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Taking On Addiction Treatment Fraud: Monitoring an Unregulated Industry with AI and Cognitive Science

Criminal operators are exploiting addicts for insurance reimbursements and prostitution. AI and cognitive science can analyze payer data to identify fraud, scaling in a way that human investigators cannot.

INTRODUCTION: STOPPING THE EXPLOITATION OF A VULNERABLE POPULATION

More than half a million people in the U.S. died from drug overdoses from 2000 to 2015,[1] and for Americans under the age of 50, drug overdoses now are the leading cause of death.[2] The market for addiction treatment in residential programs and sober-living homes is an estimated $35 billion annually.[3] Astonishingly, addiction treatment operations are unregulated, unmonitored and unsupervised.

While the vast majority of addiction treatment centers are legitimate, criminal elements have gained a foothold in the industry. Because health insurance payers reimburse addiction treatment providers for activities rather than outcomes, each addict becomes a source of insurance payments for services that may or may not actually be provided, including over-priced urine and saliva tests, psychotherapy, medications, DNA and allergy tests, yoga instruction and more.

Brokers recruit people with substance-use disorders to treatment centers and sober-living homes in exchange for a percentage of insurance payments. Outcomes don't affect reimbursements, so operators allow addicts to continue taking drugs. Some operators earn extra income from prostitution by drugging and confining female addicts.

These "addiction brothels" exact a large toll on the economy and public health. The cruelest cost is human exploitation. Addicts who find themselves in these centers do not receive treatment, which lessens the likelihood of recovery. What's more, they may return home to thousands or tens of thousands of dollars of debt for their portion of (unnecessary or fake) treatment bills.

This white paper proposes a two-part solution to root out and shut down addiction brothels. Step one is creating a central clearinghouse where all payers can submit reports of suspicious insurance transaction activity. Step two is using artificial intelligence (AI) and cognitive science to identify and prevent fraud.

STEP 1: ESTABLISH A CENTRAL CLEARINGHOUSE FOR SUSPICIOUS ACTIVITY REPORTS

Here's the good news: data that reveals addiction-related fraud is already available. Private and government payers maintain a rich transaction trail that shows which operators billed for which services, on behalf of which members, at what intervals (see Figure 1).

But a single payer's data sheds light on only a small slice of the problem. For example, a single payer might not notice that a few members repeatedly check in and out of the same three recovery centers. If all payers shared their data in a central clearinghouse, the number of affected members could total hundreds or thousands, making red flags harder to miss.

We can look to the financial services industry for a clearinghouse model. Federal government requires financial institutions to report any transaction with certain characteristics – such as a large cash withdrawal – in a suspicious activity report (SAR). The U.S. Financial Crimes Enforcement Network (FinCEN) agency reviews SARs to determine which to investigate. Consolidating SARs from different financial institutions in one place enables FinCEN to identify patterns that extend beyond a single financial institution.

We propose that the U.S. government pass a regulation requiring healthcare insurance payers to file insurance SARs (iSARs) reporting suspicious health coverage activities. The identity of people filing the reports would be kept anonymous.

Transaction Trails Can Reveal Insurance Fraud
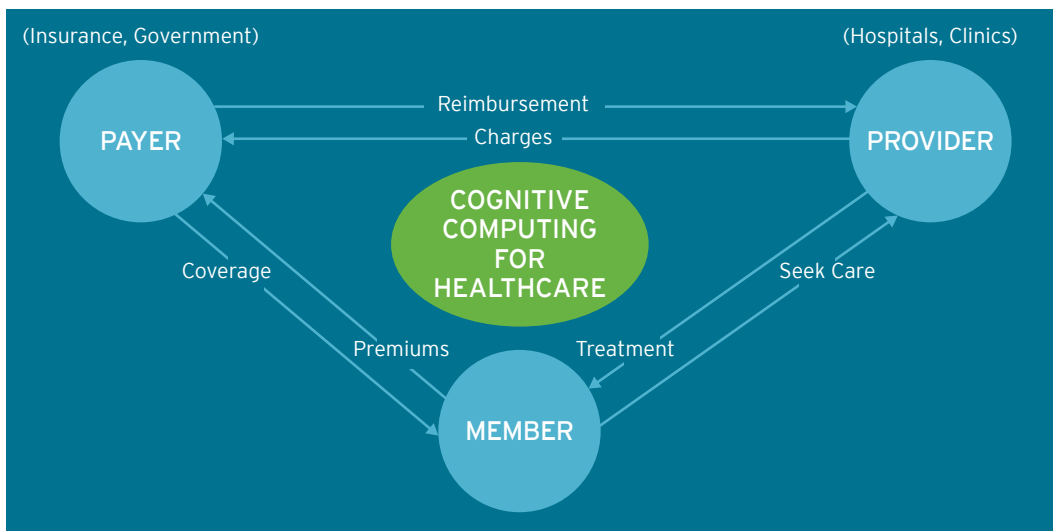
Healthcare Ecosystem

Figure 1

STEP 2: UNCOVER INDICATORS OF EXPLOITATION USING AI

Humans can quickly be taught to recognize patterns in healthcare insurance claims that point to human trafficking. The challenge isn't the complexity so much as the volume. Providers submit millions of insurance claims each day, and human investigative teams can't economically operate at this scale.

Traditional analytics software isn't the answer because it can't recognize complex patterns associated with addiction industry fraud as well as the human brain.

The solution lies in AI and cognitive science, which mimic the human brain. Different types of cognitive computing techniques solve different aspects of the addiction treatment fraud phenomenon (see Figure 2).

Identifying Anomalous Relapse Behavior

People with substance use disorders typically relapse multiple times before becoming sober.

Frequentist, inference and network computation techniques can distinguish between normal and anomalous recovery patterns:

- **Normal pattern:** Michael goes into rehab, gets sober and then relapses after one month. He re-enters a treatment center in the same metropolitan area for treatment, checks out, and this time remains sober for six months. A year goes by before he relapses again. Michael is struggling, but he's on a recovery path.

- **Anomalous pattern:** Matthew checks into rehab in Florida. Several weeks later he checks himself out against medical advice. Soon after, he enters rehab in New Jersey. Two weeks later, he's back at the Florida facility. Matthew has the characteristics of someone being trafficked. Competing addiction brothel operators may be recruiting Matthew (who has good insurance) off the street and then transporting him by car or plane to their own facility.

Cognitive-based Solutions Identify Signs of Fraud In Addiction Recovery Centers
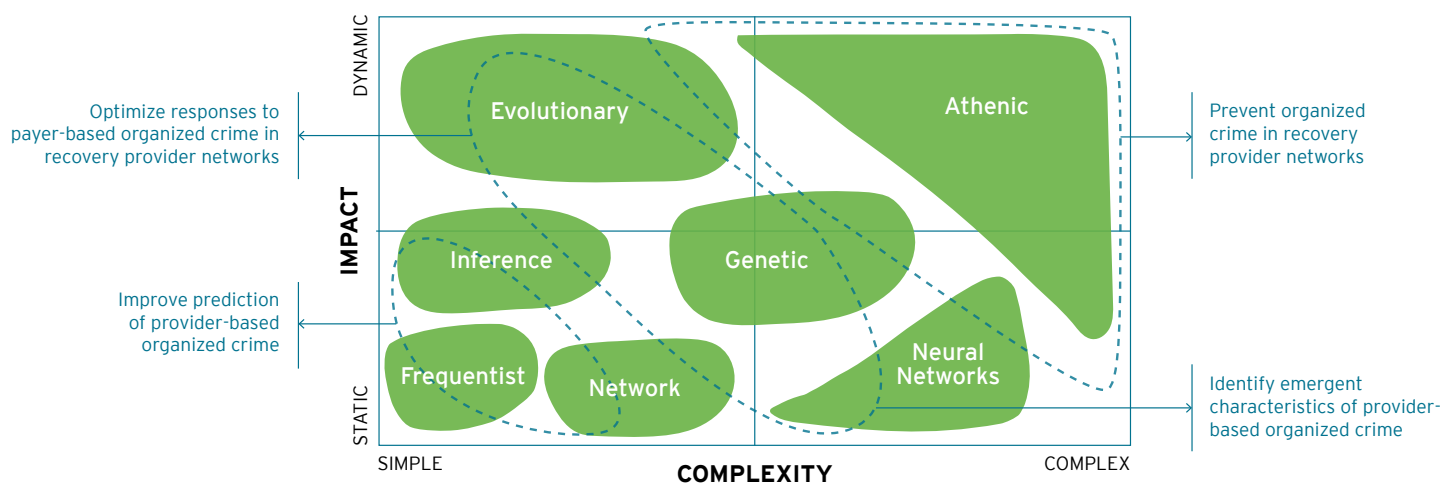

Figure 2

Identifying Criminal Networks

Some addiction industry criminals operate a network of treatment centers, sober homes and sometimes labs. Addicts with different insurance plans may move around among facilities in this network.

Cognitive science can identify the people who are the common link between different networks. An example is Kenneth Chatman, a convicted addiction brothel operator in Florida (see Quick Take).

QUICK TAKE

Profile of an Addiction Brothel Operator

From 2012 to 2016, Kenneth "Kenny" Chatman operated drug treatment centers and sober-living homes in two Florida counties. Chatman billed addicts' insurance providers for medication, unnecessary urine and saliva tests, allergy tests and more.

As many as 90% of addicts in his homes openly used drugs, some of whom were rewarded with drugs for recruiting other addicts. Chatman also drugged female addicts and kept them in shackles for his side business in prostitution. In May 2017, Chatman pleaded guilty to three federal offenses of conspiring to commit healthcare fraud, money laundering and sex trafficking. The U.S. District Court sentenced him to 27.5 years in federal prison.

Predicting High-Risk Providers

Cognitive science can also identify addiction center operators at high risk for turning to criminal activity. A model comes from health maintenance organizations that use cognitive science to identify clinicians at risk of issuing prescriptions for a fee.

Artificial neural networks analyze clinicians' social, political and economic influences to look for risk factors, such as a declining credit score, fading social media presence, increase in written prescriptions and other factors that the neural networks discover over time.

Reducing Vulnerability to Addiction Treatment Fraud

The cognitive computing methods described above help to identify fraud. The ultimate goal is to prevent fraud from occurring in the first place.

Is the most effective approach to switch from activity-based to evidence-based reimbursements? Regulate the industry? Provide safe harbors for payers to report suspicious activity to federal government? Evolutionary programming and genetic algorithms can suggest solutions and predict their effectiveness.

CONCLUSION

On the spectrum of organized crime, addiction treatment fraud is especially heinous because it exploits a vulnerable population: people with a brain disease who are making an effort to recover. The cost to society includes inflated healthcare costs, delayed treatment that worsens the likelihood of recovery, and anguish for families.

Healthcare insurance payers have the data to root out criminals but lack the manpower. AI and cognitive science solve the *urgent* problem, identifying the signs of human trafficking, so that people can focus on the *important* problem – helping people with substance use disorders become sober and reclaim control over their lives.

FOOTNOTES

[1]   "Understanding the Epidemic," Centers for Disease Control and Prevention, https://www.cdc.gov/drugoverdose/epidemic/.

[2]   Josh Katz, "Drug Deaths in America Are Rising Faster than Ever," *The New York Times*, June 5, 2017, https://www.nytimes.com/interactive/2017/06/05/upshot/opioid-epidemic-drug-overdose-deaths-are-rising-faster-than-ever.html?_r=0.

[3]   "Projections of National Expenditures for Mental Health Services and Substance Abuse Treatment," U.S. Department of Health and Human Services, 2008, https://store.samhsa.gov/shin/content/SMA08-4326/SMA08-4326.pdf.

ABOUT THE AUTHOR

Jerry A. Smith is Vice-President of Data Sciences at Cognizant. He is a practicing data scientist with a passion for realizing business value through enterprise data sciences services. Prior to Cognizant, Jerry was the North American Chief Data Scientist for Capgemini. He has a Ph.D., masters, and bachelor of science in computer science, with theoretical and practical experiences in artificial intelligence. Jerry can be reached at Jerry.Smith@cognizant.com | LinkedIn: www.linkedin.com/in/drjerryasmith/.

Jerry A. Smith

Vice-President of Data
Sciences, Cognizant
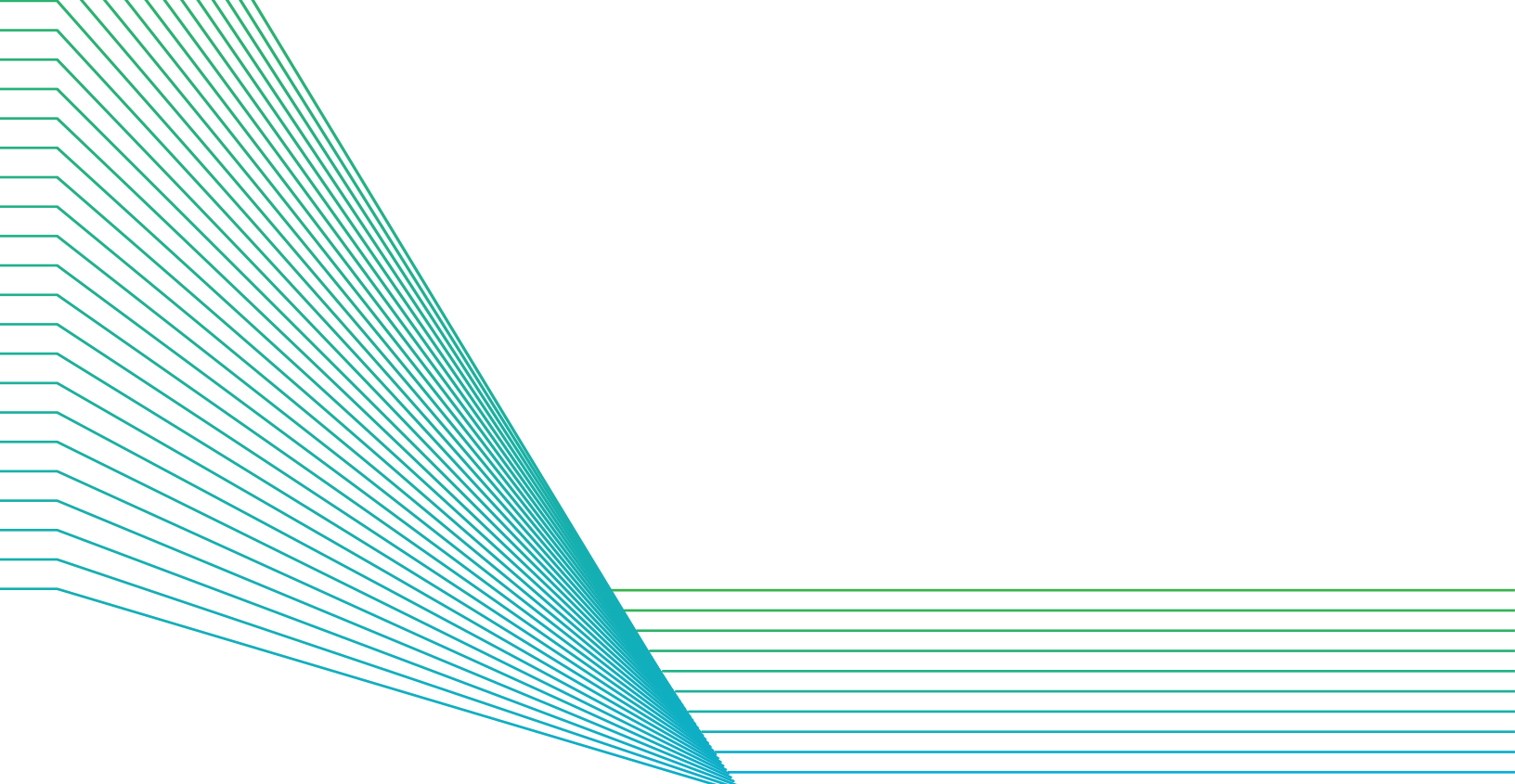
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Cognizant

World Headquarters

500 Frank W. Burr Blvd.
Teaneck, NJ 07666 USA
Phone: +1 201 801 0233
Fax: +1 201 801 0243
Toll Free: +1 888 937 3277

European Headquarters

1 Kingdom Street
Paddington Central
London W2 6BD England
Phone: +44 (0) 20 7297 7600
Fax: +44 (0) 20 7121 0102

India Operations Headquarters

#5/535 Old Mahabalipuram Road
Okkiyam Pettai, Thoraipakkam
Chennai, 600 096 India
Phone: +91 (0) 44 4209 6000
Fax: +91 (0) 44 4209 6060

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