in reducing antibiotic exposure in adult ICU patients with sepsis, compared to current practice in The Netherlands (NL), Germany and the UK. The reduction in antibiotic days as achieved by a PCT-algorithm is important given the rise in antibiotic resistance (ABR). Prolonged antibiotic duration affects the incidence of ABR and C. difficile infections (CDI), in this population amounting to 4.7% and 4.6% per hospital episode, respectively. We estimated the additional indirect cost savings of PCT-testing by considering excess length of stay (LOS) due to ABR and CDI. **METHODS:** Health economic consequences of a PCT-algorithm vs. current practice are analysed from a societal perspective using a decision tree. Input data were obtained from a systematic literature review and country-specific cost data sources. Effects of reduced duration of antibiotic therapy on ABR and CDI incidence and expected cost savings of a PCT-strategy were estimated for NL. Cost-effectiveness is expressed as incremental costs per antibiotic day avoided. **RESULTS:** Excess LOS due to ABR and CDI is 4.6 days and 0.9 days per patient respectively. Shorter duration of antibiotic therapy, as achieved by a PCT-algorithm, decreases ABR and CDI incidence to 4.5% and 3.9%, respectively. Including ABR and CDI costs in the analyses increases per-patient costs in both strategies, but less so for the PCT-algorithm. As a result, incremental cost savings of a PCT-algorithm compared to current practice increase with €290 (from €3,503 to €3,793 per patient) when considering ABR and CDI. This further strengthens the dominance of the PCT-algorithm (ICER: -€2,231 per antibiotic day avoided). **CONCLUSIONS:** By reducing ABR and CDI incidence, a PCT-algorithm is expected to generate substantial indirect cost savings beyond direct health and economic impacts in ICU patients with sepsis.

PMD50

CLINICAL-ECONOMIC MODELING ANALYSIS OF HUMAN PAPILLOMAVIRUS (HPV) CO-TESTING WITH GENOTYPING VERSUS PRIMARY HPV TESTING FOR CERVICAL CANCER SCREENING

Felix JC[1], Lacey MJ[2], Miller JD[2], Lenhart GM[2], Kulkarni R[2]
[1]*Keck School of Medicine, University of Southern California, Los Angeles, CA, USA,* [2]*Truven Health Analytics, Cambridge, MA, USA*

OBJECTIVES: Consensus US cervical cancer screening guidelines recommend use of co-testing (combination Pap plus HPV testing) for women aged 30-65 years. Though not currently recommended by US guidelines, an HPV test was approved by the FDA in 2014 for primary cervical cancer screening in women 25 years and older. In this study, we perform clinical-economic comparisons of co-testing with genotyping (Co-test GT) versus primary HPV with genotyping and reflex cytology (HPV GT) for cervical cancer screening. **METHODS:** A health state transition (Markov) model with one-year cycling was developed using epidemiologic, clinical, and economic data from healthcare databases and published literature. A cohort of one million women receiving triennial cervical cancer screening was simulated from ages 30-70 years. Screening strategies compared HPV GT to Co-test GT. Outcomes included total and incremental differences in costs, invasive cervical cancer (ICC) cases, ICC deaths, and quality-adjusted life years (QALYs) for cost-effectiveness calculations. Comprehensive sensitivity analyses were performed. **RESULTS:** In a simulation cohort of one-million 30-year-old women modeled up to age 70, the model predicted as many as 2,141 ICC cases and 2,040 ICC deaths could be prevented with Co-test GT versus HPV GT. Co-test GT demonstrated a greater number of lifetime QALYs (22,334) and yielded $36.1 million in savings compared with HPV GT, thereby conferring greater effectiveness at lower cost. Applying this model to the cross-section of 78.9 million US women aged 30-70 years predicts nearly 150,000 ICC cases and more than 100,000 ICC deaths could be avoided with Co-test GT versus HPV GT, representing cost savings of approximately $4 billion over 40 years. **CONCLUSIONS:** Model results demonstrate that co-testing with genotyping provides superior clinical and economic outcomes when compared to primary HPV testing with genotyping and reflex cytology. These findings are important to US healthcare payers and women's health policy advocates seeking cost-effective cervical cancer screening technologies.

PMD51

RECURRENT LARYNGEAL CARCINOMA PET STUDY (RELAPS): COST ANALYSIS OF 18F-FDG PET IN PATIENTS WITH SUSPECTED RECURRENT LARYNGEAL CANCER PREVIOUSLY TREATED WITH RADIOTHERAPY

Zaim R[1], van der Putten L[2], de Groot S[1], van Tinteren H[3], Boers M[2], Comans E[2], van der Laan B[4], Janssen L[5], Takes R[6], van den Brekel M[3], Oyen W[6], Valdés-Olmos R[3], Hobbelink M[5], Wedman J[4], Leemans C[2], Hoekstra O[2], de Bree R[5], Uyl-de Groot C[1]
[1]*Erasmus University, Rotterdam, The Netherlands,* [2]*VU University Medical Center, Amsterdam, The Netherlands,* [3]*Netherlands Cancer Institute,Antoni van Leewenhoek Hospital, Amsterdam, The Netherlands,* [4]*University Medical Center Groningen, Groningen, The Netherlands,* [5]*University Medical Center Utrecht, Utrecht, The Netherlands,* [6]*Radboud University Medical Center, Nijmegen, The Netherlands*

OBJECTIVES: The aim of this study was to investigate the potential benefits and cost consequences of introducing 18F-Fluorodeoxyglucose Positron Emission Tomography (18F-FDG PET) in the diagnostic work-up of patients with suspected recurrent laryngeal cancer after radiotherapy. **METHODS:** REcurrent LAryngeal carcinoma PET Study (RELAPS), a prospective multicenter randomized controlled trial, recruited 150 patients from eight head and neck cancer centers in the Netherlands and one center in Belgium. Two diagnostic algorithms were compared to the reference standard: (1) Conventional work-up (CWU); direct laryngoscopy with biopsy under general anesthesia, and (2)18F-FDG PET work-up (PWU) followed by laryngoscopy; only for positive or equivocal findings. Standard reference comprised histopathology and clinical follow-up of 6- and 12-months, respectively. Diagnostic performance of 18F-FDG PET and indication of unnecessary operations were efficacy measures. Dutch healthcare perspective was used to obtain input parameters from hospital databases, patient records, literature and publicly available sources. Costs were expressed in 2014 Euros. Sensitivity analysis was performed. **RESULTS:** Indication for direct laryngoscopy was classified unnecessary in 49 CWU patients (68%, 95%CI: 56-79) compared to 21 PWU patients (28%, 95%CI: 18-40) (p<0.0001). The absolute difference between groups at 12-months was 40%. 18F-FDG PET had a sensitivity of 96% (95%CI, 78%-100%), specificity of 59% (95%CI, 44%-72%), a positive predictive value of 52% (95%CI, 37%-68%) and a negative predictive value of 97% (95%CI, 83%-100%). Results at 6-months follow-up were similar. Total mean medical costs per patient for PWU and CWU were €11,302 and €11,784 (6-months), and €12,670 and €13,776 (12-months), respectively. The incremental costs were in favor of the PWU patients (€482 (6-months), €1,105 (12-months)). Sensitivity analyses showed that the most influential parameters were hospitalization, treatment-related operations and cost of PET. **CONCLUSIONS:** The introduction of 18F-FDG PET in the diagnostic trajectory of laryngeal cancer patients with suspected recurrence after radiotherapy is feasible, safe and favorable from clinical and economic perspectives.

PMD52

THE ECONOMIC BURDEN OF CARDIAC COMPLICATIONS OF PERCUTANEOUS CORONARY INTERVENTION IN ENGLAND: AN ANALYSIS OF HOSPITAL EPISODE STATISTICS

Gidman WK[1], Burke T[1], de Belder MA[2], Hughes D[1]
[1]*HCD Economics, Daresbury, UK,* [2]*The James Cook University Hospital, Middlesbrough, UK*

OBJECTIVES: Percutaneous Coronary Intervention (PCI) reduces the morbidity and mortality associated with Coronary Artery Disease. However up to a third of patients experience cardiac complications, in the year after PCI. Unplanned and emergency admissions are costly to the health service. This study aimed to use real-world administrative data to explore the costs of post-PCI complications to secondary care providers in England. **METHODS:** Patients who received PCI in England between March and December 2011 were identified from Hospital Episode Statistic (HES) data. Treatment costs to secondary care were estimated using Payment by Results coding in the HES data set. All cause and cardiac complication related bootstrapped mean health-care costs were estimated at 12months, 24 months and 36 months post-PCI. Costs were in pound for cost year 2014. Bootstrapped t-tests were applied to compare costs between those with post-PCI angina and those without. **RESULTS:** 32492 met study inclusion criteria (mean age 64 years [SD 11.8], 74% male). Bootstrapped cumulative mean costs to the secondary care provider were significantly higher at 12 months in those with angina at £ 10,215, 95% CI [£10,083, £10,348] vs. £6,552, 95% CI [£6,503, £6,601] for those without. Significant cost differences continued to 36 months post-PCI. These were £14,754 95% CI [£14,571, £14,936] for those with angina vs. £8,407, 95% CI [£8,324, £8,489] for those without. At 36 months, cardiac related costs, inpatient, outpatient and accident and emergency costs were significantly higher in those with angina (P<0.001). **CONCLUSIONS:** This real-world study demonstrated that patients with cardiac complications post-PCI consumed significantly greater secondary care resources than those without, in all cost categories and, across all services considered. Decision makers, and clinicians, should be aware that interventions and therapeutic strategies associated with lower incidence of cardiovascular complications could significantly reduce unplanned admissions and associated financial burden to the NHS.

PMD53

COST OF GENOME ANALYSIS: THE SANGER SEQUENCING METHOD

Perrier L[1], Heinz D[1], Baffert S[2], Zou Z[3], Durand Zaleski I[4], Rouleau E[2], Wang Q[1], Haddad V[1], Bringuier P[5], Merlio J[6], Caumont C[6], Lacroix L[3], Marino P[7], Borget I[3]
[1]*Cancer Centre Léon Bérard, Lyon, France,* [2]*Institut Curie, Paris, France,* [3]*Institut Gustave Roussy, Villejuif, France,* [4]*AP-HP Santé Publique Hôpital Henri Mondor, Paris, France,* [5]*Hospices Civils de Lyon, Lyon, France,* [6]*CHU Bordeaux, Pessac, France,* [7]*Institut Paoli Calmettes, Marseille, France*

OBJECTIVES: The Sanger sequencing method has been considered the gold standard DNA sequencing technique for approximately 30 years; however, it is now challenged by next generation sequencing (NGS). The aim of this study was to assess the cost entailed by Sanger DNA sequencing when it is used for somatic genetics. **METHODS:** The cost assessment was based on a multicenter study using a micro-costing approach. We observed Sanger sequencing sessions that started with the DNA sample and finished with the bio-informatics evaluation. The hospitals' point of view was retained. Only direct costs were taken into account. Uncertainty was captured for each stage using a deterministic sensitivity analysis. All costs are expressed in Euros 2015. **RESULTS:** Five sequencing sessions were investigated in four French cancer centers from February 2015 to May 2015. In total, DNA samples from 87 patients with 658 exons were sequenced with a mean duration of 1.815 minutes per session. The mean total cost of sequencing was €1,891 (SD: 1,460). The cost per patient was €108 (SD: 30.36) and cost per exon was €18 (SD: 5.52). The personnel (52% of total costs, SD: 0.03) and consumable (43% of total costs, SD: 0.03) costs represented the highest cost drivers. The bio-informatics analysis and DNA extraction were the costliest stages of the sequencing process (28 and 26%, respectively). Total costs were highly correlated with the number of patients and exons. The marginal costs were €112 and €12 per additional patient and exon, respectively. **CONCLUSIONS:** Our findings demonstrate the moderate costs of Sanger sequencing. These results can be used for further economic analyses comparing Sanger sequencing methods with other DNA sequencing methods such as NGS.

PMD54

THE ECONOMICS OF CRITICAL CARE DIAGNOSTICS: THE CASE OF PROCALCITONIN-GUIDED CARE IN TREATMENT OF ACUTE RESPIRATORY INFECTION IN THE U.S

Schneider JE[1], Schuetz P[2], Lacey M[1], Stojanovic I[1], Scheibling CM[1]
[1]*Avalon Health Economics, Morristown, NJ, USA,* [2]*University of Basel, Basel, Switzerland*

OBJECTIVES: Recent advances in novel diagnostics have led to some concerns on the part of purchasers as to whether the diagnostics add value or simply add cost. In this study we explore these concerns, using as an example the case of antibiotic stewardship protocols based on procalcitonin levels. The objective is to assess the economic impact of adopting procalcitonin testing among patients with suspected acute respiratory tract infection (ARI) from the perspective of a typical U.S. integrated delivery network (IDN) with a 1,000,000 member catchment area or enrollment. **METHODS:** To conduct an economic evaluation of procalcitonin testing versus usual care we built a cost-impact model based on patient-level meta-analysis data of randomized trials. The meta-analytic data was adapted to the U.S. setting