each country’s department of health. Countries were reviewed under a range of headings including: current delivery models in place, responsibilities reserved for delivery and organisation of reimbursement system, incentive structures in place, basic bundle of health care covered, additional options for coverage, disease-specific resource use and health outcomes, government contribution to cost of health care and overall reimbursement. RESULTS: Raising the standard of patient care across countries with universal entitlement ensures comprehensive medi-
cal care for everyone including GP services, access to tertiary care, post-natal care and many procedures which pay for facility-based and non-fee-for-service retention fees. Many countries dependent upon the Universal delivery model in place. CONCLUSIONS: This review presents characteristics of Universal health care delivery systems across Europe. Basic bundles of health care provision and organisation of reimbursement across countries have been outlined. Thus paves a further realm opportunity on the characteristics of and variation across Universal health care models.

**PHP81**

**NATIONAL RARE DISEASE STRATEGIES: THE CURRENT STATE FOR ORPHAN DRUG MARKET ACCESS IN EUROPEAN UNION (EU) MEMBER STATES**

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OBJECTIVES: By 2013 all European Union (EU) member states were recommended to elaborate and adopt a national strategy for rare diseases. This study provides insights into the national rare disease strategies, in particular the status of the programmes, recent developments, and the congruences and differences between the programmes regarding market access. METHODS: A literature and Internet search was performed to identify national strategies for rare diseases published by European Union (EU) member states. National orphan drug policies and recent orphan drug introductions have been analysed to compare the rare disease strategies. RESULTS: All member states had a variety of approaches already in place before developing a national strategy. France is the leading country implementing rare disease policies as the member state with the highest number of marketed orphan drugs. Over the past five years, most member states finalised their national plans with a peak in publications late 2013–2014. All member states defined procedures for hospital reimbursement but cost-effectiveness evaluation of orphan drugs was only initiated in a few countries. The most common rare disease indication was haematology, and the most targeted orphan drugs were erythropoietin products. CONCLUSIONS: The availability of orphan drugs in EU member states significantly decreased. A review of published peer-reviewed literature was conducted to evaluate the impact of such PA restrictions on resource utilization and costs. METHODS: A targeted review of literature was conducted in Medline from 2009 onwards using a set of keywords related to PA restrictions, “impact”, “economic”. Review articles, non-English language studies, non-US studies, kios, and studies evaluating the effectiveness of formulary policies of which PA may be a component were excluded. Impact of PA policies on health care utilization and costs was qualitatively assessed. RESULTS: Fourteen studies were identified which met our inclusion criteria. Majority (57%) of the studies were conducted on Medicaid plans (Medicaid: 8, commercial: 4, Medicare: 1, not clear: 1). Majority (57%) of studies evaluated the impact of mental health medications (anti-psychotics, anti-depressants bipolar medications, antipsychotics), two studies were conducted on anti-diabetics, one on a multiple sclerosis drug, one for a lipid-lowering drug, one on an antihypertensive drug and one on a vaccine. Few studies were industry-sponsored. 12 studies were retrospective analyses and only 2 studies were decision-analytic models. Overall, the trend showed that PA restrictions were effective in reducing pharmacy and health care costs but few studies raised concerns on patient safety and quality of care outcomes due to PA policies. CONCLUSIONS: Although PA restrictions may result in cost-savings, patient safety and quality of life concerns must also be evaluated while imposing these restrictions. Rigourous designed studies including assessment of PA administration costs as well as indirect costs due to lost productivity should be conducted to better assess the overall economic impact of such restrictions.

**PHP82**

**MEASURING THE EFFICIENCY OF HUNGARIAN HOSPITALS BY DATA ENVELOPMENT ANALYSIS**

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**OBJECTIVES:** Hospitals are important cost elements of the Hungarian health care system. During the last decade, several healthcare policies were approved to adjust the position of hospital beds in Hungary. The aim of our research is to analyse the efficiency of the Hungarian acute inpatient-care system. METHODS: Data derived from the Hungarian nationwide hospital insurance databases (activity, health, medical, and technical) and the Hungarian acute inpatient-care system (2003, 2006, 2010). The number of hospitals included into the study was 133 in 2003, 125 in 2006 and 93 in 2010. We chose four inputs and two outputs: the number of active hospital beds, the number of discharged patients, the number of one-
day cases, completed days of nursing (inputs), average length of stay, DRG cost
weights (outputs). The method we used for our calculations was Data Envelopment Analysis. RESULTS: In 2003 both the technical and scale efficiency were high (TE: 96.9%, SE: 92.9%). To 2006 the situation deteriorated by some degree (TE: 96.6%; SE: 80.3%). By 2010 technical efficiency still did not show improvement (TE: 94.0%), but scale efficiency increased (SE: 88.2%). Usually the hospitals with higher number of beds are more efficient than the smaller units. CONCLUSIONS: The effects of the performance volume limit did not improve the two values; however, the capacity decrease of 2007 did improve the scale efficiency to some extent. The Hungarian health care system needs to reduce the numbers of hospitals and rethink their functions, but needs to improve the size of them.

**HEALTH CARE USE & POLICY STUDIES – Formulary Development**

**PHP83**

**EXPERIENCES WITH PRICE COMPETITION OF BIOSIMILAR DRUGS IN HUNGARY**

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**OBJECTIVES:** The aim of our study is to analyse the biosimilar bids of the Hungarian National Health Insurance Fund Administration in case of colony-stimulating factor and erythropoietin products. METHODS: Data derived from the nationwide phar-
maceutical database of Hungarian National Health Insurance Fund Administration. We analysed how the number of patients treated by colony-stimulating fac-
tor and erythropoietin products changed before (01.07.2011.-30.06.2012.) and after (01.07.2012.-30.06.2013.) the introduction of biosimilars. RESULTS: In the 12 months before biosimilar bid 4167 patients received erythropoietin treatment, while in the first 12 months after the bid 3647 patients, representing a decline in a 12.5% decline. In the 12 months before biosimilar bid 13974 patients received colony-stimulating factor treatment, while in the first 12 months after the bid 13352 patients, resulting in a 4.5% decline. CONCLUSIONS: The analyses of the Hungarian price competition bid of biosimilar products showed a minimal decline in the treatment of erythropoietin products while the health insurance reimbursement of these drugs significantly decreased.

**PHP84**

**IMPACT OF PRIOR AUTHORIZATION RESTRICTIONS ON RESOURCE UTILIZATION AND COSTS IN US HEALTH PLANS: A REVIEW OF LITERATURE**

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**OBJECTIVE:** Prior authorization (PA) restrictions have been implemented by US health plans to an effort to ensure that manage appropriate utilization and control costs. A review of published peer-reviewed literature was conducted to evaluate the impact of such PA restrictions on resource utilization and costs. METHODS: A targeted review of literature was conducted in Medline from 2009 onwards using a set of keywords related to PA restrictions, “impact”, “economic”. Review articles, non-English language studies, non-US studies, kios, and studies evaluating the effectiveness of formulary policies of which PA may be a component were excluded. Impact of PA policies on health care utilization and costs was qualitatively assessed. RESULTS: Fourteen studies were identified which met our inclusion criteria. Majority (57%) of the studies were conducted on Medicaid plans (Medicaid: 8, commercial: 4, Medicare: 1, not clear: 1). Majority (57%) of studies evaluated the impact of mental health medications (anti-psychotics, anti-depressants bipolar medications, antipsychotics), two studies were conducted on anti-diabetics, one on a multiple sclerosis drug, one for a lipid-lowering drug, one on an antihypertensive drug and one on a vaccine. Few studies were industry-sponsored. 12 studies were retrospective analyses and only 2 studies were decision-analytic models. Overall, the trend showed that PA restrictions were effective in reducing pharmacy and health care costs but few studies raised concerns on patient safety and quality of care outcomes due to PA policies. CONCLUSIONS: Although PA restrictions may result in cost-savings, patient safety and quality of life concerns must also be evaluated while imposing these restrictions. Rigorous designed studies including assessment of PA administration costs as well as indirect costs due to lost productivity should be conducted to better assess the overall economic impact of such restrictions.

**PHP85**

**DO NICE DECISIONS AFFECT DECISIONS IN OTHER COUNTRIES?**

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**OBJECTIVE:** The objective is to test the hypothesis whether NICE recommendations on the use of a new drug affect recommendations from other bodies in countries outside England and Wales. To our knowledge, this is the “test” attempt to approach this topic quantitatively. Therefore, a sub-objective is to determine the feasibility of gathering a high quality database with sufficient number of observations to test our hypothesis. METHODS: A basket of 29 drug/indication pairs and a group of 51 drug/indication pairs were included (Australia, Canada, Denmark, France, Italy, Korea, The Netherlands, New Zealand, Poland, Portugal, Spain, Bosnia, Ecuador, Egypt and Ghana). Information regarding NICE HTA recommendations was extracted from NICE database. However, an online survey of key opinion leaders was carried out to collect information regarding the HTA decision in 10 countries. For the remaining five countries, we used the information from their official webpages. A descriptive analysis was conducted, including an examination of the position of the decision of NICE in comparison with that of other HTA agencies in the timeline of decision making about the 29 medicines. RESULTS: There is a lack of comparability between the publically available information. The findings suggest that for almost a NICE appraisal there is a higher probability that an HTA is undertaken for the same drug in other countries. Furthermore, when NICE has published a negative decision, the tendency of not recommending the drug by another HTA body is much larger after than before NICE’s decision. CONCLUSIONS: Issues encountered in the collection of information made it difficult to quantify the effect of NICE recommendations on HTA decisions in other countries. The results suggest that the selected agencies are considering NICE decisions as a factor for rejecting or restricting the use of drugs in which other case would be recommended or reimbursed.
OBJECTIVES: Throughout Europe, economic conditions are forcing health care system stakeholders to consider how they can reduce costs. One potential area of health care costs is hospital length of stay (LOS). This study sought to determine which European countries have been most successful at reducing their average LOS for five inpatient admissions. This research also sought to quantify the potential savings for countries that have not yet achieved an average LOS below the third quartile for their peers.

METHODS: A review of hospital LOS and cost per day of hospital stay data was conducted in five European countries (France, Germany, Italy, Spain and the United Kingdom), utilizing data published by the World Health Organization (WHO) and the Organization for Economic Co-operation and Development (OECD). Additionally, hospital payment systems were assessed in each country through published research to understand systematic motivations of health care providers with regards to LOS.

RESULTS: Substantial variability exists in average LOS for the five studied countries. The greatest variation was in bed number per discharge ranging from 4.16 days in the UK to 11.01 days in Germany. The average LOS for three admissions (single spontaneous delivery, cataracts, and pneumonia) are relatively similar across countries. However, the average LOS in Germany for malignant neoplasm of the breast and acute myocardial infarction is significantly higher than the other four countries. There is little variability, however, in average costs per bed-day in the target countries. A review of payment mechanisms for inpatient care found that hospitals are financially incentivized to improve LOS in all five countries.

CONCLUSIONS: Additional research is needed to understand the reason for the discrepancy between German stays and the other four countries. While there are many potential reasons for the differences, should Germany align their average LOS for malignant neoplasm of the breast and acute myocardial infarction with the other four countries, they could save €744 million per year.

PHP91
R&D INVESTMENTS, INTANGIBLE CAPITAL AND PROFITABILITY IN THE PHARMACEUTICAL INDUSTRY

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OBJECTIVES: Estimation of the economic burden for Ireland in the future.

METHODS: Based on disease prevalence and 2011 Census data. Estimate the number of patients diagnosed with AF, diabetes, COPD or asthma, based on disease prevalence and 2011 Census data. Calculate the number of patients experiencing an avoidable stroke each year, costing the health care system around €14,950 for skin/connective tissue-related complications and €19,230 for wound corners (16.6%), bowel obstruction/other GI complication (12.6%), skin/connective tissue-based on disease prevalence and 2011 Census data. Cost associated with poor management of patients with AF, diabetes, COPD and asthma. The objective of this study was to calculate the number of patients diagnosed with AF, diabetes, COPD or asthma, based on disease prevalence and 2011 Census data. Estimate the number of patients not achieving target management of their condition and the associated number of preventable events and total costs, using publicly available information.

RESULTS: Of the medications approved in Ireland, 75.6% patients are not achieving appropriate anticoagulation treatment. This results in 531 patients experiencing an avoidable stroke each year, costing the health care system around €99m per year in hospital admission costs alone. CONCLUSIONS: Much of the chronic disease burden is caused by preventable risk factors. This is intended as a key policy lever, to elevate chronic diseases on the health agenda of key policymakers, and persuading them of the need for health systems change. Unless steps are taken now to effectively deal with chronic diseases, Ireland is headed for serious financial and quality-of-life crises.

PHP92
DO SPECIALTY DRUGS OFFER GREATER VALUE FOR MONEY THAN TRADITIONAL DRUGS?

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OBJECTIVES: Specialty drugs are often many times more expensive than traditional drugs, raising questions of affordability, and whether their clinical benefits are worth their added costs. The objective of this study was to consider new molecular entities (NME) (i.e., drugs that had not previously been approved by the FDA or EMEA) approved from 1999 through 2011. We identified published estimates of added health benefits (measured in quality adjusted life years (QALYs)) and costs (drug costs, hospitalization costs, etc.) associated with specialty drugs compared to existing standard of care at their time of approval, and compared findings with traditional drugs. We compared incremental QALY gains, incremental costs, and the incremental cost-effectiveness ratio, for specialty vs. traditional drugs. METHODS: We searched the FDA website to identify all NMEs approved from 1999 through 2011. We identified published estimated measures of additional health gains (measured in quality adjusted life years (QALYs)) and costs (drug costs, hospitalization costs, etc.) associated with specialty drugs compared to existing standard of care at their time of approval, and compared findings with traditional drugs. We compared incremental QALY gains, incremental costs, and the incremental cost-effectiveness ratio, for specialty vs. traditional drugs. RESULTS: We identified 76 NMEs approved from 1999 through 2011. We estimated measures of additional health gains and costs for 101 (86%) of NMEs, including 59 specialty drugs. We found specialty drugs offered greater QALY gains than traditional drugs (4.04 vs. 1.71, p<0.01), but were associated with greater additional costs ($10,460 vs. $9,066, p<0.01). We found the cost-effectiveness of the different drug types to be broadly similar (p=0.58).

CONCLUSIONS: This research suggests specialty drugs may offer greater health benefits over existing care than traditional drugs, and despite many drugs being significantly more expensive than traditional drugs, incremental costs were comparable in terms of cost-effectiveness. As payers search for ways to control health care costs it is important to recognize the relative benefits as well as the costs of specialty drugs, and to mitigate inappropriate use and waste to ensure that effective treatments are affordable to patients.

PHP88
THE GROWING FINANCIAL AND QUALITY-OF-LIFE BURDEN ASSOCIATED WITH ATRIAL FIBRILLATION, DIABETES, CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) AND ASTHMA IN IRELAND

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Many people in Ireland suffer from chronic diseases including AF, diabetes, COPD and asthma. With the prevalence of these conditions expected to rise, general wellbeing and quality-of-life will be increasingly affected. Chronic conditions also account for most of the health care resources used, and represent a significant economic burden.

METHODS: CONCLUSIONS: Effective treatments are affordable to patients. That is comparable to firms from other industries (7.6% pharma vs. 9.6% non-pharma). Reduced health care costs it is important to recognize the relative benefits as well as the costs of specialty drugs, and to mitigate inappropriate use and waste to ensure that effective treatments are affordable to patients.