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RELIABILITY OF THE U.S. ARMY
AMBULATORY CARE DATA BASE (ACDB) STUDY:
METHODOLOGY AND CLINICAL FINDINGS

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During the study period, January 1986 - September 1987, researchers collected data on 3.1 million patient encounters (visits at six participating Army hospitals. After the data collection phase of the ACDB study, study team members conducted a comprehensive 6-month review to determine a data reliability score for each participating hospital and clinical specialty. The study team reviewed over 9,000 randomly selected visits with their supporting medical records. They evaluated variables of interest with a specially developed scoring instrument which they used to assign numerical weights for the selected variables.

Reliability mean scores were computed for each hospital and clinic for the two data collection phases. Phase One (1) data was collected during the period January 1986 through April 1987. Phase two II (continued on reverse side)

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was accomplished from May through September 1987 using modified versions of the original data collection forms. The reliability mean score for the Phase I data was 8.57 (9 was the maximum score) with a standard deviation of 1.27 (n=7,589). The reliability mean score for the Phase II data was 8.50 with a standard deviation of 1.31 (n=1,426). These results indicate a high degree of reliability between the key variables on the ACDB visit forms and the corresponding official patient medical record.

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RELIABILITY OF THE U.S. ARMY AMBULATORY CARE DATA BASE (ACDB) STUDY: METHODOLOGY AND CLINICAL FINDINGS

SUMMARY

During the study period, January 1986 - September 1987, researchers collected data on 3.1 million patient encounters (visits) at six Army hospitals. After the data collection phase of the ACDB study, members of the study team conducted a comprehensive 5-month review to determine a data reliability score for each participating hospital and clinical specialty. The study team reviewed over 9,000 randomly selected visits with their supporting medical records. They evaluated variables of interest with a specially developed scoring instrument which they used to assign numerical weights for the selected variables.

Reliability mean scores were computed for each hospital and clinic for the two data collection phases. Phase One (I) data were collected during the period January 1986 through April 1987. Phase Two (II) was accomplished from May through September 1987 using modified versions of the original data collection forms. The reliability mean score for the Phase I data was 8.57 (9 was the maximum score) with a standard deviation of 1.27 (n= 7,589). The reliability mean score for the Phase II data was 8.50 with a standard deviation of 1.31 (n = 1,426). These results indicate a high degree of reliability between the key variables on the ACDB visit forms and the corresponding, official patient medical record.

INTRODUCTION

History and Purpose

Recognizing the requirement for an ambulatory care data base, the Army Medical Department began planning in 1984 for a multi-year study to establish an outpatient data base. Based on the results of a 6-month pilot

study completed at Fox Army Community Hospital, Redstone Arsenal, Alabama (Misener & Gilbert, 1984), the ACDB Study was formulated to collect clinical data from patient encounters (visits). During a 21-month period from January 1986 to September 1987, over 3.1 million patient encounters were recorded.

This report examines the reliability of the clinical data obtained from the six participating Army hospitals and their respective clinical specialties. A quantitative measure of the reliability of the data was determined to be a prerequisite to the subsequent analysis by clinical specialty.

Background

The development of medical classification systems is not a recent innovation (e.g., International Classification of Diseases, 1979). However, the application of such systems to hospital management and reimbursement mechanisms is fairly recent. Specifically, Diagnostic Related Groups (DRGs) were developed for this purpose (Fetter, Averill, Lichtenstein & Freeman, 1984). The quest for more efficient management and more equitable reimbursement systems led to the development of other similar methodologies. These include Ambulatory Visit Groups (AVGs), Resource Utilization Groups (RUGs), Products of Ambulatory Care (PACs), and others (Kelly, Fillmore, & Tenan, 1988). Central to the development of these and other classification systems is the accurate measurement of care provided. This accuracy of measurement, more commonly referred to as reliability of data, is not identified with glamorous research. It is, however, essential for confidence in results obtained from any subsequent work (Richards, Lurie, Rodgers, & Brook, 1988).

In order to determine the reliability of the Army's ACDB, a

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comprehensive reliability study was conducted at all six test hospitals and included the outpatient specialties which were part of the study. Hospitals participating in the study were Brooke Army Medical Center (BAMC), Fort Sam Houston (San Antonio), Texas; Bayne-Jones Army Community Hospital, Fort Polk (Leesville), Louisiana; Womack Army Community Hospital, Fort Bragg (Fayetteville), North Carolina; Fox Army Community Hospital, Redstone Arsenal (Huntsville), Alabama; Blanchfield Army Community Hospital, Fort Campbell (Clarksville, Tennessee), Kentucky; and Moncrief Army Community Hospital, Fort Jackson (Columbia), South Carolina.

RESULTS

The four variables selected in the reliability study are part of each patient's record. Unfortunately, the reliability study was not able to specifically review on a one-to-one basis the other fifty-seven variables (e.g., time spent with patient, number of prescriptions, pathology tests and radiography) used in the study. Study researchers contend that the reliability of the variables selected has the potential to imply a similar trend in other variables.

Quantifiable reliability measures for each participating hospital and clinical specialty were derived from an exhaustive review of supporting patient medical records. Since data were collected during two consecutive but separate periods, the reliability measures were computed for each phase.

Analysis of variance tests revealed statistically significant differences between hospital sites, phases of data collection, and individual participating clinical specialties do exist. However, no practical significance or practical implications were found as a result of these statistical differences. Moreover, some of the statistical

differences found can be a function of large sample sizes (Welch & Comer, 1988).

As a result of this extensive study, the question of the accuracy of the studied variables can be answered without hesistation. These data are unquestionably of a very high quality and on a par with the best of any medical data collected and scrutinized within or outside the Army Medical Department.

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