



Development of Sepsis Rates and Costs in German Hospitals

C S Hartog, C Fleischmann, K Reinhart
Center for Sepsis Control & Care
University Hospital Jena Germany

Funding & Conflicts of Interest

- Partly Funded by the German Ministry of Education and Research
- No conflict of interest

Research questions

How many cases of sepsis are treated in German hospitals per year?

What is the yearly trend ?

What is the cost of hospital treatment ?

Method

A nation-wide analysis of ICD-10 coded sepsis cases based on German DRG-statistics (diagnosis-related groups statistics)

From 2007 to 2013

Incidence calculated from national population figures according to the German Federal Statistical Office

Mortality based on hospital data and estimates issued by the German Federal Statistical Office

Costs based on data issued by the German Federal (Social) Insurance Office.

Analyses

**Federal statistics: DRG statistics
(= Diagnosis-related groups statistics)**

3 clinical ICD-10 sepsis codes

- *R65.0! (Sepsis) and*
- *R65.1! (Severe sepsis) [2005/2007]*
- *R57.2 (Septic shock) [2010]*

and 23 microbiological ICD-10 sepsis codes (A40, A41, ...)

Sepsis cases and
Hospital mortality

Federal Statistical Office:

Population

Incidence per 100.000

Federal Insurance Office:

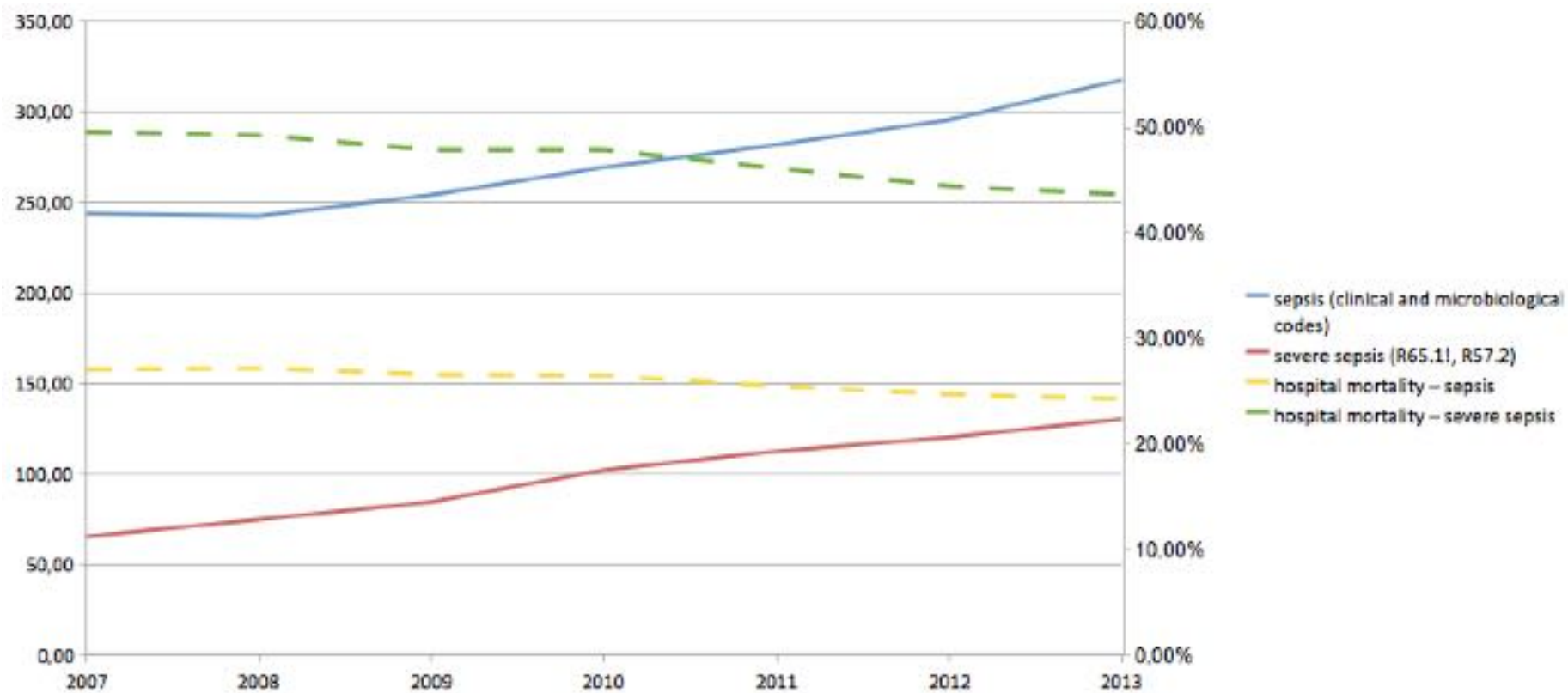
Costs for sepsis (in- and outpatient)

Costs for
hospital-treated sepsis

Results

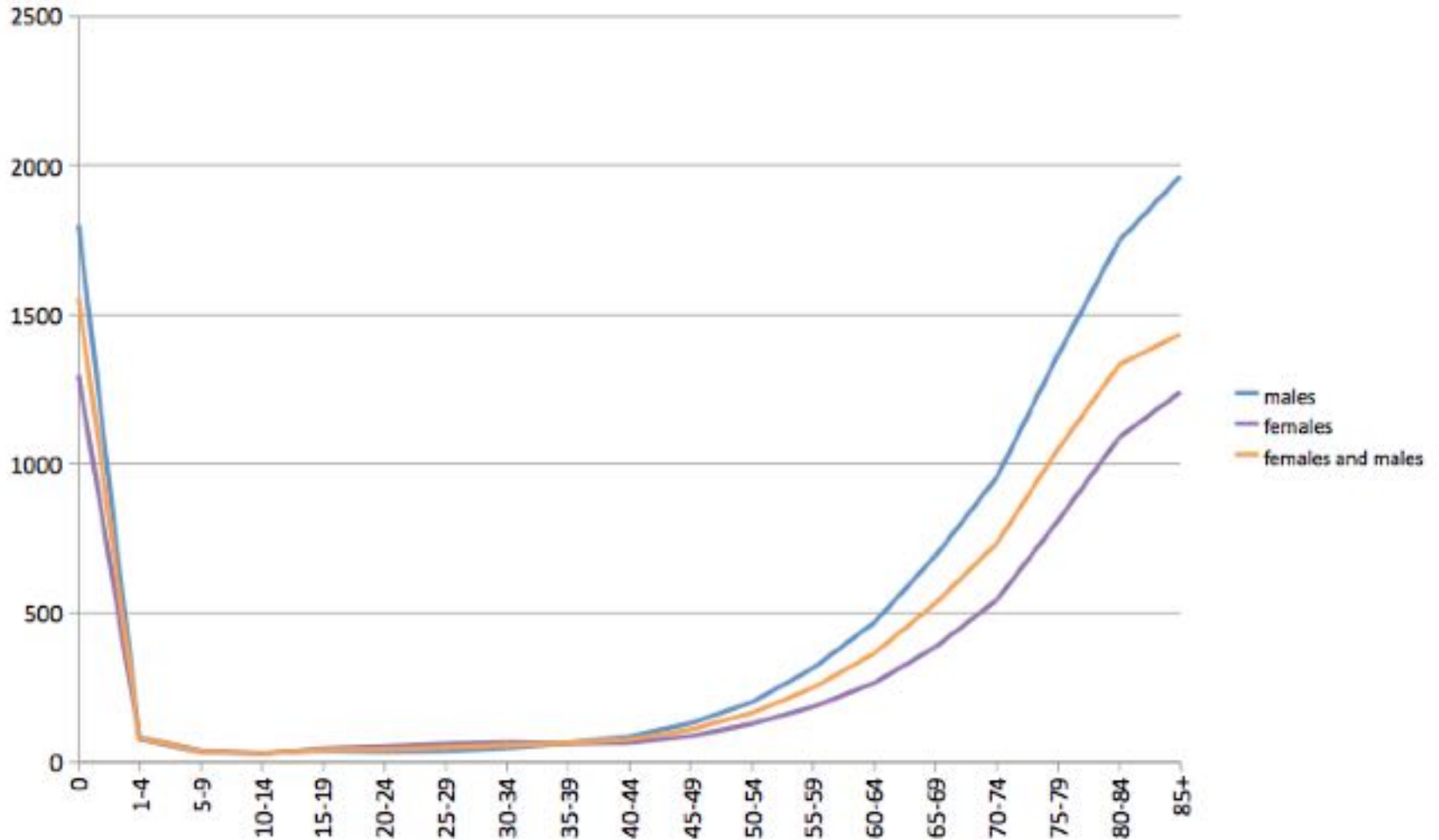
- Sepsis coding increased by overall 5.7% annually from 200 535 auf 279 530 cases. Mortality was 24.3%, resulting in over
- 67 849 deaths per year. Sepsis now ranks third among the causes of death in Germany.
- Sepsis is diagnosed in 1.54% of hospital admissions
- Average direct costs/patient amounted to 27 467 Euros; total costs are estimated at approximately 7.7 billion Euros

Sepsis cases and mortality in Germany, 2007-2013



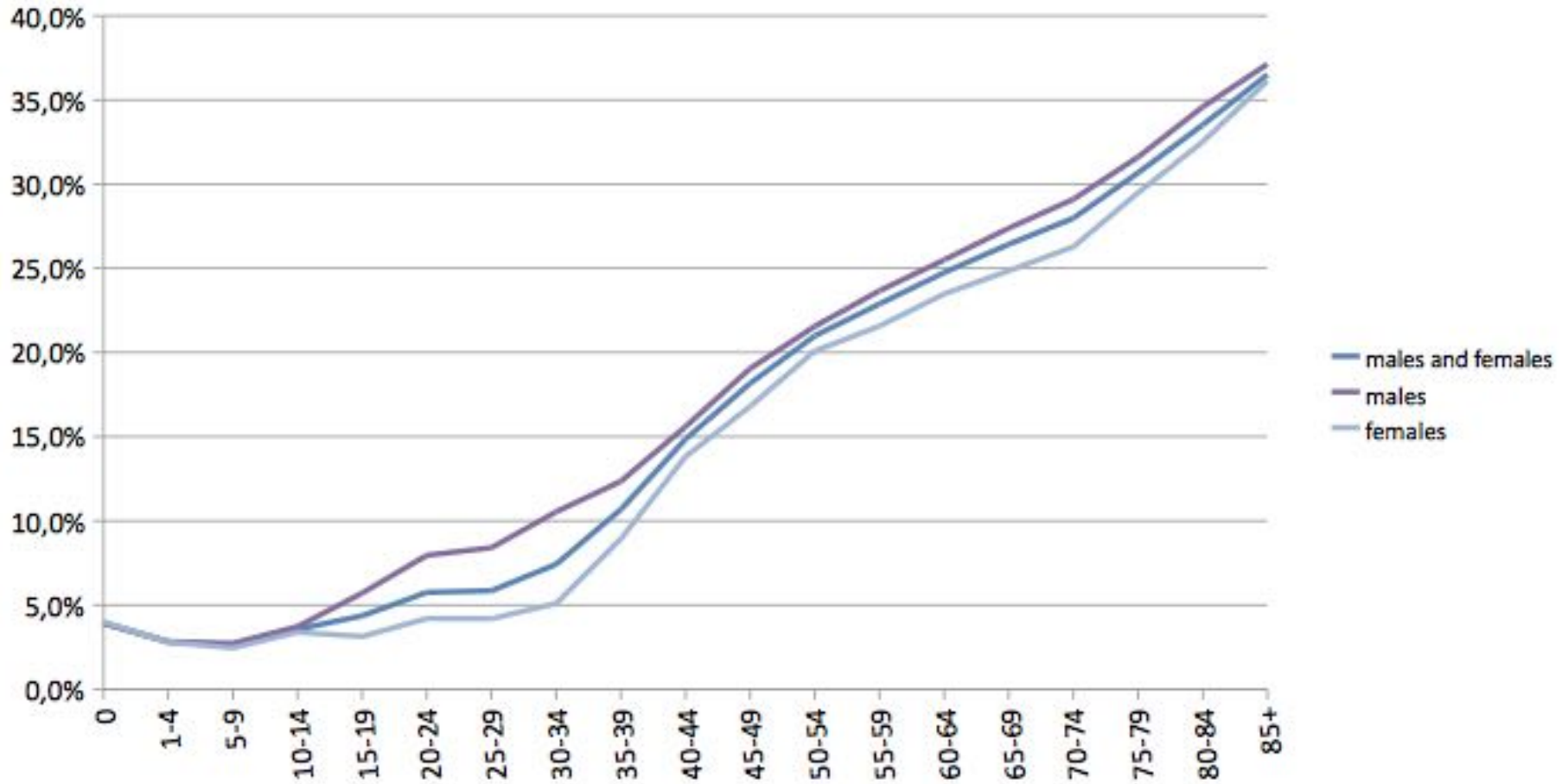
Sepsis incidence is high in infants and elderly

Source: German DRG Statistics, 2007-2013, national estimates



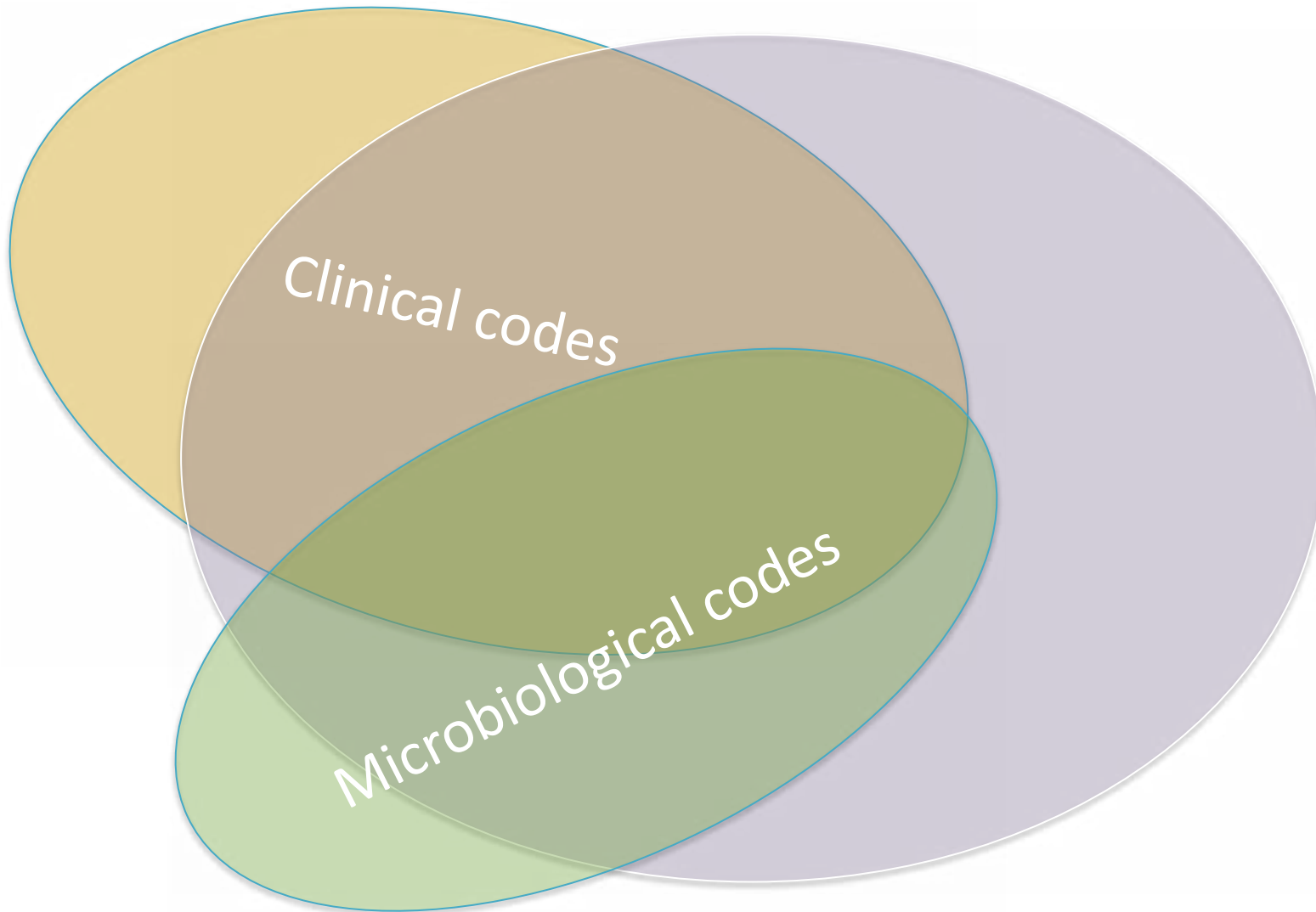
Sepsis mortality increases with age

Source: German DRG Statistics, 2007-2013, national estimates



Discussion:

Estimated „true“ number of sepsis cases



Discussion

- Incidence and mortality of sepsis in Germany are higher than expected
- Incidence is rising yearly
- „True“ number is likely underestimated
- Trans-sectoral quality measures in other countries like U.S. or Australia have resulted in considerable drop in mortality rates
- Similar measures are needed in Germany
- Estimates of sepsis incidence and mortality should be routinely provided by the German Federal Office

Thanks also to....

- Prof. Dr. Michael Hartmann
- Prof. Dr. Tobias Welte
- Dr. med Steffen Heublein
- Dr. med. Thomas–Rueddel Daniel
- Dr. Ulf Dennler
- Anna Schettler, MD