2.42 days (S.D. = 0.14) respectively. The fixed-effect model estimates were closer to the true mean rates (10.04% and 2.47 days), with higher standard deviations. The two models resulted in similar hospital ranks for both measures, but the fixed-effect model showed greater variability in hospital scores. CONCLUSIONS: Risk-adjustment methods with different underlying assumptions give different results and scores. Although no gold standard exists for empirical model selection, the normality assumption underlying the random effect model may underestimate the difference among hospitals.

**PHP49**

HOSPITALIZATIONS RELATED TO DOMESTIC VIOLENCE: CHILD ABUSE BY A PARENT OR GUARDIAN

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OBJECTIVES: Child abuse is a problem with clinical, societal and economic consequences. This study examines admissions by abuser type and estimates hospital costs for problems resulting from parental/guardian abuse. METHODS: Admissions were identified by ICD-9 diagnosis and abuse-related E-codes. Based on E codes, cases were assigned to either the male (i.e., father, stepfather, male partner of mother or guardian) or female (i.e., mother, stepmother, female partner of father or guardian) abuser group. Hospital costs were estimated based on data from 5 US states for years 1997–2000. Cost estimates include all accommodation, ancillary and physician services. National physician fee schedules were also used. Charges were adjusted using a cost-to-charge ratio. Cost estimates are reported in 2002 US$. RESULTS: Of 771 parental abuse cases identified, 59% were due to a male abuser. In the male abuser group, the patient’s mean age was nine years. Mean length of stay (LOS) was 8 days (range: 1–156) and hospital case fatality rate (CFR) was 5%. Mean cost per stay was $14,878 ($205–$210,510). In the female abuser group, the mean age was six years. Mean LOS was 6 days (range: 1–285), CFR = 1%. Mean cost per stay was $8,837 ($330–$437,993). Of survivors, 83% of all parental/guardian abuse cases went home, 7% with home health care. Shaken infant syndrome was the principal diagnosis in 7% of cases. Total hospital cost over 4 years for these cases was estimated at approximately $10.2 million, roughly $2.5 million annually. CONCLUSIONS: The overwhelming majority of hospitalizations resulting from spousal or partner abuse are for women and most patients return home after hospitalization. While a hospital stay is only one level of management for this type of abuse, it represents a substantial cost and should be incorporated into any analysis that examines the economic impact of spousal/partner abuse.

**PHP50**

DOMESTIC VIOLENCE: HOSPITALIZATIONS RESULTING FROM ABUSE BY A SPOUSE OR PARTNER

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OBJECTIVE: Abuse by a spouse or a partner is an increasing social problem that has economic as well as clinical consequences. This study estimates the cost of hospital care for medical problems resulting from spousal or partner abuse. METHODS: Admissions related to spousal or partner abuse and reason for admission were identified by ICD-9 diagnosis and E-codes. Inpatient hospital costs were estimated based on data from 5 US states from years 1997–2000. Cost estimates include all accommodation, ancillary and physician services. National fee schedules were also used. Cost estimates are reported in 2002 US$. Charges were adjusted by means of a cost-to-charge ratio. RESULTS: Of the 1405 cases of abuse by a spouse or partner identified, 94% were female and 61% were admitted via the emergency room. The mean age was 40 years (range: 16–101). The average length of stay (LOS) was 4 days (range: 1–96) and the hospital case fatality rate was 1%. The mean cost per stay was $6,820 (range: $298–$349,983). Among those discharged, 83% went home; 5% of them with home health care services. Another 10% required further care in a rehabilitation, skilled nursing or intermediate care facility. The remainder either signed out against medical advice, were discharged to another type of facility (e.g., mental health facility, residential care) or the disposition status was unknown. The total cost for hospital care over the 4 years for these spouse/partner abuse cases was estimated at $10.1 million, roughly $2.5 million annually. CONCLUSIONS: The overwhelming majority of hospitalizations resulting from spousal or partner abuse are for women and most patients return home after hospitalization. While a hospital stay is only one level of management for this type of abuse, it represents a substantial cost and should be incorporated into any analysis that examines the economic impact of spousal/partner abuse.

**PHPS1**

MEDICAL DEVICE PROBLEMS IN INTENSIVE CARE UNITS: DETECTION, DANGERS, AND DIVERSITY OF TYPES

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OBJECTIVES: To define the incidence and spectrum of problems associated with use of medical devices in intensive care units. METHODS: Adverse medical device events (AMDE) and potential patient harm (hazards)
RESULTS: On the average, hospital physicians requested 29 +/− 32 X-ray examinations per 100 hospital patients. X-ray utilization rates tended to be higher in urban (35 +/− 35 per 100 patients) than in rural hospitals (15 +/− 18), in private (36 +/− 35) than in government facilities (12 +/− 16) and in tertiary (36 +/− 32) than in primary (29 +/− 37) or secondary hospitals (24 +/− 30). Routine physical check-ups and pre-operative clearances were the most common clinical triggers (24% of X-ray records). Trauma (16%), a diagnosis of pulmonary tuberculosis (11.2%) and cough (10.8%) were the other frequent reasons for ordering X-rays. Among those undergoing routine X-rays, 79% were negative while 7% were positive for PTB. Among those with prior diagnosis of PTB, 42% were confirmed while 28% had negative chest X-rays. Among those with cough, 24% had PTB, 29% had bronchopneumonia and 29% were negative. CONCLUSIONS: Wide variations in X-ray utilization rates exist among different facilities. X-rays frequently confirm the diagnoses of PTB or other pulmonary disorders but are often negative when used routinely.

VARIATIONS IN UTILIZATION RATES, CLINICAL TRIGGERS AND OUTCOMES OF X-RAYS IN A DEVELOPING COUNTRY

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OBJECTIVES: X-ray devices are widely available in developing countries but well-disseminated guidelines for their appropriate use are lacking. To help focus behavioral interventions, we determined X-ray utilization rates in different hospital settings and examined the clinical triggers for X-ray requests and the outcomes of X-ray examinations. METHODS: Utilization rates were calculated by dividing the total annual number of X-ray examinations with the total annual patient-load. X-ray records were then systematically sampled and data on pre-test clinical impressions and radiologic diagnoses were extracted from them. A total of 15,503 X-ray records in 118 public and private hospitals in Luzon were reviewed.

RESULTS: For the average hospital, physician requested 29 +/− 32 X-ray examinations per 100 hospital patients. X-ray utilization rates were higher in urban (35 +/− 35 per 100 patients) than in rural hospitals (15 +/− 18), in private (36 +/− 35) than in government facilities (12 +/− 16) and in tertiary (36 +/− 32) than in primary (29 +/− 37). Routine physical check-ups and pre-operative clearances were the most common clinical triggers (24% of X-ray records). Trauma (16%), a diagnosis of pulmonary tuberculosis (11.2%) and cough (10.8%) were the other frequent reasons for ordering X-rays. Among those undergoing routine X-rays, 79% were negative while 7% were positive for PTB. Among those with prior diagnosis of PTB, 42% were confirmed while 28% had negative chest X-rays. Among those with cough, 24% had PTB, 29% had bronchopneumonia and 29% were negative. CONCLUSIONS: Wide variations in X-ray utilization rates exist among different facilities. X-rays frequently confirm the diagnoses of PTB or other pulmonary disorders but are often negative when used routinely.