aureus(MRSA), streptococci and many common Gram-negative pathogens. The objective was to evaluate the efficacy of ceftaroline fosamil monotherapy versus other antibiotics routinely used in initial empiric treatment of MRSA-suspected CSSTI. **METHODS:** MEDLINE, Medline-In-Progress, EMBASE and the Cochrane Controlled Trials Registry were searched to identify published randomised controlled trials in which ceftaroline fosamil, daptomycin, linezolid, teicoplanin, tigecycline and vancomycin (with or without a Gram-negative antibiotic) were used to treat patients admitted to hospital with CSSTI. Primary outcomes were clinical success at test-of-cure visit in the modified intention-to-treat (MITT) and clinically evaluable (CE) populations using a NMA with uninformative priors. Clinical success for each antibiotic was reported with 95% credible intervals ($CrI_{95\%}$). A fixed effects model was used. **RESULTS:** Thirteen studies involving five antibiotics and a total of 8,152 patients with CSSTI were included. No data were found for teicoplanin. Pooled clinical success rates and $CrI_{95\%}$ in the MITT population for each antibiotic were: ceftaroline fosamil 81.2% ($CrI_{95\%}$: 76.8% to 85.0%), daptomycin 81.4% ($CrI_{95\%}$: 72.5% to 87.9%), linezolid 84.9% ($CrI_{95\%}$: 80.0% to 88.8%), tigecycline 79.9% ($CrI_{95\%}$: 74.1% to 84.7%) and vancomycin 80.4% ($CrI_{95\%}$: 77.9% to 82.6%). Clinical success rates in the CE population were: ceftaroline fosamil 89.2% ($CrI_{95\%}$: 85.3% to 92.3%), daptomycin 93.3% ($CrI_{95\%}$: 88.5% to 96.2%), linezolid 94.2% ($CrI_{95\%}$: 90.7% to 96.5%), tigecycline 88.1% ($CrI_{95\%}$: 84.7% to 90.9%) and vancomycin 90.0% ($CrI_{95\%}$: 88.2% to 91.6%). **CONCLUSIONS:** Although limited data were identified and differences across trials were noted, the results of this NMA suggest that ceftaroline fosamil is comparable in efficacy to other antibiotics used in the treatment of MRSA-suspected CSSTI.

PIN8

A PRELIMINARY ECONOMICAL ANALYSIS BASED ON THE EARLY IMPACT OBSERVED ON GENITAL WARTS BURDEN REDUCTION FOLLOWING QUADRIVALENT HPV VACCINATION IN BELGIUM

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OBJECTIVES: Quadrivalent human papillomavirus (qHPV) vaccine prevents from genital warts in addition to HPV-related cancers. Study objective was to provide first estimates of savings offered by the reduction in GW incidence observed in Belgium, 4 years after the introduction of the qHPV vaccine. **METHODS:** A retrospective observational study was performed using the MLOZ health care insurance database. Number of GW was described by age-group, gender, between 2003 and March 2011. GW cumulative incidence estimates were compared between women vaccinated or not with qHPV vaccine from 2007 onwards. Analyses were restricted to age-groups of women likely to have been vaccinated. Direct medical treatment costs published were updated to €2010 using the purchasing parity power conversion rates method and estimated at 324.2€/case (public health care payer perspective). **RESULTS:** A total of 55,193 women aged 16-20 year-old were retrieved, of whom 13,117 were vaccinated with qHPV vaccine. Within this age-group, 435 first GW cases were observed, 423 in the control group (non vaccinated: 1.01%) and 12 in the vaccinated group (0.09%), representing 920 GW cases/100,000 vaccinated women avoided among this age group during a limited period of 4 years. Cumulative incidence estimates of GW were also significantly lower among women vaccinated with qHPV vaccine compared to those that were not: 0.12% (CI: 0.07%-0.23%) vs. 0.93% (CI: 0.85%-1.03%), relative reduction (RR): -87.1%, $p<0.0001$. Among girls aged 16-20 and over 4 years, direct health care cost saved were estimated at 298K€/100,000 vaccinated girls. **CONCLUSIONS:** This preliminary analysis suggests that a marked reduction of GW and related resources used in Belgium may be achievable through qHPV vaccination. The reduction of GW and associated treatments costs would be higher if more cohorts were considered and should become more prominent in the coming years when the current and future qHPV vaccinated cohorts will enter into the peak age of risk for GW.

PIN9

CONTRAINDICATIONS TO HEPATITIS C TREATMENT: WHICH ONES MODIFY THE LIKELIHOOD OF VETERANS RECEIVING TREATMENT?

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OBJECTIVES: We studied the influence of absolute and relative contraindications on likelihood of treatment with dual-therapy for chronic heptatis C (HCV) infection in a national cohort of HCV-infected veterans. **METHODS:** We identified patients with an HCV diagnosis and either laboratory confirmation or a second diagnosis within a year. We excluded those with no encounters at least 6 months before the first diagnosis to ensure treatment naiveté. Cox Proportional Hazards regression models were developed with contraindications as time-varying exposures to assess their influence on treatment likelihood. **RESULTS:** Of 318,814 previously untreated veterans diagnosed from 2004-2009, 101,444 (31.8%) met all criteria. Mean (SD) age was 58.6 (8.2) years and 96.7% were male. Race was known in 51.9%; of which most were white (49.9%) or black (40.4%). At diagnosis, most patients had unknown genotype (56.4%) or genotype 1 (35.3%). Contraindications were present at diagnosis in 17.2% of patients and 30.1% developed contraindications during follow-up. Predictive models revealed that several contraindications were significantly and independently associated with a decreased likelihood of treatment including kidney transplant (hazards ratio [HR]=0.29), thrombocytopenia (HR=0.38), acute myocardial infarction (HR=0.43), iron-deficiency anemia (HR=0.46), acute coronary syndromes (HR=0.62), bipolar disorder (HR=0.63), hepatic decompensation (HR=0.70), and retinopathy (HR=0.74). Patients with a liver transplant were much more likely to receive treatment (HR=3.51). Contraindications that had no influence on the likelihood of treatment were intractable epilepsy, pregnancy, major depression, and hemoglobinopathies. Neutropenia, auto-immune hepatitis, and other organ transplant had too few events and so were dropped from the models. **CONCLUSIONS:** This study provides evidence that clinicians make real-world treatment decisions for HCV based on some contraindications but not all. Future work should examine the occurrence of adverse events or treatment failure in contraindicated patients and explore ways to improve clinician awareness of contraindications when making treatment decisions.

PIN10

FOURTH YEAR POST-ROTAVIRUS VACCINATION IN BELGIUM: DECREASE OF ROTAVIRUS-POSITIVE STOOL SAMPLES IN HOSPITALISED CHILDREN

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Rotavirus vaccination in infants has been reimbursed in Belgium since November 2006 and vaccine coverage is about 85%. **OBJECTIVES:** To assess and to compare the impact of mass rotavirus vaccination on the rotavirus related hospitalisations in children ≤5 y old pre-vaccination and up to 4 years post-introduction of the vaccine in 9 paediatric wards in Belgium. **METHODS:** Stool samples for rotavirus detection were collected from all ≤5y old hospitalised children. The absolute number of rotavirus positive tests pre-vaccine launch (01/06/2004-31/05/2006) were compared with data at launch (01/06/2006-31/05/2007), and post-launch (01/06/2007-31/05/2011). Data are presented as a % reduction (95% CI) per year post-vaccination considering the annual average pre-vaccination period as a reference. **RESULTS:** The number of rotavirus-positive stool tests in children aged ≤5 years decreased from an average of 881 pre-vaccination to 600, a 32% reduction (95% CI: 29%-35%) during the launch period, to 368 (−58%, 95% CI: 55%−61%) in the 1st year post-launch, to 202 (−77%, 95% CI: 74%−80%) in the 2nd year, 180 (−80%, 95% CI: 77%−82%) in the 3rd year, and to 201 (−77%, 95% CI: 74%−80%) in the 4th year. In addition an overall decline (−38%, 95% CI: 36%−41%) in all-cause acute-gastroenteritis (AGE) related hospital admissions is observed from 1,757 per year pre-vaccination to 1,082 per year 4th year post-launch. The number of bed days due to AGE has fallen from 8974 pre-vaccination to 5362 (−40%, 95% CI: 39%−41%) post-vaccination. A reduction from 6340 to 4894 (−27%, 95% CI: 26%−28%) is also seen amongst the non-rotavirus positive cases. **CONCLUSIONS:** Significant declines in number of rotavirus and all-cause AGE related hospitalisations are seen in young children after 4 years of mass rotavirus vaccination in Belgium. A steady state may be reached after 3 years as no further decrease in the number of rotavirus related hospitalisations is observed.

PIN11

PHARMACOTHERAPY OF ACUTE BRONCHITIS IN CLINICS: RESULTS OF PHARMACOEPIDEMICAL RESEARCH

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OBJECTIVES: Perform pharmacoepidemical analysis on actual practice when using antibacterial therapy among adults with acute bronchitis. **METHODS:** We have analyzed 572 cases of acute bronchitis among patients receiving clinical treatment in four hospitals located in Moscow, Nizhniy Novgorod, St. Petersburg and Kazan. An individual registration folder featuring patient's demographic data, accompanying diseases, use of antimicrobial treatment, dose regimes and methods and length of treatment was filed for pharmacoepidemical research. The average age of patients was 39.8±5,7 years with 74% of men and 26% of women. **RESULTS:** Antibiotics were used in 85.7% of all cases. In Nizhniy Novgorod antimicrobial pills were given to 85% of patients while the number of such patients in Moscow and St. Petersburg amounted to 88.5% and 81.5% respectively. In Kazan all the patients received antimicrobial drugs. The most frequent drugs were macrolides (45.8%), inhibitor-protected penicillin (43.7%) and fluoroquinolines (ciprofloxacin) (4.9%). The less frequent ones were doxycycline (1.6%) and amoxicillin (1.8%) and ampicillin (2.2%). The most frequent macrolid was azitromicyn (33.7%) as well as clarythromycin (8.6%) and erythromycin (3.5%). **CONCLUSIONS:** As a result the actual practice of clinical treatment of acute bronchitis among adults majorly requres the use of antibacterial wide spectrum drugs (85.7%). The frequency of such therapy was high in all hospitals regardless of their locations. The use of antibiotics when treating virus etiology is obviously wrong and leads to the increase of non-desired consequences, higher cost of treatment and might be accompanied by the growing number of antibiotic resistant microorganisms. The above-mentioned data requires to create and practice methods aimed at the reduction of antimicrobial drug-taking for patients with acute bronchitis in clinical treatments.

PIN12

BURDEN OF DISEASE AND SEROTYPE DISTRIBUTION ASSOCIATED WITH REPORTABLE INVASIVE STREPTOCOCCUS PNEUMONIAE PNEUMONIA IN NORWAY, 2007–2009

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OBJECTIVES: Streptococcus pneumoniae (SP) pneumonia represents substantial morbidity and mortality worldwide. A retrospective study was conducted to describe the incidence, serotype distribution, and in-hospital mortality associated with reportable invasive SP pneumonia in all age groups in Norway from 2007–2009. **METHODS:** Patients with laboratory-confirmed invasive SP pneumonia were identified from the Norwegian Surveillance System for Communicable Diseases (MSIS) database from January 2007–December 2009. Population data were obtained from Statistics Norway. Incidence was reported annually as new cases per

100,000 persons. **RESULTS:** From 2007–2009, incidence of reportable invasive SP pneumonia decreased linearly from 11.7/100,000 to 7.1/100,000. Incidence increased with age; adults aged ≥65 years consistently had the highest incidence (2007: 39.4/100,000; 2009: 24.4/100,000), with the lowest rates observed in adults aged 20–49 years (2009: 3.35/100,000). In-hospital mortality rates were ~6% throughout the study, with the highest rates in adults aged ≥65 years (2009: 8.8%). SP was the most common pathogen reported (1,358/1,544 [88%] isolates). The proportion of 7-valent pneumococcal conjugate vaccine (PCV7) serotypes decreased from 46.7% to 20.1%, while the number and proportion of non-PCV7, 13-valent pneumococcal conjugate vaccine (PCV13) serotype disease increased, led by 19A (n=7 [1.3%] to n=23 [6.9%]). The most frequently identified serotypes in 2009 were 7F (16.8%), 1 (11.4%), 22F (11.4%), 4 (8.4%), 19A (6.9%), and 3 (6.6%). In children aged 0–4 years, 8, 1, and 0 cases of PCV7 invasive SP pneumonia occurred in 2007, 2008, and 2009, respectively. PCV13 serotypes caused 64.9% of invasive SP pneumonia in 2009, the majority in adults aged ≥60 years. **CONCLUSIONS:** Although incidence of reportable invasive pneumonia decreased in Norway from 2007–2009, after the pediatric PCV7 National Immunization Program was fully underway, substantial disease burden remains, particularly in older adults. Almost 65% of invasive SP pneumonia cases were caused by pneumococcal conjugate vaccine serotypes.

PIN13

THE CLINICAL BURDEN OF HOSPITALIZED ALL-CAUSE PNEUMONIA IN THE LOMBARDIA AND PUGLIA REGIONS OF ITALY, 2007–2009

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OBJECTIVES: Pneumonia is associated with substantial burdens on patient morbidity and mortality, and health care resources across all age groups. A retrospective database study was conducted to assess the burden of disease associated with hospitalized all-cause pneumonia in terms of incidence, in-hospital mortality, length-of-stay (LOS), and hospitalization cost in the Italian regions of Lombardia and Puglia from 2007–2009. **METHODS:** Data were obtained from two Local Health Units (LHUs) in Lombardia and Puglia. All patients with an ICD-9 code diagnosis of pneumonia (480, 481, 482, 483, 484, 485, 486, and 487) from January 1, 2007–December 31, 2009 were included. Incidence rates were calculated based on the number of people per LHU and reported annually as cases per 1,000 persons. **RESULTS:** In total, 10,195 patients hospitalized for pneumonia were included in this study. Incidence of hospitalizations increased slightly from 2007–2009 (2007: 1.91/1,000; 2008: 1.86/1,000; 2009: 2.00/1,000). In children aged 0–4 years, incidence decreased from 5.57/1,000 in 2007 to 3.85/1,000 in 2009, while incidence in adults aged ≥65 years increased from 5.36/1,000 to 6.59/1,000. In-hospital deaths occurred in 196 patients (5.9%) in 2007 and 202 (5.2%) patients in 2009, with the highest mortality observed in adults aged ≥65 years (176 patients [9.5%] and 191 [8.1%], respectively). No in-hospital deaths occurred in children aged 0–4 years. Mean LOS was similar (2007: 10.5 days; 2008: 10.8 days; 2009: 11.0 days), and increased with age. Mean cost per patient was €2,966 in 2007, €3,073 in 2008, and €3,218 in 2009. **CONCLUSIONS:** Reductions in hospitalized pneumonia were observed in children aged 0–4 years; however, overall incidence of hospitalized pneumonia slightly increased during the study period driven by increased hospitalizations in older adults. Adults aged ≥65 years had the highest disease burden in terms of incidence, in-hospital mortality, mean hospital LOS, and costs.

PIN14

PROJECTING THE CLINICAL IMPACT OF TREATING HEPATITIS C GENOTYPE 1 INFECTION WITH BOCEPREVIR IN GERMANY

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OBJECTIVES: International randomized, multicenter, double-blinded studies demonstrated that boceprevir, added to peginterferon alpha-2b and ribavirin significantly increased sustained virologic response rates over peginterferon/ribavirin alone in treatment-naïve (SPRINT-2) and treatment-experienced (RESPOND-2) adult patients with chronic hepatitis C virus genotype 1 infection. Our objective was to project the reduction in the lifetime incidence of liver-related morbidity and mortality associated with treatment with boceprevir/peginterferon/ribavirin vs. treatment with peginterferon/ribavirin vs. no treatment. **METHODS:** A multi-cohort Markov model was developed using German life tables and baseline patient demographics from the trials— mean age, gender, and fibrosis stage distribution. The first part of the model simulated three strategies—treatment with boceprevir/peginterferon/ribavirin (as defined by the European Medicines Agency), treatment with peginterferon/ribavirin, and no treatment. The second part of the model simulated the natural history of HCV. All hepatitis C-related state transition probabilities were obtained from previously published studies. Lifetime cumulative incidence of decompensated cirrhosis, hepatocellular carcinoma, liver-transplant and liver-related death was estimated. The model was validated with previously published studies and probabilistic sensitivity analysis was performed. **RESULTS:** Per 10,000 treatment-experienced patients, treatment with boceprevir/peginterferon/ribavirin vs. treatment with peginterferon/ribavirin vs. no treatment, respectively, were associated with substantial reductions in projected cases of decompensated cirrhosis (1082 vs. 2286 vs. 2845), hepatocellular carcinoma (719 vs. 1440 vs. 1787), liver-transplant (154 vs. 321 vs. 398), and liver-related death (1144 vs. 2360 vs. 2920). Likewise, substantially fewer cases of decompensated cirrhosis (1024 vs. 1835 vs. 2873), hepatocellular carcinoma (656 vs. 1161 vs. 1806), liver-transplant (146 vs. 257 vs. 402), and liver-related death (1073 vs. 1892 vs. 2954) were projected per 10,000 treatment-naïve patients. **CONCLUSIONS:** Boceprevir-based regimens are projected to substantially reduce the incidence of liver-related complications and mortality in previously untreated and treatment-experienced patients chronically infected with hepatitis C virus genotype 1 in Germany.

PIN15

PREVALENCE OF HOSPITAL-ACQUIRED INFECTIONS IN INTENSIVE CARE UNITS AND ATTRIBUTABLE MORTALITY: DIFFERENT SOURCES OF DATA IN UNITED-STATES

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OBJECTIVES: To consider reliable sources of data to assess epidemiology of hospital-acquired infections (HAI) in intensive care units (ICU). **METHODS:** In order to get epidemiological data, a literature review (2002–2009) focused on bloodstream infection (BSI), catheter related BSI (CR-BSI) and ventilator-associated pneumonia (VAP) in hospital ICU in the US was performed using EMBASE database, completed with data from Centers for Disease Control & Prevention (CDC). US hospital databases (2007) were also considered to put findings in perspective: Premier PerspectiveTM Hospital Database (PPHD) and State Inpatient Database (SID: part of health care cost and utilization project (HCUP)) providing ICU data for this study. **RESULTS:** The rate of ICU hospitalized patients in the US databases (9.4%) was within the results in literature (8%-15%). The proportion of ICU patients with devices was higher in literature than in SID and PPHD databases with for central line catheters: 48%, 19%, 26.2% and for mechanical ventilation: 33%, 21.9% and 15% respectively. CR-BSI were reported in 4.8% of ICU patients with central venous catheter, in literature (1.4 - 5.5 /1,000 central line days), 9.4% in SID (5.7/1,000 catheter/central line days) and 33.8% in PPDH*. Rate of VAP in ICU was estimated at 2.1-10.7/1,000 ventilator days in literature and 12.2/1,000 ventilator days in SID. Proportion of VAP amongst ICU mechanically ventilated patients was similar within the databases (12%). BSI attributable mortality was comparable in the literature (12-25%) and hospital database (24.7% in PPHD). Attributable mortality for VAP was not found in the literature. This latter was estimated from the hospital database (19.6% in PPHD). **CONCLUSIONS:** Different sources are available to estimate the prevalence of HAI in ICU. Results should be interpreted with caution due to methodology limitations (e.g. HAI case definitions). Nevertheless, real-life databases appear appropriate to estimate attributable mortality of HAI in ICU. * central venous/line catheter.

PIN16

TUBERCULOSIS TREATMENT OUTCOMES IN PATIENTS WITH AND WITHOUT DIABETES MELLITUS

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OBJECTIVES: To evaluate treatment outcomes in tuberculosis patients with and without diabetes mellitus. **METHODS:** This was a retrospective cohort study conducted at respiratory clinic of Hospital Pulau Pinang (HPP), Malaysia. All Tuberculosis (TB) patients who were presented to the clinic from January 2006 to December 2007 were included in the study. A purpose developed valid data collection form was used for collecting demographic and clinical data. Treatment outcomes initially recorded as cured, treatment completed, defaulted, transferred out, expired and treatment continued were then classified into two categories; successful and unsuccessful treatment. Cured and treatment completed patients were placed in treatment successful category while the rest were placed in the category of unsuccessful treatment. Data was analyzed by using SPSS 16®. **RESULTS:** Final analysis included 1266 patients.Three hundred and thirty eight patients (26.7%) had DM along with TB. In multivariate analysis TB-DM was more likely to be present in Chinese (OR = 1.470, p-value = 0.003), married patients (OR = 1.408, p-value = 0.011) and patients having age 46-60 years (OR = 2.002, p-value <0.001), and > 60 years (OR = 1.594, p-value = 0.010). Nine hundred and eighty five (78.8%) patients were successfully treated. Successful Treatment was observed in patients having age of 46-60 years (OR = 1.567, p-value = 0.001), whereas male gender (OR = 0.721, p-value = 0.049) and patients with relapse TB (OR = 0.494, p-value = 0.002) were less likely to have successful treatment. **CONCLUSIONS:** In the present study Chinese ethnicity, age (> 46 years) and being married were the predictors of prevalence of TB-DM. Majority patients were successfully treated. Male gender and patients with relapse TB were the predictors of treatment failure. No statistically significant difference in treatment outcomes was observed between TB patients with and without diabetes mellitus.

PIN17

TUBERCULOSIS TREATMENT OUTCOMES IN FOUR STATES OF MALAYSIA

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OBJECTIVES: Despite the availability of highly efficacious pharmacotherapy, tuberculosis (TB) still remains as a major public health problem globally. The aim of the present study was to evaluate TB treatment outcomes in four high burden TB states of Malaysia. **METHODS:** This was a retrospective prospective study conducted at TB clinics of Penang, Sabah, Sarawak and Selangor. All TB patients who were presented to the clinics from January 2006 to December 2008 were included in the study. A purpose developed valid data collection form was used for collecting demographic and clinical data. World Health Organization (WHO) defined criteria was used for defining treatment outcomes. Data was analyzed by using SPSS 16®.