

Impact of COVID-19 on Hospital Admissions: A DRG-Based Comparative Analysis in Croatia, Germany, and Australia

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Introduction:

The resilience of global health systems was severely tested by the COVID-19 pandemic. This crisis disrupted health services worldwide, compelling nations to balance managing the contagion with maintaining their healthcare systems' integrity. The OECD's report "Ready for the Next Crisis? Investing in Health System Resilience" highlighted key vulnerabilities during the pandemic, including underpreparedness, staffing shortages, and underinvestment. However, an improvement was noted in the availability and timeliness of health data.

The structured organization of patient data into standard groupings through the Diagnosis Related Group (DRG) patient classification system facilitates the utilization of routinely collected data for various purposes. This includes epidemiological studies, big data analyses, patient registry data collections, and the measurement of hospital activity and services payment methods.

This study aims to evaluate the direct impacts of COVID-19 on inpatient care delivery in Croatia, Germany, and Australia, based on DRG data. It seeks to identify the most affected case types and examine the potential reasons behind such outcomes.

Methods and Findings:

The study relies on publicly available data from institutions/agencies responsible for inpatient DRG data collection in the involved countries: the Croatian Health Insurance Fund (HZZO), Croatian Institute for Public Health; Institute for the Hospital Remuneration System (InEK), Independent Hospital and Aged Care Pricing Authority (IHACPA), and Australian Institute of Health and Welfare (AIHW).

The research is a retrospective, comparative analyses of the hospital admission rate across all DRG before (2019) and during pandemic (2020-2022).

The Croatian DRG system is based on a variant of the Australian AR-DRG system utilizing a combination of the ICD 10- AM and ICD-10 classifications for the coding of diagnosis and Australian Classifications of Health Interventions for the coding procedures.

The German G-DRG system, initially based on the Australian Refined DRG logic, has evolved into a more country-specific system by adding DRG groups over the years through changes in grouping variables that reflect the local inpatient care context.

In the initial data analysis, we calculated changes in hospital admissions and observed a 21% decrease in Croatia, a 16% decrease in Germany, and a 1.9% decrease in public acute admissions in Australia in 2020 vs. 2019.

We also compared DRG classes driven by principal diagnosis or procedures potentially signalling admissions due to COVID-19, along with classes related to cancers, stroke, and mental health.

Conclusions:

While Croatia and Germany followed a similar pathway in responding to the COVID-19 pandemic, the approach adopted by Australian authorities was notably different. This divergence, coupled with other factors such as geographical position, climate, and immunization rates, may explain the variations in results. The pandemic's legacy may persist for an extended period, but lessons learned from the collected data should serve as a transformative, driving force to prepare health systems for future challenges.