
“Athletes, Opioids and Addiction”: Evaluation of project by the Northwestern District Attorney’s Office administered at pre-season assemblies during the summer of 2016

David E. Sullivan, Lynn Ferro, Joseph Conte, Laurie Loisel, and Cherry Sullivan, with thanks to Deb Neubauer, Tess Jurgensen, Maureen Donovan, Kara McLaughlin, Jill Panto, Ruth Ever and Heather Bialecki

High school athletes account for an estimated two million injuries each year.¹ Injuries increase the risk of exposure to opioids for treatment. Use of opioids increases the risk of addiction, especially for young people.

The June 15, 2015 Governor’s Opioid Working Group recommendations suggest schools integrate information about the risks of opioid use and misuse into school athletic programs. This recommendation was followed by a more specific initiative in the June 22, 2015 update: Educate parents, students, and faculty about the risks of opioid use and misuse during mandatory athletic meetings.

In response to these recommendations, the Northwestern Rx Drug Abuse Task Force developed talking points to be presented in a video (*viewable online at vimeo.com/176348153*) by Ruth Potee, MD, an addiction specialist and a champion to the cause of addiction prevention. Those talking points included but were not limited to:

- The science of adolescent brain development
- Studies detailing alcohol and marijuana use and the importance of delayed first use even though the bulk of presentation is addressing opioid addiction prevention
- An evaluation of the risks when opioids are prescribed for sports injuries and dental work
- The importance of safe storage, how to dispose of left over drugs and the role parents and guardians play
- Why it is essential for parents/guardians to store and monitor prescription opioids when their teens are taking them for sports injuries or dental work: to prevent substance misuse that could lead to addiction
- Encouragement of parents to seek alternatives to opioid prescriptions
- Empowering parents/guardians to request fewer pills from physicians or a partial fill from pharmacists

This video was filmed in May of 2016 by SearchLight Films, produced by the Northwestern District Attorney’s Office, and endorsed by the Massachusetts Interscholastic Athletic Association (MIAA). All public and charter schools in the Northwestern District were invited to participate by our community outreach and education director. Eighteen schools* agreed to participate resulting in a response rate of 86%. Six of these schools were combined middle and high schools.

**Ten schools in Hampshire County, 7 in Franklin County, and one in both Franklin and Worcester Counties.*

One school had already held their pre-season meeting, and two charter schools declined, as they do not have an athletic department. Presentations were made at the schools between July 16 and September 7, at their pre sports season meeting with athletic directors, coaches, students and parents with one exception: Hopkins Academy had only the parents attend the meeting with coaches and the athletic director.

Prior to the screening of the video *Athletes, Opioids and Addiction*, a pre-test was administered consisting of four questions developed by Cherry Sullivan of Hampshire HOPE. Following the video, students were instructed to complete the post-test which included the same four questions (*see Table 1*).

Using an evaluation template from the SUNY Oswego School of Education, all student response data was entered. For schools with large student populations, 40 tests were randomly selected for data entry. For schools with 40 or fewer students present at the screening, we entered all responses.

Once all data entry was complete, a small percentage of the data for re-entry was randomly selected as a quality control measure. There were no errors found in the data that was double entered.

While we realize this was not a tightly controlled study, the significant difference between the pre- and post-test results allows us to justifiably conclude the screening of this video for student athletes had a positive educational impact.

When evaluating the data, each school was given an abbreviation, for example: "PVR" for Pioneer Valley Regional, and labeled each test from that school with the correct abbreviation in the top left corner. From each school with large student populations, 40 tests were selected at random and labeled 1-40 in the same corner as the abbreviation. Smaller schools were numbered according to the population that participated (for example, Franklin Tech only had 35 students). We graded each pre- and post-test, 1 point for each question answered correctly. Scores were first recorded on the tests themselves and then entered into the excel database. The number 1 = a correct response and 0 = an incorrect response.

A score of 4 points indicated that the student answered all questions correctly. In an excel file, each school was given their own tab. Scores were entered by question and then totaled for each student. Following this, the scores were added up by question and by total score to see what percentage of the students answered each question correctly, and what their scores were overall. This same process was done for both the pre- and post- tests. The change in score from pre- to post- test was calculated for each student to see how much their scores improved, or in a very small number of cases worsened, after the screening.

Once this process was complete for each school, a tab was added into which we entered the average overall scores for both the pre- and post-tests at each school. A bar graph was created to demonstrate each school's pre- and post-test scores.



When assessing the scores from each school, we noticed that at every school, scores improved after viewing the video (*see Table 2*). The average score on pre-tests for all schools was 41.7%. That average more than doubled after students viewed the video, increasing to a post-test score of 87.2%, a 45.3% increase. This reflects a significantly increased understanding of the concepts presented in the video.

There was a wide variation in scores from school to school, with some school populations demonstrating a higher pre-intervention knowledge of the concepts than others. The pre-test ranged between 36% and 68%. It is important to note the school that had the highest pre-test score had a smaller sample size, which could have influenced their result. However, other schools like Pioneer Valley, Greenfield, and Belchertown who had large sample sizes scored 43%, nearly 10 points higher than the lowest scoring school. The school with the best post-test score (93%) was Pioneer Valley Regional, who also had one of the higher pre-test scores. The school who had the largest improvement in score was Gateway, with a 54% increase from a score of 36% on pre-tests to 90% on post-tests.

There were some common themes in the base knowledge of students at each school. It appears that students were most knowledgeable about questions 1 and 3 before the presentation (for questions, see Table 2). Five of the schools' students scored best on pre-test question 1, six scored best on question 3, and three schools had a tie between questions 1 and 3. Greenfield was the only exception which had question 2 as the highest scoring pre-test question. This shows that students today have a good base knowledge of the age until which the brain develops, and are aware that athletes have an increased risk for misuse of opioids compared to non-athletes.

For 10 out of the 15 schools whose students completed pre-tests before the presentation, question 4 was the question that the lowest number of students got correct. This would appear to show that in general, students were largely unaware that alternating doses of less addictive medications like Tylenol and Ibuprofen can actually be more effective in treating pain than a prescription opioid. In every school, scores on question 4 improved on the post-test; however it was still the question that the fewest number of students answered correctly in most cases.

The opioid epidemic represents the kind of threat to our communities that one Massachusetts medical examiner lamented "is claiming a generation." It can take years before someone suffering from substance use disorder can find long-term recovery, so strong is the chokehold of opioid addiction. For this reason, public health experts agree that prevention is a more effective way to save lives than intervention. Overall, this evaluation showed that students had a good base knowledge in some areas of addiction, and even in areas where their base knowledge was lacking, the video and presentation resulted in improvements.

ATHLETES, OPIOIDS AND ADDICTION

Pre-Test (answer these questions before the training)

Please circle the correct answers

- 1. The brain is still developing until the age of:**

16 18 21 24
- 2. Youth who avoid drinking until the age of 21 are how likely to become addicted to alcohol:**

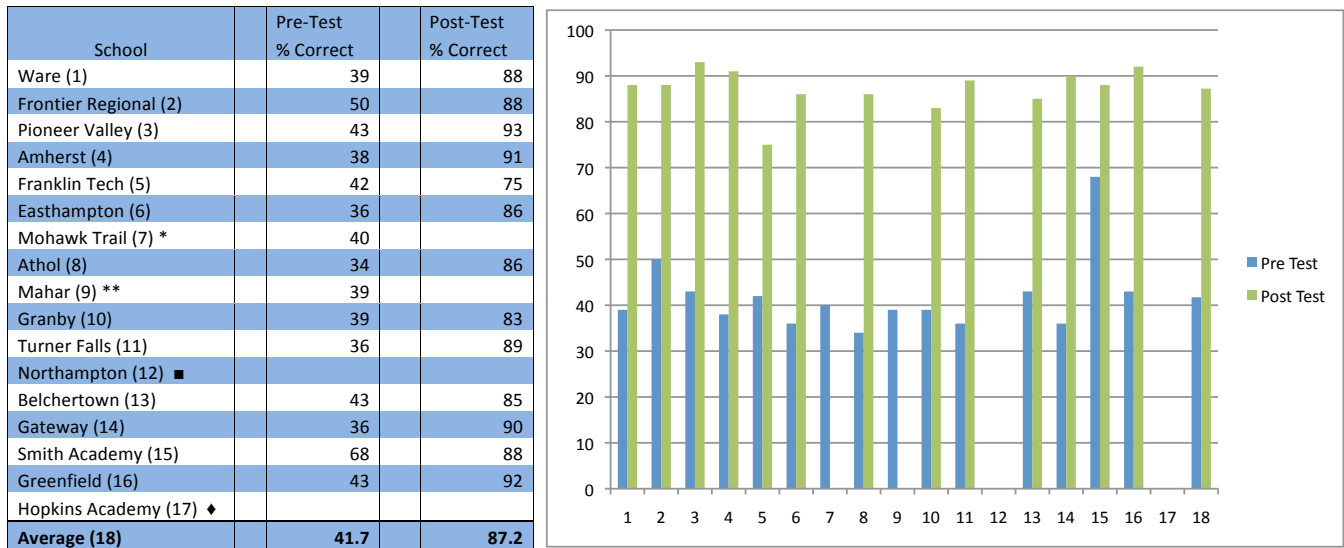
7% 15% 21% 30%
- 3. Athletes have an up to 50% greater risk of developing misuse or abuse of opioids, compared to non-athletes:**

True False Unsure
- 4. A prescription opioid (for example, oxycodone) provides better pain management for a sports related injury compared to taking alternating doses of Ibuprofen and Tylenol.**

True False Unsure

Table 1

Evaluation of the presentation of Athletes, Opioids and Addiction at school districts in the Northwestern District



*Mohawk Trail only had pre-test

**Mahar only had pre-test because they couldn't present the video

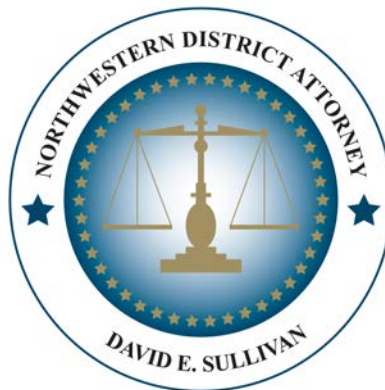
■ Northampton's schedule did not allow the pre and post testing; Smith Vocational and Agricultural High School students attended the Northampton assembly because the schools are geographically close, which accounts for a total of 18 schools

♦ Hopkins only had parents attend

Table 2

1. JS Powell, KD Barber Foss, 1999. Injury patterns in selected high school sports: a review of the 1995-1997 seasons. *J Athl Train.* 34: 277-84.

The Athletes, Opioids and Addiction project is about primary prevention that uses education with the simple facts – not scare tactics – as a protective factor for young people with developing brains. It's the least we can do.



Office of the Northwestern District Attorney
David E. Sullivan
NorthwesternDA.org