Burden of Disease Caused by Influenza in Germany: A Retrospective Claims Database Analysis
Jennifer S. Haas1, Peter Wutzler2, Sebastian Braun1
1Xcenda GmbH, 2Institute of Virology and Antiviral Therapy, Jena University Hospital

BACKGROUND
- In recent years, seasonal influenza epidemics have affected approximately 10% to 20% of the world’s population.  
- The impact of a seasonal influenza epidemic on the health care system and the economy, and individuals with a disease disposition.  
- The economic burden of an influenza epidemic is associated with children, the elderly, and individuals with a disease disposition.  
- Given the high annual morbidity, a substantial economic burden arises due to medical costs in the outpatient and inpatient sector and indirect costs caused by productivity losses due to incapacity to work.

OBJECTIVES
- To assess the impact of influenza on the healthcare system and estimate the burden of disease caused by influenza in Germany during the 2012/2013 influenza season.

METHODS
STUDY SAMPLE
- We conducted a retrospective claims data analysis using the Health Risk Institute research database, which contains anonymized data of 3,953,260 individuals (approximately 4.9% of the German SHI population).  
- The study period comprised 1 October 2012 to 30 June 2013, and patients with a documented IDH-16-GID (International Classification of Diseases, 10th Revision, German Modification) code for influenza during the 2012/2013 influenza season were identified.

RESULTS
- We observed 5,615 patients with a documented influenza diagnosis during the 2012/2013 influenza season.
- The highest rates are present in the age group of 2 to 6 years (2.5%). Overall, 1.7% of the SHI population experienced an influenza infection (Table 1).

DISCUSSION
- In Germany, direct and indirect medical costs of diseases caused by influenza viruses have been estimated to be 1 to 2.5 million euros per patient.  
- The most recent data for the 2012/2013 influenza season are based on the epidemiological report from the German influenza sentinel system (ASI) of the Robert Koch Institute (RKI).
- In total, based on Influenza Protection Act (IFSG), 60,883 laboratory-confirmed acute influenza cases were reported. As our method is based on retrospective claims data analysis, a total of 1,185,636 cases (1,191,646 after extrapolation), which are only partly comparable. The RKI states that only a small number of patients with influenza-like symptoms are laboratory-tested and an underestimation of the IFSG is to be expected.  
- Sentinel estimations resulted in 7.7 million excess outpatient consultations, which is in line with our results (2.7 million influenza-related outpatient visits) and 4.3 million excess cases of incapacity to work, whereas the lower number in our study population (2.8 million) may be due to the AstraZeneca Germany support.  
- Finally, the calculated relative frequency of otitis media in our study is in line with published literature.  

CONCLUSION
- The assessment of resource use and cost resulted in total cost for the 2012/2013 influenza season of €368,502,485 based on the SHI population. The highest direct costs were calculated for outpatient care (€238,904,288), followed by inpatient care (€87,202,482) and pharmaceuticals (€61,946,172).  
- The results of our retrospective analysis suggest an increased disease burden of influenza for children aged between 0 and 17 years and increased disease burden of influenza for children aged between 2 and 6 years.  
- Results suggest that the calculated low cost of influenza vaccination, a higher vaccination rate might lower the disease burden for children and individuals with a disease disposition and decrease the seasonal cost of influenza from a health insurance perspective.

REFERENCES

Presented at ISPOR 17th Annual European Congress  |  Amsterdam, The Netherlands

The data analysis was performed in cooperation between Xcenda and Elixiir Health Analytics with friendly support from AstraZeneca (Germany).