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DEVELOPMENT OF A STANDARD NAVY OUTPATIENT MENTAL HEALTH REPORTI--ETC(U)
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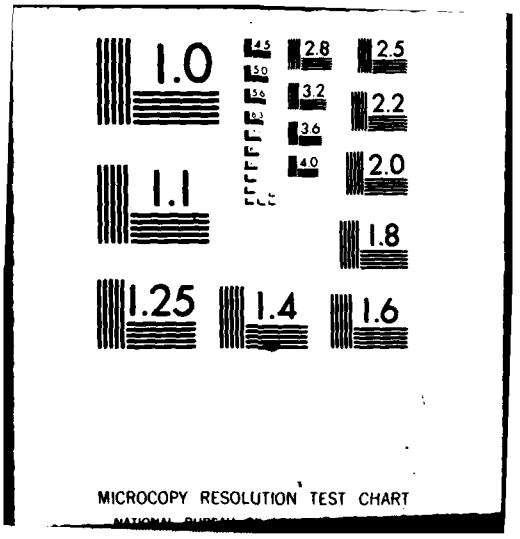
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DEVELOPMENT OF A STANDARD NAVY OUTPATIENT MENTAL HEALTH REPORTING SYSTEM

R. B. CHAFFEE

REPORT NO. 81-31

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Development of a Standard Navy Outpatient Mental Health Reporting System

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Summary

Introduction

Efficient and effective performance of triage, brief assessment, and crisis intervention in Navy outpatient Fleet Mental Health Support Units (FMHSUs) depends upon the acquisition and availability of specific patient information that is not routinely included in Navy medical records in a consistent, coherent fashion. No information system presently exists within Navy mental health to collect and process clinical information and then supply it in a format that would facilitate the accomplishment of these and other decision-making tasks.

Objective

The present project's task was, therefore, to develop and test a workable prototype system of collecting basic patient demographic and service delivery information from individual clinician/patient encounters.

Approach

Data collection instruments were designed and developed after review of the literature on mental health information systems. A pilot study was conducted over a 9-month period at a single FMHSU. The data collection instruments were revised into a machine-readable format based on the results of the pilot study. Data collection was then implemented at two additional FMHSUs within the San Diego region. A monthly report, the Clinical Summary, was designed using the data from the pilot study.

Results

The major findings of the pilot study were that a large proportion of service members seen as mental health outpatients received no psychiatric diagnosis and that service members in different pay grades are referred for mental health consultation for distinctly different reasons. Mental health services were also differentially delivered to service members in different pay grades. Officers and senior enlisted personnel were more likely to be seen for follow-up visits than service members in other pay grades. Patients' contacts with the FMHSU typically were brief: Follow-up visits ranged from 1 to 15 but averaged only 1.1 per individual.

Given the large number of patients who received no psychiatric diagnosis despite the addition of "V" Codes in DSM-III, a Precipitating Factors Form listing 18 reasons for referral was included in the revised data collection instruments. The variables included in the machine-readable data collection instruments are currently being evaluated for the usefulness and quality of the data they provide.

Conclusions

Major difficulties with the present system include the error rate in the data submitted and the inordinate time required to edit it. The major benefit the system provides is accurate, standardized patient demographic and service information on the populations served by individual FMHSUs.

Abstract

The project described is an investigation of the usefulness of patient demographic and service delivery data collected from individual patient/clinician encounters in Navy outpatient mental health. Results of the pilot study indicate that service members in different pay grades are referred for distinctly different reasons and receive different services. A basic clinical data collection system was devised, and is currently undergoing expanded field testing. Development of this system is described. Preliminary results indicate that data collection from individual patient/clinician encounters with data entry by clinicians is feasible with two qualifications: (1) the variables selected must be few and presented in a format that is quick and easy to complete, and (2) the data collected must be directly relevant to the reports generated and worth the effort of data entry to the clinicians involved.

1. INTRODUCTION

Clinicians in outpatient Navy Fleet Mental Health Support Units (FMHSUs) typically engage in triage, brief assessment, and crisis intervention (1). Efficient and effective performance of these tasks depends upon the acquisition and availability of specific patient information that is not routinely included in Navy medical records in a consistent, coherent fashion. Despite the importance and complexity of these activities, no information system presently exists within Navy mental health to collect and process clinical information and then supply it in a format that would facilitate the accomplishment of these and other decision-making tasks. Present management information systems provide work load summary and population statistics but were not designed or intended to capture clinical information on individual patients. The accuracy of the data submitted via these systems is also diminished by inconsistent data entry procedures among different mental health facilities.

Navy clinical information systems have no built-in procedure for summarizing patient demographic and service delivery data. Patient logs record basic demographic and appointment information but do not include data on treatment and disposition. The format and content of patient logs also vary between facilities. Patient medical records are the primary source of individual data in Navy mental health, but they are often incomplete, illegible, and difficult to access. Narrative records of mental health treatment also suffer from a lack of standardized terminology and content.

The problems with Navy clinical information systems also affect mental health research. Data abstracted from indipatient records can only be as good as the source. Abstracting data manually is also time-consuming and only increases the chances for error.

Ultimately, all of the information systems above depend upon the same basic unit of observation for their data, i.e., the patient visit or patient/clinician encounter. None of the foregoing systems provides a complete, standard record of individual clinical treatment that can serve as a data base for clinical, administrative, managerial, or research reports. What is lacking is an information system that unobtrusively collects information from each patient/clinician encounter in a format that allows immediate use of the data and preserves it for further data processing.

Review of the literature on mental health information systems indicated that numerous individual business, management, and clinical functions have been automated and that several quite sophisticated inpatient mental health information systems (MHISs) have been developed, operate successfully, and claim to be cost-effective (2-6).

The precedent for computer-supported applications in military mental health was established by a clinically oriented pilot research project at Walter Reed Army Medical Center called "Computer Support in Military Psychiatry" (COMPSY). COMPSY's goal was to develop and test concepts for an integrated, Army-wide psychiatric information system (5,7). COMPSY planned to utilize on-line computer technology to link hospital with geographically distant field psychiatric facilities. Specific clinical applications, e.g., automation of the collateral social history, mental status exam, psychological

Based on data collection instruments currently in use in Navy outpatient mental health and in several of the more sophisticated civilian MHISs reviewed earlier, prototype data collection instruments were designed and developed. These forms were tested in a pilot project at the Fleet Mental Health Support Unit (FMHSU) at the Naval Air Station, North Island.

The format of these prototype forms reflected the decisions made on how the data were to be collected. Since paraprofessional personnel were not always available to receive the patient and complete the Administrative Form, the form was designed so that it could be completed by the patient (see Figure 1). Soon after the data collection in the pilot project began, however, it became apparent that the patients could not accurately complete the Administrative Form themselves. Inspection of the data revealed that the patients' errors appeared to be due more often to carelessness, e.g., checking an item that requested a number, than to the design of the form since items were not as frequently missed or misinterpreted. As a result, the task of completing the Administrative Form was reassigned to Hospital Corpsmen. Fortunately, the Encounter Form proved to be quite quick and easy to complete, despite its length. Nearly three of the four pages of the Encounter Form consisted of a diagnostic checklist, a portion of which is shown in Figure 2. The checklist format for documenting diagnoses was chosen because the data collection occurred during the time of transition from the second to the third edition of the Diagnostic and Statistical Manual of Mental Disorders (8). The checklist was intended as a training aid to reduce confusion between DSM-II and DSM-III diagnoses. Once familiar with the content of the form, the clinician reported that it took approximately one minute to complete, and his errors consisted mainly of items he overlooked.

Results and Discussion

The pilot study at the FMHSU, NAS, North Island, was completed on 30 April 1981. Nine complete months of data were collected representing 246 initial and 75 follow-up visits. Analysis of these data has been completed, and the results are reported in detail elsewhere (9). The major findings of this pilot project were that a large proportion of service members seen as mental health outpatients received no psychiatric diagnosis and that service members in different pay grades are referred for mental health consultation for distinctly different reasons. Mental health services were also differentially delivered to service members in different pay grades. Officers and senior enlisted personnel were more likely to be seen for follow-up visits than service members in other pay grades. Patients' contacts with the FMHSU typically were brief: Follow-up visits ranged from 1 to 15 but averaged only 1.1 per individual. Bailey (1) found that clinicians in outpatient mental health typically engaged in triage, brief assessment, and crisis intervention. This pilot study adds brief psychotherapy with career-oriented service members to the list of clinicians' activities.

An unexpectedly large proportion of patients seen at the FMHSU received no psychiatric diagnosis: 139 (60.7%) of the 229 patients for whom data were available had "No diagnosis or condition" on either Axis I or Axis II. This unanticipated result was not easily explained because a number of these patients were seen for more than one visit. This indicated that there was indeed some problem or concern which brought these patients to the FMHSU and that they were not simply inappropriate referrals. Without a documented diagnosis, however, no information was available concerning the reasons for these referrals. This situation revealed a serious oversight in the content of the system, i.e., there was no way to capture data on the reason for referral in cases in which the patient's concern or difficulty was not severe enough to warrant a formal psychiatric diagnosis. In designing the system, no special provisions had been made for such cases because it was assumed that the DSM-III category of "V" codes would suffice.

In order to rectify this shortcoming the unit's records for the study period were reviewed in order to obtain information on the reasons for referral in all cases. Data on 156 cases of the original total sample were obtained, and the major reasons for referral in each case was classified into one of ten discrete categories. Classifications were based on agreement between two judges on the rationale for referral presented in the consultation which included the impressions of both the referral source and the FMHSU clinician. The resulting list of reasons for referral was organized into the

tests, parts of the clinical record, nursing notes, and computer-assisted instruction for psychiatric residents, were developed. The project also provided computer support for a token economy experimental treatment ward. COMPSY was never completed as planned, however, because of administrative delays and difficulties in the procurement of the necessary telecommunications equipment.

These precedents are useful in evaluating the applicability and feasibility of computer-supported applications in Navy outpatient mental health. Clearly, the necessary technology for the development of comprehensive computer-supported MHISs is available and has been successfully implemented within civilian mental health systems that resemble the Navy's, at least in size and gross organizational structure. However, there are several crucial differences between civilian and military mental health services that present considerable obstacles to the development of computer-supported applications. First, the impetus for the development of MHISs within the civilian mental health community derives from the need for more systematic documentation of mental health services to improve accountability for third-party reimbursement (3). Increased pressures for more systematic documentation to improve accountability are more political than directly economic with military mental health. Secondly, mental health services in the military historically have never required large budget allocations for equipment which means that a precedent would have to be established to procure the necessary hardware, software, and expertise. COMPSY might be considered to be the precedent for such funding, but it was a research project. Development in mental health is not a priority for TRIMIS, the Tri-Service Management Information System, which has responsibility for automating military medical information systems. Finally, the necessary personnel resources are just not presently available in Navy mental health or data processing to develop and implement a comprehensive MHIS. The necessary funds and personnel resources will continue to be lacking without persuasive justification of the usefulness and effectiveness of computer-supported applications in Navy mental health.

Given the foregoing, what was needed was a convincing demonstration of the usefulness of an automated system of collecting basic administrative and clinical data in Navy outpatient mental health. The present project's task was, therefore, to develop and test a workable prototype system of collecting basic patient demographic and service delivery information from individual clinician/patient encounters. The short-term goal of this effort was to pilot test the system developed at a single site in the San Diego area with the long-range objective of implementing the system throughout the region. From the outset, the system was conceived as a basic clinical information system with a dual purpose: (1) to document patient visits in a standard manner and (2) to describe demographically and clinically who was being seen by whom and for what in outpatient mental health and what was happening to those seen. The ultimate goal of this Outpatient Mental Health Reporting System (OMHRS) was seen as providing the basic framework upon which a more comprehensive mental health information system would be elaborated. Flexibility in format and mode of processing was therefore a priority.

Realistic constraints on personnel and material resources dictated that the OHMRS not require any additional personnel for its implementation or any equipment that was not already available at either the Naval Health Research Center, San Diego, or at FMHSUs in the region. Developing the OMHRS within these constraints was considered essential to facilitate its transfer to other Navy facilities in the future. In addition, it was felt that in order to be successful, an OMHRS would have to meet certain criteria. These included:

(1) collecting data directly in patient/clinician encounters, (2) making data entry manageable for both clinicians and support personnel, (3) minimizing the time necessary to generate reports, "turn-around time," (4) generating reports that are useful, i.e., worth the effort of data entry, and (5) being transferable.

2. THE PILOT STUDY

Procedure

The first steps in this project were to decide which data to collect and then to design a data collection instrument that was both quick and easy to complete and that provided the desired data in a format which facilitated its processing.

Precipitating Factor Form which listed 18 reasons for referral, e.g., "Severe Suicide Attempt," and "Wants Out of Service."

A second procedural difficulty in the data collection involed the fact that patient demographic data were only required once, i.e., for the initial visit, and entailed unnecessary duplication of effort for follow-up visits unless some item changed. Since the chances of basic patient demographic information changing from from visit to visit were slim, e.g., items such as pay grade or marital status, the Administrative and Encounter forms were reviewed and only those items which could reasonably change from one visit to the next were selected. These items were organized into the Follow-up Form. The Follow-up Form greatly improved the efficiency of the data collection because it was much shorter and contained only those items pertinent to changes in patient status or service delivery during the follow-up visits. The Follow-up Form was implemented during the second month of the pilot study.

Data collected during the pilot study were transported weekly to the Naval Health Research Center where they were edited, keypunched, and processed.

3. THE CURRENT PROJECT

Procedure

In preparation for the second phase of this effort, the data collection instruments were developed in machine-readable form. This change was necessary in order to accommodate the large volume of data from two additional FMHSUs within the San Diego region; those at the Naval Station and the Naval Training Center. Given the additional work loads of these two facilities, an average of 144 and 305 patient visits per month, respectively, during 1980, machine-readable data collection instruments were essential in order to minimize personnel and turn-around time. The Administrative Form and the Encounter Form developed are presented in Figures 3 and 4. These two forms and the Precipitating Factors Form previously described were implemented at the Naval Station FMHSU on 1 September, and data collection remains ongoing.

Several revisions were made in the format and content of the data collection instruments with the change to machine-readable forms. "Months of Service," conspicuously absent on the former versions due to an oversight, was inserted. "Number of Months at Present Duty Station" and "Rotation Date" were added in order to obtain further data on the timing of mental health consultations. The Somatic Treatment section of the "Service Provided" variable was deleted on the Revised Encounter Form because it was infrequently used. The "Referral" variable was drastically reduced from a checklist to a brief item with three choices which requested the pertinent data: "No Referral Made," "To Military," and "To CHAMPUS." The numbers of referrals made to other medical services was much smaller than anticipated in the pilot study. Documentation of diagnoses and identification of the provider were also changed. Instead of the checklist format, the documentation of diagnosis on the optically scannable Encounter Form requires the clinician to enter the DSM-III code number for the diagnosis given. In order to assist clinicians in coding diagnoses quickly and accurately, the diagnoses most commonly given in the previous year at San Diego outpatient FMHSUs were listed on a "Diagnosis Card" that was laminated in plastic and made shirt-pocket size as a handy reference. Each FMHSU staff member was given an individual 3-digit provider number to enter in the "Provider" item on the Administrative and Encounter forms in order to describe the work loads of the various mental health subspecialties and to provide feed back to individuals concerning their caseloads. "Time Spent" was deleted on the revised Encounter Form because the data obtained were not considered worth the effort of data entry. The data were gross estimates of the time spent rounded to the nearest 15 minutes. Since the purpose of this data collection was not to do a comprehensive time study, requesting the time spent implied more interest in how clinicians were spending their time than in what they were doing. The original reason for requesting time data was to determine whether certain types of cases required inordinate amounts of time. Given the potentially negative impact upon clinician compliance of implied accountability fr time, the time data were considered expendable and were deleted.

For an initial visit, all three forms are required. In order to avoid unnecessary duplication of effort for follow-up visits, only the Encounter Form must be submitted and only basic patient identification and status variables must

be completed, typically the Social Security Number, date, visit status, service provided, disposition, provider, and facility. No other variable must be completed on the Encounter Form for a follow-up visit as long as the information remains unchanged from the Administrative Form. Diagnoses must be reentered only when they are changed. The Administrative and Encounter forms were also printed as carbon-snap sets so that the carbon copy could be placed in the patient's record at the clinic immediately as documentation of the visit. As in the pilot study, the data collected are transported to the Naval Health Research Center on a weekly basis. They are then edited and processed at the Center.

Present Status

A monthly report, the Clinical Summary, was designed using the data from the pilot study. The first page of the Clinical Summary is shown in Figure 5. This Summary was deliberately designed as a series of frequency distributions of patient population demographics, patient and sponsor military status, and service delivery variables in order to present the data as graphically and readably as possible in a format that could be easily understood. Scanning the Clinical Summary, the clinician or mental health administrator can get a clear picture of what happened at the FMHSU during an entire month.

In addition, the Clinical Summary provides all the data necessary for the completion of the management information systems currently in use. The OMHRS has the potential to substantially improve the quality of data submitted via these reports because its data are collected in a standard, systematic manner directly from each patient/clinician encounter. The timeliness of the reports generated is a crucial issue for the success of the OMHRS. The target turn-around time in the present study for the delivery of the monthly Clinical Summary is one week after the first of each month. At present, the major difficulty in achieving this goal is the error rate in the data submitted and the subsequent time required to edit and correct the data. The error rate in the present study is currently an unacceptable 25%, i.e., 25% of the forms submitted have items in error. Most of these errors result from neglecting to complete certain items, most often "Rotation Date" on the Administrative Form and "Disposition," "Referrals Made," "Provider," and "Facility" on the Encounter Form. "Service Pr vided" has also been problematic because it requires selection of one item under "Psychotherapy" and another under "Evaluation." Often one item is selected under one of the two categories and the other is left blank, usually because the "None" response was omitted from the form. Turn-around time for the first month's data at the time of this writing was two and one-half weeks. Since this was due in part to finalization of the data processing procedures, whether or not the targeted turn-around time of one week is achievable remains to be seen.

Data generated by the OMHRS will also be analyzed every six months in order to describe the populations seen at the FMHSUs in more detail. This decision grew out of the recognition that some patient demographic and epidemiological data require a larger number of cases than a monthly sample would provide in order to be meaningful. The data involved are listed below under the forms on which they appear:

Administrative Form	Encounter Form
Months of service	Previous psychiatric history
Number of months at present duty	Axis III
Rotation date	Axis IV
Ethnic background	Axis V
Status	Referral
Marital status	
Is patient's spouse currently deployed or living elsewhere?	
Number of children living with patient	

These patient demographic and treatment variables, as well as the variables from the Precipitating Factors Form, will be analyzed in order to determine population subgroups at high-risk for specific disorders, the timing of mental

consultations, and which patients are referred and seen most often.

Probes of the system can also be made in order to answer specific questions about subgroups of the population or services provided. For example, if the clinician noted upon inspecting the Clinical Summary that his caseload was composed primarily of a specific type of patient, he could probe the system to ascertain the referral source(s) for those patients. This kind of information is extremely helpful in initiating prevention or liaison with local referral sources.

The OMHRS also has the capability to track individual patients through the mental health care system for discrete episodes of care or over selected time periods. Individual patient care data can be presented by visit so that an overview of the case presentation, service delivery, and resolution is constructed.

Future Plans

The pilot study and the current project have demonstrated that patient visits can be documented in a standard manner and that patient demographic and service delivery data can be captured from individual patient/clinician encounters in Navy outpatient mental health. Collecting data directly from individual patient/clinician encounters entails specific difficulties with data entry because clinicians are asked to enter the data. Since the ease and speed with which data may be entered are the issues here, future plans for the OMHRS include reducing both the amount of data collected and the time required to enter it. Presently, blackening in the space in the field of each item takes as much or more time than actually entering the data. Eliminating the unnecessary duplication of items on the Encounter Form for follow-up visits reduced this difficulty somewhat by omitting some items with large fields, but this doubling of entry time remains a problem. Each item collected will, therefore, be evaluated for its usefulness and alternative data entry formats will be explored. Data entry is clearly a problem that is crucial to the success of the OMHRS.

Although the data collected are novel and appear to have practical implications for the delivery of outpatient mental health services, their clinical usefulness has yet to be established by studying the impact of decisions made based on the data collected. At present, it remains unclear whether the usefulness of the data obtained justify the effort required to enter it. Also unclear is whether the clinicians involved view the OMHRS as sufficiently useful to them in their work to ensure their continued compliance. Both these issues must be evaluated.

The work to date also indicates that a taxonomy of reasons for referral is essential to the adequate clinical description of the Navy outpatient mental health population. The fact that 60.7% of the patients seen in the pilot study received no psychiatric diagnosis emphasizes the importance of the reason for referral as a variable and the limitations of inferring the reason for referral solely from the diagnosis.

A major concern with the present version of the OMHRS is to determine the final form of the data collection instruments for the regional prototype system. An attempt will be made to incorporate the present Administrative, Encounter, and Precipitating Factors forms into a single data collection instrument by reducing the number of variables included. This single form would serve for both the initial and any follow-up visits. The items required for follow-up visits would be shaded to facilitate data entry. This revised data collection instrument will be implemented at all five satellite FMHSUs within the San Diego region. The Clinical Summary will also be refined, and semi-annual reports will be developed. Further elaboration of the final system would proceed in a modular fashion adding separate forms or "modules" for service adjustment/social history, family background, mental status examination, and symptom checklist. Ideally, the reports generated from these modules could be incorporated directly into the reports that Navy mental health clinicians now routinely dictate or handwrite, e.g., consultation reports, narrative summaries, or medical boards. Such a modular system would also standardize the content and form of outpatient mental health patient records.

This project addresses several basic problems within the mental health profession that are particularly acute in the Navy: (1) the lack of an agreed upon standardized professional language, (2) poorly maintained medical records that are often illegible, incomplete, and difficult to access, but most importantly, (3) a mental health information system

that cannot provide timely, accurate data in a routine manner. The case for the usefulness of collecting accurate, standardized patient demographic and service delivery information in Navy outpatient mental health somehow is self-evident although it has never been a priority. The success of the projects presented here is, therefore, measured in part in terms of the attention and visibility gained for the development of mental health information systems in Navy mental health.

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The project described is an investigation of the usefulness of patient demographic and service delivery data collected from individual patient/clinician encounters in Navy outpatient mental health. Results of the pilot study indicate that service members in different pay grades are referred for distinctly different reasons and receive different services. A basic clinical data collection system was devised, and is currently undergoing expanded field testing. Development of this system is described. Pre-

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