
Supporting Psychiatric Assessments in Emergency Rooms

**Office of Mental Health
Center for Policy Research
Center for Technology in Government**

CTG Project Report 95-2



**Center for Technology in Government
University at Albany / SUNY**

Table of Contents

Executive Summary	i
1. Project Overview	1
Current System	2
Center for Technology in Government Project.....	4
Project Objectives	5
Project Work Plan and Participant Roles.....	5
2. Project Results	8
The Decision Model	8
The Prototype.....	11
The Field Test	14
3. Value of the ORMA Project	21
Value to the Office of Mental Health	21
Value to State and Local Government	22
Value to the University Community	24
Appendices	
A - Project Timeline	27
B - Project Participants	28
C - Description of the Prototype	30
D - Related Products	37
E - Selected Bibliography	38

Executive Summary

An inappropriate decision to admit or discharge a psychiatric patient from an emergency room is often the starting point for a series of undesirable results. The individual inappropriately admitted is deprived of liberty and involved in a disruptive, stigmatizing event. Since each admission to inpatient psychiatric care costs the mental health system about \$10,000, these admissions are also a costly misuse of scarce health care dollars. The individual who is inappropriately discharged does not receive the care he or she needs, and, in extreme cases, may engage in dangerous or violent behavior in the community. Over 135,000 emergency psychiatric assessments are conducted in New York's hospitals each year, and research shows wide variability in the resulting admission and discharge decisions.

The project the Office of Mental Health (OMH) proposed to the Center for Technology in Government (CTG) was designed to address this issue through the development of a computer-assisted decision model to support psychiatric assessments in emergency rooms. The decision support model and software developed are not meant to replace the physician or the physician's own expert judgment. Instead, they support the practitioner in gathering and considering all information relevant to an admissions decision.

The first objective of the CTG project was the development of a formal decision model for use in psychiatric assessments in emergency rooms. An effective and workable model required not only careful study of relevant research, but also required a consensus among experts. The Center for Policy Research at the University at Albany applied its extensive facilitation experience to this project objective. A group of 15 experts was brought together three times (in May, July, and September 1994) to define and reach consensus on the decision model. A selected group of three experts met a fourth time, in April 1995, to evaluate the readiness of the prototype for a field test.

The decision model produced by this first phase of the project specified the most important information needed for a psychiatric assessment and a method for combining individual items of information to provide guidance for a disposition decision. This model specified relationships among various items of information to key summary indicators or modules. They are:

Danger to Self	Environmental Factors
Danger to Others	Client/Family Preferences
Mental Health Status	Availability of Services
Functional Impairment	Medical Conditions
Substance Abuse	Potential to Benefit from Treatment

The second objective was to create software for the decision model. This prototype system is a Microsoft Windows-based program that runs on a notebook computer and

generates descriptive profiles for a client in each of the modules embodied in the model. These profiles are generated from users' answers to a set of approximately seventy-five questions about the client. Not all questions need be answered about a client; the system is capable of handling situations in which only partial information is available. The prototype system has two components: the user interface and the evaluation module. The user interface allows the clinician to supply information about the client. The evaluation module presents summary output in three formats: a scaled scoring, a graphical representation of those scores, and a short narrative analysis.

The third objective was to field test the software. A field evaluation comprised a first assessment of the structure, value, and usability of the tool in a hospital setting in one psychiatric ER. Evaluation results cover three topics: strengths and weaknesses of the prototype, its potential for future use, and general reaction to the technical aspects of the application.

For OMH, the project achieved the following results:

- **A better understanding of the possibilities and limitations of technology use within the emergency room.** The project enhanced understanding of the emergency room process, including how it differs from setting to setting. The wide variability among emergency rooms highlighted the need for ER assessment protocols to improve consistency. In addition, much was learned about the possibilities and limitations of computer software in a psychiatric emergency environment. Very important to OMH, the project demonstrated the feasibility of software use by physicians. This knowledge has important value as a guide for further efforts to improve emergency psychiatry, which may include the use of information technology.
- **Significant progress toward a decision tool for use in emergency psychiatric assessment.** Consensus was achieved by a national expert panel on the basic structure of an assessment instrument. Agreement was reached concerning the major areas (modules) to be included and the core questions within each area. Progress was also achieved in establishing the relative importance that should be associated with answers to various questions and in establishing how various assessment topics are related to one another. Although these areas need further refinement, they form a good foundation for additional development. The project evaluation outlined the important next steps for OMH to take in order to finalize the software. It is a product that is ready for further field testing and eventual use as a training device and/or a decision aid in ER settings. Three uses seem likely. First, it might be used as a training device to help prepare mental health, health care, and human services professionals to deal with crisis situations involving mental illness. Second, it might potentially be used to aid inexperienced professionals in the field. Third, it is a possible support for experienced practitioners in exploring assessment data in more depth than might otherwise be possible or practical.

- **Use of an expert panel to achieve both consensus and legitimacy.** The dialog between emergency room practitioners and consumers of emergency psychiatric services and their family members allowed the airing of various and divergent perspectives in the expert panel meetings. These discussions enhanced understanding and empathy among the panel members and helped move the group toward consensus. Moreover, since the decision model was defined by a group of experts including practitioners, consumers, and officers of the American Association of Emergency Psychiatry, it has a level of authority and legitimacy well beyond what any one stakeholder could achieve alone.

Many public agencies are responsible for programs which try to meet the needs of a diverse set of stakeholders. This project illustrates some ways to address that diversity and to seek consensus on both policies and actions. It also gives some guidance on the value of information technology as a way to bring needed expertise to decision situations. Many state and local government agencies could benefit from the following lessons:

- **The use of expert judgment panels is an effective way to identify differences, build credibility, and work toward consensus about complex issues.** The method works because it focuses the panelists' attention on the task, makes reasons for disagreement that are usually difficult to uncover explicit, separates "false disagreement" from "real disagreement," and gives the participants the tools necessary to overcome some of the limitations that prevent agreement.
- **Prototyping encourages stakeholders to confront issues and make explicit choices.** This clarifying effect of prototyping appears to be an antidote to the common tendency to avoid making unambiguous decisions, especially in a group with conflicting interests and perspectives. Conflict within the group is avoided by either passing over tough issues, or dealing with them in overly general or superficial ways. A prototype will necessarily embody decisions on these issues. Therefore, confronting these decisions in the prototype forces the group and the user to deal with the implications and consequences of one choice or another. This can lead, in turn, to a more realistic and focused discussion of the issues, and clearer, more detailed specifications for a full system.
- **Policy advisors can play a useful framing role in software design, although the use of expert panels and consensus-driven models to design unstructured software applications is a process that still needs refinement.** Groups like the expert panel assembled for this project are often consulted for policy advice and they lend accountability, legitimacy, and political and substantive credibility to public deliberations and decision making. A panel representative of a variety of stakeholders, however, may not be able to reach consensus on all issues. The residual level of disagreement must still be resolved in the process of software development.

I. Project Overview

More than 135,000 people receive emergency psychiatric evaluations in New York State each year. More than half of these individuals are referred to emergency rooms (ERs) for potentially dangerous behavior. Individuals entering who display symptoms of mental illness or potentially dangerous behaviors need to be assessed by psychiatrists or specially trained physicians to decide whether they should be admitted to an inpatient unit or released. Several recent studies have found substantial variability among emergency rooms with regard to who is referred for psychiatric assessment and who is admitted or released. Inconsistency in psychiatric assessments has been found even among different practitioners in the same emergency room. Acute psychiatric inpatient hospitalization admission rates in the literature vary among hospitals within the same studies from 10%-72% (Feigelson et al., 1978; Gillig et al., 1989; Way et al., 1992). Wide variability may lead to mistakes since not all appropriate information may be sought or evaluated.

The ER assessment, evaluation, and choice of a disposition may have major physical, psychological, and fiscal impacts on the individual, his family, the community, and the health care system. For the client, these decisions may profoundly influence the course of the mental illness and its subsequent treatment. An inappropriate disposition of inpatient care can be disruptive and stigmatizing (Gerson & Bassuk, 1980; Stroul, 1988). Further, the decision to hospitalize can be costly to the mental health system. With an average length of stay of almost 17 days and with an average cost of \$550 per day, each admission costs the system almost \$10,000.

On the other hand, an inappropriate release based on a faulty ER assessment may increase the probability of dangerous behavior in the community which could result in a violent crime. After wide media attention to such an event, there can be higher admission rates for a period of time due to conservative physician behavior. This has major financial implications for the hospitals. While violent crimes against others receive the most media attention, errors in judgment in emergency rooms may increase the risk of suicide and other sources of mortality for the client. The literature has shown that psychiatric emergency room discharges have a much higher mortality rate than the general population.

In several widely publicized cases in New York State, an ER client was not admitted to an inpatient unit and subsequently committed a serious violent crime. These incidents led the Office of Mental Health (OMH) and the Department of Health (DOH) to begin an effort to establish guidelines for the screening, evaluation, and disposition of psychiatric patients in emergency rooms. The project OMH proposed to the Center for Technology in Government sought to develop and evaluate a uniform computer-assisted decision model for these assessments which would directly support these ongoing efforts to improve emergency psychiatric care.

Although prediction of dangerousness and judgments of severity of mental illness are fraught with uncertainty, and mistakes are inevitable, guidance based on decision models provides one potential method for reducing avoidable errors and improving the use of hospital resources. Decision models provide a means of putting the experience and training of the best professionals to use in improving the performance of all practitioners. Such models reflect the consensus judgments of experienced clinicians about how and what information should be sought and how that information should be used. Currently there are no widely used decision models to assist either non-psychiatrically trained staff or psychiatrists in making appropriate assessments and dispositions.

The decision support tool created as a result of this project is intended to assist practitioners by prompting them to collect and consider all relevant information. In this way, the system helps the practitioner reach a sound admission or discharge decision. It is not intended to replace clinical judgment, but to remind the clinician to ask and evaluate the answers to all important questions. Practitioners might use the system in several ways. It could become a training device to help prepare mental health, health care, and human services professionals to deal with crisis situations involving mental illness. Second, it might be a direct aid to inexperienced professionals in the field. Third, it might support experienced practitioners to explore assessment data in more depth than might otherwise be practical or possible. The results of this project may also play a role in the development of OMH/DOH guidelines for psychiatric emergency room assessments. In addition, the group decision support, expert judgment, and guideline implementation techniques used in this project have broad applicability to other areas that involve professional judgment or decision making under crisis conditions.

The Current System

Since each of the state's 166 hospital emergency rooms have unique circumstances, there is considerable variability in the processes they use for psychiatric assessment, evaluation, and disposition. However, a typical process (illustrated in Figure 1) can be described as having the following steps.

A client arrives in a general hospital emergency room and is registered. An assessment is made by triage staff, which may include medical students, nurses, and/or social workers, and the attending physician (usually not a psychiatrist) concerning whether the client requires a complete psychiatric assessment. If a psychiatric assessment is recommended, the client is sent to the psychiatric emergency room, if this specialty service exists, or an attending psychiatrist is called to come in and perform a psychiatric assessment.

The attending psychiatrist, often with the assistance of other staff such as social workers, performs a psychiatric assessment by collecting information from records, the client, and other individuals. After evaluating the information, the psychiatrist decides whether to admit the client to inpatient psychiatric care or to discharge from the ER.

Where specialty psychiatric emergency rooms do not exist or when it is not practical to wait for the on-call psychiatrist to arrive, the non-psychiatrist physician performs the psychiatric assessment and makes the admission decision. If the client is admitted, a psychiatrist will usually review the admission decision the following day. The decision model needs to incorporate both specialty and non-specialty situations.

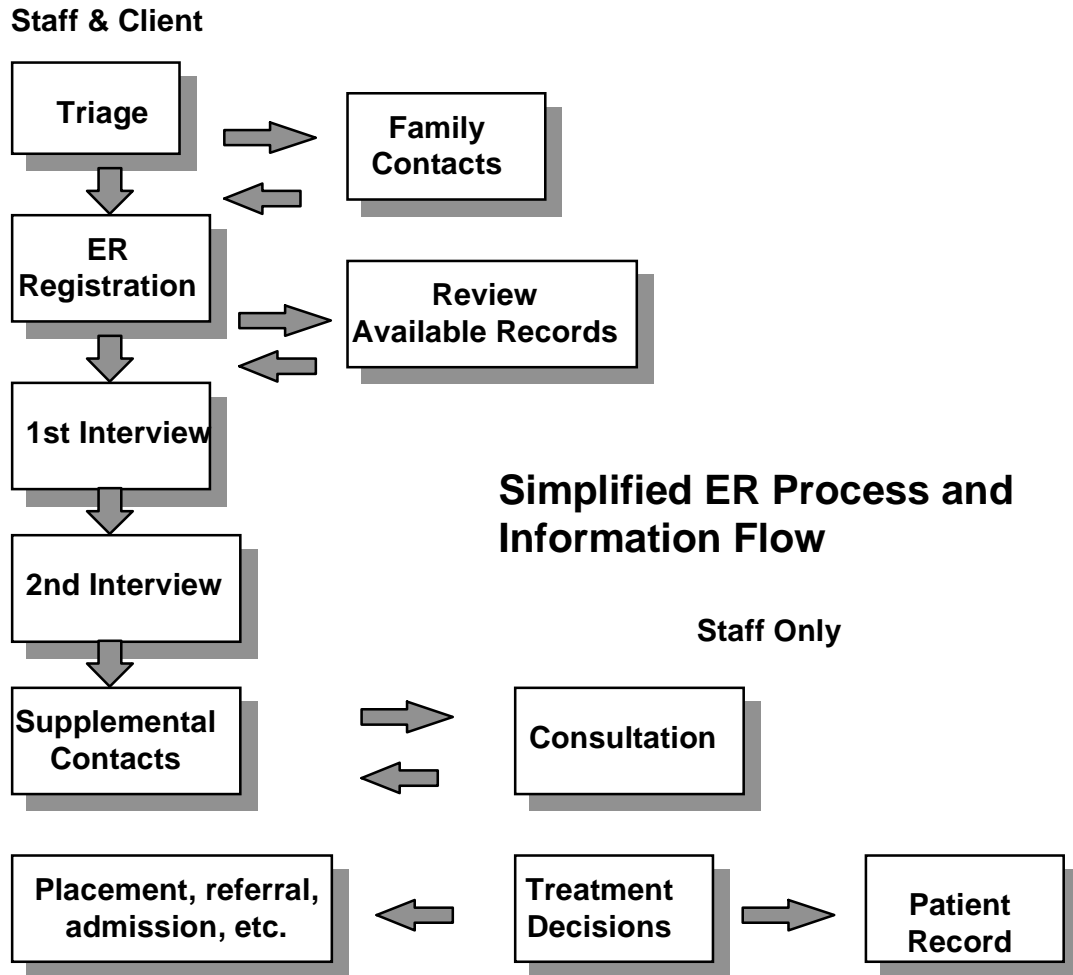


Figure 1
Simplified ER Process and Information Flow

Conditions in ERs pose difficulties in conducting timely, accurate assessments and developing appropriate dispositions. Clinicians must make their disposition decisions within a brief time period and on the basis of limited information. Wood and Khuri (1988) found the average assessment to be a little over one hour for men and 77 minutes for women. Often, needed information is not available. For example, Way et al. (1993)

report that in some hospitals, clinicians do not know for 80% of the clients whether the client has ever been at that hospital for prior inpatient treatment.

In addition, the substantive content of an emergency psychiatric evaluation is a complex combination of factors. Research indicates that a wide variety of factors are considered by practitioners. Many combinations of patient, service system, hospital, and decision-maker characteristics have been studied. While no one set of variables has emerged as the key to best practice, the psychiatric assessment literature suggests that four types of variables play a significant role: patient variables, service network variables, decision maker variables, and hospital variables. Table 1 lists the individual variables which fall into each category (Way, 1994).

Table 1
Summary of Variables Affecting Psychiatric Admission Decisions
Made in the Emergency Room

<p>Patient Variables Presenting symptoms Degree of dangerousness to self and others Severity of the psychopathology Global functional assessment (GAS) score Diagnosis Strength of social supports Psychiatric history Current involvement in mental health treatment Desires of the client Ability to communicate Appearance Desires of the family</p> <p>Decision Maker Variables Experience Type of training Quality of patient-therapist relationship</p>	<p>Service Network Variables Enriched and extended assessments in the ER Observation beds in the ER Crisis services in the ER Mobile outreach services Crisis residential services in the community</p> <p>Hospital Variables Policies Source of referral Bed availability Time of day Day of week Level of activity</p>
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Since there are time pressures and limitations on the ability to collect information, and because non-psychiatric staff sometimes need to perform psychiatric assessments, a decision model would increase efficiency and effectiveness of ER decisions. With such a model, the most important pieces of information would be consistently obtained. Further, a decision model could assist and speed the evaluation of this complex information. Decisions based on a decision model are expected to be more consistent, since they would be based on a well-defined body of information that experts have agreed should be considered. While the decision system does not replace the judgment of the clinician, it helps him or her base that judgment on an expert consensus about the information needed to reach a sound decision.

Center for Technology in Government Project

The project was one of four selected from a field of twenty-one proposals submitted to CTG in 1993. Work began in Spring 1994 and involved staff from the OMH Bureau of Evaluation and Services Research, faculty experts from the University at Albany's Center for Policy Research, and CTG professional staff, faculty fellows, and graduate students.

Project Objectives

The project had three primary objectives:

1. Apply methods derived from expert judgment research and group decision support technology to develop a decision model for psychiatric admissions decisions in general hospital emergency rooms.
2. Translate the model into a prototype software application that can be used by ER personnel.
3. Field test the prototype to assess user reaction and usability as a support tool in ER practice.

Project Work Plan and Participant Roles

Project work began in the spring of 1994 following work by OMH staff and University at Albany faculty members to secure and initiate a related Center for the Study of Issues in Public Mental Health, funded by the National Institute of Mental Health (NIMH). The CTG project work was organized into four overlapping phases (see Figure 2):

1. background research provided through the NIMH grant
2. development of a formal decision model
3. translation of the model into a software application
4. a field test of the application

OMH staff played the lead role in background research and liaison with the expert panel members. University at Albany faculty affiliated with the Center for Policy Research led the effort to define the decision model through expert judgment techniques. The prototype was designed and developed by CTG technical staff. Representatives from all three organizations shared responsibility for the field test.

Overview of Development Process

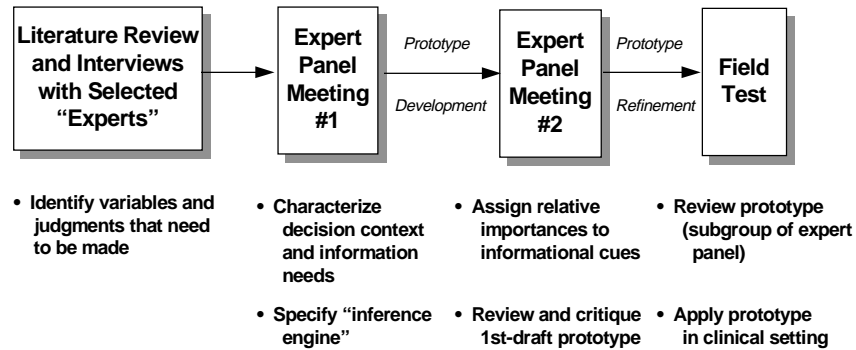


Figure 2
Overview of Project Phases

Background Research

This project at CTG is complemented by a larger research program at OMH which is funded by a grant from the National Institute of Mental Health (NIMH). One of the projects funded by the NIMH grant is a study of decision making in psychiatric emergency rooms. This study describes current practice for psychiatric assessments. This descriptive work, conducted by OMH staff, provided both a literature review and key baseline information from which the decision model was developed. Descriptive data from actual ER interviews also provided a means to compare the thoroughness of the decision model and prototype with the state of current practice.

Developing the Decision Model through Expert Panel Conferences

The first objective of the CTG project was the development of a formal decision model for use in psychiatric assessments in emergency rooms. An effective and workable model requires not only careful study of relevant empirical results and existing guidance, but also requires a consensus among experts. Arriving at such a consensus is not always easy, but successful procedures (called "group decision support systems") for facilitating consensus have been developed. The Center for Policy Research at the University at Albany applied its extensive facilitation experience to this project objective.

A large project advisory committee was convened in February 1994 to review the plan for the project and to define and identify potential members of an expert panel to work toward the needed consensus. The advisors urged that the panel be widely representative and composed of recognized experts. Many individual names were subsequently submitted for nomination to the panel. A group of 15 experts was then named and brought together three times (in May, July, and September 1994) to define and reach consensus on the decision model. A selected group of three experts met a fourth time, in April 1995, to evaluate the readiness of the prototype for a field test.

Developing the Prototype Decision Support Tool

Three versions of a computer program based on the decision model were developed by CTG technical staff. The first version was presented at the September meeting of the expert panel. A second, refined version was presented to three of the experts in a specially designed evaluation meeting in April 1995. The third version, refined following the evaluation meeting, was field tested in July 1995. In essence, the prototype, which runs on a notebook computer, prompts practitioners to enter specific information about a patient. The program poses additional questions if the information provided is not deemed adequate for a sound assessment by the underlying decision model. The computer program then integrates the information and presents summary and detailed reports in the form of profiles and narrative descriptors.

The Field Test

The field test took place at Westchester Medical Center during July 1995. The field evaluation assessed strengths and weaknesses of the prototype, its potential for future use, and the technical aspects of the software. A full evaluation of impact on the quality of assessments and subsequent admission/discharge decisions is planned by OMH, but is outside the scope of the CTG project.

II. Project Results

1. The Decision Model

The decision model produced by the first phase of this project specified procedures for collecting the most important information needed for a psychiatric assessment and a method for combining individual items of information to provide guidance for a disposition decision. Using group decision support techniques, project staff conducted four facilitated "decision conferences," involving the expert panel members. Each conference lasted one or two days.

The composition of the expert panel was carefully constructed. It included family members, consumers, psychiatrists, social workers, and nurses. Both rural and urban perspectives were included as well as perspectives from emergency room and mobile crisis unit personnel. The panel also included a member of the NYS Psychiatric Association Task Force and the president, president-elect and other officers of the American Association of Emergency Psychiatry, a subunit of the American Psychiatric Association. Their participation brought to the panel a national perspective and access to a very important group of professional stakeholders.

The purpose of the first meeting, in May 1994, was to develop a rich set of descriptors, cues, and variables for use in the design of the decision model. The process focused on three types of variables: the status and individual characteristics of clients and their environments; the client's needs for treatment or services; and the dispositions, services and treatments available to meet those needs. Following the meeting, staff organized the information into a draft model. This model specified relationships among various items of information by grouping them into modules associated with key summary indicators (such as danger to self). The combination of data from the modules produces an overall assessment which, in turn, supports an admission decision.

The modules covered the following topics:

- Danger to Self
- Danger to Others
- Mental Health Status
- Functional Impairment
- Substance Abuse
- Environmental Factors
- Client/Family Preferences
- Availability of Services
- Medical Conditions
- Potential to Benefit from Treatment

In the second panel meeting, held in July 1994, panel members were introduced to this design concept and asked to focus on the detailed information needed to construct each module. Working in large and small groups, the panelists examined one module at a time, identifying what information should be added or deleted, which information was critical and which optional, and so on. They also reviewed the combination of modules, identifying alternative ways to organize the information across the full set. In all, they produced more than 80 questions that might be included in the final model (See Appendix C). At this meeting, the panelists also described the "typical" process followed by a patient who presents at the ER with psychiatric symptoms, identifying how, where, and when different kinds of information are collected. Following the second meeting, project staff refined the decision model and developed the first version of the prototype.

The third panel meeting, held in September 1994, opened with a review of the ER process and a presentation of the rough first prototype. This first version did not include an intuitive user interface. Rather, it concentrated on the "inference engine," the translation of the formal model into questions, answers, clusters, and scales. The panel reacted strongly to the complexity of the content and made many suggestions for revision. These included recommendations to create descriptive anchors for the scales, to devise links and branches based on answers to previous questions, to cluster the questions on the basis of a tentative diagnosis, and others. The panel members discussed how a clinician navigates through an interview and identified ways in which the yet-to-be-designed user interface would be most effective. They also began to specify weights for various questions and to separate the "Must Ask" questions from the optional ones.

However, the most valuable discussion was a reevaluation of the basic project goals. Many in the group had imagined a software tool that might be used in the interview process. When they saw this version of the prototype, some believed it could work in that setting and others did not. Some envisioned how the tool could be applied in other ways (such as in training or in back office recording and analysis). It became clear that the group had not yet reached consensus on a number of important issues: Was the tool designed for comprehensive assessment or to support a single crisis-oriented admissions decision? Was it the basis for longer term treatment planning linked to patient history and other data or a stand alone tool? Who was the intended user: An experienced clinician? A novice? A student? Would it work best during the patient interview or later? Should the presentation of questions be highly structured or more free-form?

From this discussion, the group moved toward a more tightly defined purpose for the decision model. Simply stated, the panel agreed that the model should help a clinician "identify suicidal or homicidal patients, assess risk, and determine if they should be admitted." From this point, the group began to reach agreement on the questions in each module which should be deemed "essential." They also made good progress in assigning weights, identifying clusters, and defining simple descriptive anchors for scores. The decision model was then revised to reflect these discussions. Figure 3 illustrates the formal model in its most refined form.

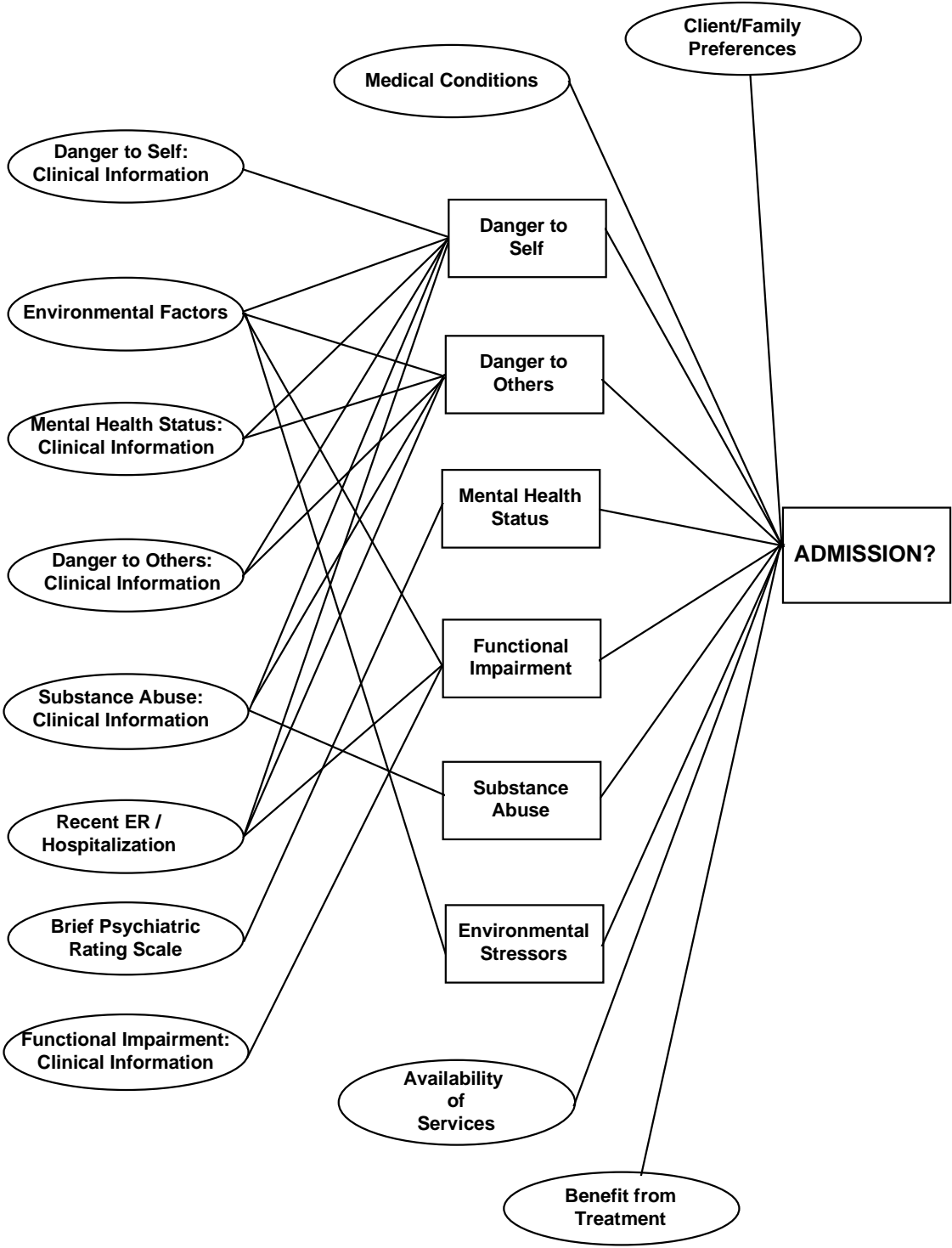


Figure 3
The Formal Decision Model

A second version of the prototype was prepared during the fall and winter of 1994-95 and presented to a selected group of three panelists in April 1995. This group tested the new version of the prototype and made several additional suggestions for improvement. The group felt that the best way to further assess and refine the tool would be accomplished through experience in emergency room settings, and recommended proceeding to the field test.

2. The Prototype

The second project objective was to create a prototype software application which operationalizes the decision model. The prototype bridges the gap between prescription and practice and therefore needs to account for some of the practical problems that exist in ERs (e.g., time limitations, unavailable information, and non-psychiatric staff performing psychiatric assessments). The starting point for prototype development was therefore a set of questions about the working environment in the typical ER:

- What kind of ER personnel collect psychiatric assessment data?
- Does more than one person collect data about a single client? If yes, how is the information collated?
- How are existing hospital records used in a psychiatric assessment in the ER?
- How long is a typical psychiatric assessment (from first data collection through admission decision)?
- What is the typical process of screening and assessment (i.e. what steps does a client go through from arrival at the ER to admission decision)?

Most of these questions had been discussed in various ways in the literature and they were reviewed with the panel to arrive at a “typical process” to use as an organizational context for the prototype design.

A second set of questions focused on how an automated decision support tool might be used by ER personnel and what results they expect such a tool to produce for them:

- Will the software be used to *collect* data or to *summarize* data collected in some other way?
- Will the software be used *during* or *after* patient interviews?
- Which ER personnel are likely to use the software?
- What kind of output should the software produce? a recommendation regarding admission? a raw or weighted score? a patient profile based on the data collected? an official document for the patient record?
- How should the questions be presented on the computer screen? one at a time? in related groups?

Although there were many different preferences among the panel members, a rough consensus was reached that the prototype should be designed to meet the following criteria:

- It should be used in the emergency room by ER personnel either during or after the interview (depending on the preference of the user).
- The clinician who examines the client should be the system user.
- It should run on a notebook computer in order to be unobtrusive and to make the system readily available to different users in different rooms.
- The questions should be grouped into categories and presented in a logical sequence.
- Some questions should be made mandatory and highlighted to indicate that they are critical.
- Results should be produced and displayed in the form of profiles based on the input; the system should not recommend a specific decision.
- The prototype system should be a stand-alone application, not linked to any other hospital databases.

The resulting prototype system is a Microsoft Windows-based program, written in MS Visual Basic, that generates descriptive profiles for a client in each of nine categories:

- Danger to Self
- Danger to Others
- Mental Health Status
- Functional Impairment
- Substance Abuse
- Environmental Factors
- Potential to Benefit from Treatment
- Client/Family Preferences
- Availability of Outpatient Services

These profiles are generated from users' answers to a set of seventy-three questions about the client (see Appendix C). Not all questions need be answered about a client; the system is capable of handling situations in which only partial information is available.

The prototype system has two components: the user interface and the evaluation module. The user interface allows the clinician to supply information about the client. The system collects demographic information as well as answers to specific questions related to the profiling. Most questions are answered on a qualitative 0-6 scale, while a few (such as substance abuse) are more descriptive in nature. Each client is identified by a client ID number. This identifier is used to retrieve information entered about a client during earlier uses of the system.

The user interface allows the clinician to direct the order in which the evaluative questions are answered. Questions are grouped into eleven categories to make it easier to locate questions: the nine areas indicated above, plus “Medical Conditions” and “Must Ask Questions.” The system has a “free entry” mode which allows the clinician to enter data as the client speaks. Usually, an interview begins with “Why are you here?” If the client starts by talking about drugs, the clinician can probe this area completely and then move on to other areas as the client presents them. Some questions contribute to several profiles (scales). Not all questions need be answered; the user may focus on those areas which have been covered in the client interview. The user may save a client’s record to continue later, or may move on to the evaluation phase.

When the user requests an evaluation, the system generates summary output in three formats: a scaled scoring, a graphical representation of those scores, and a short narrative analysis (see Appendix C). If the system has insufficient information on which to base the assessment, the system will not perform the analysis until the clinician has provided answers to forty-four critical assessment questions. The clinician must review and answer these “Must Ask” questions before the evaluation is performed, even if the answer is “Unknown or Not Applicable.” These critical questions indicate areas that the expert panel agreed should be covered by the clinician before an assessment is made of the client. Certain questions must be answered for all clients; others are determined to be critical depending on the answers to related questions.

In performing the evaluation, the system applies a series of formulas to the answers that are associated with each category in the model. Most of the scale scores are based on simple linear models. The score for, say, “Danger to Self” depends on a weighted average of the various questions that the expert panel identified as relevant to that category. Some questions were identified by the panel as more important than others in making an assessment of dangerousness to self, and these questions are given a higher weight in computing the client’s scale score. Some questions are relevant if other questions are answered affirmatively, but otherwise are not important, and the software accounts for such contingent weightings.

The scaled scores are tabulated and displayed to the screen, with values ranging from 0-6. Scores are presented on two screens. On the first screen, which pertains to characteristics of the client’s clinical condition, increasing scores indicate increasing severity of a problem. On the second screen, which pertains to characteristics of the client’s environment or family, increasing scores indicate increasingly positive conditions. For the clinical categories, a “Global” score is also presented which is based on a single summary question answered by the clinician for each category. Discrepancies between the scaled score and the global score indicate differences between the evaluations suggested by the specified inference and the clinician’s intuitive assessment of the client. The comparison of the computed scale scores and the single global measure in each category can reveal disparities and gaps in the data, encouraging the practitioner to reflect on the factors which contribute to the admission decision. Such a disparity should

prompt the clinician to explore the reasons for this difference and to acquire additional information or seek consultation (During the prototype phase, disparities are also a signal that further refinement of the scoring rules may be necessary in order to achieve a good match between the global score and the computed scale scores.)

Each of these scores is also graphically represented in a bar graph. In the short narrative, problems for the client are displayed for the category, ranked from most serious to least serious. For each level of severity, a short narrative is provided based on the answers provided during the evaluation. In this way, the user receives a detailed summary profile for the client.

3. The Field Test

The field test took place during a six-day period in July 1995 at the Psychiatric Institute of Westchester Medical Center in Valhalla, New York. Three physicians took part and evaluated the prototype for seven cases. An Institutional Review Board gave approval for the research and the participating physicians and patients all signed consent forms.

The field evaluation comprised a first assessment of the structure, value, and usability of the tool in a hospital setting. The field test was not intended to be a comprehensive assessment of the prototype in operation, nor to be a study of the quality of decisions made. Its purpose was limited to a first look at an automated decision support tool in a real life setting. It was designed to gather reactions from expert practicing clinicians that would lead to refinements and further testing.

Westchester Medical Center is not typical of psychiatric ER services in New York. It is a large and multi-faceted teaching hospital with a sophisticated, well-staffed psychiatric emergency room within the Psychiatric Institute. The Psychiatric Institute also includes a mobile crisis team which conducts crisis/triage in the community using a three-item crisis/triage rating scale created by the clinical staff and in use since 1982. Each of the three items on the scale (dangerousness, support system, and ability to cooperate) comprises five descriptive conditions which anchor associated numerical ratings. Westchester was chosen as the field test site because its expertise and comprehensiveness would ensure a very rigorous evaluation. The field testers included three physicians on the staff of the Institute including the Director of the Comprehensive Psychiatric Emergency Program (a psychiatrist), an experienced attending psychiatrist, and a second year resident doing his emergency program rotation. The Director was also a member of the expert panel which had helped define the underlying decision model. All three were experienced computer users.

The physicians opted to use the system after conducting their regular assessment interviews in which they continued to use their existing forms and procedures. They then

entered data about the patients into the prototype and compared their own assessments to the system's evaluation of the data they had entered.

Test results were collected through semi-structured interviews conducted by two members of the CTG research staff. The interviews were conducted the day after the end of the test period and included all three practitioners who had participated in the test. The interviews covered three topics: strengths and weaknesses of the prototype, its potential for future use, and general reaction to the technical aspects of the application. It is important to remember that the results comprise the reaction of only one institution. Nevertheless, they are valuable indicators of areas for future work. Results are summarized below:

Strengths of the system as currently designed:

For the sample patients, the system-generated final evaluations agreed with the clinician's professional opinions.

- The final output added value to the ER assessment by encouraging the practitioner to reflect on the factors which contribute to the admission decision. The comparison of the computed scale scores and the single global measure in each category was especially useful since it revealed disparities between the clinician's "gut reaction" and the composite score that resulted from the answers to the specific questions that comprise the category. Such a disparity should prompt the clinician to explore the reasons for this difference and to acquire additional information or seek consultation.
- For the inexperienced practitioner, the system acted as a comprehensive "checklist" of information which is important to collect and include in a psychiatric evaluation.

Weaknesses of the system as currently designed:

- The system appears to be a cross between a crisis decision support tool and an aid to a full psychiatric evaluation.
- As a crisis decision tool, it is too long and complex to be practical in the ER or in the field. It could be improved by paring down the questions to a smaller set of "must ask" questions which focus on an assessment of dangerousness to self or others.
- As a full evaluation aid, the prototype lacks sophisticated enough internal logic to lead a clinician through an evaluation that is meaningful for a particular patient. In other words, the system neither "branches" effectively to new questions based on the answers to previous questions, nor leads to conclusions such as tentative diagnoses.
- The prototype uses a sophisticated psychiatric vocabulary, implying that it is designed for professionals with a high level of psychiatric training. However, the tool is also highly structured and has usually been described as one designed for less expert professionals. This discrepancy makes it difficult to evaluate how useful it would be for various kinds of users. A novice user might need to follow a more structured, lengthy set of questions, but those questions must be expressed in more common language. An expert could deal with the specialized vocabulary, but would not need the high degree of structure in how the questions are presented and answered.

- The questions lack descriptive “anchors” which would help assure the reliability of the assessments. General terms like “mild,” “severe,” and “moderate” used in the prototype to anchor points on the scales are subject to varying interpretation.
- The system collects demographic characteristics of the patient but does not use them in presenting the evaluation results. These characteristics should figure in the final evaluation and decision about a case.
- In the evaluation screens, all categories of information are displayed graphically on the same zero-to-six point scale. The testers felt this could be improved by weighting certain categories (e.g. dangerousness to self or others) to show their relative importance.

Recommendations for further testing and development:

Based on this early test of the prototype, the project staff recommend that OMH consider the following next steps.

1. Test the prototype in several additional settings before making major modifications. Westchester Medical Center was an excellent site for the purposes of this particular test, because it is unusually rich in resources and expertise. It is now important to test the prototype in a variety of other settings where emergency psychiatric decisions are made. Two settings are especially recommended: a large general hospital with psychiatrists on staff but without a psychiatric ER, and a rural hospital without staff psychiatrists. We recommend following the same general evaluation protocol as used in this test and comparing the results across sites. Once this larger body of test data is collected and analyzed, the prototype can be revised more effectively.

2. After additional testing, revise the decision model and the user interface for a clearly defined intended user and setting. The intended system user needs to be more clearly defined and reflected in the user interface. No single system can be effective for every potential user or use. A psychiatric professional, for example, would need less prompting and a different vocabulary than would a non-psychiatric medical professional. A novice or a student would demand yet a different set of system characteristics.

The physicians in Westchester said that the system, as is, cannot be used effectively without psychiatric training at least at the level of a psychiatric nurse. The Mental Health Status questions especially (which are taken verbatim from the Brief Psychiatric Rating Scale Overall and Gorham, 1962) require a vocabulary and level of sophistication not likely to be found in a general ER. The BPRS vocabulary is especially problematic since common words (like “anxiety”) have special meaning within psychiatric practice. The testers stated that doctors and nurses in a general hospital ER are not likely to recognize a psychiatric level of anxiety from the ordinary level that any person would have about being in an emergency room.

The testers stated that the BPRS questions are useful for research, but not as an aid to clinical practice. They recommended that these items be replaced with a few concrete

behavioral descriptors regarding the patient's use of language, facial expressions, and so on. The general hospital practitioner's observations of these specific behaviors are more in keeping with their training and experience and would give good indicators of mental status which a psychiatrist could evaluate later.

The presumed setting in which the tool would be used would also make a difference in how it is redesigned. The Westchester physicians felt that the system is not a useful addition to a sophisticated psychiatric ER. In such a setting it is too long for a screening tool and not detailed enough for a full assessment tool. In Westchester, at least, it duplicates data already collected on paper during an unstructured assessment interview and adds work, but little additional value, when completed as a separate additional step. However, in a smaller hospital, or a rural setting, or even a non-medical setting (like a social services office) where there is less access to psychiatric experts, the physicians thought the tool might prove to be very valuable.

3. After additional testing, revise the system to achieve a specific purpose. It is possible that several purposes could be served by different versions. With appropriate modifications, the field testers recommended the following uses for the system be considered:

- *A training tool for medical students, nursing students, social work students, emergency medical technicians, social services office staff, and other human services and mental health professionals.* The prototype as it is currently devised is much more than a crisis-oriented decision tool. It contains most elements of a full psychiatric evaluation. As such, it has very good potential to become an automated training device for professionals in a variety of fields who must prepare to work with people who have mental illnesses. It could be used to train practitioners to conduct a full psychiatric assessment, an assessment of dangerousness, or other kinds of decisions. The calculation of scale scores which can be compared to the student's global assessments offers opportunity to explore the relative importance of various categories of information and the way in which the student interprets patient or client data. The comprehensive set of categories and questions makes it possible to present students with a variety of "test" cases for evaluation and discussion. Moreover, once information is captured in electronic form it can be compared, analyzed, and integrated with other information. All of these functions could be usefully applied in an educational application.
- *A crisis decision-support tool for non-psychiatric professionals such as general hospital emergency room personnel.* According to the Westchester physicians, the system could be streamlined and focused on triage or immediate admissions decision. It needs to be "do-able" in minutes. For this purpose, it need do no more than reliably answer the question, "Should this person be held in the hospital for a full psychiatric evaluation?" The testers at Westchester made some recommendations for the information which should be collected by such a tool. Their recommendations are

presented in Appendix B. They thought that such a system might best be used after, not during, a more traditional interview, but recommended that various approaches be tested in further field trials.

- *A tool to directly aid or structure a full assessment interview.* This is a possible use for the non-psychiatric professional. However, the testers expressed strong reservations about this application since it introduces a high degree of structure into the interview. They believed it would take too much time and be too distracting to both practitioner and patient. They thought it would be very difficult to try to follow a naturalistic, patient-led interview (which these physicians prefer) and still find and answer the questions in the system. Nevertheless, for non-experts, they thought this use of the system could be valuable either in the interview itself or as an immediate behind-the-scenes cross check that all critical information has been collected.

4. Use weights to indicate the relative importance of different information. The expert panel recognized that the relative importance of categories remained an outstanding issue. The field test results suggest some ways to apply weights to make the presentation of results more intuitive. To illustrate, consider the bar charts which summarize the evaluation of each patient. The bar charts presented in the evaluation screens show the score for each category (danger to self, danger to others, etc.) on the same six-point scale. Since no scale is given more weight than any other, this “washes out” the relative importance of the different measures. A “3” on dangerousness to self or others may be far more important to the ER admissions decision than is a “3” on functional impairment. Yet both categories will be presented in an identical way in the evaluation screens. The field testers recommended that some scales be weighted for importance and thought that pre-defined demographic profiles should also carry higher weights in the final scores.

5. Disaggregate data where the interaction among data categories can present a false composite picture. The system currently presents the functional impairment scale score as a composite of the individual items pertaining to functional impairment, social support system, and environmental stressors. While it is true that social supports often mitigate functional impairment, the clinicians believed this aspect of the system resulted in a false impression of functional impairment *per se* and preferred to look at the scores separately. Similarly, they recommended that environmental stressors should be scored and reported separately.

6. Consider enhancements that take advantage of other electronic information resources. The fact that this prototype uses the power of information technology means that links to other information resources are possible. The testers recommended three enhancements that take advantage of this feature:

- Link the system to other hospital information such as previous admissions records.

- Add a notepad to the system to allow the clinician to add narrative information to supplement the numeric scores.
- Link to commercial databases of related information. For example, some prescription drugs cause psychiatric symptoms. It would be very useful, especially in the general hospital setting, to be able to screen the patient's medications against such a database.

III. Value of the Project

Value to the Office of Mental Health

OMH sought a project at CTG in order to improve emergency psychiatric decision making. The primary goals of the project were to reduce inappropriate admissions and discharges, improve client and system outcomes, and reduce inconsistencies in emergency room decisions. To achieve these goals, the project developed decision support software and sought to apply this improved technology in a very hurried, complex, and significant decision environment--an environment that deprives individuals of their liberty and consumes significant government resources.

The decision support software was designed to assure that physicians ask all the appropriate questions needed to make an admission decision, and to help them sort and weigh the relative importance of the answers. The admission decision, however, is the province of the physician. The software was not intended to, nor can it, replace physician judgment.

Expectations for the CTG project were ambitious. OMH hoped ultimately for a psychiatric assessment product that could be sent to the 166 hospitals in New York for potential use in their emergency rooms. The complexity of the tool and the policies it represents, however, point to the need for much additional testing and revision before it is ready for widespread use. Nevertheless, while still short of readiness for implementation, the project made much progress toward this ultimate goal. Specifically, OMH achieved:

A better understanding of the possibilities and limitations of technology use within the emergency room

The project enhanced understanding of the emergency room process, including how it differs from setting to setting. This wide variability among emergency rooms highlighted the need for ER assessment protocols to improve consistency across these settings. In addition, much was learned about the possibilities and limitations of computer software in a psychiatric emergency environment. Very important to OMH, the project demonstrated the feasibility of software use by physicians. This knowledge has important value as a guide for further efforts to improve emergency psychiatry, which may include the use of information technology.

Significant progress toward a decision tool for use in emergency psychiatric assessment

Consensus was achieved by a national expert panel on the basic structure of an instrument. Agreement was reached concerning the major areas (modules) to be assessed (such as danger to self) and the core questions within each area. The instrument included

areas identified as important by consumers of mental health services and their families. Further, important headway was made in developing consensus about which areas and which questions within areas are related to other modules. For example, responses to questions about drug use and the presence of environmental stressors were recognized as ingredients in the danger to self module score. Although both of these areas need further refinement, they form a good foundation for additional development. Progress was also achieved in establishing the relative importance that should be associated with answers to various questions. Finally, the project evaluation outlined the important next steps for OMH to take in order to finalize the software. This instrument has great value to OMH. It is a product that is ready for further field testing and eventual use as a training device and/or a decision aid in ER settings.

Use of an expert panel to achieve both consensus and legitimacy

The dialog between emergency room practitioners and consumers of emergency psychiatric services and their family members allowed the airing of various and divergent perspectives in the expert panel meetings. These discussions enhanced understanding and empathy among the panel members and helped move the group toward consensus. Moreover, since the decision model was defined by a group of experts including practitioners, consumers, and officers of the American Association of Emergency Psychiatry, it has a level of authority and legitimacy well beyond what any one stakeholder could achieve alone. This group also represents a ready panel to be drawn upon in future work.

A basis for future agency-university collaboration

The project strengthened and initiated important working relationships between OMH and the University at Albany which are likely to lead to collaborative future work.

Value to State and Local Government

Many public agencies are responsible for programs which try to meet the needs of a diverse set of stakeholders. This project illustrates some ways to address that diversity and to seek consensus on both policies and actions. It also gives some guidance on the value of information technology as a way to bring needed expertise to decision situations.

The use of expert judgment panels is an effective way to identify differences, build credibility, and work toward consensus about complex issues.

While it is feasible to develop a decision model based on the judgment of a single expert, a decision model that would be acceptable in emergency rooms across the state and would be useful both to specialists and generalists required a consensus among experts from various fields. Achieving a consensus under these circumstances was not a trivial matter.

Group decision support techniques developed at the University at Albany and elsewhere were used in this project to facilitate consensus among a diverse groups of experts. Although this technology has been applied successfully in a variety of fields, this project is the first time it has been used in psychiatric assessments.

The method works because it focuses the panelists' attention on the task, makes reasons for disagreement that are usually difficult to uncover explicit, separates "false disagreement" from "real disagreement," and gives the participants the tools necessary to overcome some of the limitations that prevent agreement.

Prototyping encourages stakeholders to confront issues and make explicit choices.

During the design stage, the most important outcome of the prototype was the way it forced the panel to engage basic issues which had been previously avoided or treated superficially. These issues were (1) what is the specific purpose of the tool? and (2) in what part of the intake process is it to be used? Before the prototype was presented, the panel had discussed but did not settle on one of several possible uses for the tool: an aid in conducting an interview, an information recording tool to be used following the patient interview, or a training device. Neither had they clarified the characteristics of the user for which the tool is to be designed. The examination of the prototype brought these issues back to the surface, which led to more clarification and clearer direction for further development.

Once the prototype was taken to the field, these issues became even more obvious. The physicians who tested the system were able to make very precise comments about which features worked well and which did not and they were able to recommend changes that were far more specific than would be possible in any other circumstances.

This clarifying effect of prototyping appears to be an antidote to the common tendency to avoid making unambiguous decisions, especially in a group with conflicting interests and perspectives. Conflict within the group is avoided by either passing over tough issues, or dealing with them in overly general or superficial ways. A prototype will necessarily embody decisions on these issues. Therefore, confronting these decisions in the prototype forces the group and the user to deal with the implications and consequences of one choice or another. This can lead, in turn, to a more realistic and focused discussion of the issues, and clearer, more detailed specifications for a full system.

Policy advisors can play a useful framing role in software design.

This project rested on contested policies as well as presumably problematic practices. The expert group convened to design the decision model was not a typical software design team. It embodied competing perspectives on the underlying policy problems of

emergency mental health services. In this case, the data set to be collected by the system represents a group policy about what is important in or required by an emergency psychiatric assessment.

The public policy principles of openness, participation, and legitimacy are critical to the eventual acceptance of a decision support tool for emergency psychiatric assessments. Groups like the expert panel assembled for this project are often consulted for policy advice and they lend accountability, legitimacy, and political and substantive credibility to public deliberations and decision making.

The use of expert panels and consensus-driven models to design unstructured software applications is a process that still needs refinement.

In most cases, a certain amount of vagueness in a policy statement is acceptable and sometimes even desirable. In this project, however, it produced an ambiguous model whose residual vagueness about purpose and intended user resulted in clear weaknesses in the software application.

In hindsight, it might have been more efficient and effective to use the diverse expert panel to first create a policy framework which would set the boundaries for a more traditional system development phase. In this first phase, the expert panel would define the purpose, the user, the categories of necessary data, and the expected results of the system. This expert consensus about the key factors in the ER decision-making process would then have guided a small group of system designers and actual users to create and test a prototype which reflects both the panel consensus on policies and the practical complexities of a working ER. The design team would be responsible for detailed specifications for how the system works and how a user interacts with it in the context of a real life setting.

The prototype could then have been presented to the expert panel for further review and assessment of how well the prototype performs against their policy framework. Panel reactions and recommendations would become specifications for refinements in later versions of the prototype. The several iterations that would be necessary between the expert panel and the more traditional software design team would probably not have taken more time, would have relied more on the specific strengths of each group, and might have produced a more refined product for the field test.

Value to the University Community

The university partners on this project represented diverse fields of expertise: decision science, computer science, management information systems, public administration, and public policy. This combination allowed us to take a multi-disciplinary approach to the problem. The university community benefited in a number of ways.

The combined use of decision and computer science principles led to new insights for both disciplines.

This project embodied an unusual combination of two fields of expertise. The expert judgment techniques of decision science were linked to the prototyping and software development techniques of computer science. As a result, the software design team developed an appreciation for the multiplicity of views that needed to be taken into account in the decision support system and learned a great deal about how to incorporate diverse views in the design process. The decision modelers saw how the precision level of the formal model influenced its practicality and how the prototyping process revealed unresolved issues among the panel members which could then be brought to the surface for discussion and resolution. The two disciplines have much to contribute to one another and future collaborations of this kind may lead to refinements in both fields.

Students saw first-hand how prototyping contributes to realistic system design and development.

Most students of computer science or management information systems are trained in the fundamentals of software design and engineering without much opportunity to work on a development project that has practical utility and a real customer. This project gave students an in-depth look at a serious and complex public problem. The prototyping phase of the project demonstrated the difficulty of achieving a software implementation of this kind. It showed how difficult it is to define terms and goals precisely, and how important it is to show the software in early form to potential sponsors and users to get their reactions and recommendations for refinements. Finally, students learned that development is an iterative, not a linear, process. As a result, they are better prepared to contribute to other projects for future employers.

Appendix A --Project Timeline

December 1993	Background Research Initiated Under NIMH Grant
February 1994	First Meeting of Project Advisory Committee
April 1994	CTG Project Start
May 1994	First Meeting of Expert Panel
July 1994	Second Meeting of Expert Panel
September 1994	First Prototype Version Ready for Panel Reaction Third Meeting of Expert Panel
March 1995	Second Prototype Version Ready for Evaluation
April 1995	Prototype Evaluation Meeting (3 Experts)
June 1995	Third Prototype Version Ready for Field Test
July 1995	Field Test Public Demonstration of Prototype and Project Results
September 1995	Final Project Report

Appendix B -- Project Participants

Office of Mental Health

David Shern, Director, Bureau of Evaluation & Services Research
Bruce Way, Evaluation Specialist, Bureau of Evaluation & Services Research

Center for Policy Research, University at Albany

Robert Dean, Graduate Assistant, Public Administration & Policy
Jeryl Mumpower, Director
Thomas Stewart, Director for Research
Laura Topal, Graduate Assistant, Public Administration & Policy

Center for Technology in Government

Peter Bloniarz, Laboratory Director
Anthony Cresswell, School of Education
Sharon Dawes, Director
Ann DiCaterino, Manager Project Support
Winsome Herard, Assistant Project Coordinator
Mark Nelson, Graduate Assistant, Information Science Ph.D. Program
Francis T. Nolan, Project Coordinator
Sandor Schuman, Research Associate

Corporate Partners

Microsoft Corporation (software)
Borland International (software)
Digital Equipment Corporation (hardware)
IBM Corporation (hardware)

Expert Panel

Michael Allen, MD, Bellevue Hospital Center, NYC
Gail Barton, MD, VA Hospital, White River Junction, VT
Mebbie Breadley, RN, St. Joseph's Hospital, Elmira
Anne Marie Brown, Mobile Crisis Service, NYC
Gladys Egri, MD, Erie County Medical Center
Peter Forster, MD, American Assn. for Emergency Psychiatry
Celeste Johns, MD, Imogene Bassett Hospital, Cooperstown
Ann Krauss, Consumer Advocate
Lawrence Levy, MD, Westchester County Medical Center
Patricia McDonnell, OMH Quality Assurance
JoAnn Piazzzi, Westchester Independent Living Center
Frank Rabert, Crisis Service, Oneonta
Vera Hassner Sharav, Consumer Advocate
Bruce Schwartz, MD, Montefiore Medical Center, NY
Don Thoms, St. Vincent's Medical Center, Staten Island

Project Advisory Committee:

Lorna Avila, St. Vincent's of North Richmond
Yogesh Backhai, Erie County Medical Center
Andrea Blanch, Community Support Program, OMH
LuRay Brown, NYC Health & Hospital Corp.
Neal Cohen, Mount Sinai Medical Center
Gladys Egri, Erie County Medical Center
Susan Erway, Ambulatory Care CSI, OMH
Sandra Forquer, Quality Assurance, OMH
Frederick Heigel, NYS Health Department
Barbara Heyne, Counsel, OMH
Howie the Harp
Celeste Johns, Imogene Bassett Hospital
Lawrence Levy, Westchester County Medical Center
Elizabeth Lobo, Greater Hospital Assoc. of NY
Patricia McDonnell, Data/Incident Management, OMH
Luis Marcos, NYC Mental Health
Russell Massaro, Clinical Support, OMH
Susan Moore, HANYS
Lucille Okoshkin, Alliance of the Mentally Ill
John Oldham, Commissioner's Office, OMH
JoAnn Piazzzi, Westchester Independent Living Center
Leonard Reich, Health Insurance Plan of Greater NY
Steven Scher, NYC Regional Office, OMH
Ellen Stevenson, Columbia Presbyterian Hospital
Fran Teeter, NYS Dept. of Social Services
Don Thoms, St. Vincent of North Richmond
Manuel Trujillo, Bellevue Hospital Center
William Tucker, Psychiatric Services, OMH
Carol VonKlober, NYS Dept. of Social Services

Appendix C --Description of the Prototype

C.1 : User Interface

The user interacts with the prototype system using a Microsoft Windows-based interface. After entering the client's ID number and the user's initials, the program prompts the user for demographic information about the client (Figure C1-a):

Demographics

General Questions
Client Id: 1 Last Name: First Name:

Gender: Female Male Age: years Date of Birth:

Highest Level of Education Completed: Religion:

Marital Status
 Married Cohabitate
 Single Widowed
 Divorced Unknown
 Separated

Ethnicity
 Native American White
 Asian/Pacific Islander Other
 African American Unknown
 Hispanic

Current Living Situation

Check one
 Lives Alone
 Lives w/ relatives
 Lives w/ non-related individuals
 Unknown

Check one
 Private Residence Homeless
 Rooming house Shelter
 Group Residence Other / Unknown

Military Service?
 Yes No Unknown
Branch:
Dates of Service: From To
Service-connected disability (if any):

Continue
Quit

Figure C1-a
Client Demographic Characteristics Data Entry Screen

The clinician can enter this data at this point if it is known, or it may be entered at a later time.

The user then answers questions about the client (Figure C1-b). Each question in the system is identified with one of ten categories. Questions in a given category can be displayed by pressing the appropriate button:

The user can then answer questions about the client in any order, skipping between categories as desired. Each question is answered either as “Unknown/Not Applicable”, or on a severity scale of 0 through 6. Indicators of the severity of each of the numeric scales are indicated below the sliding scale.

Certain questions (such as whether the client has ready access to a weapon) contribute to several of these profiles. In “Free Entry,” only the questions that are classified in the category are displayed in that category; in “Directed Entry”, all the questions that contribute to the statistical profile of the category are displayed.

OMH Decision Support System - DIRECTED ENTRY MODE	
FREE ENTRY	DIRECTED ENTRY
EVALUATE NEW CLIENT QUIT	
<div style="float: right; border: 1px solid black; padding: 2px;">Categories:</div> <div style="clear: both;"></div>	
<div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;"> DANGER TO SELF </div> <p>Note: "MUST ASK" QUESTIONS ARE SHOWN IN BOLD PRINT</p> <p>ds3. Has the client engaged in suicidal or self-destructive behavior in the present episode? (If yes and unintentional go to Functional Impairment category)</p> <p><input type="checkbox"/> Unknown/NA</p> <p>← [] [] [] [] →</p> <p>4 Moderately serious</p> <p>ds4. Is the client currently expressing signs of suicidal or self-destructive ideations or intentions? (If no, skip questions DS5, E55, DS6)</p> <p><input type="checkbox"/> Unknown/NA</p> <p>← [] [] [] [] →</p> <p>3 Moderately serious</p> <p>ds5. (If the client has expressed suicidal or self-destructive ideations or intentions.) Does the client have a concrete plan?</p> <p><input type="checkbox"/> Unknown/NA</p> <p>← [] [] [] [] →</p> <p>0 No</p> <p>es5. Does the client have ready access to a weapon or other means of harming him/herself or others?</p> <p><input type="checkbox"/> Unknown/NA</p> <p>← [] [] [] [] →</p> <p>4 Yes</p> <p>ds6. (If the client has expressed suicidal or self-destructive ideations or intentions.) Have the client's thoughts of self-harm recently become more frequent or specific?</p> <p><input checked="" type="checkbox"/> Unknown/NA</p> <p>← [] [] [] [] →</p> <p>Unknown</p> <p>ds7. Has the client previously engaged in suicidal or other self-destructive behavior (e.g. substance overdoses)?</p> <p><input checked="" type="checkbox"/> Unknown/NA</p> <p>← [] [] [] [] →</p> <p>Unknown</p> <p>ds8. Does the client have a friend/family member/significant other who has completed or attempted suicide?</p> <p><input type="checkbox"/> Unknown/NA</p> <p>← [] [] [] [] →</p> <p>6 Yes</p>	<div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">"MUST ASK" QUESTIONS</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">DANGER TO SELF</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">DANGER TO OTHERS</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">MENTAL HEALTH</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">FUNCTIONAL IMPAIRMENT</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">SUBSTANCE ABUSE</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">MEDICAL CONDITIONS</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">ENVIRONMENT</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">BENEFIT FROM TREATMENT</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">CLIENT/FAMILY PREFERENCES</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">OUTPATIENT SERVICES</div> <div style="text-align: center; margin-top: 10px;"> More Questions </div>

Figure C1-b
Data Entry Screen, Partial Data

When the user has entered values for the questions that he or she knows about the client, the user may then request that the system evaluate the client. At this point, the system might not have enough information to create a meaningful profile. If this is the case, the system will require that the user enter answers (even if they are “Unknown/Not Applicable” answers) for certain important questions.

Scores are reported on a numeric 0-6 scale and as a bar chart (Figure C1-c). For certain categories, two scores are reported: the scaled score is a weighted value determined by a number of questions; the global score is the value of the clinician’s answer to a “summary” question pertaining to the category.

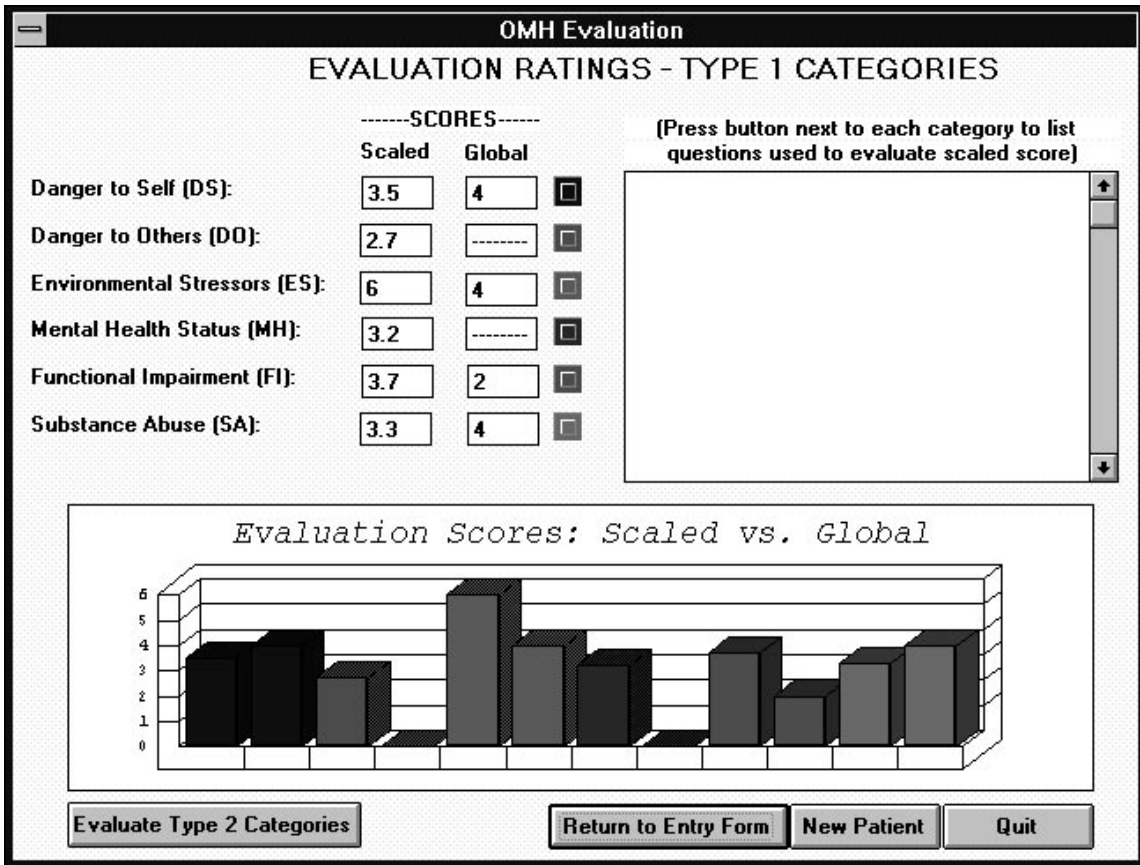


Figure C1-c
Evaluation Report Screen

C.2: Evaluation Questions

This is the complete set of questions asked in the system. Each question is assigned to the primary category to whose score it contributes. Abbreviations have the following meanings:

- bt benefit from treatment
- do danger to others
- ds danger to self
- es environmental stressors and supports
- fi functional impairment
- fn finance and service availability
- mc medical conditions
- mh mental health status
- pt patient & family preferences
- re recent history
- sa substance abuse

Category	ID	Text
bt	1	Is the client likely to benefit from inpatient treatment?
bt	2	Are there potential adverse consequences of inpatient treatment?
bt	3	Is the client likely to benefit from outpatient treatment?
bt	4	Are there potential adverse consequences of outpatient treatment?
do	3	Has the client engaged in any aggressive behavior (including homicidal and assaultive behavior, or domestic violence) in the present episode?
do	4	Is the client currently expressing signs of homicidal, assaultive, or violent ideations or intentions? (If no, skip questions DO5, ES5, DO6)
do	5	(If the client has expressed homicidal, assaultive or violent ideations or intentions,) Does the client have a concrete plan?
do	6	(If the client has expressed homicidal, assaultive or violent ideations or intentions,) Have the clients thoughts of harming others recently become more frequent or specific?
do	7	Has the client previously engaged in aggressive behavior (including homicidal and assaultive behavior or domestic violence)?
do	8	Estimate the client's overall dangerousness to others.
ds	10	Estimate the client's overall dangerousness to self.
ds	3	Has the client engaged in suicidal or self-destructive behavior in the present episode? (If yes and unintentional go to Functional Impairment category)
ds	4	Is the client currently expressing signs of suicidal or self-destructive ideations or intentions? (If no, skip questions DS5, ES5, DS6)

Center for Technology in Government
OMH Supporting Psychiatric Assessments in Emergency Rooms Project

ds	5	(If the client has expressed suicidal or self-destructive ideations or intentions,) Does the client have a concrete plan?
ds	6	(If the client has expressed suicidal or self-destructive ideations or intentions,) Have the client's thoughts of self-harm recently become more frequent or specific?
ds	7	Has the client previously engaged in suicidal or other self-destructive behavior (e.g. substance overdoses)?
ds	8	Does the client have a friend/family member/significant other who has completed or attempted suicide?
es	2	What level of emotional and practical support can be expected from interested family, friends and others (including treatment providers)?
es	3	How well can interested family, friends and others (including treatment providers) be expected to help to protect the client from harming him/herself or others?
es	4	What is the degree of stress in the client's family and social environment (e.g. Is there current or a history of abuse/domestic violence)?
es	5	Does the client have ready access to a weapon or other means of harming him/herself or others?
es	6	Has the client been a victim of abuse or domestic violence?
es	7	Estimate the overall quality of the client's social and family environment.
fi	3	Is the client able to carry out fundamental activities of daily life (e.g., eating, dressing, hygiene, etc.)?
fi	4	Does the client unintentionally do things that put him or her at risk of self harm?
fi	5	Estimate the overall seriousness of the client's functional impairment (analogous to GAF).
fn	1	Are there appropriate outpatient treatments and services readily available in a timely fashion?
fn	2	If so, does the client have insurance coverage or other financial resources to pay for outpatient treatment?
mc	1	Might the client have a medical condition that is presenting as mental illness?
mc	2	Does the client have acute or chronic medical conditions which require referral?
mh	1	mh1. Estimate the client's overall mental health status.
mh	4	mh4. Does the client exhibit lack of impulse control related to violent or self destructive behavior (e.g., as evidenced by substance abuse or violence toward others)?
mh	5	mh5. Does the client express feelings or report symptoms that reflect depression (e.g., weight loss, loss of appetite, sleeplessness, loss of sex drive, crying, hopelessness, helplessness, low self-esteem)?
mh	6	mh6. Does client have hallucinations involving suicidal or self-destructive behavior?
mh	7	mh7. Does client have hallucinations or fantasies involving violent behavior toward others? (If YES, then answer mh8.)
mh	8	mh8. If so, do these hallucinations or fantasies focus on a specific individual?
mh	bp1	Somatic Concern - preoccupation with physical health, fear of physical illness, hypochondriasis.

Center for Technology in Government
OMH Supporting Psychiatric Assessments in Emergency Rooms Project

mh	bp1 0	Hostility - animosity, contempt, belligerence, disdain for others.
mh	bp1 1	Suspiciousness - mistrust, belief others harbor malicious or discriminatory intent.
mh	bp1 2	Hallucinatory Behavior - perceptions without normal external stimulus correspondence.
mh	bp1 3	Motor Retardation - slowed, weakened movements or speech, reduced body tone.
mh	bp1 4	Uncooperativeness - resistance, guardedness, rejection of authority.
mh	bp1 5	Unusual Thought Content - unusual, odd, strange, bizarre thought content.
mh	bp1 6	Blunted Affect - reduced emotional tone, reduction in normal intensity of feelings, flatness.
mh	bp1 7	Excitement - heightened emotional tone, agitation, increased reactivity.
mh	bp1 8	Disorientation - confusion or lack of proper association for person, place or time.
mh	bp2	Anxiety - worry, fear, overconcern for present or future.
mh	bp3	Emotional Withdrawal - lack of spontaneous interaction, isolation, deficiency in relating to others.
mh	bp4	Conceptual Disorganization - thought processes confused, disconnected, disorganized, disrupted.
mh	bp5	Guilt Feelings - self blame, shame, remorse for past behavior.
mh	bp6	Tension - physical and motor manifestations or nervousness, overactivation, tension.
mh	bp7	Mannerisms and Posturing - peculiar, bizarre, unnatural motor behavior (not including tics).
mh	bp8	Grandiosity - exaggerated self-opinion, arrogance, conviction of unusual power or abilities.
mh	bp9	Depressive Mood - sorrow, sadness, despondency, pessimism.
pt	1	To what degree is the client willing and able to cooperate with proposed outpatient treatment or services?
pt	2	To what degree is the client's family or significant others (e.g., treatment providers) willing and able to cooperate with proposed outpatient treatment or services?
pt	3	How beneficial does the client think the proposed outpatient treatment or services will be?
pt	4	How beneficial does the client's family or significant others think the proposed outpatient treatment or services will be?
pt	5	To what degree is the client willing and able to cooperate with proposed inpatient treatment or services?
pt	6	To what degree is the client's family or significant others (e.g. treatment providers) willing and able to cooperate with the proposed inpatient treatment or services?
pt	7	How beneficial does the client think the proposed inpatient treatment or services will be?

Center for Technology in Government
OMH Supporting Psychiatric Assessments in Emergency Rooms Project

pt	8	How beneficial does the client's family or significant others think the proposed inpatient treatment or services will be?
re	1	Within the past sixty days, has the client presented at an emergency room, been hospitalized for psychiatric reasons or are there other signs suggesting that the client's problems are becoming more acute or current treatment is ineffective?
sa	10	Has the client received treatment (detox or rehab) for substance use during the past year?
sa	11	Has the client had previous overdoses or other substance abuse related accidents?
sa	12	Is there a history of suicidal or self-destructive ideation or behavior when intoxicated or under the influence of drugs?
sa	13	Is there a history of homicidal, assaultive or violent behavior when intoxicated or under the influence of drugs?
sa	14	Estimate the overall seriousness of the client's substance abuse problem.
sa	3	Is client currently or has he/she recently been abusing substances?
sa	4	Is the client presently intoxicated or in the state of withdrawal?
sa	6	What is the estimated frequency/quantity of use within the past week?
sa	7	Does the client's substance abuse adversely affect social functioning (e.g. use at work or while driving)?
sa	9	Has the usage increased recently (during the past 30 days)?

Appendix D -- Related Products

New York State Office of Mental Health, "Proposal to the Center for Technology in Government for Assistance in Development and Evaluation of a Decision Model for Psychiatric Assessments in Emergency Rooms," August 11, 1993, (CTG.OMH-001)

Way, Bruce B. "Decision Making in Psychiatric Emergency Rooms - A Review of the Literature," June 27, 1995, (CTG.OMH-004)

Dawes, Sharon S. and Anthony Cresswell, " Report of the Field Test to Evaluate a Decision Support Tool for Psychiatric Assessments in Emergency Rooms," August 1995 (CTG.OMH-005)

Appendix E -- Selected Bibliography

The following citations are drawn from a review of the psychiatric literature on emergency decision making and a review of the medical technology literature on the use of information technology to aid decision makers.

Apsler, R. and E. Bassuk (1983). "Differences Among Clinicians in the Decision to Admit." *Archives of General Psychiatry* 40(October): 1133-1137.

Despite considerable efforts by researchers and clinicians to elucidate the nature of the decision to admit patients for psychiatric treatment, they disagree about the criteria for hospitalization and have made little progress understanding the decision-making process. This study further investigated factors influencing the decision to admit by incorporating two unusual (for this area) features: (1) use of a multivariate analysis and (2) examination of individual differences among clinicians. The results showed both strong similarities and differences in the criteria used by individual clinicians. For each caretaker, a relatively small list of criteria was developed. Taken together, these criteria correctly classified 90% of the patients (96% of nonhospitalized and 60% of hospitalized patients) in a large, urban, general-hospital emergency room.

Baskin, D. (1990). *Computer Applications in Psychiatry and Psychology. Clinical and Experimental Psychiatry: Monograph Series of the Dept. of Psychiatry / Albert Einstein College of Medicine of Yeshiva University, Montefiore Medical Center. Brunner/Mazel Publishers.*

The burgeoning the utilization of computers in the fields of psychiatry and psychology during the past ten years has had a significant impact on training, research and service within these fields. This monograph includes material from a tristate symposium on Computer Applications in Psychiatry held at the Albert Einstein College of Medicine in New York City, as well as additional articles especially prepared for this publication. The book consists of five (5) parts. Part I provides a brief introduction and overview of the field. Part II is dedicated to clinical applications of computers, especially psychiatric diagnosis. Part III presents two chapters that focus on the establishment of databases in mental health systems. Part IV is devoted to computerized management information systems. Part V relates to the findings of a nationwide survey of computer utilization in community mental health centers. High technology and computers have been rapidly making their way into health care systems, and in particular into the mental health service delivery systems. At the time of the writing of this book, no examination on a nationwide basis has been made as to how computers are being used in mental health. This study examined the issue. An important finding of the study was that even though computerization was not perceived to have reduced costs, it was perceived as having increased the efficiency of the organization.

Bengelsdorf, H., L. E. Levy, et al. (1984). "A Crisis Triage Rating Scale: Brief Dispositional Assessment of Patients at Risk for Hospitalization." *The Journal of Nervous and Mental Disease* 172(7): 424-430.

The authors have developed a brief rating scale to expedite the rapid screening of emergency psychiatric patients who require hospital admission from those who are suitable for outpatient crisis intervention treatment. The interviewers used this scale to assess and score the patient rapidly on the basis of three factors: dangerousness, support system, and motivation or ability to cooperate. The authors report on and discuss the use of the scale in a preliminary study of 300 cases and in a prospective study of 122 patients who were followed for six months after they were evaluated. They found that those who scored below a median point on the scale required hospitalization and those who scored higher were suitable for crisis intervention as outpatients.

Cohn, J. B. (1973). "The Physician's Condition Versus the Patient's in Deciding Hospitalization." *Hospital and Community Psychiatry* 24(7): 492-493.

How often are patients with psychiatric emergencies needlessly hospitalized because of the admitting physician's inexperience, fatigue, or lack of knowledge about alternative resources? Given optimal hospital and community resources, what proportion of patients would well-trained, seasoned psychiatrists feel required prolonged hospital care? The author pursued these questions, within the setting of a 24-hour crisis unit of a large county medical center. Though admittedly, there are weaknesses with the way the experiment was conducted (e.g., lack of control group, lack of follow-up, etc.), the author states that, "the decision to hospitalize is influenced as much by the condition of the physician as by the condition of the patient. The physician's inexperience, fatigue from overwork and stress, and lack of knowledge about available resources will influence his judgment in favor of hospitalization." (Cohn, 1973:493)

Feigelson, E. B., E. B. Davis, et al. (1978). "The Decision to Hospitalize." *American Journal of Psychiatry* 135(3): 354-357.

The authors explored determinants of psychiatric hospitalization in four Manhattan general hospital emergency rooms and found that although the nature and severity of a patient's problem played the most important role in the decision to hospitalize, the facility involved was also a determining factor. The findings are discussed in relation to policy concerning staffing and organization of emergency room services and future studies of service delivery in this area.

Gerson, S. and E. Basuk (1980). "Psychiatric Emergencies: An Overview." *American Journal of Psychiatry* 137(1): 1-11.

The psychiatric emergency ward has become a primary entry point into the network of mental health services for people who need help to cope with their problems of living. It

is also the only source of treatment for many chronically mentally ill patients living in the community. The authors critically review the literature on emergency psychiatric services, focusing on the ways these services are used, the atmosphere in the emergency room, and the determinants of disposition decision making. On the basis of their research, they suggest a model for emergency services that includes an evaluation of the patient's and his or her community's resources and competence and minimizes subtle diagnostic considerations.

Gillig, P. M., J. R. Hillard, et al. (1989). "The Psychiatric Emergency Service Holding Area: Effect on Utilization of Inpatient Resources." *American Journal of Psychiatry* 146(3): 369-372.

This study compared the rates of hospitalization from two psychiatric emergency services which were similar except that one service had an extended evaluation unit, or holding area, allowing up to 24 hours of evaluation. The rate of hospitalization from the service with the extended evaluation unit was 36%; the rate from the other service was 52%. The difference in admission rates was related to the availability of the extended evaluation unit, which made it possible for many patients to avoid rather than merely postpone admission to the hospital. Clinical determinants of admission and of successful treatment in the unit were also reviewed.

Gray, G. V. and WM. Glazer. (1994). "Psychiatric Decision Making in the 90's: The Coming Era of Decision Support." *Behavioral Healthcare Tomorrow*, Jan./Feb. 1994, (47-53).

Authors' Abstract

"Guidelines for how mental health care is allocated form a pivotal point on the fulcrum balancing preservation of quality care and containment of costs. Advances in information systems technology are creating new opportunities for research-based decision support tools in this area. Such tools can systematically and reliably scale the domains of evidence used in psychiatric assessment in order to more precisely describe the severity of impairment and point to appropriateness of care decisions. The first psychiatric decision support tools were introduced in the 1960s in response to changes in the mental health community, but research in this area tended to have limited inter-rater reliability or validity. More recently, several computerized decision support tools have been developed, with a stronger research base and consequently a wider application. These tools are reviewed, and one such tool is described in greater depth to illustrate the possibilities of computer technology and the direction in which decision support software is headed."

Overall, J.E. (1988). "The Brief Psychiatric Rating Scale (BPRS): Recent Developments in Ascertainment and Scaling." Psychopharmacology Bulletin 24(1): 97-99.

The development of new and improved rating scales should be encouraged, but there is a danger if a commonly used instrument is modified. Confusion and uncertainty can result when more than one version of an instrument are circulated. If a new BPRS is modified, the new instrument should be distinguished by name and researchers should conduct psychometric evaluations on the new instrument. The 18-item BPRS that has been in use since 1965 is included in the article.

Overall, J. E. and Gorham, D. R. (1962). "The Brief Psychiatric Rating Scale." *Psychological Reports*. 10: 799-812.

Author's Abstract

"Description of a Brief Psychiatric Rating Scale is presented, along with recommendations for its use. The scale was developed in an effort to meet the need for an efficient, rapid and economical method of assessing treatment change in psychiatric research, although usefulness of the instrument for patient classification and other research is suggested. The instrument contains 16 ordered category rating scales to be completed following a 20-min. clinical interview. Each of the 16 scales was developed to assess patient symptomatology in a relatively discrete symptom area identified in previous investigations."

Segal, S. P., M. A. Watson, et al. (1986). "Consistency in the Application of Civil Commitment Standards in Psychiatric Emergency Rooms." *The Journal of Psychiatric and Law* 14(Spring-Summer): 125-148.

In the controversy over civil commitment procedures, reliability as well as validity of clinicians' assessments have been challenged. In this study, the generalizability of TRIAD, an observational assessment device, was tested. Patient load strongly influenced the degree to which TRIAD predicted case disposition and clinician global ratings of dangerousness and grave disability. Given comparable patient-clinician ratios, TRIAD predicted 81% to 86% of case dispositions. Agreement between clinician global assessments and TRIAD ratings was high to moderate. Clinicians apparently agree on sets of indicators which can be consistently weighted, but the application of the standard described by TRIAD may be jeopardized by increasing patient loads.

Stroul, B. A. (1988). "Residential Crisis Services: A Review." *Hospital and Community Psychiatry*, 39 (10): 1095-1099.

Author's Abstract

"Notes that crisis assistance for persons with long-term mental illnesses is a critical part of comprehensive community support systems. It is suggested that residential crisis services may serve as alternatives to acute psychiatric hospitalization for some clients. These services provide acute treatment in supportive, homelike settings and include intensive discharge planning to link clients with community sources of long-term care. Typical models and goals of residential crisis services and some of the factors that have impeded their development are described. Individual and group-based approaches are discussed."

Way, B. B., Evans, M. E., Banks, S. M. (1992). "Factors Predicting Inpatient Admission and Referral to Outpatient Services of Patients Presenting to Psychiatric Emergency Services." *Hospital and Community Psychiatry*, 43: 703-708.

Author's Abstract

"Dispositional decisions in ten psychiatric emergency rooms in New York State were examined using logistic regression. Variables influencing recommendations for inpatient or outpatient psychiatric treatment were fairly consistent across the hospitals. All terms used in the regression model were interactions formed from five variables: dangerous behavior as a reason for referral, severity of the mental disorder, the hospital where the patient presented, current signs of psychosis, and a diagnosis of major mental illness. A sixth variable, assaultive behavior in the emergency room, also influenced disposition decisions but could not be considered in the model because all patients with that characteristic were referred for inpatient treatment. A model of disposition decisions based on interactions of variables may be especially powerful because it captures the dynamic combination of factors clinicians encounter."

Way, B. B., Evans, M. E., & Banks, S. M. (1993). "An analysis of police referrals to ten psychiatric emergency rooms." *American Academy of Psychiatry and the Law*, 21:389-397.

Author's Abstract

"Data were collected on all psychiatric referrals to 10 emergency rooms in New York State during a 72 hour period in December 1988. Overall, thirty percent of the 362 cases were brought by the police while the 10 emergency room percentages referrals varied from 10% to 53%. As compared to non-police referrals, police cases were as likely to be rated by clinicians as currently having psychotic symptoms, having a severe mental disorder, currently using substances, having a major mental illness diagnosis, and/or

being referred to the emergency room for threatening to do harm or actually harming self. Police cases were more likely than non-police referrals to be male, to be referred to the emergency room due to impaired judgment or dangerous behavior and/or to have a longer length of stay in the emergency room. In addition, at municipal hospitals only, police referrals were more likely to be assaultive in the emergency room and/or not have payment resources. A logistic regression differentiated police cases from non-police cases on dangerous behavior to others and impaired judgment as reasons for referral, payment resources in municipal hospitals, and gender but not on any of the mental disorder variables. Policy implications for training and access to pre-transport information and consultation are discussed.”

Weiss, K. M. and H. A. Chapman. (1993). “A Computer-Assisted Inpatient Psychiatric Assessment and Treatment Planning System.” *Hospital and Community Psychiatry* 44(11): 1097-1100.

Authors’ Abstract

“Describes a method of individualizing assessment and treatment plans using a computer data base program. The system was developed in a psychiatric inpatient unit over a 3-year period. It focuses on symptoms of schizophrenia and major depression, and the major diagnostic categories in inpatient psychiatry. It is used to generate a weekly report on all patients and to examine the progress of individual patients during their inpatient stay. It is divided into diagnosis / assessment (DA) and treatment sections. The DA section includes a list of 28 symptoms divided into cognitive, behavioral, and affective categories. It also lists information about patients’ psychosocial needs and strengths. The treatment section lists the patient’s problems and interventions addressing them. The system proved to be at least as valid as the Brief Psychiatric Rating Scale.”

Wood, K. A., Khuri, R. (1988). “Temporal Aspects of Emergency Room Psychiatric Evaluations.” *Journal of Nervous and Mental Disease* 176(3): 161-166.

Author’s Abstract

“Studied the use of emergency room time by medical and psychiatric clinicians evaluating psychiatric patients. The amount of time to the completion of the medical and the psychiatric evaluation and the actual amount of time of the psychiatric evaluation were compared over demographic, admission, diagnostic, and referral factors. Evaluations were completed closer to admission with patients admitted during the day and evening shifts and with patients having more obvious psychiatric problems. The multiple time pressures in an emergency room setting appeared to affect when, but not how long, clinicians evaluated psychiatric patients. It is suggested that the time that emergency room clinicians take to begin evaluations of psychiatric patients may reflect important observational data that affect their temporal, diagnostic, and recommended treatment patterns.”

**Center for Technology in Government
University at Albany / SUNY
1535 Western Avenue
Albany, NY 12203
Phone: 518-442-3892
Fax: 518-442-3886
info@ctg.albany.edu
www.ctg.albany.edu**