pital beds changed significantly in 2007 and 2011. The aim of our study is to assess the external medicine-care system in China, to examine the effect of these regulations. METHODS: We used input-oriented Data Envelopment Analysis to calculate technical- and scale efficiency. We chose five variables: number of beds, average length of stay (inputs), number of discharged patients, amount of fee revenue, and number of physician visits (outputs) to evaluate efficiency in 2006 (N=109), 2010 (N=121) and 2013 (N=111). Units operating with less than 50 beds were excluded. Data were collected from databases of the Chinese National Health and Family Planning Commission. For our calculations we used the DEA2 2.1. RESULTS: In these years all of the selected variables were increasing, except the average length of stay. Technical efficiency was 94.2% in 2006, 86.8% in 2010 and 95.1% in 2013. Scale efficiency was 91.4% in 2006, 90.9% in 2010, 92.7% in 2013. Ratio of technically efficient units: 24.8% of units were fully efficient in 2006 (N=26), 24.9% (n=25) in 2010, and 35.1% (n=39) in 2013. The ratio of units achieved 100% scale efficiency was 12.8% (n=14), 5.8% (n=7) and 17.1% (n=19). Almost all units were “increasing return inputs”. The number of patients from university hospitals then could not be compared in efficiency, if they had larger size (more beds). CONCLUSIONS: Based on the results we can say that the units have relatively high values in all years. Efficiency scores decreased slightly in 2006-2010, but showed improvement in the next three years. We can conclude that efficiency programs need to reduce the number of units, but needs to improve the size of them.

PHP79 THE COMPETITION BETWEEN DRUGSTORE AND PRIMARY CARE AND TREATMENT CHOICE OF PATIENTS IN THE CONTEXT OF ESSENTIAL MEDICINE POLICY IN RURAL CHINA Zuo G, Shandong University, Jinan, China

OBJECTIVES: Since 2009, Chinese government has constructed essential medicines policy to centralized purchasing, uniform distribution, compulsory use of “essential-drug-mark-up” (i.e. non-profit) sale for essential medicines in primary care, but the policy does not regulate the drugstore. As a result, competition relationship between drugstores and primary care has changed in rural China. This study aims to investigate the competition relationship between drugstore and primary care in rural China. METHODS: We collect information of treatment procedure of 1015 patients from 18 villages at three counties of Shandong Province in China with different economic development. We develop an interview from May to May 2015 by the household investigation, supported by National Natural Science Foundation of China [Grant Number 71232134]. Competition relationship between drugstore and primary care is measured as growth rate of the number of drugstore and primary care. The indica- tor of patients’ treatment choice is proportion rate of purchasing pharmaceuticals from drugstore. The relationship between competition relationship and patients’ choice is identified by interviews with stakeholders such as the leader of County Health Bureau, County Health Insurers, and local people, etc. RESULTS: From 2010 to 2014, the number of drugstore in poorer and richest County has increased respectively 2.43 times and 0.18 times. However, the number of primary care keeps unchanged. At the same time, the treatment choice of patients including village clinic(46.31%), drugstore(22.17%), county hospitals(7.49%), township hospitals(6.60%) and other hospitals(17.44%). Drugstore has become the second biggest pharmaceuticals sale channel in rural China. The reason for this issue is the limit of only using essential medicines by non-profit sale for primary care but not for drugstore. The Chinese government’s essential-drug-mark-up policy has changed the competition relationship of pharmaceutical market in rural China, which affects treatment choice of patients. The treatment choice of patients is threatening the development of essential medicine in rural China. Keywords: Essential medicine; competition; drugstore; primary care

HEALTH CARE USE & POLICY STUDIES – Formulary Development

PHP90 THE UNITED STATES SPECIALTY PHARMACY PAYOR LANDSCAPE Brook RA1, Smeeding JE2, Sax MJ2
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OBJECTIVES: Determine how medical and pharmacy directors (MDs) of P&Ts/PhDs of US health plans, insurers, and PBMs manage specialty pharmaceuticals (SPs). In 2014 SpPs accounted for one-third of spending, up from 23% in 2009. METHODS: Managed care (MC) MDs/PDs from public and private plans covering multiple types of members completed an online interactive survey of advisor’s plan information, use of specialty-pharmacies, and current/future coverage of SpPs. RESULTS: Fifty-four percent of respondents were MDs, the remainder mostly pharmacists. Most worked for a health plan (83.6%) and the plans were: 39.6% for a regional health plan, 25.0% for a local health plan, 9.8% for a state health plan and 25.0% for a national health plan. The majority of respondents worked for a health plan (83.6%) and the plans were: 39.6% for a regional health plan, 25.0% for a local health plan, 9.8% for a state health plan and 25.0% for a national health plan. Most advisors happy with their plan’s medical-benefit management, the most "efficient units: 24.8% of units were fully efficient in 2006 (N=26), 24.9% (n=25) in 2010, and 35.1% (n=39) in 2013. The ratio of units achieved 100% scale efficiency was 12.8% (n=14), 5.8% (n=7) and 17.1% (n=19). Almost all units were “increasing return inputs”. The number of patients from university hospitals then could not be compared in efficiency, if they had larger size (more beds). CONCLUSIONS: Based on the results we can say that the units have relatively high values in all years. Efficiency scores decreased slightly in 2006-2010, but showed improvement in the next three years. We can conclude that efficiency programs need to reduce the number of units, but needs to improve the size of them.

PHP81 ORGANS-ON-CHIPS: EXPLORING THE UTILIZATION OF BIOSYNTHESIZED ORGAN TISSUE TO IMPROVE EFFICIENCY OF THE DRUG DEVELOPMENT PROCESS Middelkamp H, Stamatakos D, Zierman MJ
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OBJECTIVES: Organ-on-a-chip: An expensive process, partly because of the required testing for human toxicity and efficacy of drugs. Organ-on-a-chip is a multi-channel 3D microfluidic cell culture chip that simulates the activities and mechanics of drug systems and organ systems. Organ-on-a-chip is expected to reduce the amount of animal testing, and may increase efficiency of drug development. For instance, when organ-on-a-chip is used to replace or add to in vivo testing experiments, 7-50% of drug development costs may be saved. This study explored the most the expected advices of organ-on-chip technologies as well as potential barriers to implement. METHODS: Stakeholders (n=50) in this research were employees of pharmaceutical companies (n=18, 36%), developers of microfluidic systems (n=4, 8%), scientists related with traditional drug systems development and/or drug development (n=22, 44%). Stakeholders were asked their expert opinions about the potential benefits of organ-on-a-chip using a survey (LimeSurvey), which was based on information previously acquired from expert interviews. RESULTS: According to stakeholders, organ-on-a-chip may be most promising in basic research stage (80%) or the preclinical stage (88%) of drug development. Simple models can be used for target identification (70%) while complex models could lead to replacement of animals (78%). However, head-to-head studies are needed to change regulations, leaving organ-on-a-chip as an add-on in drug development for now. There are significant differences between stakeholders opinions about advantages. Most promising organ-on-a-chip developments should target myocardial ischemia (16%) and kidney (17%). CONCLUSION: Organ-on-a-chip can be a valuable add-on in the drug development process, in particular in basic research or preclinical stage of the drug development process. Given the very early stage of organ-on-chip technologies, it is hard to predict return on investment.

PHP82 THE CURRENT LANDSCAPE AND EXPECTED CHANGES IN FORMULARY MANAGEMENT Brook RA1, Smeeding JE2, Sax MJ2
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OBJECTIVES: We collect information of treatment procedure of 1015 patients in 18 villages at three counties of Shandong Province in China with different eco- nomic development. We develop an interview from May to May 2015 by the household investigation, supported by National Natural Science Foundation of China [Grant Number 71232134]. Competition relationship between drugstore and primary care is measured as growth rate of the number of drugstore and primary care. The indica- tor of patients’ treatment choice is proportion rate of purchasing pharmaceuticals from drugstore. The relationship between competition relationship and patients’ choice is identified by interviews with stakeholders such as the leader of County Health Bureau, County Health Insurers, and local people, etc. RESULTS: From 2010 to 2014, the number of drugstore in poorer and richest County has increased respectively 2.43 times and 0.18 times. However, the number of primary care keeps unchanged. At the same time, the treatment choice of patients including village clinic(46.31%), drugstore(22.17%), county hospitals(7.49%), township hospitals(6.60%) and other hospitals(17.44%). Drugstore has become the second biggest pharmaceuticals sale channel in rural China. The reason for this issue is the limit of only using essential medicines by non-profit sale for primary care but not for drugstore. The Chinese government’s essential-drug-mark-up policy has changed the competition relationship of pharmaceutical market in rural China, which affects treatment choice of patients. The treatment choice of patients is threatening the development of essential medicine in rural China. Keywords: Essential medicine; competition; drugstore; primary care

PHP83 PHARMACY INFORMATION SYSTEM IN SAUDI HOSPITALS- HOW FAR IS IT TO MEET PHARMACY BENEFIT MANAGEMENT PROGRAM REQUIREMENTS? Alkally M, Alsuiltan M, Alenezi M, Alaraiy M
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OBJECTIVES: The aim of the study is to explore and investigate the PSI capabilities in tertiary and secondary hospitals in Riyadh city, Saudi Arabia. METHODS: A cross-sectional survey target- ed at pharmacy and therapeutics (P&T) committees from public and private health networks. Top current medical concerns (oncology, diabetes, Hepatitis-C. Top current budget concerns Hepatitis-C, Cancer/oncology, Diabetes. Future areas of concern include biosimilars, immunomodulators, cardiovascular/heart disease. multiple sclerosis; biologics, orphan/rare diseases. CONCLUSIONS: Managed care uses a variety tools to fit for formulary management, including benefit type, mandatorily generics and step-therapy. Understanding how decisions are made today and concerns for today and in the future can help guide product development.