

conducted based on the perspective of healthcare payers; therefore, only medical direct cost was evaluated. The cost of medical service and drugs were retrieved from the price-list of relevant medical services and drugs, registered by Ministry of Health in Vietnam 2012. **RESULTS:** The average direct cost of CRC for one patient accounted for nearly 756.83 million VND per year. Cost for one patient increased with the increasing of disease severity and accounted for 1.875 million VND; 800 million VND; 822 million VND and 1,351 million VND in stage I, II, III, IV, respectively. In the structure of cost, with the increase in severity of disease, the percentage of drug cost increased and the percentage of medical services decreased. **CONCLUSIONS:** The cost of CRC treatment increased following the increase of disease severity. The huge economic impact of CRC should be controlled and considered to conduct the proper healthcare policies.

## PHS39

## DIRECT MEDICAL COSTS ASSOCIATED WITH CLINICAL AND HEALTH CHARACTERISTICS IN VISUALLY IMPAIRED INDIVIDUALS IN SINGAPORE

Luo N<sup>1</sup>, Wang X<sup>1</sup>, Finkelstein EA<sup>2</sup>, Lamoureux E<sup>3</sup>, Aung T<sup>4</sup>, Wong TY<sup>4</sup>, Ang M<sup>4</sup><sup>1</sup>National University of Singapore, Singapore, Singapore, <sup>2</sup>Duke-NUS Graduate Medical School, Singapore, Singapore, <sup>3</sup>Duke, Singapore, Singapore, <sup>4</sup>Singapore National Eye Center, Singapore, Singapore

**OBJECTIVES:** To examine the association of direct medical costs with clinical and health characteristics in visually impaired individuals in Singapore. **METHODS:** We prospectively recruited 500 visually impaired individuals due to cataract, glaucoma, diabetic retinopathy (DR), or age-related macular degeneration (AMD) from Singapore National Eye Centre. In face-to-face interviews, vision function and health status of the individuals were assessed using the 14-item Visual Functioning (VF-14) and EQ-5D questionnaires, respectively. Severity of visual impairment (VI) and direct medical costs were determined using clinical and billing data, respectively, in the study center. Annual medical costs per capita were estimated and compared for individuals with different eye diseases and in different levels of VI, vision function, and health status using generalized linear models. **RESULTS:** The mean (standard deviation [SD]) age of participants was 71.6 (9.8) years old. The proportion of male was 47.6% and the mean (SD) presenting visual acuity was 0.49 (0.31). The annual medical costs per capita were \$56.8K. After adjusting for socio-demographics, the annual medical costs differed in individuals with different eye diseases (AMD higher than cataract by \$513.1K, glaucoma by \$59.2K, and DR by \$512.4K), VI severity (between mild/moderate and severe VI: \$58.8K), vision function (between absence and presence of problems: \$53.7K), and health status (between absence and presence of problems: \$51.3K). **CONCLUSIONS:** Direct medical costs are highest in AMD individuals and are associated with clinical measure and vision function in visually impaired individuals in Singapore.

## PHS40

## ECONOMIC BURDEN OF VACCINE-PREVENTABLE DISEASES AMONG THE ELDERLY IN TAIWAN

Lu W<sup>1</sup>, Yang HK<sup>2</sup>, Chen L<sup>3</sup>, Hsiao F<sup>1</sup><sup>1</sup>National Taiwan University, Taipei, Taiwan, <sup>2</sup>Merck & Co., Inc., West Point, PA, USA, <sup>3</sup>Taipei Veterans General Hospital, Taipei, Taiwan

**OBJECTIVES:** Vaccination against influenza, pneumococcal disease and herpes zoster are recommended for the elderly, who have high morbidity and mortality rates due to these three diseases. Many studies investigated the clinical burden by each vaccine-preventable disease; however, empirical data on the full economic burden of adult vaccine-preventable diseases is scarce. This study examines the healthcare resource utilization and medical expenditures of elderly with vaccine-preventable diseases in Taiwan. **METHODS:** We included 104,273 beneficiaries aged 65 years or older under the Taiwan's National Health Insurance program in 2010. Patients with vaccine-preventable diseases were defined as those who had at least one diagnosis of flu, pneumococcal disease, or herpes zoster. Outcomes of interest include healthcare resource utilization (inpatient, outpatient, and emergency department (ED) visits) and associated medical expenditures. **RESULTS:** In 2010, there were 6.77%, 3.18% and 1.88% of elderly population had been diagnosed and received ambulatory care for pneumonia, flu and herpes zoster, respectively. However, on average, patients with pneumonia, flu, herpes zoster visited the doctor's office 36.9, 37.3, 38.5 times (without those diseases: 26.7 times), respectively. The healthcare resource utilization from patients with vaccine-preventable diseases attributed to large proportion of medical expenditures. Among annual medical expenditures for the elderly (US\$0.2 billion), 13.08% of expenditures cost from pneumonia care, 3.10% from flu and 2.53% from herpes zoster. Average cost per patient were US\$3.6 thousand, US\$1.8 thousand and US\$ 2.5 thousand for pneumonia, flu and herpes zoster, respectively. **CONCLUSIONS:** This study demonstrates significant burden of healthcare utilization caused by older people with vaccine-preventable diseases. In addition, different management strategies may be warranted for different vaccine-preventable diseases since the differences of patient characteristics as suggested by our study.

## PHS41

## DIRECT COSTS OF HEALTH CARE FOR BREAST CANCER, THE CASE OF A HEALTH MAINTENANCE ORGANIZATION IN COLOMBIA

Moreno JA<sup>1</sup>, Muñoz-Galindo IM<sup>1</sup>, Guarín NE<sup>1</sup>, Díaz JA<sup>2</sup>, Arevalo HO<sup>1</sup><sup>1</sup>Salud Total EPS, Bogotá D.C., Colombia, <sup>2</sup>Universidad Nacional de Colombia, Bogotá D.C., Colombia

Breast cancer (BC) is one of leading causes of death in women and is also considered a catastrophic illness associated with a large financial burden on the health system with incremental trend. **OBJECTIVES:** To estimate the direct costs associated with the health care of patients with BC affiliated with a health maintenance organization (HMO) in Colombia during the period 2010-2014. **METHODS:** A retrospective cross-sectional study was conducted in a cohort of 1314 patients with BC affiliated with a HMO in Colombia and distributed in 16 cities of the country, in the period 2010 to 2014. Demographic characteristics of the cohort are described and the aver-

age annual costs were estimated by health service and patient. Costs were adjusted for inflation and expressed in 2014 US dollars. **RESULTS:** The prevalence of BC was 247.72 per 100,000 members, the average age was 58.86 years (SD 13.05 years), cities with higher concentrations of patients were Bogotá (35.08%), Medellín (10.65%), and Barranquilla (9.67%). The average annual cost of health care for 1314 patients was \$ 5,709,078.15, given mainly by chemotherapy with 31.36%, followed by drugs (27.34%), radiotherapy (7.48%), hospital surgery (6.26%), diagnostic and therapeutic procedures (3.55 %) and hospitalization (3.22%). The average annual cost per patient was \$ 8350.95 (2010), \$ 7798.91 (2011), \$ 6719.66 (2012), \$ 5910.49 (2013) and \$ 5214.47 (2014). **CONCLUSIONS:** The average annual cost per patient with BC in an insured population in Colombia is equivalent to the annual premium per capita of 17 patients by 2014. I an average decrease in cost per patient of 38% was found during the follow.

## PHS42

## CLINICAL AND ECONOMIC ANALYSIS OF SIMPLE CONTACT DERMATITIS DUE TO URINARY INCONTINENCE AND PRESSURE ULCERS OF IMMOBILIZED PATIENTS WITH URINARY INCONTINENCE

Vorobiev A, Vorobiev P, Krasnova L

Russian Society for Pharmacoeconomics and Outcomes Research, Moscow, Russia

**OBJECTIVES:** Simple contact dermatitis (CD) and pressure ulcers (PU) of immobilized patients with urinary is an important and not enough explored clinical and economic problem in hospitals and social care organizations. **METHODS:** An observational clinical and economic study of a typical practice of CD and PU. In the study taken forms of 85 patients, analyzed in 7 critical points each. Patients had a higher risk of CD and PU. The average age - 76 ± 5,6 years. **RESULTS:** Patients without CD and PU - 25 persons (29.8%), with PU 50 persons (58.8%), with CD 35 persons (41.1%). In 19 patients (22.4%) had and PU and CD in various critical areas. CD was marked in 75 points (12.6%), PU 1-2st - 93 points (15.6%), PU 3-4st - 8 points (1.3%). Total costs in rubles (1\$ US = 34 ) for 1 patient in the group without the CD and PU were 12895, drugs -325, on care products -391, for services -12179. In the group "PU 1-2st" total costs 13546, on drugs -267, at the expense of care -769, for services -12510. In the group "PU 3-4st" total costs 25290, on drugs -161, on care products -4356, for services -20 773. In the group of "KD" total costs 16027, on drugs -146, on care products 1349, for services -14532. **CONCLUSIONS:** The frequency of PU is 58.8%, KD - 41.1%, KD and PU - 22.4%. Without CD and PU - 29.8%. Total costs are the biggest in group of patients with high degrees of PU, due to the high cost of services and care products. Drug costs are not high. A high cost in the CD group is associated with services and care. The data will be used to construct a Markov model.

## PHS43

## ECONOMIC BURDEN OF COLORECTAL CANCER IN VIETNAM: FROM HEALTHCARE PAYERS' PERSPECTIVE

Phan T, Hoang B, Nguyen TT

University of Medicine and Pharmacy in HCMC, Ho Chi Minh City, Vietnam

**OBJECTIVES:** Colorectal cancer (CRC) is considered as the third common cancer among men and the second common cancer among women worldwide. In Vietnam, colorectal cancer is the fifth common cause of cancer - related incidence. In many countries, economic burden of colorectal cancer has been investigated logically. However, there have not had any research about this in Vietnam. This research was conducted to provide more detail information to help the decision-makers find out the most appropriated policies to control the disease. **METHODS:** The economic burden of CRC in Vietnam was evaluated by the following formula:  $C = \sum P_i \times CO_i$ , in which, C: economic burden of CRC in Vietnam,  $P_i$ : number of patients in stage i of CRC in Vietnam,  $CO_i$ : cost of CRC in stage i. **RESULTS:** The 5-year prevalence of CRC is 27.3 per 100,000. The economic burden of CRC of the whole society was estimated about 14,268.3 billion VND. The values fluctuated sharply from stage I to stage IV, accounted for 6.9 billion VND; 5,731.2 billion VND; 3,564.5 billion VND and 4,965.7 billion VND, respectively. As lots of patients were diagnosed at stage II (about 38%), the economic burden of this stage was predominant (40%) compared to the others. Furthermore, in all stages except stage I, the economic burden related to medicine was much more higher than that of medical services. **CONCLUSIONS:** The high economic burden of CRC should be considered to conduct relevant healthcare policies, especially for patients in advanced stages. **KEY WORD:** economic burden, colorectal cancer.

## PHS44

## MEDICAL CARE COSTS OF CHIKUNGUNYA VIRUS INFECTION IN A PEDIATRIC POPULATION IN COLOMBIA

Castañeda-Orjuela C<sup>1</sup>, Díaz-Jiménez D<sup>1</sup>, Rodríguez-Castillo L<sup>1</sup>, Paternina-Cañedo A<sup>2</sup>, Pinzón-Redondo H<sup>3</sup>, Alvis-Guzman N<sup>2</sup>, De la Hoz-Restrepo F<sup>1</sup><sup>1</sup>Instituto Nacional de Salud, BOGOTÁ D.C., Colombia, <sup>2</sup>Universidad de Cartagena. Centro de Investigación y Docencia. Hospital Infantil Napoleón Franco Pareja, Cartagena de Indias, Colombia, <sup>3</sup>Hospital Infatil Napoleón Franco Pareja, Cartagena., Colombia

**OBJECTIVES:** In 2013 December, PAHO confirmed the local circulation of chikungunya virus (CHKV) in the region. In 2014 September Colombia reported the first local CHKV case in the Bolívar, and started an outbreak within a susceptible population. The objective of this analysis is to estimate the medical care cost of children patients with suspect of CHKV attended at a reference pediatric Hospital in Cartagena-Bolívar, at the start of the CHKV local transmission in Colombia. **METHODS:** A retrospective bottom-up cost analysis was designed. We selected randomized sample of clinical records from children patients with CHKV clinically suspected during September – November 2014 at the Hospital "Napoleón Franco Pareja" in Cartagena city, Colombia. A costing data collection instrument was designed a piloted to collect the information about the frequency of use activities and supplies by patient. Administrative and cost data by patient and activity were obtained from the Hospital. Costing items included: consults, hospitalization bed-day, supplies, drugs, and diagnosis and therapeutic procedures. Total cost per cost item and patient were estimated and average cost per patient reported. Costs were expressed in 2014 USD with an Exchange rate of 2392.46 COP per American dollar. **RESULTS:** A sample of