Automating Addiction Treatment: Experts Envision a More Technologically Enabled Care System

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The year is 2020. Addiction to alcohol and illicit drugs remains problematic for a substantial portion of the U.S. population. But salaries for substance abuse treatment counselors are so low that it is difficult to prevent them from leaving the field for jobs offering higher pay. So while drug and alcohol treatment programs exist, they serve only a tiny fraction of those in need.

While this scenario may seem extreme, the underlying need to reenvision addiction treatment services is a valid one. Our current service system is unsustainable. Demand for addiction services is growing exponentially, but the funds to run such agencies are decreasing. A new way of thinking is required to rebuild the addiction treatment infrastructure to take full advantage of today's available technology, as well as future innovations.

With this in mind, the Robert Wood Johnson Foundation funded a project that gathered creative thinkers from inside and outside the addiction treatment field for a retreat in November 2004 to envision a radically new system of effective

addiction treatment. Their charge was to design a fundamentally new addiction treatment system that reduces human care providers' involvement, while dramatically increasing treatment access.

Facing the challenge

One difficulty in envisioning such a new healthcare system is that the visionaries are often part of the existing inefficient system. It is daunting for people steeped in a current structure to think creatively about a new way of providing services.

Thus, part of the retreat's inventiveness was inviting 28 internationally respected experts in non-addiction treatment fields (nanotechnology, social psychology, robotics, and others), as well as service consumers (recovering addicts and alcoholics and their families), to a facility outside Chicago to think creatively and design a pioneering addiction treatment system for alcoholics and others who suffer from substance misuse. While the diverse group put a new spin on treatment, consumers provided their vital firsthand perspective.

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With this in mind, the experts mulled over creative new approaches resulting in the following scenario, which unfolds in a large American city in 2020. It imagines public health booths where addicts can speak with virtual substance abuse counselors and other concepts, suggesting some ways technology can alter the nation's substance abuse problems. The story follows the recovery journey of an addict named Janet.

Janet, on her way to her drug dealer, passes public health booths lining the streets, as she has many times before, but today she enters a booth and touches the on-screen image of a young woman about her age. The screen fills with an

image of a friendly young woman. Janet's virtual counselor, Selene, whose easygoing manner quickly puts Janet at ease. Selene is a software agent, not a human being; she's a computer-generated image. Throughout their chat, Selene treats Janet with dignity and respect, and talks openly about heroin addiction, and how she can help Janet through the rehab process.

Several weeks elapse, during which Janet visits Selene many times, discussing her addiction and the treatments she has tried. Selene provides Janet with a list of local licensed treatment centers that provide care focused on her issues and background. Janet accepts the offer and picks up an ID bracelet at a local treatment center. The bracelet stores information about her emotional history using sensors embedded in the bracelet that monitor Janet's behaviors, stress, strong feelings, and drug use. The bracelet wirelessly transmits the information to an Internet-based system that uses sophisticated analysis tools to detect patterns and suggest interventions. The data enable a team of experts to devise potentially effective interventions.

One day, after much trust building, Selene asks Janet if she would be willing to talk to one of the women behind the virtual image. Janet agrees and then hears a new voice (of a hotline worker), introducing herself as a "part of Selene," who helps direct Janet through an appropriate course of action.

Janet, taking the hotline worker's advice, enters a treatment program where she encounters unusual new technologies that put her in virtual spaces with people who look just like those who have caused her trouble in the past (such as her dealer). These simulations drive her to extreme responses like losing her temper and having panic attacks, which often have preceded her drug use. Through this repeated exposure, she starts responding better and gains confidence--reliving old patterns without using drugs to numb herself. Janet ultimately overcomes her addiction.

Janet has been off drugs for a year now. Selene calls Janet every now and then--whenever that sensors alert her that Janet is having a crisis--and that is a great comfort. Janet doesn't know if she might relapse, but she knows it is OK to visit Selene anytime--day or night.

Janet's road to recovery draws heavily on eight idea categories the retreat's panelists generated while visualizing future technology-based treatments for addiction, including:

* Integrated systems and records

* Monitoring/treatment devices capturing an addict's moods, triggers, and other risk factors

* Virtual experiences

* Treatment access and "one-stop shopping," providing a variety of addiction service locations

* Networks enabling addicts and alcoholics to use computer programs to contact other people similar to them in age and background

* Tailored media campaigns using personalized messaging and radio frequency identification (RFID) to detect a possible risk for relapse and dissuade people from drug or alcohol use

* Diagnostic tools

* Help for families, including means to track family member's health and emotional status

All of these visionary concepts provide insight into how the future can--and should--meet the present.

Another original by-product of the retreat was the idea of refining the present addiction treatment intake system through technology to reduce mountains of paperwork into easily digestible flowcharts that spotlight patients' critical factors and their paths to recovery.

Analysis and implementation

These ideas will be further analyzed and enhanced to understand which aspects can be used today, and which will require more basic research and development for future implementation. The goal is to move these visionary concepts closer to real application.

In the meantime, NIATx (formerly known as the Network for the Improvement of Addiction Treatment) is taking that first step toward innovation by offering simple but revolutionary solutions to get more people into treatment, keep them there longer, exploit existing resources more effectively, and reduce the cost of care. Using the latest communication technology in a project titled "Developing and Testing a Computer-based Alcohol Use Disorder Recovery System," NIATx is studying ways to reduce relapse. The system will focus on helping patients leaving residential treatment for alcohol dependence through a smartphone rather than a personal computer.

Cost, geographic distance, lack of peer support, and time constraints can reduce participation in aftercare programs focused on relapse prevention. However, this project is built on the premise that computer-based support systems can reduce these barriers by providing consistent 24-hour access to information and support. Program smartphones will offer more widespread access than personal

computers, provide optional audio delivery to improve access for those who have literacy challenges, and be tailored to relapse-prevention services. Study participants will have access to peer support groups and addiction experts through the smartphone, and they will receive reminders and individualized information through the smartphone to encourage adherence to therapeutic goals. They also will be able to access a care manager with just one touch of a button on the phone.

In short, NIATx is actively participating in the overarching theme that emerged from the retreat: Addiction treatment services can not only adapt to changing technology, but technology provides opportunities to make such services greatly more accessible and beneficial to addicts.

For more information, visit www.innovationsforrecovery.com.

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For more on promising treatment technologies, visit behavioral.net/shaw0606.

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