of improving refill rates. This leads to improved medication compliance and improved clinical outcomes. Because selected medications were also formulary-preferred agents, formulary compliance and volume within several key therapeutic categories was enhanced.

SURVIVAL ANALYSIS IN SEDATED INTENSIVE CARE UNIT (ICU) PATIENTS

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OBJECTIVES: To compare survival in sedated ICU patients by hospital type and to investigate various factors associated with patient survival.

METHODS: Data from 622 patients admitted to the ICU, intubated more than 24 hours, and receiving sedatives/analgesics during intubation were collected from 42 hospitals from November 22, 1999 to March 4, 2000. Patient demographic, sedative and analgesic selection, and outcome data were recorded on standard data forms. The Kaplan-Meier (KM) survival curves and the Cox proportional hazard model were used to examine the effect of hospital type and other factors on patient survival.

RESULTS: Patients in teaching hospitals had a significantly higher survival rate compared to community hospitals (p < 0.02). The Cox regression analyses showed that patient mortality was significantly associated with older age (hazard ratio; HR = 1.03), higher severity of illness (HR = 1.04), having certain comorbid conditions [lymphoma (HR = 2.87) and chronic hypoxia (HR = 2.57)], receiving analgesic agents (e.g., morphine, hydromorphone, and fentanyl) (HR = 2.76) and receiving care in a community hospital (HR = 0.62). However, whether the patient received treatment consistent with practice guidelines for ICU sedation and was treated in a hospital with a care plan for ICU sedation had no significant impact on patient survival in this analysis.

CONCLUSIONS: The results suggest that patients admitted to teaching hospitals seem to have better survival compared to community hospitals controlling for other factors that impact patient outcomes. However, whether this is due to hospital type, some other patient care practice or patient factors needs to be determined.

HEALTH POLICY—Economic Outcomes

PRESENTATIONS

THERAPEUTIC INTERCHANGEABILITY OF LEVOTHYROXINE

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OBJECTIVE: This evidence-based review evaluates the therapeutic interchangeability of levothyroxine between the original product Synthroid, and the two major generic brands Levoxyl and Levothroid, for use in hypothyroidism.

METHODS: A literature search identified 8 bioequivalence trials comparing different formulations of levothyroxine tablets. Meta-analyses were conducted to compare average bioavailability using three pharmacokinetic measures (Total T4, Thyrotropin-stimulating Hormon [TSH], and Free Thyroxine Index [FTI]). These measures were also evaluated for differences in variability between treatment groups.

RESULTS: The three formulations of Synthroid, Levoxyl, and Levothroid can be expected to produce similar average levels of circulating total T4 and TSH at steady state. Due to limited data, this statement does not extend to levels of free T4 nor free T3. Meta-analyses suggest that differences may exist in the variability of effect of levothyroxine products. Specifically, individual TSH levels in treated hypothyroid patients may span a wider range with some products than with others. This variability may be due to true individual differences in the variability of absorption of these products or to the use of outdated assay techniques (first generation radioimmunoassay) and short study durations that do not allow enough time for the patient to reach steady-state.

CONCLUSION: Studies generally suggest that Synthroid, Levoxyl, and Levothroid are bioequivalent on average. However, population (between subject) variability may be different across products. Establishment of individual bioequivalence will require new, prospective studies of adequate treatment duration that use the most sensitive assay methodologies. Until such studies are undertaken, current treatment guidelines that recommend hypothyroid patients be reassessed 6 weeks after a change in brand or dose should remain in effect.

PHP22

USING THE AMERICAN PRODUCTIVITY AUDIT (APA) TO INFORM EMPLOYERS ABOUT THE WORK-RELATED COST OF HEALTH CONDITIONS IN THEIR WORKFORCE

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OBJECTIVES: The American Productivity Audit (APA), an on-going week-to-week telephone survey, provides valid and reliable estimates of health-related work loss. The APA is currently being used to generate tailored reports for employers to inform them of the lost productive work time associated with specific health conditions. The paper illustrates the process.

METHODS: We developed and validated the Work and Health Interview (WHI) for APA administration. The WHI quantifies missed work hours and lost productive time while at work for specific health conditions using...