**Title:** Trends in the burden of sepsis in Chile and Mexico. A scalable data science-led strategy to allocate resources from the sub-national level in Latin America.

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**Introduction:** Despite recent advances, calculating sepsis incidence and mortality with precision is still an unsolved challenge. For their global perspective, previous studies have relied on estimations and extrapolations rather than on complete official country and regional records to measure the burden of sepsis. However, such approach can be misleading, renders local data suspect, and make sub-national policies to combat sepsis unreliable. We propose and present a novel methodology that uses official death and hospital discharge records as input to a data science algorithm that evacuates sepsis incidence and mortality by country, administrative subdivision, year, sex, age, and individual ICD code, to help shape public policies in health with precision, especially and particularly in low- or middle-income countries (LMIC) of Latin America.

**Objectives:** To determine the burden of sepsis in Chile and Mexico as a whole (countries where vital registration data is deemed as high quality and where records of death and hospital discharge are publicly accessible) and to identify which administrative subdivision exhibits mortality exceeding incidence.

**Methods:** Non-fetal death records, hospital discharges, and population figures, from 2015 to 2023 were retrieved from public government sources. Death and hospital discharge records were extracted using sepsis related ICD-10 codes of immediate cause or primary admission diagnosis, respectively. Age-standardized mortality rate (ASMR) and age-standardized incidence rate (ASIR) were calculated, plotted, and processed, using R version 4.3.3.

**Results:** Sepsis-related ASMR and ASIR are presented for the first time by country, year, sex, age, and administrative subdivision. Individual ICD code ASMR and ASIR are also presented. An at-a-glance heatmap depicting which administrative subdivision exhibits ASMR exceeding ASIR is also presented by individual ICD code.

**Conclusion:** Using data already at disposal, the burden of sepsis in select Latin American countries is displayed in a graphical manner which is easy to interpret by policy makers and the lay public. Our study highlights the significant potential of a data science-led strategy to inform policy decisions to allocate resources where most needed.