COMPUTERIZATION OF NAVY OUTPATIENT MENTAL HEALTH CLINICS

M. W. CONGLETON

REPORT NO. 85-4
To expedite communication of our research, this is a preprint of a paper which will appear in the 1985 Proceedings of the American Association for Medical Systems and Informatics.

Report No. 85-4 was supported by the Naval Medical Research and Development Command, Department of the Navy, under research Work Unit M0095-PN.001-1052. The views presented in this paper are those of the author. No endorsement by the Department of the Navy has been given or should be inferred.
SUMMARY

The Navy Mental Health Information System, NAMHIS is a comprehensive, automated recordkeeping and reporting system. It is designed to meet the needs of clinicians and administrators in Outpatient Navy Mental Health Clinics. The public domain version of the Computer Stored Ambulatory Record, COSTAR, was extensively modified to meet the software requirements of NAMHIS and covers the five system functions: (Patient Registration, Encounter Data, Patient History, Mental Status Examination, and Reporting Capability). Data collection forms have been developed, as well as standardized reports of individual patient/clinician consultations.
Introduction

The Navy Mental Health Information System (NANHIS) has been developed to meet the requirements of clinicians and administrators in Navy mental health clinics. NANHIS captures, stores, displays, and prints relevant, complete, and standardized information so that it is immediately accessible. Timely reports of patient consultations, management data, and medical audit and utilization review procedures prescribed by medical quality assurance and accreditation programs are produced by the system (1). The Computer Stored Ambulatory Record (COSTAR) software has been modified to serve as the vehicle for automation of NANHIS and accommodate the necessary data elements of Navy outpatient mental health.

NANHIS Design and Development

Phase I of the NANHIS project included needs assessment and system analysis. In this phase reporting requirements were analyzed and the need for a standardized Navy outpatient mental health reporting system was documented. The design and testing of a prototype recordkeeping system was subsequently completed at a Fleet Mental Health Support Unit (2,3). In Phase II the system was designed and specifications were generated. Data collection forms and an efficient system utilizing these instruments were developed, along with standardized reports of individual consultations and summary statistical reports involving entire clinic populations. The actual development of NANHIS took place in Phase III. The Computer Stored Ambulatory Record (COSTAR) software was chosen as the vehicle for automating NANHIS. The public domain version of COSTAR served as the starting point and has been extensively modified for use in Navy psychiatric outpatient settings. This modification was achieved through a team effort representing psychiatry, clinical psychology, mental health administration, and computer science. Every effort is being expended to make the system easy to use including the preparation of a users' reference manual tailored to NANHIS characteristics. A set of job aids that facilitate the work flow in a fleet mental health support unit is also being provided.

NANHIS System Description

NANHIS includes five system functions: Patient Registration, Encounter Data, Patient History, Mental Status Examination, and Reporting Capability.

Patient Registration. The patient must be registered before any encounter data can be entered into the patient's medical record. A Patient Registration Form must be completed by each new patient (See Figure 1). This form contains
basic identifying information and demographic data. Only two registration data items require assistance from staff—the Suffix to Social Security Number and the patient's Enlisted Rating of Officer Category. The suffix is a two-digit CHAMPUS code that defines the patient's family position. For example, 20 means Uniformed Service Member (Sponsor). The Suffix and sponsor's Social Security Number constitute a unique patient identifier and is used as the unit number in COSTAR.

### MENTAL HEALTH CARE

**PATIENT REGISTRATION FORM**

**THIS FORM TO BE COMPLETED BY THE PATIENT. RESPOND TO ALL ITEMS. PLEASE PRINT.**

<table>
<thead>
<tr>
<th>1. PATIENT NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAST NAME</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. SEX</th>
<th>3. DATE OF BIRTH</th>
</tr>
</thead>
</table>
| ☐ (M) Male | ☐ (F) Female | /

<table>
<thead>
<tr>
<th>4. DUTY STATION</th>
<th>IF DEPENDENT or CIVILIAN, print home address.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>5. CITY</th>
<th>STATE</th>
<th>ZIP CODE</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>6. SOCIAL SECURITY NUMBER (SSN)</th>
<th>SSN SUFFIX (Office use.)</th>
<th>6. TODAY'S DATE (Date of Registration)</th>
</tr>
</thead>
<tbody>
<tr>
<td>--------------------------------</td>
<td>--------------------------</td>
<td>-------------------------------</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. ETHNIC BACKGROUND</th>
</tr>
</thead>
</table>
| ☐ (W) White | ☐ (F) Filipino or Malay
| ☐ (OR) Oriental | ☐ (N) Native American
| ☐ (H) Hispanic | ☐ (OT) Other
| ☐ (B) Black |

<table>
<thead>
<tr>
<th>8. MARRITAL STATUS</th>
</tr>
</thead>
</table>
| ☐ (N) Never married | ☐ (S) Separated
| ☐ (M F) Married first time | ☐ (D) Divorced
| ☐ (M O) Married other than first | ☐ (W) Widowed

<table>
<thead>
<tr>
<th>9. PATIENT STATUS</th>
</tr>
</thead>
</table>
| ☐ (A) Active duty | ☐ (R) Retired
| ☐ (D S) Dependent spouse | ☐ (O) Other
| ☐ (O C) Dependent child |

<table>
<thead>
<tr>
<th>10. BRANCH OF SERVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ (USN) USN or USNR</td>
</tr>
<tr>
<td>☐ (USM) USMC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11. PAYGRADE OR RANK</th>
<th>Check appropriate box.</th>
</tr>
</thead>
<tbody>
<tr>
<td>If Dependent, check here ☐ (D)</td>
<td>If Nondependent Civilian, check here ☐ (C)</td>
</tr>
<tr>
<td>☐ E1</td>
<td>☐ E2</td>
</tr>
<tr>
<td>☐ W1</td>
<td>☐ W1</td>
</tr>
</tbody>
</table>

| 12. DATE FIRST CAME ON ACTIVE DUTY |
| Ignore if Dependent or Civilian. |

| 13. IN RECRUIT TRAINING? |
| Ignore if Dependent or Civilian. |

<table>
<thead>
<tr>
<th>14. ENLISTED RATING OR OFFICER CATEGORY</th>
<th>Enter one from chart with assistance from staff. Ignore if Dependent or Civilian.</th>
</tr>
</thead>
</table>

**Figure 1**

NMRC 6320-30.1A (01-84)
A table of Navy Enlisted Ratings and Officer Categories has been constructed in NAMHIS and tied to the COSTAR code for Item 14 on the Patient Registration Form. This feature makes it relatively easy to retrieve patient data for occupations considered at risk for psychiatric stress, an important capability for conducting Navy mental health research. The COSTAR registration prompt sequence in

**MENTAL HEALTH CARE**

**INITIAL ENCOUNTER FORM**

**THIS SECTION TO BE COMPLETED BY THE TECHNICIAN. ANSWER EACH ITEM. PLEASE PRINT.**

<table>
<thead>
<tr>
<th>LAST NAME</th>
<th>FIRST NAME</th>
<th>M.I.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**SEX**

- [ ] Male
- [ ] Female

**DATE OF BIRTH**

- [ ] MONTH / [ ] DAY / [ ] YEAR

**DATE OF ENCOUNTER**

- [ ] MONTH / [ ] DAY / [ ] YEAR

**CLINICIAN NO. 1**

**CODE:**

**SITE CODE** Chck only one.

- [ ] (A) NAS North Island
- [ ] (B) Naval Station San Diego
- [ ] (C) Naval Training Center San Diego
- [ ] (D) NAS Miramar
- [ ] (E) San Diego Naval Hospital
- [ ] (F) Other

**TYPE OF PRINCIPAL SERVICE PROVIDED (EVALUATION/PSYCHOTHERAPY)** Check only one.

- [ ] (A) Suitability or fitness for duty
- [ ] (B) Special program screening
- [ ] (C) Psychometric testing
- [ ] (D) Fit for confinement
- [ ] (E) Medical Board
- [ ] (F) Sanitary hearing
- [ ] (G) NAB or RAB
- [ ] (H) Individual therapy
- [ ] (I) Group therapy
- [ ] (J) Couple/family therapy
- [ ] (K) Relaxation therapy
- [ ] (L) Other screening
- [ ] (M) Other

**VISIT CLASSIFICATION**

- [ ] (1) Routine initial visit
- [ ] (2) 72 hr. initial visit
- [ ] (3) Emergency initial visit (clinical)
- [ ] (4) Emergency initial visit (admin.)

**DATE CONSULT RECEIVED OR APPOINTMENT REQUESTED**

- [ ] MONTH / [ ] DAY / [ ] YEAR

**WHO REFERRED PATIENT TO PSYCH?** Check only one. (RF - )

- [ ] (A) Dispensary sick call
- [ ] (B) Other medical service/Hospital
- [ ] (C) Command/Command sick call
- [ ] (D) Brig/Brig sick call
- [ ] (E) Chaplain
- [ ] (F) Self
- [ ] (G) Legal Officer
- [ ] (H) Other:

**SPECIAL PROGRAM SCREENING** Check only one. (SPS - )

- [ ] (A) None
- [ ] (B) Submarine duty
- [ ] (C) UDT, SEAL or Diving
- [ ] (D) PRP
- [ ] (E) Deepfreeze
- [ ] (F) Company Commander or Drill Instructor
- [ ] (G) Other:

[CONTINUE ON REVERSE]

Figure 2
NAMHIS follows the sequence of data items shown on the Patient Registration Form. This makes data entry straightforward, easy, and fast.

**Encounter Data.** Two forms are used in NAMHIS for collecting and entering encounter data—an Initial Encounter Form (see Figure 2) and a Follow-Up Encounter Form.

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**Figure 2**

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Form. The Follow-Up Encounter Form contains a subset of data items collected during the initial encounter. Data items such as referral source and precipitating factors need only be collected during the first visit. Therefore, these items do not appear on the Follow-Up Encounter Form. The Encounter Forms are divided into a Technician Section and a Clinician Section. The Technician Section includes items that do not require a high level of clinical expertise to complete and leaves the clinician free to address those items necessitating the use of trained clinical judgment. With the patient completing the Registration Form, the responsibility for data collection is divided three ways thereby maximizing the resources available at a Fleet Mental Health Support Unit.

The clinician is required to record a primary diagnosis on the Encounter Form. This diagnosis is taken from the Diagnostic and Statistical Manual of Mental Disorders published by the American Psychiatric Association (DSM-III) (4). All DSM-III diagnoses have been added to the COSTAR Directory, and a translation directory containing these diagnoses and codes has been incorporated.

Patient History. A review of existing standardized patient history forms and consultation with Navy clinicians established criteria for the NAMHIS patient history module. Thoroughness and relevance for use in a Navy outpatient mental health facility was emphasized. The Patient History Form is divided into 11 sections typically considered important to a clinical interview: family history, childhood history, school history, interpersonal adjustment history, civilian arrests, past vocational history, prior psychiatric history, relevant medical history, drug/alcohol history, current marriage and family history, and military history. A complete patient history is easily and rapidly produced after the clinician responds to specific items and adds relevant textual comments.

Mental Status Examination. A standardized mental status examination (MSE) was developed for incorporation into the NAMHIS project (5). No existing MSE met the required functional specifications. However, the Missouri MSE was deemed suitable to use as a starting point and could be tailored to fit Navy needs by adding to the content and making revisions to the format. It was determined that all of the items in the Missouri MSE were appropriate and usable. However, several sections were considered incomplete for the intended purpose. Therefore, these sections were augmented to make the MSE more comprehensive and to provide the clinician with alternatives which describe more adequately the clinical situations encountered in the military environment. The NAMHIS MSE Form (see Figure 3) is divided
VISIT CLASSIFICATION
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1

OTHER:

INSTRUCTIONS
For each section, check (X) box, or circle number for most appropriate answer(s).
If ‘(NORMAL)’ is checked, simply go to the next section.
If not ‘normal,’ rate (on the following scale) pertinent items only.
1 = MILD / TO A SMALL EXTENT
2 = MODERATE / TO SOME EXTENT
3 = SEVERE / TO A GREAT EXTENT

1 GENERAL APPEARANCE (NORMAL)
FACIAL EXPRESSION:
2 CALM
3 CHEERFUL
4 SAD
5 EXPRESSIONLESS
6 HOSTILE
7 WORRIED
8 FRIGHTENED
9 PERPLEXED
10 PREOCCUPIED
11 PERSPRINGING
12 AVOIDS GAZE
13 APPEARS YOUNGER
14 APPEARS OLDER
DRESS
15 Meticulous
16 CLOTHING, HYGIENE POOR
17 WELL GROOMED
18 ECCENTRIC
19 SEDUCTIVE
20 OTHER:

21 MOTOR ACTIVITY (NORMAL)
22 INCREASED AMOUNT
23 DECREASED AMOUNT
24 AGITATION
25 TICS
26 TREMOR
27 PECULIAR POSTURING
28 UNUSUAL GAIT
29 REPETITIVE ACTS
30 OTHER:

31 SPEECH (NORMAL)
32 LOGICAL
33 COHERENT
34 ARTICULATE
35 EXCESSIVE AMOUNT
36 REDUCED AMOUNT

37 PUSH OF SPEECH
38 PRESSURED
39 SLOWED
40 RAPID
41 HESITANT
42 LOUD
43 SOFT
44 MUTE
45 SLURRED
46 STUTTERING
47 INCOHERENT
48 ECHOALIA
49 OTHER:

501 INTERVIEW BEHAVIOR (NORMAL)
51 ANGRY OUTBURSTS
52 IRRITABLE
53 TENSE
54 IMPULSIVE
55 HOSTILE
56 COMBATIVE
57 SILLY
58 SENSITIVE
59 APATHETIC
60 WITHDRAWN
61 EVASIVE
62 DEFENSIVE
63 GUARDED
64 PASSIVE
65 AGGRESSIVE
66 NAIVE
67 OVERLY DRAMATIC
68 MANIPULATIVE
69 DEPENDENT
70 COOPERATIVE
71 UNCOOPERATIVE
72 DEMANDING
73 NEGATIVISTIC
74 CALLOUS
75 OTHER:

Figure 3
to 14 sections: general appearance, motor activity, speech, interview behavior, content of thought, mood and affect, suicide, homicide, orientation, memory, intellect, insight and judgment, and comments. Each section is designed to encompass aspects of behavior found in the customary mental status report.
and to adequately describe observations of the patient. An index of severity for items within a section was achieved by assigning each item a numerical modifier of 1, 2, or 3. If all items within a section are within normal limits, the clinician can select the “Normal” alternative and continue to the next area being evaluated. If the items within a section do not adequately describe the clinical situation, the "Other" category can be selected and the appropriate term or narrative description added.

**Reporting Capability.** Both standardized and user-defined reports are available within NAMHIS including individual patient reports and statistical reports aggregated across multiple patients.

Individual patient reports include a printout of the patient's history, a display of the patient's registration, a Report of Consultation, and a Mental Status Examination report. The Report of Consultation serves two purposes: (1) it serves as a report to the referral source by presenting an essential distillation of the mental health consultation; and (2) it provides hard copy documentation of the patient's visit for clinic files and for the patient's medical record. The patient history and Mental Status Examination are attached to the Report of Consultation and become a permanent part of the patient's medical record.

Besides these individual patient reports, NAMHIS generates summary statistical reports involving the entire patient population of a clinic. Each clinic's patient population characteristics (e.g., demographics, presenting problems, treatment needs) is helpful to clinic managers in deciding policy, selecting personnel, and designing treatment programs. The three statistical reports used by Navy administrators of mental health care services are the Monthly Managerial Report, the Monthly Outpatient Morbidity Report, and the Monthly Quality Assurance Report.

**Future Plans**

NAMHIS has been implemented initially in one clinic in the San Diego region. After test and evaluation of the system in this operational environment, any needed modifications will be made to insure that NAMHIS functions as intended. Following this milestone, implementation of NAMHIS will be considered for all clinics in the San Diego region. Ultimately, it is expected that NAMHIS will be recommended for Navywide implementation.
REFERENCES


Chaffee, R. B., Bally, R. E. Mental health care in a fleet mental health support unit. Naval Health Research Center, San Diego, California, Report No. 82-17, 1982.


**REPORT DOCUMENTATION PAGE**

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<td>January 1985</td>
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16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

Approved for public release; distribution unlimited.

18. SUPPLEMENTARY NOTES

To be presented at the American Association for Medical Systems and Informatics
San Francisco, CA    20-22 May 1985

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Computerization
Mental Health Clinics
Navy Outpatient Clinics
Navy Mental Health Information System

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

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