



Customer Story

The Wedinos Project Uses Innovative Technology to Provide a Pragmatic Approach to the Age-Old Problem of Drug Use

Background

They have names like "Orange Krush," "Meow Meow," "Molly," and "Ivory Dove." Among the hundreds of designer drugs readily available over the Internet, psychoactive substances that mimic the effects of everything from cannabis to cocaine are being ingested, smoked, and injected by millions of users seeking a cheap legal high. Buyers cannot seem to get enough of them. In the European Union, alone, there are an estimated 25 million users between the ages of 15 and 24 who admit taking the drugs regularly, according to the *2013 World Drug Report* issued by United Nations Office on Drugs and Crime. Manufactured in Eastern Europe and Asia, these drugs are being introduced at such a rapid rate that law enforcement agencies simply cannot keep pace with what is legal and what is not. The result is many of these compounds remain on the market until authorities finally crack down on specific substances. Even then, back alley chemists simply alter a single molecule in the formula to create a new –

and legal -- version of the substance, which is back on line within days. Other synthetics are disguised as something entirely different, such as the now infamous bath salts, which actually contain mephedrone, an illegal compound that has led to psychotic, often violent behavior and hundreds of deaths around the world. Call it chemistry gone wild, but health and law enforcement officials worry that they have a global epidemic on their hands.

PerkinElmer's AxION® platform powers the world's first public health initiative to give drug users and others rapid and accurate substance information to reduce harm to themselves, their families, and to the community at large.

The Wedinos Project

While many countries continue to debate psychoactive drug policies and policing, one government-sponsored project launched by the tiny country of Wales in September 2013 is already gaining worldwide attention for its no nonsense, harm-reduction approach to drug use, treatment, and public outreach directly to drug users and dealers themselves.

Called Wedinos, meaning “after dark,” the Welsh word also serves as an acronym for Welsh Emerging Drugs and Identification of Novel Substances. Wedinos is an outgrowth of an informal initiative first coined and created in 2009 by Dr. David Caldicott, then an ER physician at Neville Hall Hospital in Gwent; Dr. Alun Hutchings, head of the Cardiff Toxicology Laboratories at nearby University Hospital Llandough; and Dr. Andrew Westwell, a pharmaceutical chemist at Cardiff University’s School of Pharmacy and Pharmaceutical Sciences. Together the three developed a mechanism whereby samples of unknown or unidentified drugs were provided by patients at Neville Hall Hospital and tested at the Cardiff Toxicology Laboratories using standard gas chromatography-mass spectrometry (GC/MS) and NMR spectroscopy. The drugs were then profiled and mapped with special attention paid to any trends, harms, and potential risks associated with each psychoactive substance. Eventually, the three men hoped the data would be shared throughout Wales and beyond as part of a harm reduction approach to substance use that is based on a strong commitment to public health principles. “You can advise people not to use this stuff for as long as you like, but they will continue to use it,” Dr. Hutchings explains. “The biggest impact we can have on their health is to keep them informed about what they are taking, starting with is it legal and whether or not it is safe.”



Dr. Alun Hutchings, head of the Cardiff Toxicology Laboratories at University Hospital Llandough.

Following Dr. Caldicott’s move to Australia in 2013, Public Health Wales, with the support of the Welsh government, took the early work of Wedinos forward along with Dr. Hutchings and Dr. Westwell, and has since expanded the project to be national in scope. Dr. Caldicott remains on the organization’s board and Drs. Hutchings, Westwell, and three additional professionals, including a healthcare scientist, a project manager, and a substance misuse program leader, currently serve as the Wedinos staff.

PerkinElmer’s AxION 2 TOF Platform is a Game Changer for Wedinos

The Cardiff Toxicology Laboratories handle a mixture of therapeutic drug monitoring tasks, conduct occupational toxicology and forensic testing for companies and various authorities, and provide substance misuse testing, which in itself accounts for nearly 60 percent of the labs’ workload with community addiction facilities. “So Wedinos is really an outgrowth of that process,” Dr. Hutchings says. “We were routinely engaged in looking for psychoactive substances in urine samples from individuals already under treatment. Even before Wedinos came along, we were regularly screening for about 24 psychoactives using a GC/MS system.”

That process, however, was very time-consuming. “It is really not good if it takes weeks to investigate a compound, because we would miss the window of opportunity to influence the people who are actually using these substances,” Dr. Hutchings says. “We needed a way to get results very quickly, so we started to look at a number of instruments that claimed to screen compounds rapidly.”



The AxION platform is used for collecting and testing samples, and informing Wedinos user of the results.

“The lab looked at other competitive solutions, but it really liked our AxION direct sample analysis feature because of its speed, ease of use, and accuracy,” says Sean Daugherty, EU MS Technology Manager for PerkinElmer. Daugherty adds that the AxION solution is manufactured and fully integrated by one company— PerkinElmer. Better yet, it requires minimal to no sample preparation, which makes it ideal for high volume labs.

“We did look at several other systems apart from the AxION DSA platform”, Dr. Hutchings says, “but, they did not offer the convenient or efficient analytical approach we were looking for”. Dr. Hutchings says, adding that the final decision was a pragmatic one. “It was strictly related to what instrument could provide us with what we need, which is to analyze and give us an answer on the substances we test the day we receive them, because we want to post those results within three days of their receipt. The AxION DSA does that for us very well.”

The AxION platform, which includes the AxION 2 TOF mass spectrometer, Flexar FX-15™ UHPLC, and AxION DSA™ Direct Sample Analysis system, works so well that the majority of substances tested by the Cardiff Toxicology Laboratories have been correctly identified within an average of 15 seconds.”

Looking to the Future

In late 2013, the Welsh government introduced Wedinos to a national audience through a series of eight launch events held around the country. Public Health Wales said that Wedinos will not only monitor trends in the use of new drug substances, it plans to aid in preventing the harms associated with new psychoactive substances and provide targeted information and advice to drug users. This initiative is a three-pronged effort built on providing anonymous sample testing, publishing sample results quickly for public access on the Internet, and providing straightforward substance information through an aggressive and ongoing public service campaign, including radio, television, and online spots.

Looking ahead, Dr. Hutchings is quick to share his hopes for Wedinos. "We would like to have Wedinos continue to play a major role in how psychoactive drugs are handled throughout the UK," he says, pausing briefly as if to take in the bigger picture of what has transpired with its development over the past five years and the worldwide publicity it is now receiving. "I have no doubt that the success of Wedinos is in part due to PerkinElmer's AxION platform," Dr. Hutchings says. "It allows us to test substances to give individual users and others rapid and accurate information to reduce harms within 72 hours. That is essential to our credibility and to our success as a public health service."

The screenshot shows the WEDINOS website interface. On the left is a navigation menu with links: Home, Sample Testing, Sample Results, Substance Information, Harm Reduction Advice, Newsletter, Register for Updates, and About Us. The main content area is titled 'SAMPLE TESTING' and contains text explaining the anonymous submission process. It states: 'You are able to independently and anonymously submit a sample for testing to the WEDINOS project by downloading, printing and completing the Sample and Effects form and sending, together with your drug sample, to Toxicology. The mail system prohibits the posting of controlled drugs and narcotics. Do not knowingly submit samples of controlled drugs via the postal mechanism. Do not submit any paraphernalia e.g. barrels / pipes / syringes. Samples contained within these items will not be analysed.' Below this, it offers two options: 'Option 1: Download and print a Sample & Effects record' and 'Option 2: Where to pick up a Sample & Effects pack'. There are images of the 'Sample and Effects' form and a 'WEDINOS' logo. On the right sidebar, there are sections for 'EWS Alerts' (listing a chemical name: (1R)-1-(aminocarbonyl-2-methylpropyl)-1-(2-(2-oxo-3-oxoindolizin-3-yl)carbamoyl)-1H-indazole-3-carboxamide (AB-CHINAACA)), 'News' (mentioning a change to the Misuse of Drugs Act 1971), and 'Tweets' (with a 'Follow' button and a tweet from @WEDINOSProject).

Wedinos website, where samples can be submitted anonymously.

For additional information on the Wedinos project and its pragmatic approach to drug use, visit: <http://www.wedinos.org>. Information about PerkinElmer's AxION family of instruments can be found at: <http://www.perkinelmer.com/Catalog/Family/ID/AxION%202>.

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