

## Helping Addicts: A Future Scenario

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*Developed through interaction with the working group: Renata Bushko, Victor Capoccia, Frank George Palesh III, Peter Szolovits, and Shiela Wang, with inspiration also from Wm. James Harrison, Betta Owens, Tara Palesh, Dave Gustafson, and the book Hooked by Lonny Shevelson*

Maria is a heroin addict. Every day she walks by the local public health booth (these are sprinkled around the city like AT&T phone booths used to be) and sees this image of a young woman on the screen, about her age, Hispanic like her, talking about how to get off heroin. One day she pauses to listen and hears about how she can get a bracelet to record her treatment, and get started today -- just stop in any booth to talk to someone (virtual). She's not sure she is ready yet.

The next week she hits bottom, and it's hell. She remembers that hopeful woman on the screen who had claimed to be a former addict, and goes back to the booth looking for her. When she enters the booth there are lots of characters on the screen -- young/old, male/female, different races. She touches the image of the young Hispanic woman and suddenly she fills the screen and greets her, introducing herself as Selene. Selene is very easy to talk to and treats Maria with dignity and respect. Maria likes her and answers all her questions (some that are just friendly getting-to-know-you and some that are more medically oriented). The interaction is not very long -- maybe 30 minutes, and Selene asks before it ends if Maria will come back to see her tomorrow. Maria says yes, and they say "bye" to each other.

Maria doesn't make it back the next day, but she comes back two days later and Selene looks happy to see her. She feels good to see Selene again.

*---many weeks later---*

Maria has visited Selene many times, discussing her Heroin use and all the treatments she has tried. Lately she has still been using, but it hasn't been as much. Selene has developed an online record of these interactions and asks Maria for permission to give her an ID bracelet that can provide this information at any licensed treatment center she goes to. The bracelet can be given out by any staff person -- it does not require an MD to dispense and she doesn't have to have an appointment. Maria accepts and gets a bracelet, which she picks up at the local treatment center.

*--remember this is 2021--*

This bracelet not only brings up a web page immediately with all of Maria's treatment history and medical history, but it contains sensors specific to her drug addiction and emotional history.

These sensors watch for patterns between her behaviors, stress, strong feelings, and drug use. The bracelet wirelessly transmits the sensor information to an Internet based system that uses sophisticated pattern analysis tools to detect patterns and suggest interventions. The suggested interventions are sent to a team of experts who focus on science-based analyses of patterns of activity, emotion, behavior, drug use, and treatments that have been shown to be most effective. Maria's data will now add to this growing collection of data, allowing what works for her to contribute to increasing knowledge of effective methods.

This team of experts culls the computer's suggestions, combines it with their theories and experiences, as well as with the computer's latest data about locally available resources, to make suggestions for appropriate interventions. These experts make the decisions about how to begin Maria's treatment. Then they feed the computer their plan, specifying parameters over which the computer has some freedom, and other parameters that would trigger calls to human experts.

Meanwhile, Maria visits Selene quasi regularly, really whenever she wants. She likes that she doesn't have to make an appointment, but can stop in whenever she feels she needs to talk, night or day. Selene is sometimes kind of dumb – sometimes, Selene jokes about how she is more machine than human, and that she doesn't understand everything Maria says. Maria knows Selene is a software agent, and she knows sometimes there is a person behind Selene, but she still likes her, and finds some of her quirks endearing.

One day, after Selene has detected signs of trust from Maria's answers, she asks whether Maria has a mobile phone -- she does and because she feels Selene cares about her and can be trusted, she shares her number with Selene. Selene asks how Maria would feel if she were to call her sometimes when she is using Heroin. Maria says that would be great. She is still trying unsuccessfully to quit, even though her use has gone down a lot since meeting Selene.

The next day Maria's boyfriend dumps her. She is so stressed she heads immediately for something to kill the pain. Just across the street from her dealer, her phone rings. It is Selene. Selene asks Maria if she's ok. Maria breaks down crying. Selene says some comforting words to try to help Maria regulate her feelings, but Maria is still out of control. She respectfully asks Maria if she would be willing to talk to one of the women behind Selene. Maria says yes, and a new voice appears (a hotline worker). This woman introduces herself as a "part of Selene," who knows Maria through Selene. She listens to what just happened to Maria and is very empathetic. She learns Maria is just about to buy drugs and gets her to promise to head in the other direction, encouraging her and telling her now is the hardest time and she can now test some of the things she has learned through her conversations with Selene.

She encourages Maria to go talk to her sister, whom Maria has told Selene about in the past. Maria agrees. Selene speaks too, and asks Maria to promise her to call her if she can't locate her sister right away.

Maria's sister also knows Selene. Selene has been sharing information that Maria said would be ok to share with her. Maria's sister also finds Selene supportive, but really prefers to talk with a woman Selene introduced her to, who has a sister who is a former Heroin addict. This woman lives in another city but gives her regular support, sharing stories of encouragement and new ideas for ways to support her sister. Some of their conversations are online, where they have given permission to share them with others who might be helped by them.

Eventually, Selene tells Maria about a program that will take Maria in and help her completely get off Heroin. Maria goes into the program and does great. She doesn't talk to Selene much

during that time, but Selene checks in with her occasionally and tells her she will be "on call" for her when she graduates if Maria wants. This is a new program that makes it clear that they do not expect patients to relapse. They treat patients with dignity and with respect, making them feel like they should do the same to themselves, making them feel like they really are worth all the effort it takes to keep trying.

When Maria graduates, Selene calls her to congratulate her. Maria knows that the real work begins now. In the program, they took her through very realistic simulations of great stress, ones where she shared the strongest triggers she has ever experienced, and they made them "come alive" in this virtual world. Some of these simulations put her in virtual spaces with people who looked just like those who caused her trouble. Many times these simulations drove her to extreme responses, and she did not like them at all. Sometimes they gave her nightmares and she had to cry out for help. But they were sobering, helping her see she wasn't ready to face those situations on her own yet. Through repeated exposure, she started to do better, and she became more confident. All those old patterns (that had been recorded by the sensors or identified by the people in the rehab center) and that triggered her drive to take drugs were relived, this time without the drugs. She now feels better prepared than ever, but she knows that this was not the real world, even though it was really close.

She does great on her own for months, with a new job and a new place to live. Then she gets a new boss who makes her life miserable. She feels an escalation of frustration and stress. Selene notices and calls her. She hasn't heard from Selene in months and it is so great to hear from her, even if she is just a machine. Selene suggests some things that Maria had forgotten about. Maria agrees to try some of them again. Maria is able to regulate her feelings using some of these things she had learned before; she just needed the reminder and the encouragement. Selene says she will check back with her tomorrow.

Maria has been off drugs for a year now. She hears from Selene every now and then, and once she heard from a woman behind Selene when her boyfriend dumped her and things went out of control again. It has been one of the hardest years of her life, and sometimes Selene has seemed a little weird, and she doesn't know if she will never relapse, but she knows it is ok to call Selene anytime -- night or day -- anytime. Unlike calling some of the human workers at the rehab center, it never feels like it disturbs Selene. In fact, lately she's been getting to know a friend of Selene's that she is finding more interesting than Selene. This new friend of Selene's reminds her regularly of things that she can do at this phase, things that reinforce what she learned earlier and that just make her feel hopeful.