

**OBJECTIVES:** Before 2006 bed occupancy rates during winter periods were above the good management threshold (85%) in Jessa Hospital paediatric ward (Hasselt, Belgium), with peaks above 100%. This causes pressure on bed and people management expressed in bad QoC scores. We evaluated two methods to improve the scores and their investment costs. **METHODS:** Option A is extending the number of paediatric beds until the unit operates under the 85% threshold during the whole winter season. Option B is introducing rotavirus vaccination to infants with high coverage in the catchment area. A hospital with 36 paediatric beds was selected as pilot design. Bed occupancy rates/day over a period of 6 years (2004-2009) were collected, including pre- and post-introduction of the vaccine in 2006. Estimated birth cohort was 7,000/year in the catchment area. For Option A total cost per year was calculated referencing to the observed pre-vaccination period. For Option B cost of vaccinating the birth cohort with implications on hospital savings was calculated applying the observed post-vaccination period. Total cost per year for each option was compared. **RESULTS:** Option A: extending hospital ward with 4 extra beds to remain under the threshold, costs about €436,000/year and the threshold may still sometimes be exceeded. Option B: vaccination program in the area costs €420,000/year, leading to a 41% reduction in the number of bed-days for gastro-enteritis during the winter, equivalent to €82,000/year of cost offsets. Total cost of Option B is therefore €338,000/year with an overall 82% bed occupancy rate/day, being below the threshold throughout winters. **CONCLUSIONS:** Option B with vaccination is cheaper than option A with extra beds. Moreover it maintains the occupancy rate below the safety threshold during the whole winter period, and thus guarantees better QoC scores in the pediatric ward.

## PIN120

## COST-EFFECTIVENESS ANALYSIS OF PHID-CV ROUTINE VACCINATION PROGRAMME COMPARED TO PCV-13 IN PORTUGAL

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**OBJECTIVES:** To estimate the incremental cost-effectiveness ratio (ICER) of the pneumococcal non-typeable Haemophilus influenzae protein D conjugate vaccine (PHiD-CV) compared to the 13-valent pneumococcal conjugate vaccine (PCV-13) in routine infant vaccination in Portugal. **METHODS:** The cost-effectiveness analysis (CEA) is based on a Markov model simulating meningitis, bacteraemia, pneumonia and acute otitis media (AOM) in a Portuguese birth cohort until 10 years of age. CEA is performed from the National Health Service (NHS) perspective with 5% discounting on both costs and effects. The model has been parameterized using local serotype distribution, disease incidence and direct medical costs. Disability weights come from international published literature and vaccine efficacy assumptions come from large randomized controlled trials. Model parameters have been validated by a panel of experts. Base case scenario assumes vaccination in a 2+1 schedule at 2, 4 and 12 months of age with 95% coverage. One-way and probabilistic sensitivity analyses were carried out to identify most influential parameters and estimate conjoint parameter uncertainty, respectively. **RESULTS:** Assuming both vaccines have the same price, the model predicts that PHiD-CV is the dominant intervention resulting in a health gain of 7 Quality-Adjusted Life Years (QALYs) and a saving of 332,151€ over PCV-13 (ICER = -45,216€/QALY). One-way sensitivity analysis shows ICER is very sensitive to efficacy against Streptococcus pneumoniae and Haemophilus influenzae, general practices visits and disability, all related to AOM. The probabilistic sensitivity analysis confirms the robustness of our results with 93% of simulations showing that PHiD-CV ICER is below €30,000/QALY compared to PCV-13. **CONCLUSIONS:** Using PHiD-CV in the routine vaccination program for children in Portugal could generate more health benefits and savings for NHS, even when considering parity price versus PCV-13. These savings could then be used to implement other public health measures such as a catch-up program to reduce inequalities in older cohorts.

## RESEARCH POSTER PRESENTATIONS – SESSION IV

## DISEASE – SPECIFIC STUDIES

## DIABETES/ENDOCRINE DISORDERS – Clinical Outcomes Studies

## PDB1

## RISK OF NEW-ONSET DIABETES ASSOCIATED WITH CONCOMITANT ANTIDEPRESSANT, INHALED CORTICOSTEROIDS, AND STATIN USE AMONG MEDICAID BENEFICIARIES WITH COPD

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**OBJECTIVES:** Multiple medication use is common among individuals with Chronic Obstructive Pulmonary Disease (COPD). Specifically, use of antidepressants, inhaled corticosteroids (ICS), and statins may place individuals with COPD at high risk for new-onset diabetes. We examined the relationship between use of medications (antidepressants, ICS, and statins) and new-onset diabetes among Medicaid beneficiaries with COPD. **METHODS:** We used a retrospective longitudinal dynamic cohort design using multiple years (2005-2008) of Medicaid claims of beneficiaries with newly diagnosed COPD (n = 15,287). We identified receipt of antidepressants, ICS, and statins using National Drug Codes (NDC) and new-onset diabetes using International Classification of Diseases-9th-Clinical Modification (250.x2) codes. Chi-square tests of independence and multivariate logistic regressions were used to examine the relationship between medication use and new-onset diabetes. Instrumental variable approach was used to control for selection bias in statin use. We conducted analysis using SAS v. 9.3 and STATA v11. **RESULTS:** Among Medicaid beneficiaries with newly-diagnosed COPD, 6.3% had new-onset diabetes. After controlling for baseline characteristics, adults with ICS (AOR: 1.23; 95% CI: 1.07, 1.47) and statins (AOR: 1.48; 95% CI: 1.27, 1.72) had greater risk of new-onset diabetes

compared to those without ICS and statins. However, analyses using combined medication categories revealed that only adults with statin use in combination with antidepressants and ICS or ICS alone were more likely to have new-onset diabetes. Instrumental variable adjusted regression which controlled for selection bias in statin use revealed no significant association between statin use and new-onset diabetes. **CONCLUSIONS:** Our study results suggest that multiple medication use (antidepressants, ICS and statins) was not associated with new-onset diabetes. However, as individuals with COPD are at higher risk of developing new-onset diabetes due to shared risk factors, further research with longer follow-up and randomized design is required to evaluate the safety of these medications.

## PDB2

## THE ASSOCIATION OF WAIST CIRCUMFERENCE AND MICROVASCULAR COMPLICATIONS IN DIABETIC PATIENTS IN AN ASIAN POPULATION

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**OBJECTIVES:** The aim of the study was to explore the association of waist circumference with microvascular complications in Malaysian patients with type 2 diabetes. **METHODS:** We utilised data of type 2 diabetes patients followed up in Malaysian public sector primary care clinics contained in the National Diabetes Registry in the year 2012. Variables of interest were the presence of microvascular complications, namely nephropathy and retinopathy. Multiple logistic regression was used to explore the association between presence of microvascular complications and waist circumference, which was adjusted for age, sex, duration of diabetes, systolic blood pressure, insulin use, total cholesterol and HbA1c. **RESULTS:** A total of 114,719 patients with type 2 diabetes were included in the study. The mean age of patients was 59.8 years (SD: 11.2) with mean duration of diabetes of 6.8 years (SD: 5.1). Male patients comprised 39.9% of the sample population and 83.5% of the patients were overweight with BMI  $\geq 23$  kg/m<sup>2</sup>. Nephropathy and retinopathy was present in 9.1% and 7.9% of patients respectively. The mean waist circumference was 94.1 cm (SD: 11.8) for males and 90.8 cm (SD: 11.8) for females; while 78.4% of the patients had waist circumference above the cut off ( $\geq 90$  cm for men and  $\geq 80$  cm for women). Larger waist circumference was found to be significantly associated with nephropathy (adj. OR 1.005; p-value < 0.001; 95% CI: 1.003–1.008) after adjusting for confounding factors. However, waist circumference was not significantly associated with retinopathy (adj. OR 0.998; p=0.209; 95% CI: 0.996–1.001). **CONCLUSIONS:** Analysis showed that patients with higher waist circumference were more likely to have nephropathy than patients with lower waist circumference. The analysis also showed that waist circumference was not associated with retinopathy in the study population.

## PDB3

## RELATIONSHIP BETWEEN GLYCAEMIC BURDEN AND MICRO- AND MACROVASCULAR COMPLICATIONS IN PATIENTS WITH TYPE 2 DIABETES MELLITUS: A REAL-WORLD STUDY IN THE PHARMO DATABASE NETWORK

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**OBJECTIVES:** The relationship between glycaemic burden and micro- and macrovascular complications among patients with type 2 diabetes mellitus (T2DM) was investigated using real-world data. **METHODS:** T2DM patients aged 40 to 84 years and receiving antihyperglycaemic agents (AHAs) during the analysis period (2004-2013) were selected from the PHARMO Database Network. All HbA1c measurements between the first AHA prescription (index date) recorded and end of follow-up (i.e., end of database registration, death, or end of study period, whichever occurred first) were used to assess glycaemic burden. Glycaemic burden was defined based on the extent and duration that HbA1c values exceeded a threshold of 7% (53 mmol/mol) and was expressed as glycaemic burden years (GBY). The relationship between GBY and microvascular (including retinopathy, diabetic foot, nephropathy) and macrovascular (including coronary artery disease [CAD], cerebrovascular disease) complications were analysed using a time-dependent Cox proportional hazards model, with glycaemic burden entered in each regression as a categorical variable with four levels (no burden [reference], 0- $\leq 1$  GBY,  $>1-\leq 3$  GBY, and  $>3$  GBY). **RESULTS:** A total of 34,153 T2DM patients were included; mean ( $\pm$ standard deviation) age at index date was 66 ( $\pm 11$ ) years and 53% were male. As compared to patients with no GBY, patients with GBY (0- $\leq 1$  GBY,  $>1-\leq 3$  GBY, and  $>3$  GBY) had a significantly higher risk of developing retinopathy (hazard ratio [HR]: 1.38, 1.76, and 2.22, respectively), diabetic foot (HR: 1.08, 1.24, and 1.55, respectively), nephropathy (HR: 1.11, 1.16, and 1.14, respectively), and cerebrovascular disease (HR: 1.16, 1.28, and 1.36, respectively). For CAD, a significantly higher risk was found only for patients with  $>1-\leq 3$  GBY and  $>3$  GBY (HR: 1.12 and 1.32, respectively). **CONCLUSIONS:** Results of this study show that GBY is an important predictor of micro- and macrovascular complications and thus may be important to consider in T2DM management.

## PDB4

## EXENATIDE ONCE WEEKLY PLUS METFORMIN FOR THE TREATMENT OF TYPE 2 DIABETES MELLITUS: A NETWORK META-ANALYSIS OF RANDOMISED CONTROLLED TRIALS

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**OBJECTIVES:** A network meta-analysis (NMA) was conducted to estimate the relative efficacy and tolerability of exenatide 2mg once-weekly (EQW), a glucagon-like peptide-1 receptor agonist (GLP-1 RA), compared to other GLP-1 RAs for the treatment of adult patients with type 2 diabetes mellitus (T2DM) not adequately controlled on metformin (MET). **METHODS:** A systematic literature review was