Title: EFFECT OF OUTCOME ON PHYSICIAN JUDGMENTS OF APPROPRIATENESS OF CARE

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Introduction. Does the severity of an adverse outcome affect opinions about appropriateness of care? The purpose of this investigation was to test the hypothesis that *outcome alone* can affect a peer reviewer's judgment of appropriateness of care.

Methods. A nationwide selection of 112 practicing anesthesiologists served as peer reviewers. The ASA Closed Claims Database was used to select 21 cases of adverse outcome from 8 common categories of damaging events (examples: airway obstruction, aspiration, difficult intubation). The original outcome in each case was classified either as temporary (resulting in delayed recovery or extra hospitalization) or permanent (resulting in irreversible disability, brain damage or death). For each case, the authors generated a matching alternate case which was identical in every respect *except that a plausible outcome of opposite severity was substituted.* The original and alternate cases were randomly divided into two sets and assigned to reviewers. A given case was never presented to the same reviewer in both of its forms, and reviewers received no indication of the original or alternate origin of outcomes. Each case consisted of a detailed description of patient characteristics, operative procedures, involved personnel, damaging events, outcomes, and sequence of events. Reviewers rated the care in each case as appropriate, less than appropriate, or impossible to judge based upon the standard of a reasonable and prudent practitioner at the time of the event. Statistical significance was determined by randomization testing.

Results. Changing case outcome resulted in a significant effect on ratings for appropriateness of care (Table). The percent of ratings for appropriate care *decreased* by 31 points when outcome was changed from temporary to permanent and *increased* by 28 points when outcome was changed from permanent to temporary. When cases were analyzed individually, 20 of the 21 matched pairs demonstrated the same effect. The magnitude of change in individual cases ranged from 5 - 68 percentage points.

Discussion. The inverse association between outcome and ratings for appropriateness of care raises several basic concerns. The tendency to link permanent injury with inappropriate care may impede the objective study of major medical risks. This effect may also contribute to the frequency and size of payments awarded in malpractice suits. The tendency to regard temporary injury as part of the spectrum of appropriate care may foster practices which result in minor but unnecessary injuries. Efforts to improve the objectivity of peer review may strengthen the process of medical risk-management.

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Table: DISTRIBUTION OF REVIEWERS' RATINGS OF APPROPRIATENESS OF CARE

| | APPROPRIATE | LESS THAN APPROPRIATE | IMPOSSIBLE TO JUDGE |
|---|---|---|---|
| Original temporary outcome | 67% | 19% | 14% |
| Alternate permanent outcome | 36% | 33% | 31% |
| *Magnitude of change* | -31 * | +14 * | +17 * |
| Original permanent outcome | 28% | 39% | 33% |
| Alternate temporary outcome | 56% | 27% | 17% |
| *Magnitude of change* | +28 * | -12 * | -16 * |

Magnitude of change is expressed as the difference in percentage points. Sign (+/-) denotes the direction of change. *p<0.001.



TITLE: A PROSPECTIVE ANALYSIS OF REPORTED SIGNIFICANT OBSERVATIONS DURING ANESTHESIA

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Most accidents and near accidents are caused by unsafe practices or working conditions. The Reported Significant Observations (RSO) study is a quality assessment technique which uses personnel participation to report all deviations, however minor, from accepted safe practices or conditions in their working environment.[1] The RSO study involves a much broader concept than that used in critical incident studies.[2]

Methods: All anesthesiologists, anesthesia residents and nurse anesthetists in one hospital took part in the study. All significant observations related to anesthesia made during a period of 6 months were anonymously reported using standard reporting forms to one of the authors. The data were analysed using a computerised data analysis program.

Results: Of the 315 RSOs reported, 83% were considered to be preventable and 20% involved occurrences which could have been lethal, had they not been recognised and corrective actions taken. Ninety three percent of the reports did not lead to a negative outcome for the patients. Human error was responsible for 251 reports (79.7%). Inattention or carelessness was the most common factor associated with these human errors. Only 17% of reports involved equipment failure. Ten reports were classified as complications. Classification of the other 305 RSOs is shown in the table.

Conclusions: The RSO study is a useful method for quality assessment in anesthesia. The results of this study can be used to further enhance the quality and safety of anesthesia practice.

Table Reported Significant Observations during anesthesia

| | | Human error | Equipment failure |
|---|---|---|---|
| A. | Anesthetic Procedures | | |
| | Drugs administration | 40 | 7 |
| | Airway management | 22 | 9 |
| | Ventilation | 25 | 3 |
| | Drugs preparation | 13 | 0 |
| | Fluids & electrolytes management | 6 | 3 |
| B. | Technical Aspects | | |
| | Intravenous line | 38 | 3 |
| | Monitoring device | 19 | 15 |
| | Circuit disconnection | 19 | 0 |
| | Ventilator problems | 13 | 3 |
| | Fresh gas flow changes | 13 | 0 |
| | Vaporiser problems | 6 | 2 |
| | Operation table | 6 | 0 |
| | Leak in circuit | 6 | 0 |
| | Circuit obstruction | 3 | 0 |
| C. | Others | 22 | 9 |
| | TOTAL | 251 | 54 |

REFERENCES
1. Eicher, R.W. Reported Significant Observation (RSO) study. Aerojet Nuclear Company: Document ERDA-76-45-5, SSDC-5; Idaho, 1976.
2. Cooper, J.B., et al. Anesthesiology 60: 34 - 42, 1984.