



# Value IN HEALTH

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risk-adjustment. Furthermore, we have a ZIP-code for each patient and the exact address for every hospital. Addresses of hospitals and the centroids of all German ZIP codes were geo-coded. For the empirical analysis, we use multiple logistic regression analysis. We supplement our analysis by showing changes in access to hospitals if a minimum volume standard is introduced. **RESULTS:** Patients with hip fracture who are treated in hospitals with less than 58 cases per year have an average probability of death of 5.1% compared to an average mortality of 3.1% for patients who are treated in hospitals with more than 151 cases. For patients with AAA the case volume effect is lower. However, compared to patients treated in hospitals with less than 15 cases per year, the average probability of death for patients treated in hospitals with more than 68 cases is 1.0 percentage points less. We show that minimum volume standards seem possible without compromising overall access. **CONCLUSIONS:** The estimation results suggest that around 380 deaths could have been presumably avoided, if around 20,000 patients in the smallest hospitals would have been treated in the largest hospitals instead. Furthermore, we show that minimum volume standards do not compromise overall access measured in travel times. However, to ensure an adequate access in all areas, a few "sole providers" in some regions seem necessary.

## PCV162

#### THE SHORT-TERM IMPACT OF PARTICULATE MATTER EXPOSURE ON THE RISK OF PRESCRIPTION OF CARDIORESPIRATORY DRUGS IN ITALY

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**OBJECTIVES:** Drug prescriptions recorded in health care administrative databases (HADs) can be an indicator of moderate health outcomes (undetected through hospitalization or death registries) correlated to particulate matter (PM) exposure. This study is aimed at assessing the short-term effect of PM<sub>10</sub> exposure on the risk of cardiorespiratory drug prescription in Lombardy, a region in northern Italy. **METHODS:** For each resident in seven cities of Lombardy, we identified all prescriptions of selected respiratory, cardiovascular and antidiabetic treatments recorded during 2005-2006 in data warehouse DENALI, which gathers HADs of Lombardy health system. The Regional Environmental Protection Agency of Lombardy provided time-series of daily mean PM<sub>10</sub> concentration. We applied a time-stratified case-crossover design matched by day of week and fitted separate Cox proportional hazard models for each respiratory and cardiovascular treatment. Confounding was accounted for using a method, which we developed, based on the time-series of prescription of antidiabetics. Analyses were replicated for delayed effects of PM up to 6 days and for warm and cold season. **RESULTS:** The study area counted 470,300 residents, requiring 655,805 prescriptions. Mean PM<sub>10</sub> concentration was 48µg/m<sup>3</sup> (SD 32µg/m<sup>3</sup>). Overall, we estimated that rises in PM<sub>10</sub> concentration were associated with an immediate increment in the risk of prescription of inhalant adrenergics (0.32% for increments of 10µg/m<sup>3</sup> in PM<sub>10</sub> concentration; 95%CI:0.00,0.65), antiarrhythmics (0.52%; 95%CI:0.16,0.87) and nitrates (0.51%; 95%CI:0.27,0.76). Increased PM<sub>10</sub> exposure was also positively associated with the prescription of inhalant glucocorticoids during the warm season and of inhalant adrenergics, antiarrhythmics and nitrates during the cold season. **CONCLUSIONS:** The significant association that we detected between PM concentration and drug prescriptions suggests that PM exposure may impact public health not only through severe but also through moderate adverse events. Further investigation is needed and given the usual difficulty retrieving information on moderate outcomes, HADs represent a valuable data source.

## PCV163

#### HYPERCHOLESTEROLEMIA'S BURDEN OF DISEASE IN PORTUGAL

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**OBJECTIVES:** To estimate the impact of hypercholesterolemia (HYP) on population health in Portugal. **METHODS:** We estimate the Disability Adjusted Life-Years (DALY) attributable to HYP in 2010. The DALY include both years lost to premature death and years lost to disability. HYP is a risk factor for Acute Myocardial Infarction (ICD 9 410), other Coronary Heart Diseases (ICD 9 411-414) and for Ischemic Stroke (ICD 9 433-434). In order to estimate the attributable fractions to HYP of the diseases considered a microsimulation approach was used by using Framingham equations on data from individual observations in the VALSIM database. A total cholesterol equal to the mean for observations above 200 mg/dL was imputed to all individuals under statin treatment. In a counterfactual scenario HYP was eliminated (reducing total cholesterol to 200 mg/dL and increasing HDL to 40 mg/dL in all cases with HYP). The resulting proportional change in the probability of events was taken as the HYP attributable fraction of the diseases studied. **RESULTS:** In Portugal the prevalence of HYP in 2010 was estimated at 55.5% of the population over 18 (56.7% male and 54.5% female). In 2010 there were 1689 deaths attributable to HYP. This number can be broken down by gender (640 males and 1050 females) or by disease (481 from Acute Myocardial Infarction, 235 from other ischemic heart disease and 974 from ischemic stroke). DALY for premature death were estimated at 7263, and DALY for disability at 8239. Of the total 15502 DALY attributable to HYP 6132 were for ischemic stroke and 9369 for coronary disease. Gender decomposition of this total was 8012 for males and 7489 for females. **CONCLUSIONS:** The analysis suggests that HYP is an important cause of disease burden in Portugal and that it should remain a major target for health policy interventions.

## PCV164

#### UTILIZATION OF ROUTINE DATA FOR REGIONALIZED EPIDEMIOLOGY IN AUSTRIA - THE EXAMPLE OF ISCHEMIC HEART DISEASE (ICD9 410-414)

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**OBJECTIVES:** Monitoring the performance of the health care system requires timely and robust information highlighting the burden of disease on a regional

level. The development of the performance measures over time may be attributed to changes in organization and management of the system. **METHODS:** As routine data the ATHIS 2006/2007 (a standardized health interview survey), the cause of death registry 2006 and 2007, the hospital discharge datasets from the Austrian DRG system 2006/2007 (KDok/DLD) and diagnoses for the outpatient sector derived from pharmaceutical claims data 2006/2007 (ATC→ICD) - are used to describe the burden of disease regarding Ischemic Heart Disease (ICD9 410-414) with different regional granularity. Methods and results are compared with epidemiological data extracted from a literature search on this topic. To explore the similarity of the results of these different methods of measurement a systematic review of regional correlation is being elaborated. Correlations pointing to a high analogy of the findings in spite of the differences in dimensions measured on the one hand and contra intuitive correlations on the other hand were further explored. **RESULTS:** The review of regional correlation indicates promising close links between the burden of disease derived from ATC→ICD, ATHIS and cause of death registry data. Hospital discharge data, however, show some contra-intuitive relations towards the other data sets. **CONCLUSIONS:** The use of routine data yields promising opportunities for monitoring the Austrian health care system in a timely and comprehensible way. It enables different aggregation levels regarding regions and periods and leads the way to further research addressing underlying causes for the observed regional variation. The methodology can be transferred to other areas of diseases.

## PCV165

#### ASSESSING THE IMPACT OF ORGANIZED SCREENING FOR ABDOMINAL AORTA ANEURYSMS IN AUSTRIA - FOLLOWING EUNETHTA CORE INFORMATION

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**OBJECTIVES:** Abdominal Aorta Aneurysms (AAAs) refers to distension of the abdominal aorta. It is a common disease among 65+ year old people with increasing importance due to overageing of the population. Currently, AAAs in Austria are only incidentally detected and due to its asymptomatic course often overlooked therefore the impact of an organized screening program in Austria was evaluated. **METHODS:** An agent based simulation model for Austria's population was developed. Each agent represents a person which has an individual development of its aorta depending on age, sex, and smoking habits. Identification of risk factors and parameterization of the model was performed in the IFEDH project (FFG grant number 827347). The observed persons are 65 years old at simulation start and the observed time horizon is 20 years. The chosen screening strategy which is compared to current practice corresponds to the EUnetHTA scheme with an assumed 40% participation. **RESULTS:** Events like ruptures, deaths or treatment are recorded and accumulated over the whole simulation time. Additionally, because many figures of the model depend on probabilities, the point in time when patients benefit from the intervention with 95% probability is calculated. Ruptures are reduced from 786 to 531, death cases from 571 to 433 whereas the costs per life year gained are about 7500 €. Significant differences can be observed after about four years. Although incidence is much higher among men, it is remarkable that screening is more cost-effective for women due to higher risk of rupture and life expectancy. **CONCLUSIONS:** The agent based simulation model allows detailed analysis of groups with specific properties, e.g. smokers, other age groups and different screening strategies. It also allows decision makers to estimate when the impact of the intervention, in this case organized screening, can be observed or measured within the real population.

## PCV166

#### ADDED VALUE AND FUTURE ADOPTION OF A NEW MEDICAL IMAGING TECHNOLOGY FOR INTERVENTIONAL CARDIOLOGY

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**OBJECTIVES:** To estimate the potential added value of an ultrasound-fluoroscopy fusion technology and to support product development and marketing positioning of the technology in interventional cardiology, using a combination of research methods. **METHODS:** Stakeholder analysis was carried out to determine the professionals involved in the adoption process. Literature search indicated which procedures could benefit most from the imaging technology. Subsequently, the current workflow and associated resource use of those procedures was compared with the expected workflow after potential technology adoption. Decision criteria to adopt the new imaging technology were evaluated with the analytical hierarchy process (AHP). Finally, a value based pricing approach was used to estimate the value of the technology to specific types of hospitals. **RESULTS:** Intervention cardiologists were identified as key stakeholders in the adoption of technology. The AHP showed that reduction in complication rates is the most important criterion for adopting a new imaging technology, whereas the purchase price seemed less important. Various procedures could benefit from the new technology, as this may shorten procedural times and facilitate communication between intervention cardiologists and imaging professionals. Value based pricing analysis showed that cost savings could be expected as a result of reduced procedure times, especially in centers of expertise with medium to high procedure volumes. **CONCLUSIONS:** The ultrasound-fluoroscopy fusion technology can provide added value in specific cardiac interventions, especially in hospitals with medium to high procedure volumes. Early assessment of potential added value and adoption criteria timely and effectively supported the product development phase. It informed various decision makers on the factors influencing the expected value of and uncertainties surrounding a future adoption of the technology.

## PCV167

#### DIVERGENCE OF HTA DECISIONS ACROSS COUNTRIES: CASE ANALYSIS OF IVABRADINE

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