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OBJECTIVES: To calculate direct medical costs of diabetes and its complications for insulin users from the perspective of the health insurance fund. **METHODS:** A 6-month, prospective, observational bottom-up cost study of diabetes type 1 and type 2 for patients on insulin or combined insulin plus oral anti-diabetic therapy was performed. Data were gathered for anti-diabetic drugs, concomitant medicines, medical devices and hospitalizations, due to diabetes and its complications. Official drug prices were taken from the positive drug list. All other costs were gathered from the national framework contract. The annual cost per patient was calculated for the year 2011 (1.95 BGN = 1 EUR). **RESULTS:** A total of 430 (254 type 2) patients were included into the study. The total cost per patient per year is BGN 4.500. Out of them, 57% are hospitalization costs due to polyneuropathy, glaucoma, retinopathy, nephropathy, amputations, and diabetic angiopathy. Anti-diabetic medicines account for 23% of all costs, medical devices for 4%, and outpatient treatment of complications and concomitant diseases for 16%. Statistically significant differences are observed in the cost structure between country regions with the highest cost per patient in the capital. The percentage of anti-diabetic medicines in the total cost varies depending on the age group: 31% for 20-44 year olds, 29% for 45-59 year olds and 19% for diabetics above 60 years. On the opposite, the hospitalization cost due to diabetes and its complications is 61% in the oldest age group while in the youngest is 44%. **CONCLUSIONS:** Our study confirms that diabetes is a costly disease and the majority of the total health care costs relate to treatment of diabetes complications.

PHS88

PHARMACIST HOUSE CALLS IN HOME CARE IN JAPAN

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OBJECTIVES: The Japanese government has recently been promoting home-care. Local community pharmacies have been playing an important role in home-care, but virtually no research has been done to clarify the exact nature of their activities. This study was therefore conducted to elucidate the prescription infrastructure and home visit activities being conducted by community pharmacies. **METHODS:** In March 2012, questionnaires were mailed to community pharmacies in two cities in Osaka prefecture. The principal items surveyed were the background characteristics of the patients receiving home visit, the number of pharmacists working at the pharmacies, and the pharmacies' facilities/equipment. **RESULTS:** We received responses from 90 of the 201 community pharmacies surveyed (response rate: 44.8%). Of these 90 pharmacies, 44 performed home visit. The patients visited at home were 79.7 years old, on average; 31.8% lived alone, and 22.7% lived with a spouse, with no children in the home. The responding pharmacies had an average of 2.2 full-time and 2.5 part-time pharmacists on staff. The mean number of prescriptions filled per day was 80.5, and 91.1% of the pharmacies did not possess sterile compounding equipment. Of the responding pharmacies, 83.1% stocked narcotic drugs, and the mean number of narcotics drugs stocked was 8.7. The parameters that were found to be correlated to the performance of home visit were the number of full-time pharmacists [p = 0.003], the number of narcotic drugs stocked [p = 0.060], and the number of medical instruments/materials possessed [p = 0.057]. **CONCLUSIONS:** The results show that the patients being visited by pharmacists are more likely to be elderly living alone who need their drug use managed by a pharmacist. Most pharmacies conducting home visit do not have sterile compounding equipment, half of the pharmacists working at these pharmacies are part-time, and not all of these pharmacies necessarily stock narcotic drugs.

PHS89

HOW CAN WE MEASURE THE IMPACT OF CLINICAL PHARMACY INTERVENTIONS? A RETROSPECTIVE DRUG COST ANALYSIS

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OBJECTIVES: To estimate the ICU drug cost impact of clinical pharmacists' interventions at the Ghent University Hospital. **METHODS:** A patient cohort with pharmacist intervention (I) was compared with a control group (M) (Jan 08 – Dec 11). Matching criteria were admission year, hospital length of stay (LOS), All Patient Refined Diagnosis Related Group (APR-DRG), Major Diagnostic Category (MDC), mortality rate, age. Generic drug names, selected from a pharmacists' ICU - intervention database were included in the analysis if the cost/daily defined dose (WHO.int) multiplied with the intervention rate was > 50€: acetaminophen, acyclovir, ceftazidim, enoxaparin, erythromycin, (es)omeprazole, fluconazole, levofloxacin, linezolid, meropenem, piperacillin tazobactam, ranitidin, somatostatin, teicoplanin, vancomycin, (val)ganciclovir, voriconazole. The average ICU drug cost was compared between groups and a "drug cost per number of used units" ratio was calculated: lower ratio for (I) was considered as a more efficient use. (Data are in % or median with interquartile range IQR; statistical analysis in SPSS, Chi Square Test; p=0.05). **RESULTS:** Eighty-nine ICU patients receiving intervention were matched with 167 patients. Median LOS was respectively 39 (22 – 72) days for (I) and 35 (20 – 71) (M). Mortality rate was 29% (both groups). Most prevalent APR-DRG was septicemia: 16.9% (I); 18.6% (M). Average ICU drug cost was 346.75€ (I) compared to 397.64€ (M) (p<0.001); for the selected drugs 168.23€ (I) and 144.52€ (M) (not significant). Ratios in favour of (I) were found for ceftazidime (p<0.001), meropenem (p<0.001), piperacillin tazobactam (p<0.001) and teicoplanin (p=0.001). **CONCLUSIONS:** Average ICU drug cost was lower in a group of patients receiving pharmacist interventions but this trend could not be attributed to the 19 most costly and prevalent drugs in intervention. However, for 4 of these drugs data suggest a more efficient use. This finding needs to be confirmed with prospective data and to be balanced with health outcomes.

PHS90

HOW DO PHARMACISTS ADVISE DIABETES PATIENT SELF-MANAGEMENT DURING THE HOLY MONTH OF RAMADAN?

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OBJECTIVES: Many diabetes patients choose to participate in the Ramadan fast despite medical and religious advice to the contrary. Pharmacists are accessible health care resources whose guidance can help ensure safe fasting in these individuals. The aim of this study is to describe Qatar pharmacists' current practice, knowledge, and attitudes towards diabetes medication management during Ramadan. **METHODS:** A cross-sectional survey was administered to a convenience sample of 500 pharmacists practicing in Qatar. The 30-item questionnaire was systematically developed following comprehensive literature review. The volume and nature of pharmacist interactions with diabetes patients were explored, as were attitudes regarding pharmacist roles in diabetes care during Ramadan. Awareness and access of relevant resources was assessed and knowledge of specific therapeutic and dosing recommendations was evaluated according to the proposed diabetes medication management and patient risk-assessment strategies endorsed by international medical and religious bodies. **RESULTS:** The survey was completed by 166 (33%) pharmacists during May and June 2012. Eighty-eight (53%) were based in ambulatory care and reported somewhat more interaction (at least weekly) with diabetes patients during Ramadan than hospital pharmacists (70.4%, vs. 55.8%, p=0.08). Three-quarter of respondents had never read recommended diabetes Ramadan guidelines with 62% using internet resources as their primary reference to answer fasting-related diabetes questions. Two-thirds of respondents correctly identified how to modify oral diabetes therapy dosing during Ramadan, but just 20 (12%) did so for insulin. Despite stated barriers of workload, insufficient access to patient medical records and private counseling areas, pharmacists overwhelmingly expressed willingness to assume greater roles in diabetes patient education during Ramadan. **CONCLUSIONS:** Qatar pharmacists frequently interact with diabetes patients, but application of recommended medical guidelines for care and medication dosing for fasting patients is not optimal. Despite barriers limiting enhanced participation in diabetes patient management during Ramadan, pharmacists are interested in developing these services.

PHS92

ALLOCATION OF RESEARCH FUNDING IN HEALTH CARE IN RELATION TO DISEASE BURDEN IN EUROPE

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OBJECTIVES: The concept of allocation of research funding in health care depending on the disease-specific burden to the society was proposed by the governmental institutions in the USA and Europe. Unfortunately, recent data from the USA showed that this concept has been unsuccessfully implemented. The objective was to perform a systematic review of allocation of research funding in health care in Europe. **METHODS:** We performed a systematic review of all publications, which investigated the allocation of research funding in health care of different European countries in the last 10 years (234 hits). In Germany, we interviewed the main state funding institutions to acquire data on allocation of funding in national health care. Data on funding allocation were compared with disability-adjusted life years (DALY), prevalence and costs of diseases. **RESULTS:** Data on funding allocation are not available for the most European countries. Disease burden was inadequately reflected in those countries where data were available. A comparison between cancer, coronary heart disease, dementia and stroke, which are among the most common causes of mortality and disability in Europe, revealed that cancer receives over 70% of total research funding. Although the health-economic burden of dementia and cancer is similar, dementia receives approximately 10 times less funding. In the UK, Switzerland and Denmark, cancer receives 49.175€, 25.162€ and 24.424€ of funding per one million of costs. The research funding per one million of costs is substantially lower in dementia (2.145€ in UK, 11.300€ in Switzerland und 6.808€ in Denmark), and stroke (4.693€, 15.000€ and 11.788€, respectively). **CONCLUSIONS:** Disease burden is still inadequately reflected in allocation of research funding in Europe. There is an underfunding of research in brain diseases, such as stroke and dementia, which are associated with substantial economic burden. Health-political solutions are necessary to improve the implementation of the research funding concept.

PHS93

HBA1C TEST UTILIZATION AMONG HOSPITALIZED PATIENTS WITH HYPERGLYCEMIA

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OBJECTIVES: To evaluate the utilization of and factors associated with HbA1c testing in the inpatient setting among patients with hyperglycemia. **METHODS:** Data were obtained from Humedica's Integrated Delivery Networks from October 1, 2009 through September 30, 2011. The analyses focused on hospitalization episodes (admissions and observations) among pre-diabetic/undiagnosed and diabetic patients with blood glucose values ≥140 mg/dl, and are descriptive in nature. Results are statistically significant at the p<0.05 level unless otherwise noted. **RESULTS:** A total of 55,614 patients contributed to 94,638 unique hospitalization episodes with at least one occurrence of hyperglycemia. HbA1c tests were performed in 24.6% of

these hospitalizations, and in 26.4% of patients. Among all hospitalizations, not having an HbA1c test in the previous 3 months was associated with twice the rate of those with a previous test (32.4% vs 16.2%), and hospitalizations with glucose values of 200 mg/dl or greater had a higher rate (27.7%) than did those with lower glucose levels (18.3%). Endocrinologist treatment during a hospitalization was associated with a higher HbA1c utilization rate (43.6%) compared to treatment from all other specialties (23.3%), including hospital medicine (21.1%). Among all patients, younger patients had a higher HbA1c utilization rate than did patients >=65 years (47.2% <21, 29.5% 21-64, and 23.8% 65+), as did male patients (28.3% vs 24.5%). Type 1 diabetics had a higher rate than did patients with pre-diabetes/undiagnosed diabetes and type 2 diabetes (32.0%, 28.7%, and 25.4%, respectively). Among hospitalizations of pre-diabetes/undiagnosed patients who received an HbA1c test, 17.9% had values of 6.5% or greater. **CONCLUSIONS:** These data suggest that overall utilization of HbA1c tests in the hospital setting is low among pre-diabetic/undiagnosed and diabetic patients with hyperglycemia. The utilization rate differs significantly by patient characteristics and by physician specialty. These data highlight the potential to improve identification and diagnosis of diabetes within the hospital setting.

PHS94

INVOLVEMENT OF CNS SPECIALISTS IN HEALTH CARE PROVISION FOR PATIENTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD): NEW DATA FROM NORDBADEN, GERMANY, 2003 - 2009

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OBJECTIVES: In our earlier cross-sectional analyses of physician involvement in health care provision for patients with a diagnosis of ADHD (for year 2003), we observed that only 36% of children and adolescents and 33.5% of adults had been seen by a CNS specialist. The present study revisits health care provision for ADHD patients by physician group. **METHODS:** Patient-level data were extracted for analysis from the physician-centered claims database of the Kassenaerztliche Vereinigung (KV) in Nordbaden / Germany, which covers the entire regional population enrolled in statutory health insurance (>2.2 million lives). For calendar year 2009, 21,287 patients with ADHD ["hyperkinetic disorder", HKD; ICD-10 codes F90.0 or F90.1] (male, 15,108; female, 6,179; including 5,931 patients or 27.9% [male, 4,582; female, 1,349] with coexisting conduct disorder [HKCD; F90.1 or a combination of F90 and F91]) were available for analysis of health care provider contacts. **RESULTS:** Overall, the rate of ADHD patients seen at least once by a CNS specialist (physician) increased from 42.0% in 2003 to 49.1% in 2009; the rate of those seen at least twice during the calendar year increased from 26.4% to 33.2% (for age group 0-5 years, from 9.1% to 11.1%; 6-12 years, from 27.4% to 33.7%, 13-17 years, from 30.3% to 33.1%, 18+ years, from 26.4% to 33.2%. Patients with HKCD were more likely to be seen by CNS specialists than patients with HKD only. Most children (in 2009, 84.4%) and adolescents (61.0%) were seen at least once by a pediatrician. The rate of patients seen by psychotherapists remained stable at ~10%. Within provider groups, health care for patients with ADHD was highly concentrated. Each child and adolescent psychiatrist treated, on average, 231 patients with ADHD. **CONCLUSIONS:** Despite a moderate increase since 2003, CNS specialist involvement in health care provision for patients with ADHD remains relatively low.

PHS95

THE SUICIDALITY IN THAI POPULATION: A NATIONAL SURVEY

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OBJECTIVES: To study the rate of suicidality and factors related to the Thai people. **METHODS:** Nationally representative face to face household survey based on a stratified clustered sampling of people aging 15 to 59 (n = 17,140). The data were conducted between June and August 2008 using Mini International Neuropsychiatric Interview (M.I.N.I.) module C. Suicidality and general information questionnaire by trained psychiatric professionals. The data analysis was determined by means adjusted weight of rate generalized to Thai population and analyzed with descriptive statistical methods by attaining percentage of mean, proportions, standard errors, population estimation and probability inference from the data. **RESULTS:** The overall national rate of suicidality accounted for 7.3%, the severity risk of suicide was found mild 6.0%, moderate 0.6% and severe 0.7%. The highest risk of suicide was found in the north (8.8%, severe degree 1.3%) females (8.6%), age of 35 to 44 (8.1%), separated, divorced or widowed (11.8%), being unemployed (13.8%), mood disorders with psychotic features (87.9%), current manic episode (64.3%). **CONCLUSIONS:** For effective surveillance and prevention of suicide in Thailand's population, the focus should be on the population of Northern provinces, females, those in productive age, being unemployed and those concurrently having mental disorders particulary, mood disorders.

PHS96

THE IMPACT OF THE IMPLEMENTATION OF NICE GUIDANCE ON VENOUS THROMBOEMBOLISM RISK ASSESSMENT AND PATIENT SAFETY ACROSS FOUR HOSPITALS IN ENGLAND

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OBJECTIVES: To evaluate the implementation of National Institute for Health and Clinical Excellence (NICE) guidance across four hospitals in the NHS South of England region, and its impact on patient safety using the following outcome measures: The percentage of patients for whom a risk assessment was documented; the percentage of patients who received venous thromboembolism (VTE) prophylaxis amongst those who were not risk assessed and the percentage of patients who received VTE prophylaxis amongst those with a contraindication to VTE prophylaxis. **METHODS:** A mixed method approach, which included a retrospective patient record review of VTE risk assessment documentation and prescribing of prophylaxis in patients without a risk assessment or a documented contraindication to VTE prophylaxis prior to and following the implementation of NICE guidance. Qualitative methods in the form of semi-structured interviews were used to evaluate the implementation strategies employed by the four hospitals. **RESULTS:** The percentage of patients for whom a VTE risk assessment was documented increased from 51.5% (210/408) in 2009 to 79.2% (323/408) in 2010; difference 27.7% (95% CI: 21.4% to 33.9%; p<0.001). There was little evidence of change in the percentage who were prescribed prophylaxis amongst patients without a risk assessment (71.7% (142/198) in 2009 and 68.2% (58/85) in 2010; difference -3.5%% (95% CI: -15.2% to 8.2%; p =0.56) nor the percentage who were prescribed low molecular weight heparin amongst patients with a contraindication (14% (4/28) in 2009 and 15% (6/41) in 2010; RD = 0.3% (95% CI: -16.5% to 17.2%; p =0.97). **CONCLUSIONS:** The documentation of risk assessment clearly improved following the implementation of NICE guidance but this did not lead to improved patient safety in terms of increasing appropriate or decreasing inappropriate prescribing of prophylaxis.

PHS97

AN OFF-THE-SHELF CATALOGUE OF QUALITY IMPROVEMENT INTERVENTIONS TO IMPLEMENT IN THE PREVENTION OF PRESSURE ULCERS FOR HOSPITAL SETTINGS

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OBJECTIVES: To develop an off-the-shelf catalogue of quality improvement (QI) interventions to implement for preventing hospital-acquire pressure ulcers (HAPUs). In 2007, the Institute of Healthcare Improvement (IHI) released a 17-item best-practice framework of general QI interventions organized into four domains of hospital practice: Leadership; Staff; Information & Information Technology; and Performance & Improvement. Since HAPU prevention has become a burgeoning international topic because of its monetary burden on health care, clinicians have investigated novel methods to bolster HAPU prevention guidelines. QI interventions pose a promising resource for improved HAPU outcomes. **METHODS:** Starting with the IHI best-practice framework, fourteen leading experts in QI and HAPU prevention at academic tertiary care facilities were interviewed in-person to qualitatively augment the list of QI interventions to reflect HAPU-specific preventive QI interventions. The respondents possessed backgrounds as physicians (6), wound care nurses (4), QI experts (2), and outcomes researchers (2). Interviews followed a structured outline of the best-practice framework, in which they were allowed to add, delete or modify QI interventions within each domain as they pertained to HAPU prevention. **RESULTS:** The series of qualitative interviews resulted in successful augmentation to IHI's best-practice framework of QI interventions to more accurately reflect current practice in HAPU prevention. The HAPU-practice framework contains seven Leadership items, six Staff items, four Information & Information Technology items, and eight Performance & Improvement items. Of these items, four were removed from the original framework, twelve were added, and all remaining items were modified in some manner. **CONCLUSIONS:** This qualitative study provides an off-the-shelf catalogue of QI interventions that wound care teams can utilize for preventing HAPUs and possibly other hospital-acquired conditions. For further consideration, the field would benefit from comparative effectiveness research about QI interventions and strategies for HAPU prevention that hospitals can then focus their efforts toward.

PHS98

CLINICAL CHARACTERISTICS, TREATMENT PATTERNS, AND RESOURCE UTILIZATION IN A REAL-WORLD EUROPEAN POPULATION WITH DIVERTICULITIS

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OBJECTIVES: We documented the clinical characteristics, treatment patterns, and resource utilization associated with diverticulitis in a real-world European population. **METHODS:** Data were abstracted from medical charts of 1,509 patients in 5 countries (~300 per country): UK, Germany, France, The Netherlands, and Spain. Inclusion criteria were: diagnosed with diverticulitis during Jnuary 1, 2007–September 30, 2010; aged ≥18 years at first (index) diagnosis; no history of colon cancer; not enrolled in diverticulitis-related clinical trial; and ≥12 months of chart history after index diagnosis. Study measures were evaluated over all available post-index follow-up (≥12 months). **RESULTS:** Mean [SD] age at index was 61.7 [11.2] years and 55% of patients were male. Diagnosis setting was evenly distributed by general practitioner (29%), specialist (24%), emergency (24%), and hospital (22%). Diabetes was the most common chronic comorbidity (23% of patients) and 20% of patients were considered obese. More than half of patients presented with or subsequently developed diverticulitis-related complications, most commonly fissure/abscess/fistula (23%) or lower gastrointestinal (GI) hemorrhage (14%). Peritonitis, a life-threatening infection, was seen in 8.4% of patients. One-fifth (~20%) of patients did not receive antibiotics or other pharmacotherapies (i.e., aminosalicylates, analgesics, other GI drugs) used to manage diverticulitis and its symp-