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OBJECTIVES: The genetically diverse parasite populations have greater potential to resist antimalarials, vaccines, and host immune responses. So, it is of key importance to know how they are associated with disease manifestation among humans. The present study is designed to evaluate whether the genetic diversity of Plasmodium falciparum has any role in altering the performance of malaria rapid detection kit. **METHODS:** We first examined the incidence pattern of all four malarial species using 18S rRNA gene among northern Indian malaria cases. Subsequently, we compared genetic variance of pfhrp2 gene among different malarial populations. Phylogenetic and principal component analysis (PCA) was carried out based on the frequencies of Plasmodium species. Subsequently the multi-dimensional scaling analysis was performed to evaluate the genetic similarities, and distances among studied populations. **RESULTS:** A total 561 febrile patients with unknown reason of pyrexia were included in the study while screening 2168 patients. 18S rRNA and Pfhrp2 gene was amplified in 78 and 45 samples respectively. Among them 78 (78/561, 13.9%) patients had Plasmodium infection. P. falciparum and P. vivax was diagnosed among 47 (60.2%) and 28 (35.9%) and 3 (3.8%) patients respectively. Eight types of Pfhrp2 repeats were found among the plasmodium strains of northern India. PCA findings supported the genetic diversity and phylogenetic data. Proportion of total diversity was highest for P. falciparum in the total subpopulation ($\Delta S/\Delta T$). **CONCLUSIONS:** Higher level of pfhrp2 sequence diversity leads to higher transmission intensity as well as the sequence variation may alter the sensitivity of rapid detection tests.

PHP11

CURRENT REIMBURSEMENT SITUATION OF ADVANCED THERAPY MEDICINAL PRODUCTS (ATMP) IN GERMANY: WHICH STRATEGY TO SECURE ADEQUATE FUNDING?

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OBJECTIVES: Advanced Therapy Medicinal Products (ATMPs) regroup products for gene therapy, cell therapy or tissue engineering. Twelve ATMPs are approved in Germany as of mid-June 2016. Their reimbursement status depends whether they are used in an outpatient or inpatient setting and whether they are considered as a medicinal product and fall under AMNOG, or as part of a procedure with potentially an adequate funding within a Diagnosis Related Group (DRG). If not the case, hospitals can submit a so-called NUB request for additional reimbursement. For outpatient methods, G-BA has to decide on funding before this method can be applied. The aim of the study is to review current reimbursement situation of the twelve ATMPs approved in Germany by focusing on the opportunity of falling under AMNOG as well as implications of a NUB classification securing reimbursement through inclusion in the DRG system. **METHODS:** For each ATMP approved in Germany, reimbursement status and funding issues have been analyzed in official sources and databases taking into account regulatory status, class specificities and inpatient or outpatient setting. **RESULTS:** While Glybera®, Imlygic® and Provenge® have been so far assessed under AMNOG, G-BA explicitly acknowledged Holoclar® and MACI® as methods. Status of the other approved ATMPs remains unclear. A specific coding for ATMPs is provided for in the DRG but with no additional reimbursement. Therefore, a NUB request has been submitted for 9 ATMPs. For 4 ATMPs, NUB requests have been denied, so that the method is not being reimbursed as a NUB. For 5 NUB, information provided was insufficient or inadequate but can lead to individual funding decision as a NUB. No information on outpatient reimbursement is available. **CONCLUSIONS:** It is essential for manufacturers already in early stages of developments to identify funding opportunities to secure funding in Germany.

PHP12

DEVELOPMENT OF REIMBURSEMENT OF NEW EXAMINATION AND TREATMENT METHODS (NUB) IN THE GERMAN DRG-SYSTEM – ANALYSIS OF NUB APPLICATIONS AND NUB STATUS SINCE IMPLEMENTATION

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OBJECTIVES: Reimbursement of inpatient services in Germany is based on Diagnosis Related Groups (G-DRG). For new examination and treatment methods (NUB) which are not covered by G-DRGs appropriately an additional NUB remuneration is possible. Hospitals have to apply at the 'Institute for the Payment System in Hospitals' (InEK), which decides whether NUB remuneration is possible (status 1) or not (status 2-4). This paper analyses the development of NUB remunerations and their effects on stimulating medical advancement and innovation. **METHODS:** Based on the annually published data of § 6 Abs. 2 KHEntgG an analysis on the distribution of NUB status from implementation in 2005 through 2016 was conducted. Parameters of analysis were NUB status, number of inquiring hospitals, and NUBs differentiated in medical procedure, pharmaceuticals, and medical device. Additionally, the conversion into DRGs or additional fees was examined. **RESULTS:** Since implementation 7691 NUB applications for overall 3018 medical procedures, pharmaceuticals, and medical devices were filed at InEK, of which 58.7% account for medical producedures, 23% for pharmaceuticals and 18.3% for medical devices. The number of pharmaceuticals and medical products increased from 2005 through 2016 by 38% and 42%, respectively. With 38.9% pharmaceuticals are rated more frequently with NUB status 1 than medical products (13.3%) or medical procedures (12.2%). The incorporation of NUB into the G-DRG catalogue and respectively the creation of an additional fee was only carried out in 67 cases: 9 full G-DRGs, 37 additional fees for pharmaceuticals, 9 for medical devices, and 21 for medical procedures. **CONCLUSIONS:** Regarding the innovation capabilities of the German health care system the current configuration of the NUB remuneration is not fostering leading-edge technologies in inpatient services sufficiently. Especially medical products remain on a low level of positive assessment, despite increasing NUB applications and technological progress.

HEALTH CARE USE & POLICY STUDIES – Disease Management

PHP13

MANAGEMENT OF CHILDREN'S ACUTE DIARRHEA BY COMMUNITY PHARMACIES IN FIVE TOWNS OF ETHIOPIA: SIMULATED CLIENT CASE

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OBJECTIVES: This study aimed to evaluate the experience of community pharmacies in the management of acute diarrhea in northern Ethiopia. **METHODS:** A simulated case-based cross-sectional study was conducted in community pharmacies from five towns of northern Ethiopia between April 2015 and September 2015. Convenience sampling technique was used to select sample towns. A structured questionnaire was organized to collect the information. Descriptive statistics, chi-squared test, one-way analysis of variance, and binary logistic regression were performed to describe, infer, and test for association between the variables. SPSS for Windows Version 21 was used to enter and analyze the data. A 95% confidence interval and P-value of 0.05 were set to test the level of significance. **RESULTS:** Approximately 113 community pharmacies were visited to collect the required data from five towns. Majority (78, 69%) of them were located away from hospitals and health care areas. Nine components of history taking were presented for dispensers. Regarding the patient history, "age" was frequently taken, (90.3%), whereas "chief complaint" was the least to be taken (23%), for patients presenting with diarrhea. Approximately 96 (85.0%) cases were provided with one or more medications. The remaining 17 (15%) cases did not receive any medication. A total of six pharmacologic groups of medications were given to alleviate acute diarrheal symptoms. Majority (66, 29.6%) of the medications were oral rehydration salts with zinc. The mean number of medications was 1.99 per visit. Components of advice, such as dose, frequency, duration, drug action, and adverse drug reactions, were found to vary among the five towns at a statistically significant level. **CONCLUSIONS:** Community pharmacies provided inadequate treatment for acute childhood diarrhea. Inappropriate history taking and incorrect drug and food instructions have been frequently encountered during acute diarrhea management. Practitioners working in northern Ethiopia should receive proper training on the management of acute childhood diarrhea.

PHP14

A CRITICAL REVIEW OF MEDICATION REVIEW TOOLS FOR LONG-TERM CARE FACILITIES AND DEVELOPMENT OF A NOVEL TOOL FOR QATAR

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OBJECTIVES: Polypharmacy and complex drug regimens are common among long-term care population and these are considered a major risk factor for prescribing errors, adherence problems and, adverse drug events. Despite the availability of many medication review tools (MRTs), there is no single tool that specifically targets long-term patient's medications. The objectives of this study were to systematically review available studies regarding MRTs in long-term care settings, to develop a new MRT, specifically designed for long-term care patients customize to a local setting and to validate the new tool through expert panelists. **METHODS:** A systematic review was conducted through searching in relevant biomedical databases. Elements and new criteria were extracted from the previous systematic review. The proposed new criteria were evaluated in terms of it clinical importance, accuracy and evidence base. Using the Delphi validation method, expert panel members proposed additional criteria and ways to improve the structure and content of the existing criteria. **RESULTS:** six Instruments evaluating medication used in long-term care settings were identified. The initially developed draft 1 of long-term MRT consists of 9 items. During the Delphi consensus validation of draft 2, one item from MRT draft 1 was not included and 4 additional items were included. **CONCLUSIONS:** Each instrument is unique in which some are simple, other are more comprehensive in detecting, minimizing and preventing DRPs. Depending on the clinical setting, specific populations and medication review needs, we developed a MRT to serve long-term care patients at Rumailah Hospital named Doha Medication Review Tool (DMRT®).

PHP15

PARAMETRIC AND NON-PARAMETRIC APPROACHES FOR PREDICTING BACTERIAL RESISTANCE

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OBJECTIVES: The objective of this study was to define an appropriate approach for calculating the change in pathogen resistance: non-parametric predictive model or parametric model with consumption as a main factor. **METHODS:** Data on 3000 patients in the St Petersburg State Medical hospital were gathered between 2008 and 2014. Patients were eligible if they presented with or had a bacterial infection in hospital and had a microbiological sample taken whilst in hospital. Across the same period overall antibiotic prescriptions were gathered through the hospital pharmacy on a monthly level represented as daily defined dose (DDD). As an evaluable variable for the time series we used the percentage of occurrence of resistance for a given bacterium-antibiotic pair per month. Two models were tested: with and without consumption as a parameter. Each model is an aggregate of submodels, entering into it with equal weight. All submodels are regressive and differ in set of factors: consumption of antibiotics, autoregression with different lags, and seasonal components. We carried out training on the data with a monthly series. Validation of the submodels was carried out on the annual moving average resistance shifted by 1 month by estimation of root-mean-square deviation (RMSD). After the RMSD