysed in four border regions of the Netherlands, Germany and Belgium.
-  Period of data collection: 2 January 2020 – 2 October 2022.
-  Use of **GIS** and the **Besag-York-Mollie (BYM)** model for spatial and temporal cluster analysis.
-  Data on COVID-19 infections is based on public COVID-19 notifications to national infectious disease registries (RIVM in the Netherlands, Robert Koch Institute in Germany and Sciensano in Belgium).

Areas

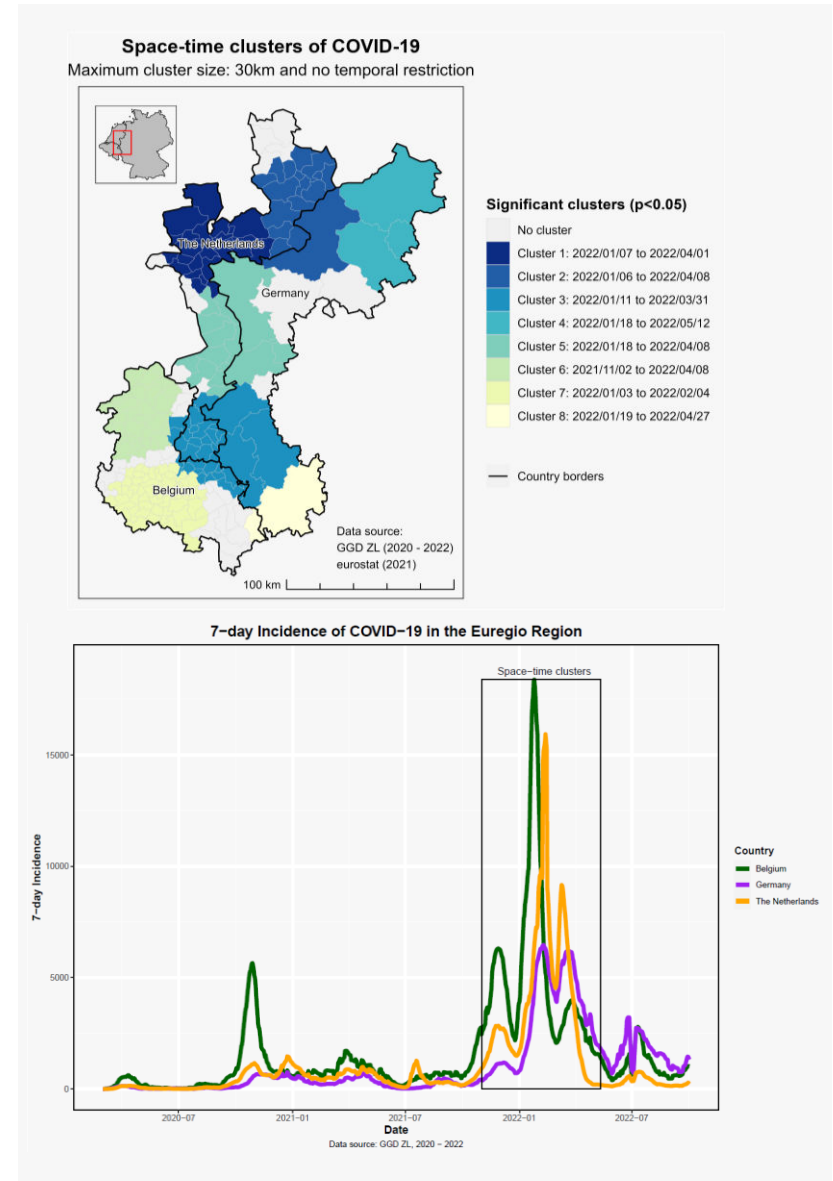
-  Meuse-Rhine Euroregion, Meuse-Rhine-North Euroregion, Rhine-Waal Euroregion and the Münsterland – Tente Euroregion.

Key findings

The main findings of our study are as follows:

- **Only eight significant clusters identified in over 2.5 years:** This study discovered only eight clusters of COVID-19 cases, all occurring during the same period, half of which occurred within a country and half across borders. Within the clusters, the spread within countries followed the same pattern. No clusters were found in the first 18 months of the pandemic. As was the case in many other countries, the clusters emerged during the peak of the pandemic in late 2021 and in the first half of 2022. This peak was caused by the arrival of the highly contagious Omikron variant, which spread rapidly worldwide. The increase in cases was partly caused by waning immunity after previous infections or vaccinations. In addition, difficulties in maintaining effective health measures, increased travel, relaxed regulations and pandemic fatigue played a role in the dissemination of the virus during this period. The study shows that **cross-border transmission was very unlikely to have made a substantial contribution here.**
- **No significant effect of cross-border transmission:** This study showed that cross-border spread of SARS-CoV-2 did not contribute significantly to the number of COVID-19 cases within each country. In support of the hypothesis that cross-border spread played a significant role, we had expected clusters to shift in time and space, from one national area to another within a cluster. However, because the number of cases in different national areas peaked simultaneously during the Omikron wave, our analysis shows **no evidence of a significant contribution of cross-border spread to COVID-19 outbreaks within each country.** Rather, this suggests that, by then, the virus was ubiquitous. Moreover, over the rest of the 2.5 years, there were **no cross-border clusters at all.** The analysis also shows shifting patterns of infection across borders, indicating that **spread was influenced more by national measures and virus dynamics than by cross-border transmission.**

Interested in viewing the 7-day incidence of COVID-19 in the Euroregion in the period from 2 January 2020 to 2 October 2022? Scan the QR code.



► Key findings

The findings also have indirect implications :

- **Effect of border closures questioned:** These results suggest that **border closures did not have a significant impact on containing the pandemic** and highlight the **need for a more coordinated EU approach to future health emergencies**. Coordination at EU level should ensure that member state measures are proportionate, as the limited – or even non-existent – impact of border closures on infectious disease control does not outweigh their major negative societal consequences.

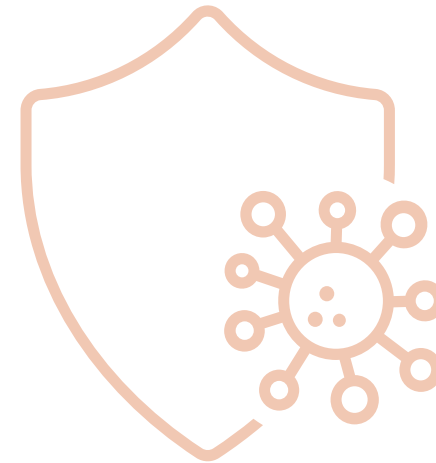
► Recommendations

A number of recommendations have resulted from the findings of our study that will benefit citizens and increase social resilience of border regions:

- ➕ **Greater focus on border regions:** Policies should pay more attention to **the specific needs and challenges of border regions**.
- ⊖ **Limitations of border closures:** **Border closures** were found to **be ineffective** in limiting virus spread.
- ✳️ **Need for coordinated policies:** An **EU-wide approach** is essential to minimise the social and economic impact of border closures and ensure more effective health measures.
- 🔍 **More research on border regions:** There is a need for **more research** on the impact of policies, legislation and regulations on border regions.
- 📊 **Comparable cross-border data:** There is a need for **comparable data across borders** so that neighbouring regions can be better compared.

► Summary

The GRENSImpact project investigated COVID-19 spread in border regions of the Netherlands, Germany and Belgium, mapping 4 million cases over more than two and a half years. The study found only eight clusters of infections, half of them cross-border, but no evidence that cross-border transmission contributed significantly to COVID-19 outbreaks. The findings raise questions about the impact of border closures and underline the importance of a coordinated EU approach to future health emergencies.



► Colophon

Contact:

Want to know more about this study? You can contact the researchers via Tamara Kleine, AWPG Mosa secretariat, tamara.kleine@ggdzl.nl

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