

Hospital Mortality in Germany – Analysis of German Hospital Data from 2000 to 2019

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Background

- German hospitals are obligated to report their operational data yearly to the Federal Statistical Office (DESTATIS)¹.
- This information is made publicly available and serves as a valuable resource for monitoring long-term trends in the general population across a wide spectrum of diagnoses.

Objectives

- This study aimed to examine hospital mortality trends in Germany, focusing on demographic shifts and disease-specific patterns.

Methods

- A retrospective analysis using annual data from DESTATIS from 2000 to 2019 was conducted.
- Demographic characteristics (age, sex) were assessed for hospitalized patients.
- Annual mortality rates and relative changes in death rates were calculated overall and by the International Classification of Diseases, 10th Revision, German Modification (ICD-10-GM) diagnosis groups.
- Focus was on morbidity-related diagnosis groups: infectious and parasitic diseases (A00-B99), malignant neoplasms (C00-C97), cardiovascular diseases (I00-I99), respiratory system diseases (J00-J99), digestive system diseases (K00-K93), and injuries and poisoning (S00-T98).
- Data from 2020 onwards were excluded to prevent distortions due to the Coronavirus Disease 2019 (COVID-19) pandemic.

Results

Overall hospital mortality

- From 2000 to 2019, the number of hospitalizations increased from 17,043,722 to 19,174,568, with number of deaths rising from 398,808 to 427,035 (see **Figure 1A** and **Figure 1B**).
- The overall mortality rate remained constant, fluctuating between 2.13% and 2.39% in 2014 and 2005, respectively (see **Figure 1C**).

Mortality by age

- Change in the age of those who died were observed: in 2000, 36.98% were ≥80 years old, while in 2019 this number increased to 50.57%.
- The most common age group of deceased individuals in 2000 was 70-79 years (30.58%), while in 2019, 80-89-year-olds were most common (37.22%) (see **Figure 2**).

Mortality by diagnosis groups

- The largest proportion of deaths occurred in cases with diagnosis group I00-I99, although a downward trend was observed (2000: 36.19%, 2019: 28.07%) (see **Figure 3**).
- Respective cases had a high but declining mortality rate (2000: 5.12%, 2019: 4.11%) (see **Figure 4**).
- In contrast, worsening mortality was observed for A00-B99 (2000: 3.33%, 2019: 4.92%) and S00-T98 (2000: 1.08%, 2019: 1.52%).
- Mortality of C00-C97, the diagnosis group with the highest hospital mortality rate throughout all years, remained constant (2000: 5.35%, 2019: 5.51%).

Conclusion

- The analysis revealed a stable overall hospital mortality rate, with an increasing proportion of older patients (≥80 years), suggesting an aging population and extended life expectancy.
- While cardiovascular mortality has declined, challenges persist in managing infectious diseases, indicating target areas for healthcare improvement and resource allocation.

References

- Statistisches Bundesamt (DESTATIS). GENESIS-Online Database. <https://www-genesis.destatis.de>.

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Results (cont.)

Figure 1. Hospital discharges [A], hospital deaths [B] and hospital mortality rate (%) [C] for the years 2000 to 2019 in Germany

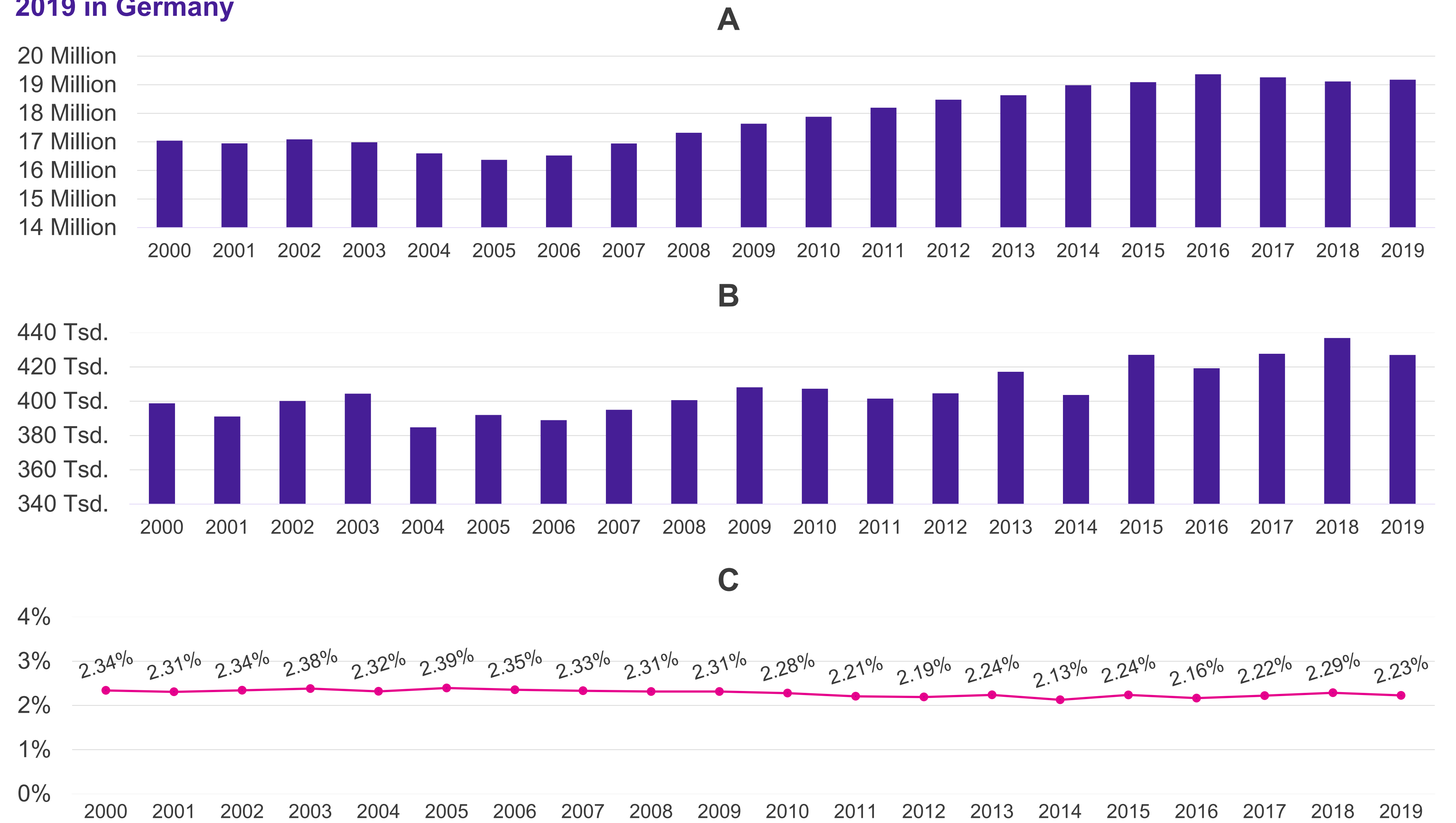


Figure 2. Proportion of age groups among deaths in German hospitals between 2000 and 2019

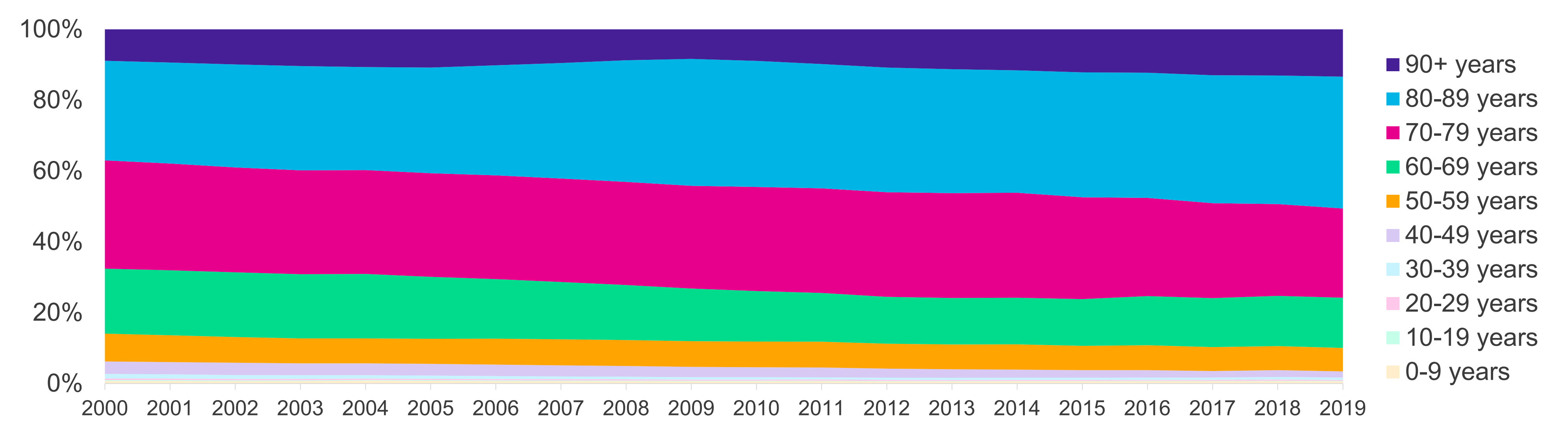


Figure 3. Proportion of ICD-10-GM diagnosis groups among deaths in German hospitals in the years 2000, 2010, and 2019

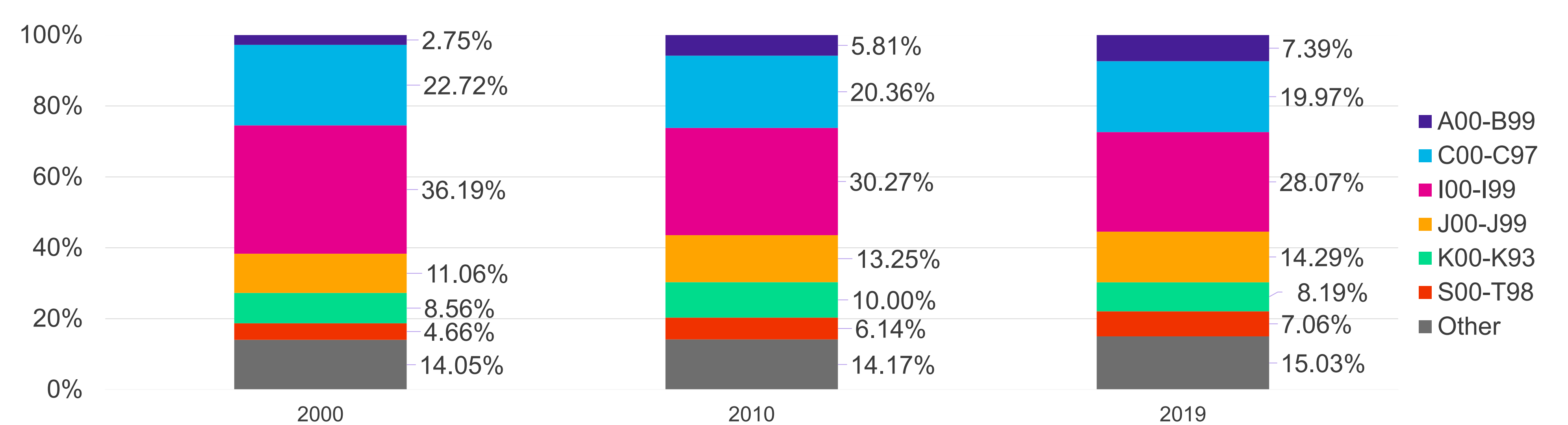
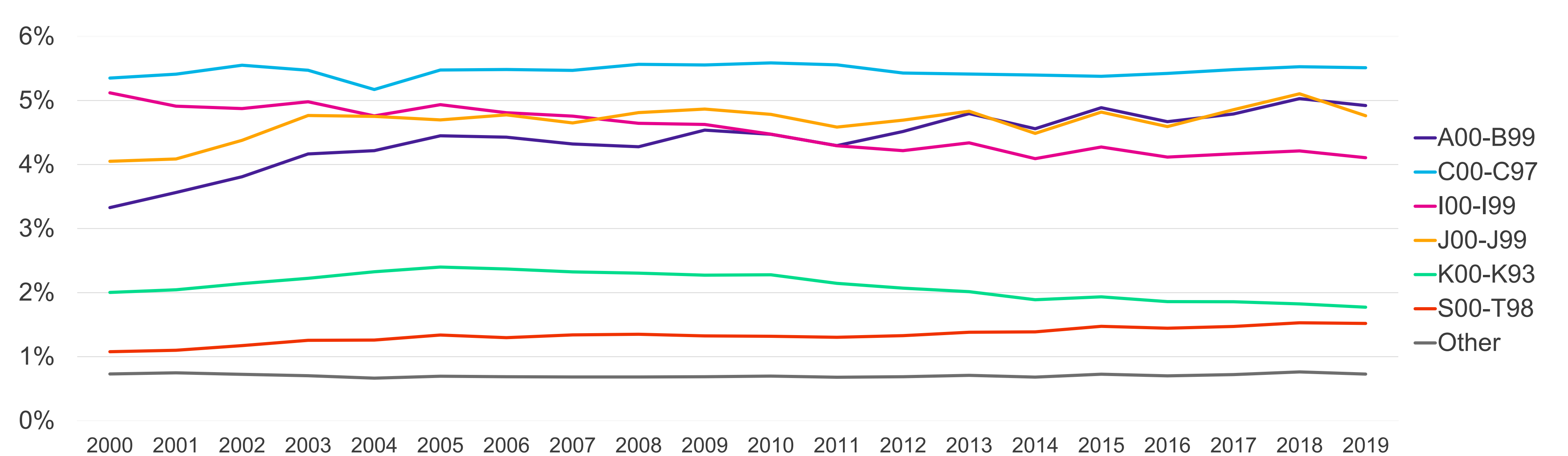


Figure 4. Hospital mortality rates of ICD-10-GM diagnosis groups in German hospitals from 2000 to 2019



Note for all figures: Cases with recorded ICD-10-GM Z-codes are not shown, as these codes represent factors influencing health status or contact with health services, rather than diseases or injuries themselves. Cases with recoded U-codes are not shown, as these codes are used for new diseases of uncertain etiology or emergency. Cases with unknown diagnoses are not shown.

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