

Clinical and economic burden of pneumococcal disease among adults in Sweden: A population-based register study

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Background

- Pneumococcal disease (PD) refers to infections caused by pneumococcus bacteria and is a major cause of morbidity, mortality, and economic burden worldwide^{1,2}
- The objective of this study was to assess the clinical and economic burden of PD among adult Swedish patients in two age groups (65-74 and ≥75 years)

Methods

- This was a retrospective population-based study conducted using Swedish national registers
- Included patients were aged ≥65 years with a diagnosis of pneumococcal pneumonia, meningitis, and septicemia in inpatient or outpatient specialist (hospital) care from 2015-2019
- Incident PD cases were defined as diagnoses occurring >30 days apart
- The study population was further stratified into cohorts based on age (65-74 and ≥75 years)
- Clinical and economic burden was investigated by estimation of incidence, mortality, healthcare resource utilization (HCRU), and costs associated with PD, and stratified by clinical presentation

Results

- During the study period, 6,717 incident PD cases were identified among 6,334 patients (65-74y: 42.1%, ≥75y: 57.9%)
- Medical risk factors (RF)^a associated with higher risk for severe disease were present in 57% (65-74y: 55%, ≥75y: 58%) of patients

Incidence

- PD incidence was estimated at 52.10 (64-74y) and 85.32 (≥75y) per 100,000 population over the study period (2015-2019)
- Incidence was relatively stable over time in the two cohorts (**Figure 1**). No large difference in incidence between patient group with or without presence of risk factors was observed
- PD incidence corresponds to 2,888 (64-74y) and 3,829 (≥75y) incident cases, of which 92.6% and 96.9%, respectively, required hospitalization

Hospitalizations

- The 30-day average number of hospitalizations/outpatient visits per PD case was 1.24/1.00 (64-74y) and 1.31/0.9 (≥75y)
- For hospitalizations, the mean length of stay (LOS) was 7.77 (65-74y) and 8.78 (≥75y) days. Longest LOS was observed among meningitis patients (65-74y: 12.10, ≥75y: 12.89)

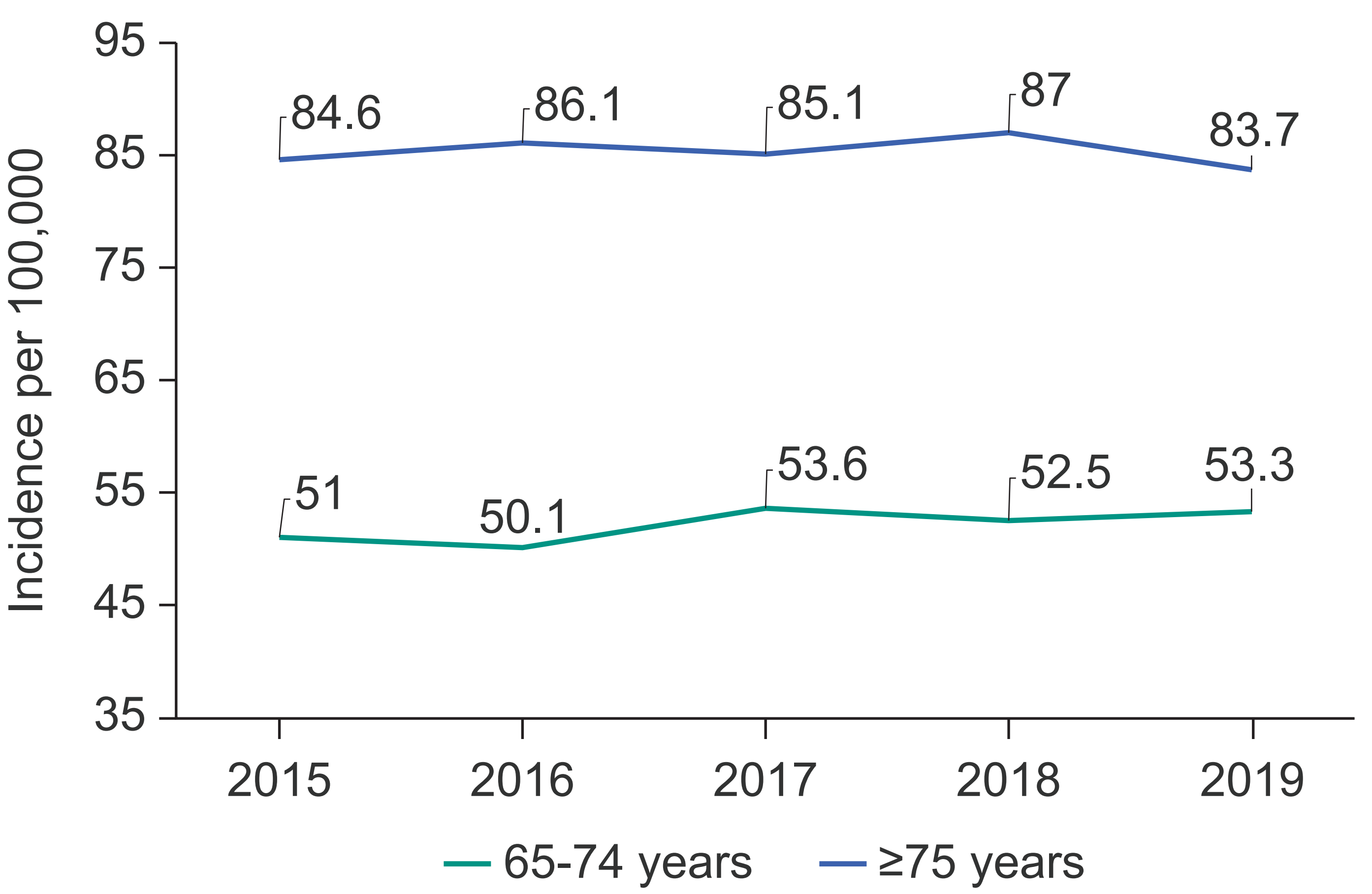
Costs

- The average 30-day cost/case was estimated at €5,011 for hospitalizations and €267 for outpatient visits (65-74y) and €5,657 for hospitalizations and €241 for outpatient visits (≥75y)
- The 30-day total direct cost of PD in inpatient and outpatient care between 2015-2019 was €15.2/€22.6 million (65-74y/≥75y) (pneumonia: 76.6%/81.6%, meningitis: 8.7%/3.4%, septicemia: 14.7%/14.9%)

Mortality

- The 30-day case fatality rate (CFR) (65-74y: 5.4%, ≥75y: 11.7%) increased with age, and was highest among septicemia patients ≥75y (21.4%)

Figure 1. Incidence rate of PD per 100,000 inhabitants, by cohort and risk group



Conclusions

- Incidence of PD was higher for the group aged ≥75 than the 65- to 74-year-old age group
- No large differences in incidence was observed between the patient groups with and without RFs within the 65- to 74-year-old age group
- The 30-day CFR was roughly double in the ≥75-year-old age group compared to the 65- to 74-year-old age group
- Average HCRU and costs were roughly similar between age groups
- Costs associated with PD were largely driven by hospitalization

References

1. Drijckoningen JJC, Rohde GGU. *Clin Microbiol Infect.* 2014;20 Suppl 5:45-51.
2. Ceyhan M, et al. *Hum Vaccin Immunother.* 2016;12(8):2124-2134.

^aIncluded RFs are functional or anatomic asplenia, cerebrospinal fluid leaks, immunosuppression, cochlear implants, cystic fibrosis, organ transplant, chronic cardiac disease, chronic respiratory disease, reduced lung function, chronic liver disease, chronic renal failure, and diabetes mellitus.

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