

heterogeneity was used in the literature. Nevertheless, more advances in prior elicitation methodologies are likely to increase the use of informative priors in future BNMA.

## NO Specific Disease - Organizational Practices

### PNS340

#### THE THEORY OF CONTRACTS AND WARRANTIES: IMPLICATIONS FOR OUTCOMES-BASED CONTRACTING

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**Objectives:** Outcomes-based contracts (OBCs) are a type of performance-based risk sharing agreement designed to optimally share or allocate risk between buyers and sellers, especially in value-based pricing (VBP) scenarios. OBCs are a form of warranty, similar to those common to many other industries, such as automobiles. In this paper, we create a conceptual framework through which to identify important concepts and lessons from institutional economics and warranty theory to potentially improve OBC design. **Methods:** A search for OBCs was carried out in PubMed database, in addition to a general Google search. Studies pertaining to OBCs were included, in addition to trade press articles and consulting reports, in order to develop an understanding of existing OBC designs. Concurrently, based on the institutional economics literature on warranties, we developed a conceptual framework of risk-based warranty contracts. **Results:** Warranties are part contractual apparatus, the primary goal of which is to allocate risk, and part signaling mechanism, the primary goal of which is to credibly signal product and service quality. Together, both attributes are designed to reduce transaction costs associated with uncertainty and asymmetric information. Most OBCs are designed as simple risk sharing mechanisms, and ignore the importance of quality signaling and how quality signaling can inform the design of optimal risk sharing arrangements. **Conclusions:** There is a large literature on the institutional economics of warranties, but little of that has been applied to OBCs in the health industry. In developing a novel conceptual framework of warranties and parallels with OBCs, we offer some guidance on improving the design of the next generation of OBCs.



### PNS341

#### ANALYSIS OF EDUCATION AND TRAINING OPPORTUNITIES IN HE/PE/HTA IN CEE CONSORTIUM COUNTRIES

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**Objectives:** to provide a structured overview of education and training opportunities in health economics (HE)/pharmacoeconomics (PE)/health technology assessment (HTA) in the countries of ISPOR CEE Consortium. **Methods:** survey was carried out during November, 2018 - May, 2019 in the form of questionnaire that was sent to ISPOR CEE Chapters using Survey Monkey app. Questionnaire consists of 8 chapters and 36 questions about: general country information; education and training programmes on HE/PE/HTA; official methodological guidelines, journals and annual conferences dedicated to HE/PE/HTA. **Results:** responses from Bosnia and Herzegovina (BA), Bulgaria (BG), Hungary (HU), Poland (PL), Romania (RO), Russia (RU), Slovak Republic (SK), Turkey (TR), Ukraine (UA) were analyzed. It was revealed that these countries have quite similar national health expenditure in % GDP. The all countries, except of RO, have legislative act(s) at the national level regulating HE/outcomes research/HTA utilization to inform decision-making for health. BA, BG, RO, UA provide HE/PE courses at undergraduate education level; BA, BG, HU, PL, TK, UA - at graduate, and BG, HU, PL, SK, UA - at postgraduate levels. All participants do not have HTA courses at undergraduate level; BG, HU, PL, UA provide them at graduate and postgraduate levels. Additionally to these countries, BA and SK give HTA courses to students in master's programmes. Only in UA are provided mini-HTA courses. Courses are mostly given in the national languages, there are also certain courses given in English. Apart from BA and RO, the countries have official methodological guidelines on HE/PE/HTA. Most of countries publish peer-reviewed journals on HE/PE/HTA and the all countries conduct annual conferences dedicated to the studied topic. **Conclusions:** The obtained results showed that most of CEE Consortium countries participated in the survey have education systems on HE/PE/HTA. Development of core education programmes on HE/PE/HTA in CEE for training of the decision-makers is highly perspective.



### PNS343

#### THE COMPLETENESS OF CLINICALTRIALS.GOV. - WHAT IS THE RATE OF PUBLISHED CLINICAL TRIALS REGISTERED ON THE WEBSITE?

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**Objectives:** To analyze the rate of trials registration and to compare published studies registered and non-registered on [clinicaltrials.gov](http://clinicaltrials.gov). **Methods:** Nine Cochrane systematic literature reviews (SLRs) focusing on rare diseases, cardiovascular diseases, and cancer, were selected. In total, 155 randomized controlled trials (RCTs), published from 1974 to 2017, were identified among these SLRs and searched on



[clinicaltrials.gov](http://clinicaltrials.gov). Country, number of patients, sponsor and publication date were compared between registered and non-registered trials. **Results:** Forty-nine (32%) trials were registered on [clinicaltrials.gov](http://clinicaltrials.gov), among which 33% posted results. Registered trials were published between 2007 and 2017 after Congress passed a law (FDAAA) expanding [clinicaltrials.gov](http://clinicaltrials.gov) submission requirements; half of the non-registered trials were published before 2007. Among studies published after 2007, comparable registration rate was observed for cardiovascular diseases and cancer (49% and 48% registered; respectively). 84% of registered and 82% on non-registered trials published after 2007 provided information about the sponsor. 44% and 56% of registered studies were sponsored by the pharmaceutical industry and by public institutions, respectively; 85% of non-registered trials were sponsored by non-pharmaceutical institutions. 43% and 20% of registered, and 44% and 22% of non-registered trials had been conducted in North America or Europe, respectively. The sample sizes differed between studies conducted among different disease areas. However, numbers of analyzed patients were comparable between registered and non-registered trials for the rare disease; for remaining diseases, number of analysed patients was usually higher within the registered trial. Pharmaceutical treatments were assessed in 84% of registered and 66% of non-registered studies published after 2007. **Conclusions:** Most of the registered trials assessed pharmaceutical treatments and almost half of them were conducted in North America. The majority of non-registered trials were sponsored by non-pharmaceutical institutions. Completeness of [clinicaltrials.gov](http://clinicaltrials.gov), after the law was passed in 2007, is low. Some trials remain not reported up to now.

### PNS345

#### BUSINESS MODEL INNOVATION OF INTERNET HOSPITALS IN CHINA: A SYSTEMATIC REVIEW

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**Objectives:** Internet hospitals have been advocated to improve healthcare in China. However, their business model innovation has not been systematically reported. We conducted a systematic literature review to understand how business model of Internet hospitals has been developed in China. **Methods:** Systematic review of the research articles from CNKI (in Chinese) and Web of Science (in English) with the keywords, including 'Internet hospital', 'Smart hospital', 'On-line hospital' and 'Network Hospital', was conducted. **Results:** Finally, 48 research articles were included. Two main streams were identified: informatization construction; development model design. Themes highlighted in the informatization construction include: (1) smart medical; (2) smart nursing; (3) development of clinical auxiliary diagnosis; (4) application of internet of things in Internet hospital; and (5) construction of information platform (especially the system integration). Themes highlighted in the development model design include: (1) health management (especially chronic disease management); (2) medical union; (3) payment model; (4) big data; and (5) security management. **Conclusions:** While the Chinese healthcare sector expects innovative business models of Internet hospital, business model innovation of Internet hospitals is still in the stage of exploration.



### PNS346

#### CAN META-ANALYSES HELP IN SYNTHESIZING DATA ACROSS HEALTH ECONOMIC STUDIES?

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**Objectives:** Health economic data are often difficult to compare across studies because of the differences in healthcare systems, researchers' perspectives, and data collection. This raises questions about whether meta-analyses (MAs) can be useful for summarizing such evidence. To explore these issues, we conducted a systematic literature review (SLR) to assess where MAs have been used to synthesize health economic data and challenges associated with this approach. **Methods:** EMBASE and MEDLINE were searched for SLRs and/or MAs published in English from database inception to May 2019 and reporting on health economic outcomes associated with any treatment. SLRs summarizing data only narratively were excluded. Included studies were assessed for whether they considered, attempted or conducted MAs, reported barriers to such analysis, and any overall trends on its use. **Results:** Sixteen studies published between 2008 and 2018 met the inclusion criteria. Of these, 11 had completed MAs, while the other five had only considered/attempted such analysis. There were no obvious trends on whether MAs were used to summarize and/or present health economic data. The most commonly meta-analyzed data related to length of inpatient stay (n=8 studies), inpatient treatment (n=6), and hospitalizations/admissions (n=3). Data related to outpatient visits, readmissions, emergency room visits, and costs were meta-analyzed in one study each. All five studies that considered but did not undertake an MA cited heterogeneity or variability in reporting of data to explain this. **Conclusions:** Decision-makers depend heavily on health economic data in reaching conclusions about reimbursement. Therefore, they may benefit from more precise estimates of such data that might be provided by MAs. However, given the paucity of evidence identified by this SLR, future research is needed to determine whether or how MAs can best be used in this setting to provide insights beyond those available from standard qualitative and narrative synthesis.

