associated with medical devices were studied in two intensive care units (Shock-Trauma, STICU, and Medical-Surgical, MSICU) within a tertiary referral hospital. An intensive care nurse native to each unit and trained in observational techniques by an anthropologist directly observed 5 rooms during each of 104 6-hour shifts (4 randomly selected shifts per week). Events occurring in non-observation rooms and during non-observation times were identified by soliciting verbal reports from nursing staff (nurse communication) and reviewing charts. The study was conducted during consecutive 6-month periods between October 2001 and September 2002. RESULTS: A total of 238 events were detected. Of 107 events related to alarms, 48% were AMDE and 52% hazards. Of 131 events not related to alarms, 34% were AMDE and 66% hazards. Nurse communication and chart review accounted for 52% and 14% of non-alarm events compared to 8% and 0% of alarm-related events. All but 1 of the 18 non-alarm events detected by chart review represented infection or insertion-related AMDE. Rates of events per occupied bed monitored were 100–300 fold greater by observational detection methods than chart review and nurse communication combined. Non-alarm events were diverse, encompassing >20 categories of devices; no single category accounted for >13% of events. Grouped according to device purpose, 12 non-alarm events were associated with devices used to infuse medication, 13 with the patient monitoring system (Marquette), 29 with other monitors of physiologic function, 17 with devices necessary for sustaining critical function (e.g., ventilators), and 60 with devices that had non-critical functions. CONCLUSIONS: Rates of medical device problems in two ICUs detected by observational methods were much higher than those uncovered by other means. Traditional surveillance techniques provide a limited view of the diversity of types of medical device problems.

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 examinations were reviewed. 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.

MORBIDITY, COMORBIDITY, PHYSICIAN COSTS AND RACE DIFFERENCES IN MORTALITY AMONG THE MEDICARE ELDERLY

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OBJECTIVES: This research investigates the impact of specific diagnoses morbidity and comorbidity, physician utilization, and physician costs on race differences in rates of mortality among the Medicare elderly. METHODS: CMS billing data from physician record files across five years and Medicare Enrollment Data Base (EDB) data for 6.3 years are examined. We use population data from TN for African Americans (N = 61,178), and compare this to a 10% random sample of Caucasians in TN (N = 54,643). The total N for the analyses is 115,821, and the overall mortality rate is 36.8%. Cox’s proportional hazard models are estimated with survival duration measured in days. Models focus on morbidity and comorbidity between: 1) cardiovascular disease; 2) diabetes; 3) mental illness; and 4) stroke. We investigate a variety of linear and non-linear specifications for the influence of physician service utilization and costs. RESULTS: The effect of physician service utilization on mortality is U-shaped. Regular physician visits significantly decrease mortality, while infrequent visits and high frequency utilization are associated with increased risk for mortality. Patterns of physician utilization decreases race differences in mortality rates from 18.1% to 8.2%. Second, we find that costs have a linear positive impact on mortality rates net of service utilization and diagnosis. Third, we find that race differences in diagnoses of diabetes and mental comorbidity with diabetes further reduce the disparity in mortality rates—from 8.2% to 3.3%. CONCLUSIONS:
Motivating and enabling African Americans to make physician visits is key to reducing race differences in mortality. Race differences in patterns of physician utilization are responsible for more than half of the race disparity in mortality outcomes. Costs of care are associated with poorer survival rates. Higher priced care does not yield better outcomes. Rather, costly care is associated with higher rates of death and is likely an indicator of problem severity.

OBJECTIVES: Based on the empirical data of Taiwan's National Health Insurance (NHI) program, this study intends to analyze the equity of access to health care service for different disease and to test the following hypotheses: a) Equity in health care utilization for minor diseases; b) Equity in health care finance for catastrophe diseases. METHODS: Since 1995, a compulsory social health insurance scheme is implemented and has covered about 97% of the total Taiwan population. Using the household registration data (year 2000) from the Ministry of the Interior, the vital registration data (year 2000) from the Department of Health and the insurance claim data (years 1999 and 2000) from the Bureau of NHI, we have analyzed the top utilization rate disease—upper respiratory infection, the top female mortality rate disease—lung cancer and top female neoplasm incidence rate cervix uteri cancer. To test the hypothesis, we classify the distribution of health care resource into 25 areas and analyze financial impact of lung cancer and cervical cancer in last year of life. RESULTS: There are 71% beneficiaries who had at least once visited physician for URI, which accounts for 31% of all cases number of outpatients. There are 94% URI utilization rate for the 0–14 year-old beneficiaries. The empirical evidences confirm the first hypothesis. For those women who died of lung cancer and cervical cancer had not showed any health care utilization and expenditure in their last year of life, about 10%, 11% respectively. We had observed significant proportion of these cases either lived in rural areas or under average national income. CONCLUSION: The empirical evidences showed there are still financial barrier for catastrophe disease in resource scarce area.

ASSOCIATION BETWEEN INCOME AND HEALTH STATUS IN THE ELDERLY CHINESE IN HONG KONG
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OBJECTIVES: Cumulative literature has overwhelmingly suggested that income is positively associated with health. This study aims to identify the domains of health with which income is positively as well as negatively associated, using an elderly sample in a typical transitional economy, Hong Kong. METHODS: Stratified disproportional random sampling in 1991–92 assembled a cohort of 2032 elderly subjects who were aged 70 and above. We measured the association between income and different domains of health and resource utilization using bivariate and multivariate regression analyses. RESULTS: After adjusting for age, sex, marital and employment status, higher income was associated with better general health (p = 0.03), better cognitive function (p < 0.0001), lower depressive depression scale (p < 0.0001), better quality of sleep (p = 0.01) and fewer visits to general practitioners (p = 0.01). Higher income was also associated with higher Body Mass Index (p = 0.07), presence of cerebrovascular disease (p = 0.04), fractures (p = 0.03) and more deficiencies in Activities of Daily Living (p < 0.01). CONCLUSIONS: Income was positively as well as negatively associated with health in Hong Kong. Other transitional economies in the region may experience the same pattern during rapid economic growth.

EQUITY OF ACCESS TO HEALTH CARE SERVICES: AN EVIDENCE-BASED STUDY IN TAIWAN
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OBJECTIVES: To identify the domains of health with which income is positively as well as negatively associated, using an elderly sample in a typical transitional economy, Hong Kong. METHODS: Stratified disproportional random sampling in 1991–92 assembled a cohort of 2032 elderly subjects who were aged 70 and above. We measured the association between income and different domains of health and resource utilization using bivariate and multivariate regression analyses. RESULTS: After adjusting for age, sex, marital and employment status, higher income was associated with better general health (p = 0.03), better cognitive function (p < 0.0001), lower depressive depression scale (p < 0.0001), better quality of sleep (p = 0.01) and fewer visits to general practitioners (p = 0.01). Higher income was also associated with higher Body Mass Index (p = 0.07), presence of cerebrovascular disease (p = 0.04), fractures (p = 0.03) and more deficiencies in Activities of Daily Living (p < 0.01). CONCLUSIONS: Income was positively as well as negatively associated with health in Hong Kong. Other transitional economies in the region may experience the same pattern during rapid economic growth.

DIRECT OBSERVATION IN INTENSIVE CARE UNITS: MEDICAL DEVICE-RELATED PROBLEMS ASSOCIATED WITH ALARMS
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OBJECTIVES: To observe the incidence of problems associated with use of medical alarms in intensive care units. METHODS: Adverse medical device events (AMDE) and potential patient harm (hazards) associated with alarms in two intensive care units (Shock-Trauma, STICU, and Medical-Surgical, MSICU) within a tertiary referral hospital were observed by a intensive care nurse native to each unit and trained in observational techniques by an anthropologist. The study was conducted during consecutive 6-month periods between October 2001 and September 2002. Five rooms were continuously monitored during each of approximately 104 six-hour shifts (4 randomly selected shifts per week). Poisson method 95% confidence intervals around incidence rates were calculated. RESULTS: A total of 81 alarm events were observed in the monitored rooms; 40 were AMDEs and 41 hazards. Forty-five events were related to respiratory, oxygenation, or ventilation monitoring, 22 to blood pressure, heart rate, or arrhythmia monitoring, 9 to an infusion pump, and 1 to a feeding pump. Incidence rates per 100 occupied observed bed-days for hazards and AMDE (with 95% confidence intervals) in the STICU were, respectively, 20 (12–31) and 35 (24–49). The corresponding incidence rates for the MSICU were 20