

QUALITY OF WELL BEING AFTER INTENSIVE CARE UNIT HOSPITALIZATION

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Those involved in providing care and determining utilization of resources for the critically ill recognize the limitation of evaluating intensive care based solely on survival. Although some attempts have been made to subjectively evaluate post hospitalization productivity, mental health and degree of recovery¹, previous studies have focused on mortality as the sole objective measure of outcome.² Recent efforts have resulted in methods of categorizing severity of illness - APACHE³ and TISS⁴ - thus allowing comparative analysis between facilities and evaluating factors affecting prognosis. Still lacking is a uniform means for evaluating outcome, considering both mortality and functional assessment using objective non-biased indices. A scale already having been applied to other health care considerations assesses these parameters and may demonstrate feasibility as a means of applying quality of life to the analysis of outcome from intensive care medicine. The present study was undertaken to demonstrate the applicability of this Quality of Well Being Index (QWBI)⁵ to such an outcome evaluation.

METHODS: All adult intensive care unit (ICU) admissions to Stanford Medical Center during April 1979 (n=210) were selected. After obtaining institutional approval, all patients determined to be alive at the time of the study (March 1981) were invited to participate. 94 patients (45%) agreed and following informed consent were finally studied. Trained personnel interviewed these subjects and administered the QWBI. Medical records for all 210 patients were reviewed for demographic information as well as admitting diagnosis, length of ICU stay and mortality. Comparisons were done using a Student's T-Test to examine any variances between those interviewed and the total group.

RESULTS: Analysis of the 210 admissions for the month studied showed an initial mortality of 8.5% in the ICU. Following discharge, an additional 24 patients were known to have died by the time of the study bringing the mortality to 20%. A further 19% were lost to follow up and 16% refused to participate. The remaining 94 patients were interviewed at 23 months post ICU admission. The 8.5% mortality for the month selected was not significantly different from the period June 1977 through December 1981 of 6.8%. Comparisons of age, sex, admitting diagnosis and length of ICU stay between the 94 participants and the 210 admissions showed no significant differences. The average age was 55.6 years (M 57.4, F 52.6) and there were 62% males and 38% females. The most common cause for admission was post-surgical (87%) with 65% for scheduled procedures. The most common admitting diagnosis was coronary artery bypass graft surgery (n=44). The table below shows the results of the QWBI based on diagnosis. The scale is computed for increasing function status from 0 to 1.00. The overall average for the 94 patients was 0.69 (M 0.71, F 0.66). There was no significant differences for age, sex, or admitting diagnosis.

DISCUSSION: The QWBI is utilized to assess a subject's quality of health as a function of the capacity to perform life activities. It is composed of three scales measuring the capacity for physical activity, mobility and role performances and a subjective component to evaluate a patient's symptoms independently of their effect on role performance. These are then analyzed with a resultant score between 0 and 1.00. Each of the possible composite pictures of functional status and symptoms has been ranked to social norms of desirability.

Our study demonstrates the applicability of such an index as an objective means of evaluating the quality of survival for critically ill patients. Our average score of 0.69 was lower than that attained for a control population in California of 0.81, yet is still within a range of acceptable functional status. More important than any conclusions based on our small population is the opportunity that this technique affords for future multi-center evaluations. Combining this index times the length of survival with means of comparing patient populations (APACHE and TISS) provides the necessary capability to compare and evaluate varying methods and concepts in intensive care. In this period of concern over the rising costs of health care, the intensive care unit has become the focus of increasing scrutiny. Such analysis as demonstrated in this study is crucial to the proper evaluation of therapy and determination of the suitable use of limited resources.

Cause for ICU Admission	Number of Patients	QWBI
Postoperative	82	0.69
CABG Surgery	44	0.71
Vascular Surgery	11	0.69
Other Surgery	27	0.66
Hemodynamic Insufficiency	1	0.61
Pulmonary Insufficiency	3	0.71
Trauma	3	0.71
Overdose	1	0.63
Gastrointestinal Hemorrhage	4	0.74

1. Cullen DJ, Ferrara LC, Briggs BA: Survival, hospitalization charges and follow up results in critically ill patients. *NEJM* 294:982-987, 1976.
2. Schroeder SA, Showstack JA, Schwartz J: Survival of adult high-cost patients. *JAMA* 245:1446-1449, 1981.
3. Knaus WA, Zimmerman JE, Wagner DP, et al: APACHE - acute physiology and chronic health evaluation. *CCM* 9:591-597, 1981.
4. Cullen DJ, Civetta JM, Briggs BA, et al: Therapeutic intervention scoring system: A method for quantitating comparison of patient care. *CCM* 2:57-61, 1974.
5. Kaplan RM, Bush JW, Berry CC: Health Status Index: Category rating versus magnitude estimation for measuring levels of well being. *Med Care* 17:501-523, 1979.