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DATA ACQUISITION INSTRUMENTS: PSYCHOPHARMACOLOGY

D. S. Hartley III

MANAGED BY
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

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DATA ACQUISITION INSTRUMENTS: PSYCHOPHARMACOLOGY

D. S. Hartley III

January 1998

Prepared for
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9405 Park West Boulevard
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ABSTRACT

This report contains the results of a Direct Assistance Project performed by Lockheed Martin Energy Systems, Inc., for Dr. K. O. Jobson. The purpose of the project was to perform preliminary analysis of the data acquisition instruments used in the field of psychiatry, with the goal of identifying commonalities of data and strategies for handling and using the data in the most advantageous fashion. Data acquisition instruments from 12 sources were provided by Dr. Jobson. Several commonalities were identified and a potentially useful data strategy is reported here. Analysis of the information collected for utility in performing diagnoses is recommended. In addition, further work is recommended to refine the commonalities into a directly useful computer systems structure.

ACRONYMS

AIMS	Abnormal Involuntary Movement Scale
AUDIT	Alcohol Use Disorders Identification Test
BASIS	Behavior and Symptom Identification Scale
BDDQ	Body Dysmorphic Disorder Questionnaire
BDHI	Buss Durke Hostility Inventory
BSPS	Brief Social Phobia Scale
CGI	Clinical Global Impressions
DAST	Drug and Alcohol Screening Test
DSM	Diagnostic and Statistical Manual for Mental Disorders
ECT	Electro-Convulsive Therapy
ER	Emergency Room
FNE	Fear of Negative Evaluation
GAF	Global Assessment of Functioning
HAM-D	Hamilton Rating Scale for Depression
Hx	Histories
IOES	Impact of Events Scale
MD	Doctor of Medicine
MMPI	Minnesota Multiphasic Personality Inventory
MRI	Magnetic Resonance Imaging
NIAAA	National Institute on Alcohol Abuse and Alcoholism
NIMH	National Institute of Mental Health
NP	Nonpatient
OCD	Obsessive Compulsive Disorders
PET	Positron Emission Tomography
Ph.D.	Doctor of Philosophy
PMS	Premenstrual Syndrome
PTSD	Posttraumatic Stress Disorder
Rx	Prescriptions
SANS	Scale for the Assessment of Negative Symptoms
SCID	Structured Clinical Interview for DSM
SCL	Symptom Check List
SI	Structured Interview
SOFAS	Social & Occupational Functioning Assessment Scale
SPAI	Social Phobia Anxiety Inventory
SPIN	Social Phobia Inventory
SPS	Social Phobia Scale
Sx	Symptoms
TS	Tourette Syndrome
TTM	Trichotillomania
Tx	Treatments
WURS	Wender Utah Rating Scale
YBOCS	Yale-Brown Obsessive Compulsive Scale

1. INTRODUCTION

This report describes the results of a Direct Assistance Project performed by Lockheed Martin Energy Systems, Inc., for Dr. K. O. Jobson. The purpose of the project was to perform preliminary analysis of the data acquisition instruments used in the field of psychiatry, with the goal of identifying commonalities of data and strategies for handling and using the data in the most advantageous fashion.

1.1 BACKGROUND

As in all medical work, data are needed in the psychiatric field for multiple purposes:

- billing;
- diagnosis;
- treatment decisions; and
- research.

To meet these needs, several types of data can be collected:

- billing and insurance;
- demographic;
- symptoms;
- medical histories; and
- ongoing notes.

However, data are expensive to collect:

- they require patient time to gather;
- they require instrument administrator time; and
- they require doctor time to read and understand.

Therefore, data collection should be as parsimonious as reasonable. Each item should be collected only once (except for duplication for verification purposes). Each item should be collected purposefully. Separate "views" of the data should be available, depending on purpose. Each view displays only the appropriate data for both security and clarity reasons. Once the required data have been identified, a properly designed computer system can handle the presentation and maintenance of the data.

1.2 DIAGNOSIS

Medical diagnosis is largely art, not science. This is particularly true where the problems relate to the mind. Diagnosis is anecdotally-based, rather than evidence-based. The system used to relate the patient's actual condition to the physician's decision patterns consists of four procedures: instruments to collect patient histories, physical examinations, chemical analyses of specimens (lab work), and imaging (e.g., x-rays). This system is illustrated in Fig. 1. This report concentrates on the instruments used to gather data for patient histories (largely filled out by the patients themselves). While some of the parts of the overall instruments have been validated experimentally (mostly rating scales), the instruments in their entirety have not been subjected to even cursory analyses to determine their value or applicability. They are thus subject to redundancy, lacunae and error. The ultimate goal is to produce a brief, complete and accurate instrument to aid in the initial diagnosis of mental problems. In addition, the instrument should be as easy to administer and execute as possible.

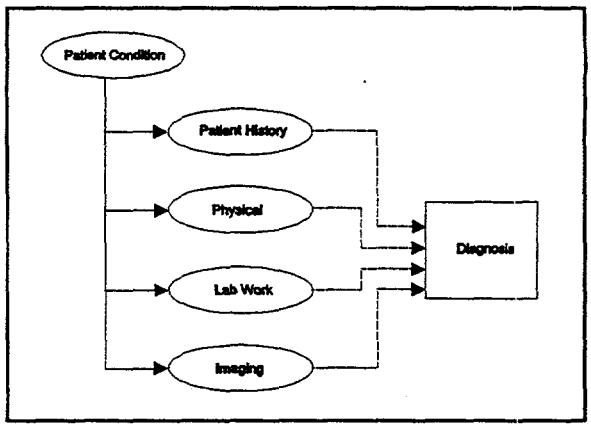

Fig. 1. Top level influence diagram for diagnoses.

1.3 PROCESS

Data acquisition instruments from 12 sources were provided by Dr. Jobson. These collections of instruments were analyzed and their contents are listed in the next section. Several commonalities were identified are categorized by medical area in the third section. A potentially useful data strategy is reported in the final section. Further work is recommended to refine these commonalities into a directly useful structure.

2. DATA COLLECTION INSTRUMENTS

Dr. Jobson provided a voluminous set of data collection instruments from 12 sources, 10 individual physicians and two governmental agencies. The contents of these instruments are abstracted below. Generally, the instruments are described by the kinds of questions asked. Where the instruments are clearly standardized, the standard names are given and the descriptions are less complete.

2.1 DR. DAVIDSON - DUKE UNIVERSITY MEDICAL CENTER

Dr. Davidson's contribution was in the area of trauma effects.

Dr. Jonathan Davidson
Department of Psychiatry
Anxiety and Traumatic Stress Program
Box 3812
Durham, NC 27710

- Biographical data sheet: income, schooling, occupation, etc.
- Sheet for multiple date Global Assessment of Functioning (GAF) scores and Clinical Global Impressions (CGI) (severity and improvement) scores
- Duke Brief Social Phobia Scale (BSPS)
- Sheet for multiple date vital signs
- Medication Effects Form (e.g., dry mouth, sweating, trembling, nausea: scale 0-3)
- Abnormal Involuntary Movement Scale (AIMS) (e.g., facial expression muscles, lips and perioral area: scale 0-4)
- Treatment Consent Form
- Stages of Change Questionnaire (readiness to work with therapy)
- Social Anxiety Scale
- Social Phobia Anxiety Inventory (SPAI) (Turner, Dancu & Beidel) - extensive anxiety scale
- Brief Fear of Negative Evaluation (FNE) (what do people think of me)

- Sheehan Disability Scale (disruption to work, social life, family life)
- Social Phobia Inventory (SPIN)
- Social Attitudes Questionnaire
- Social Cognitions Questionnaire
- Beck Inventory (Beck, 1979)
- Reaction to Treatment Questionnaire (psychological to group treatment)
- 29 Item Hamilton Depression Scale
- Fluoxetine and Behavior Therapy in Social Phobias - Clinical Global Impressions severity: 1-7; global improvement: 1-7
- Scheduled Assessments for coordinator/independent rater, patient, and physician, first set, follow-up phase and one year follow-up
- Kilpatrick's Potential Stressful Event's scale
- Structured Clinical Interview for Diagnostic and Statistical Manual for Mental Disorders (DSM)-III-R - Patient Version (SCID - P) 4/1/88
- Structured Interview for Posttraumatic Stress Disorder (SI-PTSD)
- SCID Personality Questionnaire 3/1/87
- Structured Clinical Interview for DSM-III-R Personality Disorders (SCID - III) 3/1/87
- Event is Non Rape Trauma
- Foa's Assault Information
- Hamilton Anxiety Scale
- Hamilton Rating Scale for Depression (HAM-D) (depressed mood, guilt feelings, suicide, initial insomnia, middle insomnia, etc.: scale 0-4)
- Premenstrual Syndrome (PMS) Questionnaire (related to trauma event)
- Sexual Dysfunction Questionnaire (related to trauma event)
- Combat and Military Experience Scale
- Combat Exposure Scale

- Impact of Events Scale (IOES, Horowitz et al, 1979) comments about stressful life events applied to particular trauma event
- Davidson Self-Rating PTSD Scale
- Main Phobia Scale (Modified Marks-Sheehan)
- Eysenck Personality Inventory
- Disability Scales (work, social life, family life)
- Stress and Social Support Scales (Sheehan)
- Cigarette Smoking questionnaire and Smoking Motivation Questionnaire
- Medication Schedule
- Stages of Change Scale II. Exit (longer than first version)
- MOS-GC Short form Health Survey
- Physical Exam
- Observed Clinical Global Severity of PTSD and Change with Fluoxetine
- Health Care Utilization Scale
- Traumatic Experiences During the Past Year (which types have happened?)

2.2 DR. GLICK - STANFORD UNIVERSITY

Dr. Glick's contribution is in general psychiatry.

Ira D. Glick, M.D.
Stanford Univ. School of Medicine
Psychiatry & Behavioral Sciences
101 Quarry Rd, #2122, MC 5546
Stanford University
Stanford, CA 94305

- Vital stats
- With whom are you living
- Type living accommodations
- Marital status

- Narrative of illness, times, symptoms, treatments
- Table of people consulted, treatment, initial date, length
- Table of hospitalizations, place, date, reason
- Table of drugs taken over time, dates, type, highest dose, results
- Childhood problems:
  hyperactivity, learning difficulties, conduct problems, night terrors, sleep walking, stammering, fears, happy childhood, unhappy childhood
- Table of illnesses, type and age
- Table of surgery, operation and age
- Table of accidents, type and age
- When was last time you felt totally well for sustained time?
- Games, interests, hobbies, athletics, free time spent in childhood, adolescence, & now
- School start, stop, abilities, disabilities, relationship to schoolmates (ever been bullied?), make friends easily?, keep them?, fear of leaving mother to go to school?, nausea, vomiting before going?
- Work history, reason for changes, satisfaction, earnings, cost of living
- Sex - parental attitudes & instruction, menstrual history
- Marital history, how long before engagement, marriage, spouse's age, occupation, personality, compatibility and incompatibility areas, own previous marriages, when & why terminated (death or divorce)
- Table of pregnancies, months lasted, illnesses or complications, miscarriage, elective abortion or living child
- Table of children, name, age, sex, any problems
- Family data, father, mother, brothers, sisters, names, ages, occupations, health (if parents dead, cause and own age at death)
- Relationship with brothers and sisters, past and present
- Father's and mother's personalities and attitude toward self, past and present
- If separated from father or mother more than a month (except for vacations), describe and give own age, if have step-parent, give own age at remarriage

- If brought up by someone else, who and between what years
- In what ways were you punished by parents as a child
- What was home atmosphere while growing up, compatibility between children and parents
- Could you confide in parents?
- Give outline of religious training
- Who are most important people in own life?
- Table of family with problems with alcoholism or drinking, mental or neurological problems, name, problem, treatment
- Present use of alcohol or drugs - details, any past use more than doing now, age and extent of maximum use
- Sensitive to tea, coffee, cigarettes?
- On oral contraceptives? which one, in the past, when, how long, which one, why stopped?

2.3 DR. HEWLETT - VANDERBILT UNIVERSITY

Dr. Hewlett's contribution is in the areas of obsessive compulsive disorder (OCD), trichotillomania (TTM), and Tourette syndrome (TS).

William A. Hewlett, Ph. D., M.D.
Director OCD/Tourette Program
Department of Psychiatry
Vanderbilt University School of Medicine
Nashville, TN 37232-2647

- Instruments designed (by Vanderbilt) for transfer to Excel spreadsheet for analysis for: OCD, TTM, and TS
- Also use
  - Yale-Brown Obsessive Compulsive Scale (YBOCS) package,
  - the Hamilton Depression Rating,
  - a version of the Yale Tourette Syndrome/Obsessive Compulsive Disorder Questionnaire,
  - the Shapiro Symptom Checklist for Tourette Syndrome,
  - a version of the Tourette Syndrome Unified Rating Scale,
  - the City of Hope Human Behavior Scale (adult version),

the TLC Self Awareness Monitoring Worksheet, and
some other standard materials

2.4 DR. HIGUCHI - SHOWA UNIVERSITY, JAPAN

Dr. Higuchi's contribution is in the area of general psychiatry.

Teruhiko Higuchi, M.D.
Showa University Fujigaoka Hospital
Dept of Neuropsychiatry
1-30 Fujigaoka, Aoba-ku
Yokohama 227 Japan

- Doesn't usually use rating scales
- Admission form
- Social history: birth place, development; education; occupation; marital status; living conditions; religion; habits, alcohol, smoking, diet, drugs; delinquency
- Past history: embryonal; perinatal; infancy; childhood; puberty; adult; operations and injuries; hospitalizations; menstruation and pregnancy, menarche, menopause, # pregnancies, # labor, # abortions; venereal disease
- Personality type: schizothymic, cyclothymic, viscous, immodithymic, hysterical, anankastic, asthenic, fanatic, weak-willed
- Family history: family tree; heredity taint, physical, mental; conditions about family
- General appearance and behavior: facial expression; attitude; action; talk; dressing and hair dressing; comprehension; attention; orientation; consciousness, clouding of, pathological dream states; intelligence; perception, hallucination, illusion; thinking; emotion; volition and will; physical consciousness; self-consciousness; personality; impression; insight and judgment; mental state
- Problem list: date, active problems, inactive/resolved problems
- Plans for treatment: date, plan
- Progress notes: date, problem no, notes
- Laboratory reports, psychological tests, prescriptions
- Diagnosis
- Physical record: height/weight; skin; temperature; pulse; blood pressure; respiration; psyche; intelligence; consciousness; appetite, stool, sleep, urination, thirst

- Special status: head, shape, hair, & pain; face; eyes; ears; nose; mouth; neck; lymph nodes; chest; heart; back; abdomen; pelvic organs; nervous system; extremities

- Neurological examination: oculomotor; facial; facial appearance, symmetrical, asymmetrical, masked, myopathic; palpebral fissure; nasolabial fold; mouth angle; movement of facial muscles; glossopharyngeal vagus; hypoglossal; pathologic reflexes

2.5 DR. JENIKE - HARVARD MEDICAL SCHOOL

Dr. Jenike's contribution is in the area of obsessive compulsive disorder (OCD).

Michael A. Jenike, M.D.
Harvard Medical School
Massachusetts General Hospital
Fruit Street
Boston, MA 02114

- Uses Positron Emission Tomography (PET) and Magnetic Resonance Imaging (MRI) scans in research

- Insurance form

- General form
  age, sex, height, weight
  what is main problem?
  what types of obsessive-compulsive behavior?
  what age began?
  allergies, medication, reaction
  illnesses, type
  surgery, type
  psychiatric, hospitalizations, diagnoses, therapy, where, when, type
  medication history, now, in past, illegal drugs, type, amount, alcohol, how much, alcoholic?, smoke, how much
  family: psychiatric? diagnoses by relative
  marital status & history, spouse's age occupation, children, others in household
  referral: who, previous treatment, present compulsive behaviors (washing, checking, ordering, repeating) or obsessive thoughts need help with, triggers for behaviors, how often, what do you fear will happen if don't engage in same, how strong believe in this, self judged severity of problem, anything avoid doing or thinking, how old when started, what benefits expected from therapy

- Family history
  mother, name, age, occupation, religion, age & cause of death, how would others describe her, how would you describe her, what activities did you do with her as a child, how did you get along with her
  father, same

siblings, names, ages, how did/do get along with, did parent favor one, who, why, how did/do mother & father get along

- Marital history: how well get along, how often go out socially, how often have intercourse, who is dominant, spouse disagreeable behaviors, agreeable spouse behaviors
- Education history, schools, locations, dates, grades, how well adjust to school situations, significant school events that think bear on problems
- Job history, dates, jobs, liked aspects, disliked aspects, ambitions past & present, present hobbies and interests, situations make feel calm or relaxed
- Religion raised as, strength of belief, currently engage in any religious activity, what, religious beliefs played a role in disorder?, describe
- Personality, list own good points, own faults, anything else important
- Developmental history, problems with own birth, talk on time, abnormalities or difficulties in physical development as growing up
- Developmental data, premature, blue baby, forceps, jaundice, etc.
- Beck Depression Inventory - 1973 Revision
- Whiteley Index (concern for health)
- Maudsley Obsessive-Compulsive Inventory
- Somatic Symptom Inventory
- Survey on Gastrointestinal Symptoms (associated with OCD or medications, etc.)
- Body Dysmorphic Disorder Questionnaire (BDDQ, concern for physical appearance)
- Behavior as a child questionnaire
- Motor tic symptom checklist, phonic tic symptom checklist, obsessive compulsive symptom checklist
- Beck Anxiety Inventory

2.6 DR. LEWINE - EMORY UNIVERSITY

Dr. Lewine's contribution is in general psychiatry.

Richard R. J. Lewine, PhD
Professor of Psychiatry
Director, Schizophrenic Disorders Program
1701 Uppergate Dr, N.E.
Atlanta, GA 30322

- Physician Database
- Psychiatric History: date, referral, identifying info, chief complaint, history of present illness, personal and family history of psychiatric disorders and treatment, medical history, current medications, allergies, personal and family history of alcohol and other substance use, relevant personal development, social history/interpersonal relationships, sexual history
- Physical Examination: General, vital signs, appearance, skin; Head Ears Eyes Nose Throat; Neck; Lymph Nodes; Chest; Cardiovascular; Abdomen; Genital (if deferred, why?); Rectal (if deferred, why?); Musculoskeletal; Neurologic, handedness, cranial nerves, motor, sensory, cerebellum, DTRs abnormal movements, AIMS score (if not done, why?), suck,snout,grasp reflexes
- Mental Status Examination: appearance and behavior; speech; mood and affect; suicidal and homicidal ideation; language, thought process and content; perceptions; cognitive functioning, mini mental state score; insight and judgement
- Initial Impression: assets and limitations (include physical, self care, emotional, psychological, social, environmental, and spiritual strengths); initial formulation and diagnoses, axis I through V; preliminary treatment plan; initial discharge planning; other information
- List of things that might happen just before the onset of trouble
- Medication Attitude Inventory
- Adult Response Sheet - complete the sentence (e.g., I like...)
- The "past few days" scale (e.g., depressed, paranoid, etc.)
- Beck Depression Inventory - 1973 Revision
- Symptom Check List, SCL-90-R - distressing things

2.7 DR. ROY-BYRNE - UNIVERSITY OF WASHINGTON

Dr. Roy-Byrne's contribution is in general psychiatry.

Dr. Peter Roy-Byrne
Professor and Vice-Chairman
Department of Psychiatry and Behavioral Sciences
University of Washington
325 Ninth Avenue, ZA-15
Seattle, WA 98104

INPATIENT

- Psychiatric Assessment (MD)
  chief complaint/history - free form
  clinical difficulty scale: reason for entering treatment, substance abuse, suicide potential, assaultive behavior, physical illness, employment status, residential status, previous psychiatric admission
  syndromes (scale): type/subtype, severity, and factor based on subtype and type; value at discharge

depression	4.35
mania	3.85
schizophrenia	4.35
organic/affective nos/psychotic nos	3.85
schizoaffective	3.57
dementia, delusional	2.63
substance abuse	4.17
borderline personality	5.00
dysthymia	5.26
eating disorder	4.55
panic disorder	4.55
obsessive compulsive disorder	7.14
post-traumatic stress disorder	5.56
adjustment disorder	2.94

  mental status exam (modification of PSAS rating scale)
    appearance and behavior
    thought form
    thought content
    mood and affect
    insight
    sensorium/cognitive function
      Mini Mental State Exam
    functional status
    social & occupational functioning assessment scale (SOFAS-revised GAF)
  family psychiatric history
  medical history (including medication)
  treatment history
  diagnosis/assessment

plan
discharge summary

- Quality of Life Interview (Nurse)
  how do you feel about life
  what is your living situation
  how long have you lived there
  how do you feel about (stuff) there
  daily activities
  about family
  about social relations
  about finances
  about work
  legal and safety issues

- Behavior and Symptom Identification Scale (BASIS - 32, McLean Hospital, 1985) (Patient)

OUTPATIENT

- Psychiatric Evaluation (MD)
  chief complaint: history of present illness - free form
  past psychiatric history
  psychiatric diagnosis by DSM IV
    type (present or absent)
    indicators
  treatment history
  medical history
  social history
  chart of family psychiatric history (type by biological relative)
  mental status examinations
  diagnoses
    Axis I: DSM-IV code, comments
    Axis II: CGI, score (1-7)
    Axis III: CGI
    Axis IV: CGI
    Axis V: GAF, score (0-100)
  treatment recommendations and plan

- "Form Title: Social Adjustment Self-Report Questionnaire" (Patient)
  work outside home
  work at home
  for students
  spare time
  family
  children
  family unit
  financial

Drug and Alcohol Screening Test (DAST)
Alcohol Use Disorders Identification Test (AUDIT-D)
Symptom Check List, SCL-53-R
Wender Utah Rating Scale (WURS)
parents' rating scale (filled out by mother)
significant others' rating scale

ERI CRISIS (Emergency Room Assessment [a 'medical necessity' form])

age, sex, race
psych hospitalizations
referred by
diagnoses
    psychosis
    depressed/anxious mood
    suicide/homicidality
    hostility/aggression
    uncooperativeness (treatment noncompliance)
    current outpatient treatment involvement problems
    alcohol, drug or both problems
    physical (ADLs) dysfunction
    role (school/work/homemaker) dysfunction
    unreliability of social support
disposition

2.8 DR. STEIN - UNIVERSITY OF STELLENBOSCH, SOUTH AFRICA

Dr. Stein's contribution is in general psychiatry.

Dr. Dan J. Stein
University of Stellenbosch
Department of Psychiatry
Faculty of Medicine
PO Box 19603
7505 Tygerberg, South Africa

- Name, birth date, etc.

- Referred by, reason, place of interview, county of residence, # of family/non-family residing, marital status, # children

- Education & work history: last grade of school, further education, field of work, currently employed/employer?, duration?, if not, why not? how does patient support self

- Main complaint (verbatim/precipitating events/course of illness/effect of illness on daily activities)

- Previous illnesses: psychiatric, dates, symptoms or diagnoses, stressors, treatments; medical, convulsions, head injuries, other medical conditions

- Current medication

- Family history of psychiatric/medical problems

- Substance abuse: alcohol, none, social, abuse, dependence; drugs, none, abuse, dependence; medical, none, abuse, dependence; describe; psychosocial stressors (chronic and acute)

- Mental evaluation

general appearance

psychomotor: mannerisms, tics, stereotype, restlessness, lethargy, calm, descriptions

attitude: cooperative, negative, aggressive, describe

sensory and cognitive functions (do mini mental state exam, if cognitive show deficit)

consciousness: comatose, stuporous, troubled, clear, constant, fluctuating

orientation: time, place/situation, person

immediate recall of 3 words

concentration: spell words backwards

memory delayed recall of above 3 words, short-term or long-term normal/deficit

intelligence: mentally retarded, borderline (intelligent), average, above average

speech: volume, soft, monotone, normal, loud; spontaneous speech, normal, dysarthria, dysphasia

mood and affect

mood: subjective; objective; medium, light, EUTEM, light, medium, serious, depressed, euphoric; duration, sustained, fluctuation; daily swing

affect: (external expression of immediate emotion), appropriate, inappropriate, dulled, flat, describe...; anhedonism (interest in activities and enjoyment of activities); suicidal thoughts, nihilism (negative or dark belief in self and future); sleep; weight; energy

perception

illusions

hallucinations, auditory, tactile, visual, olfactory

thoughts

process/form: speed, slow, normal, accelerated; structure, coherent, incoherent; categories, loose associations, flight of thought, preservation, verbiage, echolalia, tangential, circumstantial, mental block, word salad, neologisms, rhyming, derailment, elaborate, wooly

content: reasonable or delusions; types, possessive, persecution, grandiose, somatic, nihilism, control, thought-depositing, thought withdrawal, bizarre delusions, systematized delusions; poverty or vagueness; obsessions or compulsions; phobias, acrophobia, social phobia with specific phobias

anxiousness/anxiety
feelings of anxiety, tense and can't relax, exaggerated worries
symptoms: headaches, dizziness, sweatiness, palpitations, heaviness on chest, shakiness, frequent urination, discomfort of abdomen
panic attacks
sexual functions - libido, dysfunction, paraphilia
impulse control - control of aggressive and other impulses
personality: disturbance; traits, paranoid, schizoid, schizo typical (eccentric, strange and alone), antisocial, borderline, histrionic, narcissistic (dramatic, emotional and erratic), avoiding, dependent, obsessive-compulsive, passive-aggressive (scared, anxious)
insight (knowledge and comprehension of current disease)
discernment (social discernment)
physical exam

- Diagnostic formulation
  axis I-V
  management: admit, discharge, medication

- Mini Mental State Examination (30 points)

2.9 DR. WARD - UNIVERSITY OF WASHINGTON

Dr. Ward's contribution is in general psychiatry.

Nicholas Ward, M.D.
Psychiatry
Box 359896
University of Washington
325 Ninth Avenue
Seattle, WA 98104-2499

- Diagnostic Interview Form (R) (Jed Myers, M.D., revised by David L. Dunner, M.D.)
  identifying data: name, age, etc.
  psychiatric history: complaint, age at onset, symptoms, treatment, hospitalized, characteristic symptoms and course of illness, psychiatric hospitalization, electro-convulsive therapy (ECT), treatment/psychotherapy, treatment pharmacotherapy, suicide attempts
  screening items: panic disorder/agoraphobia w/panic attack, GAD, depression, etc.
  brief cognitive assessment (Mini Mental Exam)
  obvious evidence of: neologisms, thought disorder, flat affect, hallucinations
  medical histories (Hx)
  family Hx
  probe section: extension of screening items
  impression/plan: narrative of pertinent Hx, prominent Symptoms (Sx), etc.
  Hamilton-A; Hamilton-D; impression/diagnosis

intake information: presenting problem (including Sx), current Treatments (Tx), current medications, past Tx and medications, drug abuse, alcohol abuse, pertinent Hx, medical Hx, insurance

- New patient testing
  Beck Inventory
  Beck Anxiety Inventory
  Short Michigan Alcohol Screening
  SCL-53 (scale of problems)
  Drug Abuse Screening Test
  AUDIT (alcohol)
  SAS-SR
    work outside the home
    work at home
    students
    spare time
    dating
    family
    relatives
    relationships
    children
    family unit
    financial
  Rand Health Survey
  Parent Discipline and Abuse
  Briere Child Maltreatment Scale
  Mattick - Social Phobia Scale (SPS - anxieties)
  Mobility Inventory (avoid places)

- Tri-Phasic Inventory

2.10 DR. ZARATE - HARVARD MEDICAL SCHOOL

Dr. Zarate's contribution is in bipolar and psychotic disorders.

Dr. Carlos A. Zarate
McLean Hospital
115 Mill Street
Belmont, MA 02178-9106

- Instrument: SLICE (longitudinal data) modification of LIFE instrument by Keller et al. 1988, interviews at intervals: 6, 12, 24, 36, 48 months
  types: face to face, phone interview, relative or friend, medical record, or clinician
  status: refused, complete interview, incomplete interview (specify), could not contact, dead (cause and date), or other (specify)
  date

interviewer
page of notes

- Medication Review
month
type: numeric codes for antipsychotic, antidepressant, antianxiety, mood stabilizers, and cholinergic drugs
date began
stop date

- Episodes
type: no symptoms at discharge, no symptoms upon follow-up, interepisode mania, interepisode depression, major depression, mania, hypomania, mixed, psychosis (non-affective), other (specify with DSM III-R code), interepisode mixed, interepisode psychosis
date began
date stopped
episode number: unrecovered, recovered from index episode, first relapse (2nd, 3rd, etc.), recovery from relapse (number)

- Symptom Review (tied to interviews)
rate each item below using CGI scale (0-7) for symptom severity for the follow up period, estimate duration and dates of symptoms that may define an event/episode
major depression: depressed mood, appetite loss (wt. loss), change in sleep (specify), fatigue, move slowly, pacing, decreased libido, worthlessness, poor concentration, slow thoughts, morbid thoughts, suicidal thoughts, anhedonia; dates - recovered, relapsed, ongoing
mania: elation, active, spending/phone sprees, increased libido, pressured speech, racing thoughts, special abilities, decreased sleep, distractible, grandiosity; dates - recovered, relapsed, ongoing
schizophrenia/psychosis: paranoid thinking, thought control, hear thoughts, ideas of reference, other delusions, odd thought form, catatonia, blunted affect, poor self care; dates - recovered, relapsed, ongoing
other disorders

- Modified Vocational Status Index (by interview period)
status: employed full-time competitive at expected level, full-time competitive below expected level, part-time competitive, unemployed but could handle competitive, volunteer work, temporary employment program, sheltered workshop level, unemployed and unable to work, other
from
to

- Psychosocial Functioning - Employment or Self-Employment (by period, for the worst week of the last month of the period, similar status categories, with impairment rating)

- Modified Location Status Index (by period, where and under what conditions does patient live)
- Psychosocial Functioning - Household Duties (by period, impairment rating)
- Psychosocial Functioning - Student Work (by period, impairment rating)
- Psychosocial Functioning - Interpersonal Relationships with Family (by period, impairment ratings with mate, child relationship, other relationships)
- Psychosocial Functioning - Friends (by period, rating)
- Psychosocial Functioning - Recreation (by period, rating)
- Psychosocial Functioning - Alcohol and Drug Use (by period, alcohol abuse, alcohol use, drug use)
- Psychosocial Functioning - Satisfaction (by period, overall during worst week of last month)
- Global Social Adjustment Rating, Global Assessment Scale, and Rating of Reliability and Completeness of Psychosocial Information (by period, ratings for each)
- Life Events Summary (6 months previous, 64 significant events, month, type, objective negative impact, occurrence, independence, with interview to elicit info)
- Brief Psychiatric Rating Scale (augmented) For First Psychosis Study (symptoms scored 0-7 and added)
- Scale for the Assessment of Positive Symptoms (revised, original by Nancy C. Andreasen, 1984)
- Scale for the Assessment of Negative Symptoms (SANS)
- Hamilton Psychiatric Rating Scale for Depression (Includes items from the WPIC Hamilton Scale)
- Young Rating Scale for Mania

2.11 NIAAA

The National Institute on Alcohol Abuse and Alcoholism (NIAAA) contribution is in alcohol disorders.

National Institute on Alcohol Abuse and Alcoholism (NIAAA)
Bethesda, MD 20892

- Telephone Screening Questionnaire
  drinking habits
  results of drinking
  drugs (prescribed and other)
  smoking
  family alcohol or drugs
  psychiatric history
  legal problems

- Screening for Normal Volunteer
  identification: name, age, etc.
  medical problems
  medications
  seizures
  drug or alcohol usage
  psychiatric history
  family alcohol or drugs
  participation in research study
  blood donations
  smoker/non-smoker
  food problems: lactose intolerance, etc.
  availability

- Post-Traumatic Stress
  events, descriptions, dates
  part of SCID (apparently) for PTSD

- Demographics
  demographics summary: sex, marital status, age, residential status, race, religion
  Hollingshead Four Factor Index of Social Position

- SCID-II

- SCID-P with Psychotic Screen

- SCID-NP (Nonpatient Edition)

- Minnesota Multiphasic Personality Inventory (MMPI)

- Buss Durke Hostility Inventory (BDHI)

- Alcohol and Drug History

- Lifetime Drinking History (form with four time periods)
  dates: from, to
  frequency (days/months)
  quantity (drinks/day): average, maximum
  type (%): beer, liquor, wine
  style: occasional, weekend, binge, frequent
  life event or changes (positive or negative)
  context (%): alone, with others
  time (%): morning, afternoon, evening

2.12 NIMH

The National Institute of Mental Health (NIMH) contribution is in bipolar disorders.

National Institute of Mental Health (NIMH)
Bethesda, MD.

- Instrument is directed toward immediate bipolar symptoms and treatments over time. The presumption is that the symptoms are clear and the diagnosis is also clear. The effort is aimed at identifying correspondences between treatments and symptoms and life events and symptoms.

3. POSSIBLE STANDARD INSTRUMENT USAGE

All instruments contained requirements for general health, history, residence, and insurance information. In addition, several instruments included what appear to be standardized data collection instruments. These have been categorized as either general purpose instruments or those dealing with particular disorders: anxiety, depression, drug and alcohol, mania, OCD, phobias, and trauma. The instruments and the source reporting usage are given in the following sub-sections.

3.1 GENERAL INSTRUMENTS

Many of the instruments are general purpose instruments for collecting data that may be useful in diagnosing the problem, deciding on treatment, or some other reason. These are shown in Table 1.

Table 1. General Psychiatric Instruments

Instrument	Davidson	Glick	Hewlett	Higuchi	Jenike	Lewine	Roy-Byrne	Stein	Ward	Zarate	NIAAA	NIMH
AIMS: Abnormal Involuntary Movement Scale (e.g., facial expression muscles, lips and perioral area: scale 0-4)	x											
BASIS-32: Behavior and Symptom Identification Scale (McLean Hospital, 1985) (Patient)							x					
BDHI (personality inventory)											x	
Beck Inventory (Beck, 1979)	x								x			
Briere Child Maltreatment Scale									x			

Table 1. General Psychiatric Instruments

Instrument	Davidson	Glick	Hewlett	Higuchi	Jenike	Lewine	Roy-Byrne	Stein	Ward	Zarate	NIAAA	NIMH
Cigarette Smoking questionnaire and Smoking Motivation Questionnaire	x											
City of Hope Human Behavior Scale (adult version)			x									
Diagnostic Interview Form (R) (Jed Myers, M.D., revised by David L. Dunner, M.D.)									x			
Disability Scales (work, social life, family life)	x											
Eysenck Personality Inventory	x											
FNE, Brief: (what do people think of me)	x											
GAF & CGI: Multiple date scores	x											
GAF Axis V: Global Assessment of Functioning score (0-100)							x					
Kilpatrick's Potential Stressful Event's scale	x											
Mental status exam (modification of PSAS rating scale							x					
Mini Mental State Exam						x	x	x	x			
MMPI: Minnesota Multiphasic Personality Inventory											x	
Mobility Inventory (avoid places)									x			
MOS-GC Short form Health Survey	x											

Table 1. General Psychiatric Instruments

Instrument	Davidson	Glick	Hewlett	Higuchi	Jenike	Lewine	Roy-Byrne	Stein	Ward	Zarate	NIAAA	NIMH
Rand Health Survey									x			
Reaction to Treatment Questionnaire (psychological to group treatment)	x											
SANS: Scale for the Assessment of Negative Symptoms										x		
SAS-SR									x			
Scale for the Assessment of Positive Symptoms (revised, original by Nancy C. Andreasen, 1984)										x		
SCID Personality Questionnaire 3/1/87	x											
SCID-III: Structured Clinical Interview for DSM-III-R Personality Disorders 3/1/87	x										x	
SCID-NP (Nonpatient Edition)											x	
SCID-P: Structured Clinical Interview for DSM-III-R - Patient Version 4/1/88	x										x	
SCL-53-R: Symptom Check List							x		x			
SCL-90-R - distressing things						x						
Sheehan Disability Scale (disruption to work, social life, family life)	x											
SLICE (longitudinal data) modification of LIFE instrument by Keller et al. 1988										x		

Table 1. General Psychiatric Instruments

Instrument	Davidson	Glick	Hewlett	Higuchi	Jenike	Lewine	Roy-Byrne	Stein	Ward	Zarate	NIAAA	NIMH
Social Attitudes Questionnaire	x											
Social Cognitions Questionnaire	x											
Stages of Change Questionnaire (readiness to work with therapy)	x											
Stress and Social Support Scales (Sheehan)	x											
Tri-Phasic Inventory									x			
TLC Self Awareness Monitoring Worksheet			x									
WURS: Wender Utah Rating Scale							x					
YBOCS package			x									

3.2 ANXIETY

Several physicians used instruments specifically designed for anxiety disorders, as shown in Table 2.

Table 2. Anxiety Instruments

Instrument	Davidson	Glick	Hewlett	Higuchi	Jenike	Lewine	Roy-Byrne	Stein	Ward	Zarate	NIAAA	NIMH
Beck Anxiety Inventory					x				x			
Hamilton Anxiety Scale	x								x			
Social Anxiety Scale	x											
SPAI: (Turner, Dancu & Beidel) - long anxiety scale	x											
SPS (anxieties): Mattick									x			

3.3 DEPRESSION

Instruments that are useful in the area of depression are widely used and are shown in Table 3.

Table 3. Depression Instruments

Instrument	Davidson	Glick	Hewlett	Higuchi	Jenike	Lewine	Roy-Byrne	Stein	Ward	Zarate	NIAAA	NIMH
Beck Depression Inventory - 1973 Revision					x	x						
HAM-D (depressed mood, guilt feelings, suicide, initial insomnia, middle insomnia, etc.: scale 0-4)	x		x						x			
Hamilton Depression Scale - 29 Item	x											
Hamilton Psychiatric Rating Scale for Depression (Includes items from the WPIC Hamilton Scale)										x		

3.4 DRUG AND ALCOHOL

Two physicians and the NIAAA use instruments that relate to substance abuse, as shown in Table 4.

Table 4. Drug and Alcohol Instruments

Instrument	Davidson	Glick	Hewlett	Higuchi	Jenike	Lewine	Roy-Byrne	Stein	Ward	Zarate	NIAAA	NIMH
AUDIT-D: Alcohol Use Disorders Identification Test							x		x			
DAST: Drug and Alcohol Screening Test							x					
Short Michigan Alcohol Screening									x			
General											x	

3.5 MANIA

One physician uses an instrument designed for mania, as shown in Table 5.

Table 5. Mania Instruments

Instrument	Davidson	Glick	Hewlett	Higuchi	Jenike	Lewine	Roy-Byrne	Stein	Ward	Zarate	NIAAA	NIMH
Young Rating Scale for Mania										x		

3.6 OCD

Two physicians use instruments for OCD and related conditions, as shown in Table 6.

Table 6. OCD Instruments

Instrument	Davidson	Glick	Hewlett	Higuchi	Jenike	Lewine	Roy-Byrne	Stein	Ward	Zarate	NIAAA	NIMH
BDDQ (concern for physical appearance)					x							
Maudsley Obsessive-Compulsive Inventory					x							
Shapiro Symptom Checklist for Tourette Syndrome			x									
Somatic Symptom Inventory					x							
Survey on Gastrointestinal Symptoms (associated with OCD or medications, etc.)					x							
Tourette Syndrome Unified Rating Scale - a version			x									
Whiteley Index (concern for health)					x							
YBOCS package			x									
Yale Tourette Syndrome/Obsessive Compulsive Disorder Questionnaire - a version			x									

3.7 PHOBIAS

One physician uses instruments relating to phobias, as shown in Table 7.

Table 7. Phobia Instruments

Instrument	Davidson	Glick	Hewlett	Higuchi	Jenike	Lewine	Roy-Byrne	Stein	Ward	Zarate	NIAAA	NIMH
BSPS: Duke Brief Social Phobia Scale	x											
Fluoxetine and Behavior Therapy in Social Phobias - Clinical Global Impressions	x											
Main Phobia Scale (Modified Marks-Sheehan)	x											
SPIN: Social Phobia Inventory	x											

3.8 TRAUMA

One physician and the NIAAA use instruments relating to trauma, as shown in Table 8.

Table 8. Trauma Instruments

Instrument	Davidson	Glick	Hewlett	Higuchi	Jenike	Lewine	Roy-Byrne	Stein	Ward	Zarate	NIAAA	NIMH
Combat and Military Experience Scale	x											
Combat Exposure Scale	x											
Davidson Self-Rating PTSD Scale	x											
IOES (Horowitz et al, 1979) comments about stressful life events applied to particular trauma event	x											
Observed Clinical Global Severity of PTSD and Change with Fluoxetine	x											
PMS Questionnaire (related to trauma event)	x											
Sexual Dysfunction Questionnaire (related to trauma event)	x											
SI-PTSD: Structured Interview for Posttraumatic Stress Disorder	x										x	

4. INFORMATION SYSTEMS APPLICATIONS

Many physicians have made a transition from paper-based records to computer-based records; however, not all of the benefits of computer-based systems have been realized. If a piece of information is associated with different kinds of information, it is often collected several times in a paper-based system in order for that data to be physically contained in each set of associated information. A simple conversion of a paper-based system to a computer system may replicate this redundant data collection practice, whereas a more comprehensive conversion will generally collect each piece of data only once. The associations are designed into the computer system's output, placing all relevant information together, regardless of when the data are collected.

Well designed computer systems can also facilitate patient data security. Each type of data can be tagged by who can access it ("who" may refer to both a logged on user and to an output report). Such designs permit full access to accounting data for proper data entry and auditing personnel, while preventing access to medical records. Simultaneously, financial data can be denied to those with no need to know. A proper design can also facilitate the removal of patient identity data, while retaining the connections among all a given patient's records, to provide data for research.

In addition to administrative support, it should be possible to design the computer system's output to present information to support the physician's diagnosis process. Initially, this process would be manual; however, it is conceivable that some parts of the process could use algorithms that run on the computer, fed by data collected from the patient and the doctor.

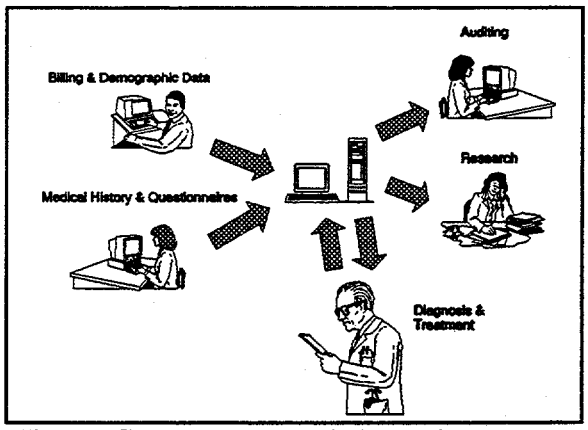

Fig. 2. Computer-based information system.

Figure 2 graphically represents the possibilities for a well defined computer-based information system. (Where direct entry of data into the computer is not practicable, the use of machine-readable formats should be maximized.) Such a system could be individually designed for each physician or group-practice. However, the commonalities found in the instruments covered in this report suggests that a core system, customizable for each physician or group might be more beneficial.

5. CONCLUSIONS AND RECOMMENDATIONS

As in all medical work, data are needed in the psychiatric field for multiple purposes: billing, diagnosis, treatment decisions, and research. To meet these needs, several types of data can be collected: billing and insurance, demographic, symptoms, medical histories, and ongoing notes. However, data are expensive to collect: they require patient time to gather; they require instrument administrator time; and they require doctor time to read and understand. Therefore, data collection should be as parsimonious as reasonable. Each item should be collected only once (except for duplication for verification purposes). Each item should be collected purposefully. Separate "views" of the data should be available, depending on purpose. Each view displays only the appropriate data for both security and clarity reasons.

The goal of medical care is to improve the condition of the patient. The diagnostic part of the process is put in context in Fig. 3. The four data collection procedures (from Fig. 1) are collapsed in this figure for clarity. Note that the choice of treatment is influenced both by the diagnosis and the data collected about the patient; however, the outcome is not influenced by the data collected nor by the diagnosis, but only by the treatment and the actual patient condition.

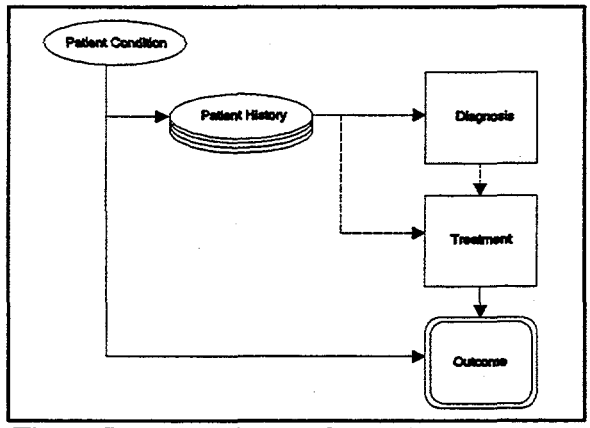

Fig. 3. Influence diagram for medical treatment.

Once the required data have been identified, a decent computer system can handle the presentation and maintenance of the data. This report does not represent a sufficiently fine analysis of the data to support definition of such a system; however, it suggests a usage-based architecture for the system. Given this architecture, further research by a team containing systems, medical and accounting professionals could define both the core requirements and the range of customization features required. I recommend further research and development.

I also recommend validation of the instruments. Multivariate analyses of response sets and "final" patient diagnoses would permit modification of the instrument in the direction of completeness and accuracy. It is also expected that these analyses would permit the creation of a brief screening instrument that would indicate which portions of the full instrument need to be administered.

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