

**TITLE:** PREDICTIVE CAPABILITY OF EARLY EVALUATIONS OF CLINICAL COMPETENCE

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**Introduction.** Evaluation of the performance of residents is a critical aspect of their training, permitting confirmation of clinical competence and allowing early identification of problems with the hope of appropriate remediation. We compared retrospectively cumulative evaluations by the 4th month of residency with subsequent outcome to see if these early evaluations could also be used as predictors of future performance.

**Methods.** Since 1979, each resident's performance has been evaluated monthly by his supervisors using a criterion-referenced evaluation scheme. Performance is graded in 4 areas (knowledge & judgment, technical skills, personal characteristics and overall performance) using a set of fixed, clearly defined, performance criteria. The first four months of evaluations of the 45 residents who began clinical anesthesia training (PGY II) in 1979 and 1980 were examined using the Kalmogorov-Smirnov (K-S) test of cumulative frequency. (Since the data are nominal, non-parametric statistical tests must be used.) Those residents identified as different from their residency class in a negative way with a probability of 0.05 or less were identified. We compared them with their groups in two areas of performance: withdrawal from the program for any reason, and whether certification of clinical competence was granted by the Clinical Competence Committee at the 18th month without dissent. (The American Board of Anesthesiology requires such certification in January for the resident to sit the written examination the following July.)

**Results.** Table I shows the combined distribution of the two classes beginning PGY II in 1979 and 1980. Forty-five residents matriculated. Eight were determined by the K-S statistic to be at negative variance with their peers during the first four months of residency training. Twenty-nine were certified unanimously as clinically competent at the 18th month. Eight were also certified but with less than unanimity in the committee. None were denied certification. Eight left the program.

TABLE I

PERFORMANCE 1st 4 MONTHS  
(As determined by K-S statistic)

PERFORMANCE BY 18th MONTH (COMMITTEE OPINION)	Not At Variance	At Variance Negatively
Certified	28	1
Qualified Certification	5	3
Left Program	4	4

Combined  $\chi^2 = 12.4$ , d. of f. = 2,  $P < .01$

**Discussion.** Certain characteristics, such as leadership, originality and supervisory ability, cannot be assessed with any degree of certainty early in a residency. Nonetheless, this criterion-referenced evaluation system identified unfavorably 8 out of 45 residents at the 4th month of residency. Four of the 8 residents who withdrew from the program were among these. Some of our staff had reservations about certifying as clinically competent three of the remaining four.

We believe that this performance evaluation can be used to identify many of those who need extra help in reaching the competency needed to be a consultant in anesthesia as well as a large percentage of those residents who are at risk of withdrawing for any reason.

**Conclusion.** Non-parametric analysis (K-S) of criterion-referenced evaluations of anesthesia residents early in their training correlates well with certifiability at 18 months and those who will subsequently withdraw for any reason. It is a valuable objective early measure of resident performance.