

used to analyse data on LOI, mortality and cost of primary hospitalisation. Non-linear continuous variables (e.g. gestation age) were modelled using restricted cubic splines. Assuming that LOIs increase the risk of neurodevelopmental impairments (NDI), the cohort model calculated the proportion of infants developing NDI and, based on NDI severity, extrapolated the infants' life-expectancy. These survival estimates were adjusted for quality of life utilities to obtain quality-adjusted life years (QALYs) and were used to estimate lifetime costs. Between groups differences in costs and QALYs were used to calculate Incremental cost-effectiveness ratios (ICERs) and a probabilistic sensitivity analysis determined the ICERs uncertainty. This uncertainty was presented as Value of Information (VOI) at UK-population level. A 1.5% annual discount rate and lifetime time horizon were used to capture long-term costs and consequences. The analyses were repeated for gestation age and feed-type subgroups, and under alternative assumptions on the discount rate and treatment effect. Missing data were multiple imputed assuming they were missing at random (MAR) or not MAR. **Results:** On average, lactoferrin would provide an additional 0.05 QALYs at the cost of £1787. Apart from infants with 24 weeks' gestation (ICER: £6,665 [1.5% discount] and £11,187 [3.5% discount]), lactoferrin was not cost-effective in any of the subgroups. The VOI for UK infants with 24 weeks' gestation is approximately £15 million. Our results were robust to alternative assumptions. **Conclusions:** From the UK-NHS perspective, lactoferrin is not cost-effective based on conventional decision rules. More research in infants with 24 weeks' gestation might be justifiable if the undergoing studies (e.g. LIFT trial) do not resolve these uncertainties.

PIH14

INCREMENTAL COSTS OF PREMATURITY AND LOW BIRTHWEIGHT

Kovacs G,¹ Kalo Z²

¹Syreon Research Institute, Budapest, PE, Hungary, ²Semmelweis University, Syreon Research Institute, Budapest, PE, Hungary

Objectives: Although, several publications describe the costs of managing premature or low birth-weight infants, these data are actually difficult to compare and synthesize due to heterogeneity of costing methods, duration of observational period, year of publication and health systems. The objective was to quantify the relative incremental costs of prematurity or low birth weight compared to full-term or normal birth weight infant. **Methods:** A systematic literature review was conducted to identify data sources. The average cost ratio of babies with prematurity or low birthweight categories versus mature or normal birth-weight infants was calculated based on 12 relevant publications from 11 countries. **Results:** Eight studies presented data for different gestational ages, 3 for different birth weights and 1 for both. Ten studies investigated only the direct medical costs. In the analyses of weekly gestational age, the ratios of costs ranged from 230 to 0.5 times between weeks 23 and 36 (compared to mature babies). In the analyses of gestational age ranges, extremely preterm infants generated 21 to 47 times higher costs than the full-term infants, while the very preterms had 9.6-28 times higher costs. The effects of moderate prematurity only led to an increase in the costs of 4.5-5.2 times. Very low and low birth weight resulted in moderate, 23 and 11 times increments. Dysmaturity itself resulted in additional costs, as well as the presence of major birth defects. Studies with over one year observational period showed that higher incremental cost ratios were experienced in early periods after birth for premature compared to mature infants, especially during the initial hospitalization. **Conclusions:** Our systematic literature review demonstrated that medical care of premature infants requires considerably higher financial resources than care of their mature comparators, and each additional week of gestation can result in significant cost-savings in addition to improved health outcomes

PIH15

EXTERNAL VALIDATION OF THE EX-ANTE BUDGET IMPACT ANALYSIS FOR PALIVIZUMAB

de Oliveira M,¹ Pereira C,² Costa MG³

¹Instituto Nacional de Cardiologia, Lisbon, Portugal, ²Fiocruz - National School of Public Health, Rio de Janeiro, RJ, Brazil, ³Instituto Nacional de Cardiologia, Rio de Janeiro, Brazil

Objectives: This study aims to compare the estimates made in the *ex-ante* and *ex-post* Budget Impact Analysis (BIA) for incorporation of palivizumab into the Brazilian Public Health System - SUS, identifying the parameters that may result in discrepancies between the analysis. **Methods:** For the external validation of the *ex-ante* BIA, informations were collected from the national databases to identify and characterize the population eligible for prophylaxis and the costs related to the technology (purchase price for palivizumab, total cost of hospitalization by respiratory syncytial virus (RSV) infection) as well as research in the literature to determine the market share, since such information was not available. Four scenarios were developed. The scenario 1 being elaborated with the data available in the national databases, taking into account the national protocol for the use of palivizumab. The other three scenarios were developed by calibrating the eligible population, excluding the children who were born in 2011 and 2012 and were eligible to the prophylaxis with palivizumab in 2013 of the first year after the incorporation of palivizumab, adjusting the percentage of the eligible population with Congenital Heart Disease (CHD) according to expert opinion, adjustment of the eligible population with Bronchopulmonary Dysplasia (BPD) using values founded in the literature. This last scenario is the sensitivity analysis. **Results:** An expense higher than that estimated in the *ex-ante* BIA was observed, ranging from \$ 19 million to \$ 183 million over the four year

horizon (2013 to 2016) depending on the scenario involved in the validation. **Conclusions:** This study shows that it is necessary to monitor new technologies after its incorporation, validating the financial impact projections made prior to incorporation. Discussion about this theme is important to define the best methodology and what differences between the results of *ex-ante* and *ex-post* BIA would be acceptable.

PIH16

THE COST-EFFECTIVENESS OF STRATEGIES PREVENTING LATE-ONSET INFECTION IN PRETERM INFANTS

Grosso A,¹ Faria R,¹ Bojke L,¹ Donohue C,² Fraser C,³ Harron K,³ Oddie S,⁴ Gilbert R³

¹University of York, York, UK, ²Clinical Trials Research Centre, Department of Biostatistics, University of Liverpool, Liverpool, UK, ³UCL Great Ormond Street Institute of Child Health, London, UK, London, UK, ⁴Bradford Institute for Health Research, Bradford Royal Infirmary, Bradford, UK

Objectives: To develop a model to analyse the cost-effectiveness of interventions to prevent late-onset infection (LOI) in preterm infants and apply it to the evaluation of Anti-Microbial Impregnated Peripherally Inserted Central Catheters (AM-PICCs) compared with standard PICCs (S-PICCs). **Methods:** Model-based cost-effectiveness analysis, using data from the PREVAIL randomised controlled trial linked to routine healthcare data, and supplemented with published literature. The model assumes that LOI increases the risk of neurodevelopmental impairment (NDI) during an infant stay in a Neonatal Intensive Care Unit in the UK National Health Service (NHS). The analysis considers a population of Infants born ≤ 32 weeks gestational age, requiring a 1 French gauge PICC. The model estimates life expectancy, quality-adjusted life years and healthcare costs over the infants' expected lifetime. **Results:** Severe NDI reduces life expectancy by 14.79 (95% confidence interval (CI) 4.43; 26.68) years, 10.63 (95%CI 7.74; 14.02) QALYs, and costs £19,060 (95%CI £14,197; £24,70) to the NHS. If LOI causes NDI, the maximum acquisition price of an intervention that reduces LOI risk by 5% is £120. AM-PICCs increase costs (£54.85 (95%CI £25.95; £89.12)) and may reduce health (-0.01 (95%CI -0.09; 0.04) QALYs) compared with S-PICCs. The NHS can invest up to £2.4 million in research to confirm that AM-PICCs are not cost-effective. **Conclusions:** The model quantifies health losses and additional healthcare costs caused by NDI and LOI during neonatal care. Given these consequences, interventions that prevent LOI, even by a small extent, can be cost-effective. AM-PICCs, being less effective and more costly than S-PICC, are not likely to be cost-effective.

PIH17

COST-EFFECTIVENESS OF INTERVENTIONS PREVENTING FALLS IN OLDER ADULTS: A SYSTEMATIC REVIEW

Schmidt M,¹ Werbrout A,² Verhaeghe N,³ Putman K,³ Annemans L,² Simoons S⁴

¹Vrije Universiteit Brussel, Brussels, VBR, Belgium, ²Ghent University, Ghent, Belgium, ³Vrije Universiteit Brussel, Brussels, Belgium, ⁴KU Leuven, Leuven, 3000, VBR, Belgium

Objectives: Little is known about the cost-effectiveness of different types of interventions preventing falls in the diverse population of older adults. The aim of this systematic review was to summarize and critically assess the health economic evidence on interventions preventing falls in older adults. **Methods:** MEDLINE (via PubMed), Econlit (via Proquest), Embase (via embase.com), and Web of Science Core Collection (via Web of Science) were searched. Full health economic evaluations of interventions aimed at the prevention of falls and fall-related injuries in older adults aged 65 and older, published in English, Dutch, German or French between 1 July 2008 and 30 May 2018 were included. Data on general study characteristics and results were collected and tabulated. Two researchers independently assessed study quality with the Consensus Health Economic Criteria (CHEC) list. **Results:** Two independent researchers screened a total of 934 titles and abstracts for eligibility. Twenty-eight studies reported in 29 articles were included. Overall, interventions preventing falls were cost-effective compared to 'no intervention'. For older adults living in the community, different types of single interventions compared to doing nothing were more often cost-effective than multifactorial interventions compared to doing nothing. Only five studies covered interventions for people living in care facilities. In this context, promising results were found for multifactorial interventions delivered by multidisciplinary teams and for vitamin D supplementation. **Conclusions:** There is evidence supporting the health economic value of interventions preventing falls in older adults. The results should be interpreted in light of the great variability in the studies and general difficulties in comparing evidence from health economic evaluations.

PIH18

PREDICTED COST AND CAPACITY BENEFITS OF THE DIGITALIZED SECONDARY CARE PATH FOR WOMEN WITH ENDOMETRIOSIS @ VIRTUAL HOSPITAL 2.0

Väätäinen S,¹ Soini E,¹ Arvonen S,² Suvitie PA³

¹ESIOR Oy, Kuopio, 15, Finland, ²Virtual Hospital 2.0 project, Helsinki University Hospital, Helsinki, Finland, ³Virtuaalisairaala 2.0 project, Turku University Hospital and Department of Obstetrics and Gynecology, Turku University Hospital and University of Turku, Turku, Finland

Objectives: Virtual hospital 2.0 (VH2.0) platform, joint project between Finnish university hospitals produces and implements client-oriented digital secondary care