

Computer-Mediated Addiction Services: *Tomorrow Won't Look Like Today*

Visit any substance abuse treatment center in this country and you will likely see a facility quite similar to what one would have seen 10, 15 or even 25 years ago. You'll probably observe a large group room, smaller consultation offices and some administrative space (and some modest rooms for clients in a residential center).

A marked difference from the mid-1970s is that at most facilities, managed care has dramatically shortened lengths of stay. The once-traditional 28-day inpatient rehab program, with little follow-up or aftercare, is fortunately a thing of the past.

By Simon H. Budman, Ph.D.
Inflexion

However, there has not been much need to modify the overall layout of a typical treatment facility, because how treatment is delivered has been very consistent for many years. This is all going to change.

The future of substance abuse treatment is not only about getting clinicians to make more use of the Internet, or buying computers for client use. It is about a new vision of services that blends best-practice clinical treatment and innovative technologies into an amalgam to facilitate high-quality, time-saving, consistent, evidence-based, cost-effective care.

Tom McLellan, one of the country's best-known addictionologists, has applied his efforts to improving substance abuse care for nearly 30 years. First at the Veterans Administration (VA) Health System in Philadelphia and then at Treatment Research Institute (TRI), a not-for-profit company that he founded and now directs, McLellan has studied both what works and what doesn't in addictions treatment.

His early work dates to the 1970s, an era in which the scientific study of substance abuse treatment began to flourish. It was in the late 1970s that McLellan and colleagues began to develop the Addiction Severity

Index (ASI), a structured interview first published in 1980. The ASI was originally designed for use in a large outcome study being carried out in Philadelphia. Because the six sites in this study varied in regard to populations and modalities, the interview questions needed to be generic. The scale also needed to cover those areas that were most likely to change as a function of treatment.

The final product was an interview that takes about an hour to administer and 10 minutes to score, and covers seven major areas of functioning such as medical, legal and employment. The clinician makes a series of subjective judgments in order to rate a patient's problem severity in each core area.

Since its development, the ASI has become the world's most widely used structured clinical measure in addiction treatment and research. It can provide a valid and reliable assessment of substance abusers in a number of areas of functioning. It also produces clinically relevant information that is comparable across facilities, states and care environments.

In addition to being used widely as a research instrument, the ASI is required by most states for Medicaid populations, the VA, many prison systems and welfare-to-work populations. Although it has been "legislated" into wide use around the country — there are probably 2 million or more administered each year — it has proven to be much more difficult to get clinicians to pay attention to the results. For many of these people the ASI is viewed as "a hoop to jump through" or "something for researchers."

In fact, there are plenty of reasons to pay attention to ASI results. McLellan and colleagues have found in more than one study that when treatment plans based on ASI results are carried out, patient outcomes, satisfaction and retention improve dramatically.



However, clinicians and managers complain about the time and cost associated with ASI administration. They also report that their staffs get tired of going through a highly structured measure with hundreds of patients, and believe the ASI prevents them from getting to the “real business” of clinical care.

In one clinical setting, the MAPS program of Providence, R.I., clinical director Mike Mullen became so concerned about the quality of data he was getting that he terminated use of the ASI. “I stopped my staff from using it. It’s not that I didn’t want the data. It just became a training issue.” He continued, “I have a lot of entry-level staff and haven’t been able to put the time into training them in interviewing skills. ... I found that they weren’t able to interpret the ASI information well and use it effectively.”

Researchers and state and federal substance abuse administrators feel uneasy about the quality of data they get from clinician-administered ASIs as well. It is variable and unreliable and may be affected by the purpose for which the ASI is being used. Indeed, in some states, facilities are paid more money by Medicaid for a treatment episode if the patient has higher ASI severity scores. None of these factors make for great confidence in the quality of information obtained by clinician interviewers.

What technology can offer

When most people think about technology, their thoughts go to the Internet. However, technology that can be applied clinically also includes interactive voice recognition (IVR) telephone programs, hand-held

personal digital assistants (PDAs), CD-ROM computer-based programs and many other delivery systems that are in their infancy, such as computers that are “wearable” and virtual-reality headsets.

Regardless of the form it takes, technology has some unique characteristics that make it particularly useful in designing assessment and intervention programs for drug and alcohol treatment:

- **Programs can be tailored to the needs of the individual rather than being locked into a “one-size-fits-all” approach.** Imagine a computer-delivered relapse prevention program. Unlike a book, pamphlet or video, this program could offer a unique intervention based upon the specific types of situations that trigger a patient’s craving for drugs. The abuser who is most provoked by social pressures gets a different set of interventions than does one who is more likely to relapse when feeling depressed. Further, the patient could get a series of “real” trigger situations in a 3-D virtual environment with immediate advice about best-fit strategies to address these potentially disastrous circumstances.
- **People tend to be more revealing to computers than they are in face-to-face communications, especially regarding sensitive information.** Perhaps because many of the auditory and visual cues that would indicate another person’s shock or displeasure don’t exist when you sit in front of a computer, repeated research findings suggest that computer-mediated communications lead to greater disinhibition.
- **Computer-mediated programs are always available and can be accessed conveniently, privately and as needed.** For the most part, current treatment modalities require space for at least a clinician and a patient who share this space simultaneously. If you are providing some type of specific treatment or evaluation, you need someone who has been sufficiently well-trained in that modality to offer a fairly consistent experience to the patients being seen. But a well-designed computer program is always consistent, while also tailoring a particular experience to the needs, concerns and demographics of the specific user. Additionally, patients can use the program at their own pace and when they need it.
- **You don’t have to be literate to use a multimedia computer program.** More than 20 percent of adults read at or below a fifth-grade level. The numbers are substantially higher in some populations of substance abusers, with more than 50 percent unable to read at an elementary-school level. Multimedia programs

make extensive use of video, graphics and voiceover, all of which preclude the need for written materials.

- **Using computers in treatment can lead to greatly improved productivity and outcomes.** Whether used for treatment or evaluation, a computer program allows patients the opportunity to work at their own pace, while their clinician can simultaneously see other patients. The data generated by the program can become grist for the next face-to-face meeting.

Barriers to computer use

Everett M. Rogers, a professor at the University of New Mexico, has been working for 40-plus years on the problem of diffusion of innovation. Specifically, how can you get people to change what they have been doing and begin to use improved approaches? According to Rogers, “Innovations don’t sell themselves.”

It appears that in recent years, adoption rates for new technologies are accelerating dramatically. In the early 1990s only a select group of computer enthusiasts, specialized companies and the military were using the Internet, but by January 2001, almost 60 percent of the adult population in the United States was using it at home or at work.

However, despite this acceleration, many fields are still making minimal use of technology. One of the laggard fields is healthcare.

Tom Eng, the author of a major report from the Robert Wood Johnson Foundation called the *eHealth Landscape*, believes that clinicians often don’t adopt technology because they perceive it as a drain on their time, and are concerned about legal liability and lack of reimbursement. Administrators, Eng believes, feel concerned about the initial financial outlay.

According to Rogers’ theories, adoption of new approaches may move slowly for an extended period and then accelerate very rapidly in a classic S-curve. Substance abuse treatment is poised to begin changing with great speed.

The point of change

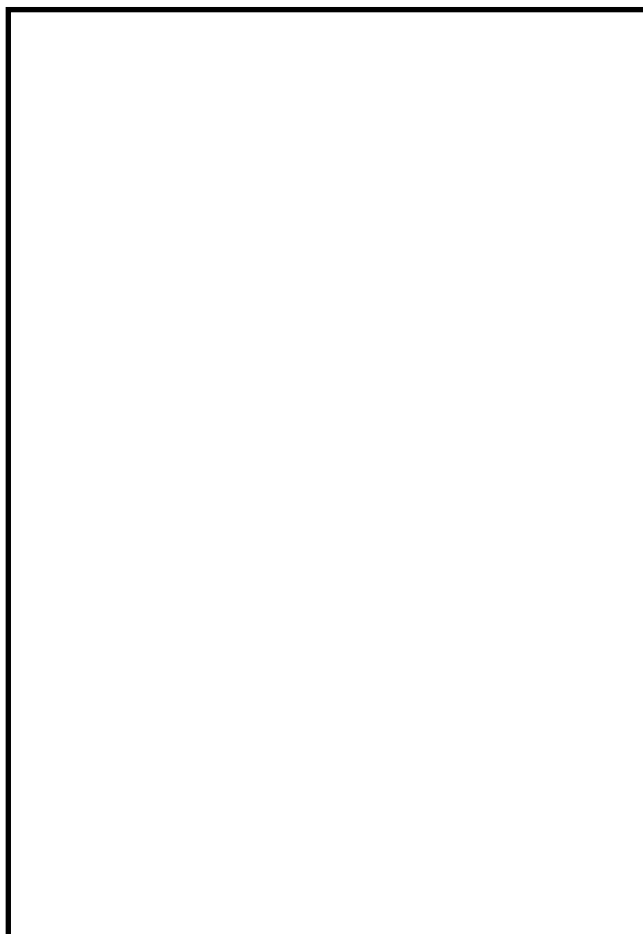
In 1995, my colleagues and I at Inflexxion (then called Innovative Training Systems) were beginning a federally funded project on teaching substance abuse counselors certain structured treatments. As we began to work with the ASI interview and consult with McLellan and his team, the strengths of and problems with this tool came into focus.

Although we had raters in our study spend days in formal training on its use — much more time than would be put to this task at a typical substance abuse

treatment center — it was difficult to get more than mediocre reliability between raters. Also, our raters, all of whom were substance abuse clinicians, began to find the interviews boring and tedious to administer after doing 10 to 20 of them.

At the same time that the counselor training project was beginning, we also were doing projects on the use of multimedia technology in prevention programs in primary care. It struck us that this same multimedia approach might work with the ASI.

McLellan felt strongly that the interviewer/patient relationship was paramount in good administration of the ASI. The patient needed to feel comfortable enough to reveal difficult issues. When we submitted a grant application to the National Institute on Drug Abuse (NIDA) to develop the ASI Multimedia Version — later to be called the ASI-MV — our ideas were quite modest. Perhaps we could have onscreen “virtual interviewers” who were engaging enough that patients could develop a type of relationship with them. We also had some ideas about having the patients choose their own interviewers: male or female, African-American or Caucasian, and so on.



Naively believing that most substance abusers would never be able to use a mouse, we proposed that the program would run on a computer with a touchscreen monitor. We were crushed when one of the scientific reviewers who read our grant said, "This idea will never fly. Many substance abuse treatment centers don't even have fax machines; why would they ever get computers for patients to use?" But after many long and frustrating delays, our project was funded and we began the process of developing the ASI-MV.

We've learned an enormous amount along the way, and many of our original biases and those of others have proven erroneous. Most substance abusers can use a mouse. When our touchscreen monitors began to break down constantly, we had to connect a mouse to the computer. Surprisingly, every single addict who used the ASI-MV in our original study (and since) was able to learn how to navigate a mouse within two or three minutes — and had fun doing it.

Rather than having a tailor-made guide or interviewer take the user through the ASI-MV, we had each of the seven areas of the program have its own "virtual interviewer." The medical

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area had an onscreen "doctor" asking the questions, the employment area had an "employment counselor," and so on. There were also virtual guides who took you through a neighborhood with offices representing each area of the ASI.

Our study was very successful. When compared to the human interview, the ASI-MV was more reliable, faster to administer, more accepted by patients and more cost-effective. A subsequent study found patients preferring the ASI-MV to the human interview by a nine-to-one ratio.

Now that the ASI-MV has been in general use since late 2000, we have heard reports from clinicians indicating that the program seems to lead to greater patient engagement. With the ASI-MV report in hand, clinicians have been able to hit the ground running and have immediate clarity about the patient's perceived areas of concern.

Since the ASI-MV project was completed, the multimedia approach has begun to gain national acceptance. Starting slowly with a handful of customers, the ASI-MV has now been adopted by the VA as an alternative to the human interview, and there are systems around the country that have done away

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How one addiction treatment center went online for SA assessments

Clarice Brodie of the Upson Counseling Center in Thomaston, Ga., is not new to the area of substance abuse treatment, having worked at the outpatient facility as both a senior staff nurse and substance abuse counselor for 20 years. Exposure to technology, however, is another matter, but one that is slowly beginning to change the way Brodie incorporates and manages information to serve her clients better.

Upson Counseling Center is located in a rural area south of Atlanta. At one time this region was a major hub for textile manufacturing, but over the past few years most of these companies began leaving the area, with the oldest and largest closing its doors in August 2001. Residents of this region are suddenly unemployed. In an area where nearly 50 percent of the adults over age 25 are without a high school or comparable degree, adoption of new technologies might seem unlikely.

Brodie began using the Addiction Severity Index's Multimedia Version (ASI-MV) as a required component of the intake process at her center, replacing the substance abuse assessment that had previously been used. In an attempt to become compliant with Joint Commission on Accreditation of Healthcare Organizations (JCAHO) standards, Brodie's facility decided to make the ASI a requirement and began looking into training programs.

During the investigation, Upson learned about the ASI-MV and decided it would be a more cost-effective alternative to lengthy training and the extensive staff time devoted to administration. The ASI-MV was not purchased to replace the face-to-face interaction between counselor and client. In fact, Brodie continues to administer the same biopsychosocial assessment that she always has, using data gathered from it and the ASI-MV to get a "richer and more standardized clinical impression" of her clients.

Before Brodie began using the program, she had little computer-related experience. While computers were available at Upson, they were primarily used for administrative purposes. She remembers feeling quite intimidated the first time she tried to use the ASI-MV.

"I had never really used the computer for anything other than writing a letter," she said. "I wondered if I would do something that would wipe out all of the data and permanently ruin things." She felt such anxiety about getting started that when she called Inflexion customer support, she had her computer-savvy daughter in the room with her to "interpret."

As it turned out, with a minimal amount of instruction, Brodie began easily using the ASI-MV. "I had a real sense of accomplishment and felt like I got to understand this. I felt proud of myself."

The same goes for her patients. With many of them hav-

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with the standard ASI and replaced it with the multimedia version.

Also, in Louisiana, the Temporary Assistance for Needy Families (TANF; also known as "Welfare to Work") program has adopted the ASI-MV as the standard way to screen recipients for substance abuse problems.

A new vision for treatment

The ASI-MV is starting to become the wedge that is opening many substance abuse treatment centers to new technology. Because the ASI is a requirement in many places, and the ASI-MV is so cost-effective — saving facilities more than 80 percent of the cost of a human interviewer — many facilities have begun to buy computers for patient use.

With a computer for patient use available, our other National Institutes of Health-supported programs are gaining interest as well. Clinicians and administrators are seeing the value of having a multimedia vocational education program for substance abusers. We also have developed or are developing a multimedia relapse prevention program, an AIDS/HIV prevention program and a smoking cessation program for substance abusers. Spanish and adolescent versions of the ASI-MV are on the way.

For some, the thought of using such tools is threatening. Computers are typically viewed as cold and impersonal, while human interaction is presumed to be warm and welcoming. It is not our goal to do away with substance abuse clinicians. Rather, we are attempting to give those who work with substance abusers a set of high-quality, scientifically developed and tested technology-based tools. These tools can help provide consistency and much-needed structure to addiction care.

All of these advances can be linked via Web-based information technology that will allow for rapid comparisons across sites and across the country. In this regard, we are developing with NIDA support a Web site called addictionresources.com. At this site, a facility will be able to upload anonymous ASI-MV data. The data will be added to a database of more than 30,000 ASIs already done through the DENS project. The site subscriber (usually a clinical administrator) will quickly be able to learn to use statistical tools at the site to analyze his or her organization's data.

Addictionresources.com will allow people with little in the way of statistical knowledge or training to do analyses using natural language queries ("Tell me the percentage of women at this site who are unem-

ployed and addicted to cocaine.” “How does my site compare to other sites in my region in regard to percentages of admissions with HIV?”).

There will also be an online course to assist administrators in understanding how to use data most effectively to improve quality of care at their facility. On a broader level, the data from the Web site and the DENS project could be important in giving state and national authorities real-time data on current needs and trends in substance abuse treatment.

The SA program of the future

Every substance abuse program will have computers and workstations for patients. These locations will have both computer-based CD-ROM programs and Internet programs. Administrators will have immediate access to Web-based knowledge programs. These scientifically derived programs will offer users best-practice input based on information about the demographics, needs and structures within a given treatment environment.

Similar tools will be available to clinicians in helping them to tailor the ideal treatment program for a particular patient. These tools will also help clinicians identify appropriate external treatment and community resources such as legal aid and vocational assistance. In addition, clinicians will be able to tap into evidence-based treatment plans that are tailored to patients who have been determined to have certain needs.

Ten years from now, when Internet2 (44 times faster than a typical telephone connection to the Web) is available, substance abuse care will take another great leap forward. Once Internet2 is widely

available, our programs will move close to what is being called “tele-immersion.” This is a larger-than-life, 3-D hologram similar to what you saw in the Star Wars movies.

Although we are just beginning to move up the technology adoption curve in substance abuse treatment, once this process begins to accelerate it will gain a momentum of its own. Clinicians and administrators in the future will be incredulous when they are told that there was once a time that technology was not a part of such treatment. ☺

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ing minimal education, sitting down to take the ASI-MV is the first exposure they have had to a computer. They worry about whether they will be able to understand what to do.

Brodie sits with them for a few minutes initially. She shows them how a mouse is used to click buttons to answer questions and advance through screens. Once the clients feel able to continue on their own, she leaves them to do so. The ASI-MV uses “virtual interviewers” on screen through videos, voiceovers and graphics.

“My clients also enjoy getting the certificate of completion,” Brodie said. This gets printed out at the end of the ASI-MV. For many, there is a feeling that they have operated a computer on their own for the first time, have completed something and have been recognized for it. ☺

