

an economic perspective, vaccination with these coverage levels is cost-beneficial.

PIN36

INCIDENCE OF SEVERE SEPSIS IN THE NETHERLANDS: A POINT PREVALENCE SURVEY

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OBJECTIVES: To determine the annual incidence of severe sepsis in the Netherlands by performing a point-prevalence survey in multiple intensive care units. **METHODS:** ICU's were invited to participate in a one-day survey and monitor patients during the first 24 hours of their stay, if they were admitted with a proven/suspected infection. Patient-specific questionnaires captured demographic and clinical information, presence of Systemic Inflammatory Response Syndrome (SIRS), and the functional status of seven organ systems. The annual national incidence was calculated from the results of the survey following two approaches: 1) by multiplying the survey incidence (patients/day) with the number of days per year, corrected for the fact that the survey was held on a weekday, and 2) by using the relation $P = I \cdot D$ (P for prevalence, I for incidence and D for duration of stay) in which P was known from the survey and D was estimated as the geometrical mean of duration-to-date. **RESULTS:** Forty-seven ICU's participated (in 43 general and 4 university hospitals), representing 42% of the national admission capacity. During the study-period, 18 patients meeting criteria for severe sepsis were newly admitted, and another 116 patients with severe sepsis were already present. According to the first calculation method, the annual incidence of severe sepsis was $13,137 \pm 2,821$ patients, whereas the second method, with an estimated D of 13.3 ± 1.1 days, lead to a calculated incidence of $8,643 \pm 929$ patients/year. **CONCLUSIONS:** Using the results from a point-prevalence survey, different approaches lead to different outcomes. Both approaches hold advantages and disadvantages. The second method is considered superior because it is based on a larger population and is less sensitive to daily variations.

PIN37

A COMPREHENSIVE NATURAL HISTORY MODEL OF HUMAN PAPILLOMAVIRUS (HPV) INFECTION AND CERVICAL CANCER: POTENTIAL IMPACT OF AN HPV 16/18 VACCINE

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OBJECTIVES: HPV DNA has been detected in up to 99.7% of all cervical cancers, and infection with 2 types

(HPV-16, 18) accounts for more than 50% of cases. We developed a computer-based Markov model of the natural history of HPV infection and cervical carcinogenesis to project the impact of a prophylactic vaccine against HPV 16/18 infection on the age-specific incidence and lifetime risk of invasive cervical cancer, precursor cervical lesions, and type-specific infection with HPV. **METHODS:** A comprehensive literature review was conducted to define plausible ranges for parameter values and the model was then calibrated to the best available population-based data. We explored the impact of alternative assumptions about vaccine efficacy, waning immunity, and competing risks associated with non-16/18 HPV types in vaccinated women. **RESULTS:** The model predicted a peak age-specific cancer incidence of 90 per 100,000 in the 6th decade, a lifetime cancer risk of 3.7%, and a reproducible representation of type-specific HPV within precancerous lesions and cervical cancer. A vaccine that prevented 98% of persistent HPV 16/18 was associated with an approximate equivalent reduction in 16/18-associated cancer and a 51% reduction in total cervical cancer. A vaccine that prevented 75% of persistent HPV 16/18 was associated with a 70% to 83% reduction in 16/18-associated cancer cases. Several modeling assumptions were identified that resulted in amplification or blunting of the vaccine's effect on outcomes—however, when the vaccine was either very ineffective (e.g., less than 20% efficacy) or very effective (e.g., more than 80% efficacy), the differences in projected outcomes associated with these were minimal. **CONCLUSIONS:** A prophylactic vaccine that prevents persistent HPV 16/18 infection can be expected to significantly reduce HPV-16/18-associated LSIL, HSIL and cervical cancer.

OTHER DISEASES/DISORDERS—Economic Outcomes

POD1

AN ECONOMIC EVALUATION OF NOVOSEVEN IN THE MANAGEMENT OF HAEMOPHILIA PATIENTS WITH INHIBITORS IN SLOVAKIA

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OBJECTIVES: It was hypothesised that the total cost of managing a bleed in haemophilia patients with high titre, high responding inhibitors (from initiation of the bleed to resolution) by FEIBA or NovoSeven would be comparable due to a higher first-line efficacy despite the greater cost of NovoSeven. **METHODS:** Direct costs were compared from the perspective of the National Health Service. Resource utilisation was based on a retrospective analysis of bleeding episodes treated in Slovakia during the period 1990–2001. Clinical outcomes were based on a review of the international literature, data obtained from the retrospective analysis and the consensus of an expert panel of five Slovakian. A decision analytic eco-

nomic model was constructed using DATA 3.3. The model enables a cohort of individuals to be followed sequentially from bleed initiation, taking into consideration first-line efficacy, bleed continuation, switching to other products, re-bleeds and bleed cessation. **RESULTS:** Most patients were treated on an outpatient or home therapy basis. First-line efficacy was assumed to be 79% and 95.9% for FEIBA and NovoSeven respectively. 90% of patients would be switched from FEIBA to NovoSeven if FEIBA failed to stop a bleed. Total process costs from initiation to cessation in the baseline case were 286,966 SKK for FEIBA and 281,143 SKK for NovoSeven. **CONCLUSIONS:** The analysis indicated that the key economic drivers were the cost of the haemostatic agents, the dose used and the first-line probability of controlling the bleed. It could be concluded that the use of NovoSeven for first-line, high titre, high responding patients was not only justified on a clinical basis but also from an economic point of view since there was cost equivalence with FEIBA. The results of this study should generate debate amongst haematologists concerning management guidelines for the treatment of bleeding episodes in haemophilia patients with inhibitors.

POD2

DEVELOPMENT OF ECONOMIC AND OUTCOMES MODEL OF HEMOPHILIA TREATMENT IN LATIN AMERICA AND SOUTH EAST ASIA

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OBJECTIVES: In Latin America and Asia, individuals with hemophilia are often treated with cryoprecipitate as it is a component derived from a unit of whole blood, thus maximizing the economic and potential medical benefit of blood bank services. However, the risk of acquiring blood-borne viral infections is higher with cryoprecipitate than with factor concentrates. This is because the risk of acquiring blood-borne infections increases with each exposure and has a cumulative effect over a person's life. We use available data to show that any acquisition cost savings or societal benefits that occur with the use of cryoprecipitate may be offset by greater total healthcare costs to treat transmissible viruses. **METHODS:** A model of one Asian country was employed to test the system. A literature review was conducted to obtain estimates of the prevalence and incidence of infectious agents in the donating population and therefore the blood supply and costs of treating the subsequent diseases. Epidemiological and health care cost data from international health organizations and regional experts in the treatment of hemophilia was utilized. This data forms the basis of an economic and outcomes model for hemophilia treatment. **RESULTS:** Based on the data identified in this particular

country, the risk of exposure to HIV in individuals treated with cryoprecipitate is substantial: 4% after 5 years of treatment and it doubles after 10 years of treatment. Over a lifetime—60 years of treatment—it grows to 40%. The cost of treating AIDS in this region is high and immediate cost savings achieved by using cryoprecipitate are offset by future overall treatment costs of blood-borne infections. **CONCLUSIONS:** The model is useful for estimating total treatment costs and outcomes for hemophilia patients at risk for developing blood borne infections. The model incorporates a sensitivity analysis option allowing users to modify parameters specific to their country.

POD3

JOINT RECOVERY IN HIP AND KNEE REPLACEMENT: A COST-EFFECTIVE APPROACH

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OBJECTIVE: In health care an increasing demand for care and relatively declining funds go together causing problems such as waiting lists and reduction of beds. The objective of this study was to shorten the length of hospital stay and to improve efficiency of care in joint replacement surgery. To attain this objective, changes were made in the care process: pre-admission screening and medical care during and after admission were geared to one another and rehabilitation programme after surgery, taking place in a living room. **METHODS:** The study design was a prospective cohort study with two patient cohorts. The intervention cohort was treated according to the new protocol. The control cohort received usual care. The joint recovery group consisted of 48HR patients and 30KR patients; the control group consisted of 50HR patients and 32KR patients. Both groups were prospectively followed for six months. Improvements in hip and knee function were calculated using baseline and six months function scores. Total hospital costs were calculated using length of stay and average costs per hospital day. Health state utilities were obtained by the EQ-5D, and were used to calculate QALYs (one year time horizon). Subsequently, a cost-effectiveness analysis has been performed. **RESULTS:** Mean age was 64.4 years. Hip and knee function improved in both groups (no significant differences). Length of stay decreased, causing substantial cost savings. Slightly more QALYs were generated in the intervention group. **CONCLUSIONS:** No differences between the groups in function improvement were observed. Joint recovery led to a 53% reduction in hospital days, as compared to usual care. As a consequence, hospital costs were almost halved in both intervention groups. Therefore, our conclusion is that joint recovery is more effective and less costly for both joint replacement groups, and thus dominates usual care.

1. use of NovoSeven for first-line, high titre, high responding patients was not only justified on a cl...
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