justified. CONCLUSIONS: Knowledge in pharmacoconomics among pharmacists may lead to a deeper engagement of this group of professionals in a more appropriate management of drugs.

**PHP21**

**QUALITY ASSESSMENT OF AN AMBULATORY CARE CLINIC BASED COLLABORATIVE CARE APPROACH FOR ACHIEVING THERAPEUTIC GOALS**

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OBJECTIVES: The objectives of this study were to: 1) assess the quality of patient care provided by 6 Medication Therapy Management (MTM) pharmacists who were working collaboratively with physicians in 6 ambulatory care clinics in the Minneapolis, MN metropolitan area; and 2) determine the MTM pharmacists’ ability to identify and resolve drug therapy problems.

METHODS: The quality of therapeutic determinations made by pharmacists within this collaborative practice of MTM was studied using a 9-member panel of physicians (6) and pharmacists (3). The panel reviewed the care provided to nine randomly selected patient records from the 286 MTM patients who were Blue Cross/Blue Shield Blue Plus members. A structured implicit review process was used by the reviewers to specify their level of agreement with the therapeutic decisions made by the MTM pharmacists. The reviewers used a 7-point Likert scale to specify their level of agreement with each therapeutic decision.

RESULTS: There were 6444 therapeutic review determinations made by the review panel. The 9 reviewers expressed agreement with 90.7% of the decisions. They expressed disagreement with only 2.8% of the decisions. For each therapeutic decision, two-thirds or more of the reviewers agreed with the decision made in 99.9% of the cases. There was no difference in the mean ratings of the 9 patients based on an ANOVA (p = 0.906).

Regarding drug therapy problems (DTP’s), there were 20 DTP’s identified during the initial patient visits. All but 5 DTP’s were resolved by the second visit. CONCLUSIONS: The decisions made by MTM practitioners working in collaboration with physicians are clinically credible based on the ratings and comments of a peer review panel. This study provides information on the quality of care provided by pharmacists in the collaborative practice of medication therapy management.

**PHP22**

**MEDICATION AND SOCIO-ECONOMIC STATUS IN A POPULATION-BASED COHORT STUDY**

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OBJECTIVES: Presently, statements on associations of socioeconomic status (SES) and use of medication are based on few and contradictory empirical data. Within the framework of the ongoing Heinz Nixdorf Recall study (HNRS), we can examine medication use and SES in detail. METHODS: The HNRS is a population-based cohort study to assess the predictive value of new risk factors for coronary artery disease. A random sample of 4518 men and women aged 45–74 years was recruited from the German cities of Bochum, Essen, and Mülheim between 2000–2003. We assessed the seven-day prevalence of any medication-use from 4519 subjects. Age, gender, highest school degree, highest professional training and income served as determinants of medication prevalence. Logistic regressions were used to estimate multivariate associations. RESULTS: A total of 11,500 drugs were taken by 3449 (76%) subjects, with ACE-inhibitors (9%), beta-blockers (8%), sexual hormones (6%), and statins (5%) ranked first. As expected, the prevalence of drug use increased with age, women reported a higher use than men (83 vs. 70%). For participants with the lowest compared to participants with the highest professional training an odds ratio (OR) of 2.04 (95% CI: 1.60–2.60) for taking medication was calculated. Adjusted for age and gender, this significant difference between social classes disappeared. Otherwise, gender specific analyses showed an age-adjusted OR for women with the lowest educational level of 2.0 (1.31–3.05) compared to women with the highest educational level and for men a higher use of psychopharmacuticals in the lowest compared the highest income group (1.92; 1.02–5.05). CONCLUSIONS: The association of SES on drug use is still not clear and seems to alter with the construct of social status, gender and drug groups. In particular, the challenging task to differentiate between the influence capability of SES on medication, medication on health/disease and vice versa has to be considered.

**PHP23**

**ANALYSIS OF CLINICAL INTERVENTION DOCUMENTATION BY PHARMACISTS**

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OBJECTIVES: At LBK Hamburg, pharmacists started 1995 with patient orientated drug distribution named PAV (Patientenbezogene Arzneimittel Versorgung). In 2004 nearly 1300 patients in 48 wards are served daily with the Unit Dose System. Every patient’s medication profile is recorded electronically. All medication orders are reviewed by pharmacists prior to delivering medication. In this way continuing pharmaceutical consultation is linked with the routine process of drug therapy. Medication errors and resulting costs have been reduced, acceptance of guidelines has been increased. On the base of ex-ante controlling and pharmaco-economic consultation decreasing of costs should be reached. METHODS: On the base of the Problem-Intervention-Documentation-System (PI-Doc) of Humbold University, Berlin the system was developed specifically for hospitals. The goal was to analyse pharmaceutical interventions on medication errors and the rational use of drugs. For a period of two months all interventions were recorded by pharmacists. RESULTS: In the 2 months of the study 3010 interventions were recorded. A total of 2035 (67.6%) of the interventions are categorized as medication errors, including anamnesis and documentation errors and 975 (32.4%) of the recorded interventions are associated with optimization of drug therapy and cost-effective use of drugs. In this category, the main part was the successful adoption of the patients medication to the specific formulary of the hospital (24.5% (738)). Decreasing the number of special drug orders which are linked with extra process cost, the saved direct cost has been calculated. CONCLUSIONS: Pharmacists have a valuable role in preventing medication errors, improve patient care and cost-effective use of drugs. The analysis of pharmaceutical interventions highlights trends and patterns in prescription and medication errors. These results are to be used to improve effectiveness of pharmacists involvement in preventing medication errors and economic outcomes.

**PHP24**

**ANALYSIS OF “INNOVATOR” DRUGS FINANCED BY SPANISH NATIONAL HEALTH SERVICE OVER THE PERIOD 1996–2003**

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OBJECTIVES: The Spanish National Health System (NHS) systematically introduces new and, obviously, higher-priced medi-
cines in the public offer. Here, we analysed the impact of these new medicines financed by the Spanish NHS over the period 1996–2003, as a continuation of a previous one. METHODS: A retrospective analysis has been made, selecting new medicines. These have been classified following the degree of therapeutic innovation at the moment of authorisation, according to two criteria, the Ministry of Health and Consume (MHC) and the Drug Information Centre of Andalusia Autonomous Community, (CADIIME). Consume data were provided by the MHC database and was expressed as Price for sale Direct to Customer, tax-free (PDC), by means of millions of Euro (M€). The rapid introduction of new medicines into the clinical practice (next to one-hundred top) and the evolution of the consumption were the indicators used. RESULTS: The total number of new drugs marketed during the period of the study was 113. From those, 20 are next to one-hundred top in the first year after authorisation. None of them were categorised as “an exceptional therapeutic novelty”. Most were drugs with “non o very small therapeutic improvement” or “insufficient clinical evidence”. Different status of classification was found in more than six of the 20 new drugs. When analysing new drug consumption, it was observed that their quote is superior to 1.9%, in average, in relation to the public annual consumption. CONCLUSIONS: The market size, devoted to recently introduced medicines with high prices, is important. This is not in agreement with their limited therapeutic innovation, being even least when CADIIME classification is considered. Nevertheless, a notable decrease in the number of “innovator” drugs introduced from the year 2001 was observed.

**PHP25**

**WILLINGNESS TO PAY VERSUS OUT OF POCKET PAYMENTS FOR HEALTH SERVICES UTILIZATION IN GREECE**

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OBJECTIVES: To compare willingness to pay (WTP) with out of pocket (OoP) payments of the Greek population for primary and secondary health services utilization. METHODS: A telephone survey was conducted in 2003, covering a national random sample of 1000 participants questioned regarding their additional WTP and OoP actual payments, for a 12 month period, in order to improve their provision of health services in terms of NHS responsiveness and access to health care. RESULTS: A total of 95.6% respondents were compulsory insured, 55.8% of WTP respondents were male, 53.8% of non WTP female. Mean age of WTP respondents was 42.1 years. A total of 63% urban residents, 13% semi-urban and 23.8% rural. Twenty percent (20%) of those who declared WTP had an income per month from 900 to 1300€, 14.7% from 501 to 900€, 20% from 1501 to 3000€ and the rest (37.8%) an income over 3001€. Of those who denied WTP, only 16.4% had spent nothing as OoP payments for health services utilization during the last year, 46.9% spent up to 150€, 14.2% spent from 151 to 300€, 8% from 301 to 600€, 6.4% from 600 to 1500€ and 23.5% over 1501€. According to the WTP amount already declared, 62.8% of those willing to pay from 0 to 50€ had actually spent approximately a total of 150€ for health services utilization during the last 12 months, while 100% of those willing to pay from 601 to 900€ had only spent up 150€. CONCLUSIONS: A total of 70.8% of respondents declared non WTP for improving their access and utilization of primary and hospital care. Among the respondents who denied WTP, 83.6% declared OoP actual payments starting from 150 to 1500€ per year. Our findings may reflect the difference between revealed and stated populations’ preferences.

**PHP26**

**PHYSICIAN’S ACTIVITY HETEROGENEITY: AN EMPIRICAL STUDY IN TWO FRENCH REGIONS**

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OBJECTIVES: The objective of the study was to identify different GP’s practicing profiles, in order to better understand the way French GP’s react to governmental measures to contain cost or to increase quality of care. METHODS: We constructed a large database about of 4700 GP’s from 2 French regions (Aquitaine and Burgundy) for the year 2000. Variables described physicians’ volume and structure of medical activity (office consultations, home visits, medical procedures, prescriptions of pharmaceutical, lab tests and X-rays examinations), income level, personal characteristics (age, gender, specialty, localisation, contractual status with health insurance), practice characteristics (size, structure by age, percentage of hospitalised patients, etc.) and socio-economic characteristics of the geographical environment (physicians density, distance to the nearest hospital, unemployment rate, urban or rural town). The database was analysed though a variety of statistical methods including cluster analysis and econometric tests. RESULTS: Four different homogeneous groups were identified, each of them relating physicians’ level of activity to their socio-economic status. In group 1 for instance, GP’s have a high level of activity (2340 patients and 9300 consultations in average), 46% of them practice in rural areas and only 4% are women. Conversely, physicians in group 4 have a low level of activity (1050 patients, 2400 consultations in average), 75% are located in urban areas and 44% are women. Econometric tests allow discriminating the main determinants of multidimensional medical activity between rural and urban GP’s. CONCLUSIONS: The way GP’s exert medicine is not uniform. The level and the type of medical activity greatly vary among physicians. Individual factors as well as characteristics of the socio-economic environment greatly explain these differences. An immediate consequence is that any cost-containment measure which applies uniformly to all GP’s, such as regulating fees, necessarily results in different outcomes according to the type of physicians’ category.

**PHP27**

**AGE AND GENDER DISTRIBUTION OF PHARMACEUTICAL EXPENDITURE PER INHABITANT**

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OBJECTIVES: To highlight the importance in establishing age and gender bands with the aim of explaining the level of pharmaceutical expenditure of each Primary Health Care Team (PHCT). METHODS: Thanks to the advances of information systems and the introduction of the Personal Health Card, it has been possible to calculate the cost per inhabitant (according to age and gender) taking into account the expense generated through prescriptions produced by inhabitants assigned to the Public Health System (Central Register of Insured). RESULTS: According to some established criteria, 20 bands have been determined. It is proved that 10% of the population is concentrated in the 67–77 year old band and the expenditure that it generates is 33% of the total expense. However, the 9–12 year old and 33–39 year old bands together (15% of the population) only represent 3.8% of the total expense. Gender is also a relevant variable. Women have a higher level of expense than men for ages comprised between 21 and 72 and for those above 89