

**Champaign County Probation and Court Services  
Department EyeCheck™ Pupillometer Pilot Study**

**December 2002**

# EYECHECK COMPARISON

## **WHAT IS EyeCheck?**

The MCJ EyeCheck Pupillometer website, describes the EyeCheck Pupillometer as “a lightweight, hand-held instrument that measures the absolute pupil dynamics to presumptively detect drugs and intoxicants...With immediate results.” The instrument is used by law enforcement, corrections (including probation and parole) and the instrument is used as a tool in private employment testing.

## **WHAT PROMPTED A REVIEW OF THE EyeCheck INSTRUMENT?**

Several months ago, a sales representative from MCJ EyeCheck contacted the department and asked if we were interested in previewing a pre-screening drug-testing tool. In a subsequent conversation, the department agreed to test the instrument for 30 days in an attempt to determine the accuracy of the instrument. At that time, we knew very little about the instrument capabilities; however, the offer was very appealing. Accordingly, on 11/22/02, the Champaign County Probation and Court Services Department agreed to conduct testing on the Eyecheck instrument. After a brief training period conducted by the EyeCheck representative, three officers from the department were assigned to conduct testing. The training was not intended to be in-depth, but was sufficient to provide officers with a general understanding of how to use and interpret results. Department protocol for the drug testing process was established. In essence, if an adult offender was tested on EyeCheck, he/she was also to be tested on our AXSYM. Each test result on EyeCheck was later compared to the results obtained on the AXSYM. A review of test results, using two separate instruments (EyeCheck and AXSYM) was then evaluated following the term of the testing period. Initially, the intent was to compare results on approximately 100 samples. Since the department was afforded a longer period to test the instrument, 169 samples were actually compared.

By comparing the results of the EyeCheck against results of FPIA testing via the AXSYM drug-testing instrument of Abbott Labs, we hoped to get an idea as to the feasibility of using the apparatus for the department. The drug-testing instrument we presently use is the AXSYM. It is a proven and an accepted instrument-based testing mechanism; commonly used by hospitals and clinics. The AXSYM instrument provides an exact numerical result in nanograms per milliliter NG/ML.

## **WHAT ARE THE ADVANTAGES TO USING THE EyeCheck INSTRUMENT?**

In addition to the information previously noted, the instrument is lightweight and portable. Consequently, the instrument could be used at a number of locations. In addition to the viewing instrument and the EyeCheck software, the only other component of the system is the computer (we used a laptop during the testing period). The testing process is non-invasive (eliminating the need for officers to handle hazardous body fluid, or view the collection of urine) and very little amount of time is necessary for training on the instrument. Upon being trained, EyeCheck is easy to use and provides almost immediate results. All data is collected, recorded and stored. The results are displayed on the computer screen with data noting either a pass or fail test result. Another major advantage to the apparatus is cost effectiveness. The cost of the viewing instrument and software is \$7800; with no recurring costs.

## **WHY CONSIDER USING EyeCheck?**

During the last fiscal year, officers of the Champaign County Probation and Court Services conducted 2344 drug tests. Each test generally consisted of a 3 or 4 drug panel test. Of the 2344 tests completed, 58% of the tests were determined to be negative (1360 negative test results). If the EyeCheck is a reliable pre-screening instrument, then Champaign County could realize a substantial savings by doing fewer tests on the AXYSM.

## **WHAT ARE THE DISADVANTAGES ASSOCIATED WITH THE USE OF THE EyeCheck INSTRUMENT?**

As noted by the sales representative, the EyeCheck is not intended to be a pre-screening drug-testing tool for everyone. Certain situations/conditions may affect the results of the testing. For instance, a person who has experienced a serious head/eye injury may prompt a positive test result even though the person may not have any altering substance in his/her system. Some other examples of situations/conditions that may have a bearing on test results include the following:

- ◆ Not recommended for individuals under the age of 16
- ◆ Not recommended for individuals over the age 50
- ◆ Not considered to be a reliable testing instrument for pregnant women

It should be noted that EyeCheck is a pre-screening instrument to determine possible impairment and not a replacement for urinalysis. A positive result on EyeCheck alone should not be used as a basis for issuing a sanction. A confirmation by urinalysis testing, or by some other accepted testing procedure is a necessary component for this pre-screening drug testing apparatus.

## **IMPRESSIONS**

During our testing period, 169 individuals participated in the review of the EyeCheck apparatus. Following each EyeCheck test, the participant was also required to provide a urine sample later tested on the AXSYM. The results indicate that during the testing period, 71 individuals tested positive on EyeCheck and 4 individuals obtained yellow indications (a yellow result means the test result was so close to the dividing parameters that the test could either be positive or negative). With that thought in mind, a total 75 (71 plus the 4 tests previously noted) individuals were considered to have positive test results. Approximately half of the 75 (38) tested positive in at least one or more of the panels conducted on the AXSYM (either a 3 or 4 panel test). This does not mean 37 people tested negative and had no altering substance in their system. It only means that since we only tested for three or four drugs, these individuals could have been positive for other drugs not tested; such as alcohol, barbiturates, benzodiazepines, inhalants or some other substance.

Of all the individuals tested, 18 offenders blinked and could not complete the test on the EyeCheck instrument. For a test to be successful, the participant must keep his/her eyes open for approximately 6 seconds, when instructed to do so. Generally, it is our impression that only on rare occasions would a person not be able to successfully complete the test. The officers further expressed the opinion that the blinkers did so in an attempt to spoil the test results. Of the 18 individuals who blinked, 11 of the 18 were determined to have an illegal substance in their system following the AXSYM test. At the end of the testing period, it became evident to the officers completing the tests that the blinking was intentional (by reviewing the straight lines on the graphs indicating it was not a blink, but an intentional closure of the eyes).

There were 76 EyeCheck tests resulting in negative indications. Of this number, six turned out positive on urinalysis. Though this was certainly a problem and a cause for concern, the most recent software was not available for this test and the new software, reportedly, is more sensitive to blinks. The software will prompt the officer conducting the test that the person had blinked. In one instance, the individual was on a prescribed pain medication for a period of time that could have resulted in a negative indication on the EyeCheck.

The most significant aspect of the five negative indications is that they all occurred between 11/26/02 and 12/10/02. All negative results on EyeCheck taken between 12/10/02 and 12/31/02 were later determined to be negative through urinalysis testing. One can speculate that toward the end of the testing period, officers conducting the tests were more familiar with the instrument. Consequently, better results were noticed as officers became more familiar with the instrument.

Based on other surveys conducted on the EyeCheck, we expected a 3% false negative result; which is considered acceptable percentage. The 5 false negatives out of 169 tests is a 2.9% false negative result. If you only use the three unexplained results, then the

false negative result would be 1.7%. Both results (2.9% or 1.7%) were within the expected variance for a pre-screening drug-testing tool.

**ADDITIONAL POINTS WORTH NOTING:**

- ◆ Blinkers were positive 61% of the time.
- ◆ False negatives were within the acceptable range of 3%.
- ◆ The testers accuracy improved after approximately 2 weeks of regular use of the device
- ◆ Since a urine sample is not needed, EyeCheck is not affected by dilution or substitution
- ◆ It takes 3-5 minutes to administer the EyeCheck
- ◆ THC may not be detectable beyond current impairment. Although THC may stay in your system for 30 days or more, Eyecheck may not detect this extended time.
- ◆ If an individual falls into that 3% (passes the EyeCheck and is positive on urinalysis) this would not be acceptable. However, since we will use this test more frequently than urinalysis, this individual would be subject to more tests and eventually determined to be positive on subsequent tests.

Champaign County Probation and Court Services was searching for a way to reduce the cost of drug testing without lowering the number of test needed to adequately monitor compliance and not compromise the accuracy of the test. Although EyeCheck is not 100% accurate (no test is), officers conducting the test found it to be acceptable pre-screen drug testing device.

IT SHOULD BE NOTED THAT THIS WAS NOT A SCIENTIFIC STUDY AND THE DEPARTMENT MAKES NO SPECIFIC CLAIM BASED ON DATA PROVIDED. INFORMATION CONTAINED IN THIS DOCUMENT NOTES THE IMPRESSIONS OF THE OFFICERS INVOLVED IN THE TESTING PROCESS. FINALLY, THE AFOREMENTIONED INFORMATION IS NOT INTENDED TO BE AN ENDORSEMENT OF THE EYECHECK INSTRUMENT.

Joseph J. Gordon, Director  
Champaign County Probation and  
Court Services Department