

MEDICAL IMPLANTS FOR BEHAVIOR CONTROL
AS A CRIME PREVENTION STRATEGY.

Article

By

Deputy Chief Rick Braziel
Sacramento Police Department

Command College Class XXXIII

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Little Missy Barnes laughs and giggles as she blows soap bubbles out into the street in front of her home. Her mother had just stepped inside to change the diaper of Missy's little brother John. Missy is a very proud six-year-old big sister and she lets everyone she meets know it. Today it's the nice man who looks like a grandfather walking down the street. She greets him with a proud smile as she stands up tall and blows another stream of bubbles into the street. He approaches Missy, returns her smile, stops and asks Missy where her mother is. Missy, with a sour expression, tells him that her mother is in changing the diaper of her little brother John.

Julie Barnes, with John on her hip, strolls out the front door onto the porch. With John giggling and pulling at her earring, Julie takes a few seconds to realize that something doesn't appear right. She stops walking as she notices that Missy is no longer in the front yard. The pink plastic bottle of bubble mix has spilled on the sidewalk and the round bubble disk is in the middle of the street. Julie yells for Missy as John starts to cry. Missy doesn't answer because Missy has just become another victim of James Doe.

The suspect in the kidnap and murder of Missy Barnes, James Doe, is killed three weeks later in a shootout with local police. Doe's criminal history includes prior arrests for kidnapping, rape and annoying children. Doe was on parole at the time of his death and was considered a violent sexual predator. According to his parole officer, "Doe is likely to reoffend." His psychiatric reports list bipolar schizophrenia along with sexual disorders. He is buried in a pauper's grave to be remembered only by his victims and their families.

Environmental Scan and Literature Review

The events described are fictional only because they are not based upon an actual event but hundreds of similar events that have happened in the last several years across America. As America focuses on terrorism, foreign and domestic, the headlines that are becoming commonplace are lost in the background.

Crime has been characterized as needing three essential elements: a victim, a location and an offender. This triangle of crime identifies 10% of the offenders committing 55% of all crimes (Community Policing Consortium, n.d.). If any one of the three sides of the triangle is missing, then crime does not occur. Law enforcement educates community members on methods to reduce their chances of becoming a victim. Locations are reviewed for environmental improvements and crime prevention strategies. The offenders are targeted for aggressive enforcement and profiled in the public.

But are the strategies developed and utilized over the years keeping up with technology and the demands of the community? Community Oriented Policing (COP) strives to form partnerships that allow the police and the community to develop strategies that will ultimately improve quality of life. Problem-solving strategies are seen as the tool to accomplish the goals and mission of COP (Goldstein, 1990).

In reviewing the kidnap and murder of Missy Barnes from the crime triangle perspective, the following issues were identified. The victim Missy Barnes was six years old. She had been told not to talk to strangers and to call out for help. She was told by her mother to kick and scream if anything was to happen to her. Missy was given all the information a six-year-old could process and effectively cope with. When James Doe approached, she saw him in the same

way she saw the dozens of people who walked past her home weekly, a friendly neighbor who would smile at how cute she was. She tried to escape by kicking and screaming, but the man was too powerful.

The opportunity was created when Julie Barnes left Missy alone for three minutes while she changed baby John's diaper. But should parents constantly live in fear and lock their children in their homes? Some may say yes and focus most of the problem solving efforts in the area of opportunity. After all, it is difficult to distinguish good people from bad. Or is it?

The third area of the crime triangle is the offender. Much effort has been put into problem solving related to criminals. Proactive enforcement has identified many offenders early on in their criminal careers and sent them off to jails and prisons. Many offenders receive probation or parole which acts as a deterrent in addition to giving law enforcement professionals the opportunity for selective enforcement. Many problem-solving efforts that focus on the criminal are reactive in nature, responding to a problem in the hopes of becoming proactive by preventing a future action or event.

The lack of creativity and focus on police-community partnerships tend to limit law enforcement response to the offender side of the crime triad. Law enforcement and the community view themselves as jurisdictionally based. The priorities for problem-solving tend to be directed at efforts in the immediate community. There is also tremendous pressure from the community for immediate results within its boundaries. This results in a failure to look at external partnerships. Instead, law enforcement focuses attention on the opportunities and victims in hopes of catching the suspect prior to completing a criminal act or, better yet, by displacing someone whom the community deems as a threat to their quality of life.

In a cursory review of the Missy Barnes abduction and murder one could conclude that the result was a failure for law enforcement. Doe was a three-strike candidate who had previously been identified as a potential re offender. James Doe was able to reoffend in the worst possible way: the kidnapping and murder of a small child. Unfortunately, agencies lack the resources for continuous surveillance of potential reoffenders and civil rights groups publicly criticize such efforts as harassment and violation of constitutional guarantees.

Doe had a tendency toward violence that was readily identifiable through court documents. He had been admitted to several mental health facilities throughout his adult life. The mental health staff had identified behavior disorders that caused antisocial behavior including a tendency toward sexual aggressiveness and violence. Doe responded well to medication while in mental health facilities but would not continue with any self medication routines. Doe was a transient moving from place to place who stayed in Northern California. He was an unskilled laborer who couldn't hold a job for more than six months.

Logic would indicate that if Doe's tendency toward sexual aggression and violence was identified and treated, he may not reoffend. A hypothesis could also be asserted that without these tendencies he may also be able to hold a job and become a productive member of society. A goal of community policing is improving the quality of life in communities. Therefore, focusing on permanently resolving Doe's antisocial and criminal tendencies would assist in accomplish this goal.

Genetic Theory Research

Genetic research is helping to identify characteristics that differentiate individuals as well as characteristics that may be predictive, including but not limited to disease, violence and disabilities. Individual genetic makeup is passed from generation to generation through the genes that comprise DNA. These genetic codes consist of proteins which instruct cells to process enzymes that control metabolic process and development.

DNA was first discovered in 1869 and the term gene used in 1909. Eighteen years later in 1920, the theory was set out that chromosomes served as the method by which individual characteristics are inherited. In 1953 the structure of DNA was determined and the first single gene isolated. Genetic engineering began in 1973 and the transfer of a gene from one animal to another occurred in 1981. Serious scientific breakthroughs started to redefine genetic theory in the 1990 when mice were cured of cystic fibrosis through gene therapy and in 2000 when the first draft of the human genome was completed (Carrington, 2000).

The Human Genome Project was started in 1990 as an effort to interpret and identify the human genetic code. The human genome contains approximately three billion DNA nucleotides that then form 30,000 to 80,000 protein-encoding genes. The initial steps have been completed and the remaining components are estimated to be completed by 2003 (Tarr, 2002).

Genes determine how minds and bodies will develop, function and breakdown. Some people may carry a gene for developing heart disease, obesity or cancer while others carry the gene that protects against the above. Genes are not always bad; individuals may possess the gene that allows them to excel at long distance running, the arts, intellectual endeavors or nurturing.

Behavioral research scientists have discovered a gene that appears to help explain why some boys who are abused or mistreated are more likely to grow up to be aggressive, antisocial or violent as adults. The gene regulates chemical balance in the brain (Vedantam, 2002). In addition, researchers at Purdue University believe they have identified a gene that causes aggressive behavior in hogs (Huppke, 2001). Similar research in mice has identified a genetic variation that has been linked to aggressive behavior. The study also linked the aggressive behavior with a small study conducted in 1993 that identified a rare mutation in the gene across three generations of one family in Holland, which was linked to both violence and mental retardation (Vedantam, 2002).

Pedophilia may also be linked to identifiable genetic markers or irregularities. For decades researchers have been trying to identify unique characteristics of pedophiles. Preliminary results have associated abnormalities in brain cells or sex chromosomes of pedophiles. Additionally, those who work with offenders compare pedophiles with people addicted to drugs, alcohol or gambling (Brown, 2002).

Admittedly, the fictional story of the abduction and murder of Missy Barnes is a rare occurrence in California where just 57 children were abducted by strangers in 2001. However, there were more than 10,000 reported sexual crimes against children in California during the same time period: a number that hasn't changed much in six years (Brown, 2002). The effects on society of those with some type of behavior disorder are significant. According to the Substance Abuse and Mental Health Administration, there are 27 million Americans are chemically dependant (Brevetti, 2001) of which more than 1.1 million are children aged 12-17 years (Leinwnad, 2002). Additionally, according to Harvard professor J. Allan Hobson, more than two

million Americans are suffering from mental illness and not receiving the appropriate level of care (Johnson, 2002). Included in some of the numbers reported are those who also commit crimes. In California there are more than 96,000 registered sex offenders, a list that grows by 400 each month (Brown, 2002).

Research in the fields of genetics, behavior disorders and pharmacology have shown great promise. The Human Genome Project, which mapped the human genetic structure, has provided researchers with the opportunity to link gene variants with specific disorders or those that work together with other factors to cause disease (Recer, 2002). The American College of Neuropsychopharmacology reports that psychiatric or behavior phenotypes are subject to genetic influence and that the influence is often substantial. The report also discusses the considerable progress in mapping genes that influence risk for major psychiatric disorders (Gelernter and Goldman, 2002).

The identification and understanding of genes that control the synthesis, storage, release, conservation and metabolism of neurotransmitters responsible for behavior are some critical steps in the ultimate treatment process. The knowledge gained will allow researchers to discriminate between normal mental activity and the pathological mental states of emotion, cognition, and perception. Researchers can then precisely target cells within selected circuits to influence specific systems that mediate or generate behaviors (Bloom, 2002). Once the target is identified, treatments can be prescribed that influence the behavior based upon predetermined neurotransmitter behavior. While this may not seem new, drugs for centuries have been used to influence behavior. The genetic links to behavior will allow for proactive treatments aimed at unique neurotransmitter stimuli without influencing uninvolved transmitters and receptors.

A critical issue with medical treatment as a form of behavior control is the delivery system. Many individuals in need of medication to control behavior fail to self-medicate and, as a result, continue with antisocial or criminal behavior. Implant technology appears to be a viable option.

Implants have taken all types and forms. The National Institutes of Health on January 5, 2000 announced that eight to ten percent of Americans have a permanent medical implant. As an example, biomedical engineers have developed a prototype neuroprosthesis that a quadriplegic can use to grasp and manipulate objects just by thinking about it. The experimental device combines muscle-stimulating electrodes implanted under the skin with a computer sensitive to brain waves. Brain signals activate the electrodes that cause the hand muscles to contract (Blanchard and Peckham, 2000).

In advanced Parkinson's cases, an electrode can be implanted in the brain to relieve movement difficulties by delivering precise pulses of electrical stimulation. University of Rochester Medical Center researchers claim that the brain pacemaker holds promise for other neurological conditions (Noonan, 2002).

Artificial muscles used in conjunction with implants create what researchers are calling smart pills. The muscle has the ability to contract and relax based on predetermined stimuli. The muscle surrounds a capsule containing medication that dispenses a predetermined dose based upon the electronic or chemical stimulus generated (Madou, 2002). Independently, or combined with electronic stimulus devices, the technology has tremendous opportunity to limit or control the violent tendencies of criminals.

Genetic research combined with pharmacological advances and implant technology will create vast opportunities to improve the quality of life for individuals and communities. Law enforcement has been viewed as a leader in creative problem-solving. It is incumbent on law enforcement to look into the future and forecast possible scenarios where medical implants can be used as a behavior control strategy to reduce crime. This research project identifies potential scenarios and the strategies necessary to implement the use of this technology.

Combining all of the technologies discussed in this research has the potential to create the following alternative scenario for little Missy Barnes:

James Doe, out for his morning walk spots Missy Barnes blowing soap bubbles into the street. Subconsciously Doe's neurons start firing sending out a stimulus that if left unchecked would trigger a violent sexual desire. However, before the stimulus is received, an artificial muscle surrounding an implant releases an electric impulse that suppresses the violent emotional trigger. A second implant surrounded by an artificial muscle releases a psychoactive drug used to treat psychiatric and neurological disorders. The drug has the added side effect of an impaired libido (Pfaus and Everitt, 2002). Doe, based on his genetic markers, has been implanted with three safeguards that subconsciously retard criminal behavior. Doe returns Missy's proud smile as he passes by on his way to Starbucks for his morning coffee. Minutes later Missy's mom, Julie Barnes, returns to the front yard with John on her hip. Missy again smiles proudly as her favorite audience returns.

Genetic markers can be identified in individuals prior to abnormal behavior. The ability to identify and treat someone before behaviors occur has tremendous potential. Many caution against the use of genetic research as a panacea, pointing out that there are other contributing factors in addition to genetics that influence behavior. However, the same critics forecast that genetic identification of antisocial behavior will lead to early directed service care (Vedantam, 2002). Others see the genetic link to behavior as an opportunity for great things (Bloom, 2002).

Many of the problems that plague communities involve individuals with some type of emotional or personality disorder. Some estimate that those suffering from disorders are seven times more likely to come in contact with law enforcement officers (Bellah, 2002). As agencies struggle to train officers to handle mentally disabled individuals (Hughes, 2002), a more proactive problem solving approach needs to be taken.

The capacity and resources of the criminal justice system are set up to respond to an event more than preventing the event. The ever-expanding knowledge of genetics will change this imbalance in law enforcement. Research has demonstrated that there is a genetic link to behavior. Research has also identified pharmacological solutions to specific behavior abnormalities. Combining these two areas of research with medical implant technology opens the door to specific genetic behavior therapy through medical implants. It is now time for both law enforcement and medicine to partner and use medical implants for behavior control as a crime prevention strategy.

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