

The Coach's Asthma Clipboard Program  
Winning With Asthma Evaluation

Completed June 2009

# Acknowledgments

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# EXECUTIVE SUMMARY

## Executive Summary

The Coach's Asthma Clipboard Program – Winning With Asthma (WWA) was launched in January 2006 by the Utah and Minnesota Departments of Health and has since been adopted by 14 additional states. An evaluation of the first three years of program implementation, 2006-2008, was conducted to determine if the program has been effective in helping coaches and others involved in youth athletics to work with youth athletes to manage their asthma. Specific evaluation questions that were answered included the following:

1. Do coaches and others who work with athletes continue to understand exercise-induced asthma and how to manage it?
2. Was capacity to manage asthma increased through participation in the online program and through the receipt of asthma clipboard materials?
3. Have coaches, referees, PE teachers, and others involved in youth athletics made changes to more effectively help youth athletes manage their asthma?
4. Have marketing/promotional tactics been effective in increasing participation in the program?

Data were collected from multiple sources and included a combination of pre- and post-tests, an online evaluation survey, and administrative records. Data analyses included the Wilcoxon signed rank test to determine if there was a difference between pre- and post-test asthma knowledge and the Wilcoxon rank sum test to determine if long-term asthma knowledge was retained. Other analyses included the calculation of simple frequencies for the online evaluation survey and qualitative data analysis from administrative records to assess the effectiveness of marketing strategies.

Results indicate that overall, the program has been effective in achieving desired outcomes. Pre- and post-test results showed an immediate knowledge gain from viewing the online training. Nearly all who completed the program (approximately 90.0%) reported feeling more prepared to handle an asthma attack after viewing the training, and the usefulness of the mailed booklet, clipboard, and laminated emergency card (LEC) was demonstrated by the large percentages of coaches who reported carrying and using them. The majority of program participants also demonstrated the desired attitudes and behaviors of the program, though limitations of the data make it difficult to attribute those attitudes and behaviors directly to the program.

An unintended outcome of the program is participation by non-coaches who work in various roles not directly involved in youth athletics. Those include nurses, parents of athletes with asthma, teachers, students, and facility directors, among others. This is seen as a positive outcome of the program by broadening its impact in communities.

## EXECUTIVE SUMMARY

Some findings indicate areas where improvements may be made to the program. First, though immediate knowledge appears to have been gained from viewing the online training, results suggest that the knowledge was not retained over time. Requesting an asthma action plan when one is not provided was the behavior reported as being least practiced by coaches, with not quite half requesting one when it is not provided. Also, marketing activities, including the mailing and distribution of fliers, postcards, posters, and other promotional items, appear to have been largely ineffective in resulting in program participation.

Recommendations were made that should be prioritized and assessed for feasibility by the Utah and Minnesota Departments of Health. To improve knowledge retention, it was recommended that a yearly review of the WWA training by coaches and others involved in youth athletics be encouraged. Recommendations were also made to improve marketing techniques, including: increased use of the Internet and social media to market the program; presentations on WWA; increased marketing efforts to parents, teachers, or other individuals in the community; collaboration on effective marketing tactics used by other states, and; the development of a policy requiring participation in WWA for coaches and others involved in youth athletics. Finally, recommendations were made to emphasize the importance of requesting an asthma action plan for athletes with asthma.

# PROGRAM BACKGROUND

## Program Background

The Coach's Asthma Clipboard Program – Winning with Asthma (WWA) was developed as a collaborative effort of the Minnesota and Utah Departments of Health through funding from CDC asthma cooperative agreements and the Minnesota Steps Initiative. The 30-minute educational program, available online at [www.WinningWithAsthma.org](http://www.WinningWithAsthma.org), is the first of its kind for coaches. It encourages those involved in youth sports, especially coaches, to understand how to help athletes properly manage their asthma during athletic events. The program is built in Flash Media 8 and teaches proper medication management, ways to prevent exercise-induced asthma, steps to take when athletes are experiencing asthma attacks, asthma triggers-what they are and what can be done to avoid them, and guidelines specific for cold-weather sports. Those who complete the program receive a booklet with additional asthma information, a coach's clipboard with "What to Do During an Asthma Attack" printed on the back, a laminated emergency card (LEC), and other materials. The program is free for anyone to watch and learn. However, only residents of states/organizations that officially participate in the program receive the clipboard and other items.

Since the official launching of the program by Utah and Minnesota in January 2006, the program has been adopted in 14 additional states (AR, AZ, CO, ID, IL, IN, MD, MO, NC, ND, NV, NY, OK, TN). Seven of the states are supported by the National Lieutenant Governors' Association. One organization from each state is allowed to join and must work with Utah or Minnesota Asthma Program staff to complete the necessary steps to join the program. This includes Utah providing a link for that state at the end of the online program. States/organizations that join the program agree to maintain the integrity of the clipboard materials and must have approval by the Utah and Minnesota Department of Health Asthma Programs prior to their distribution. The Utah Department of Health Asthma Program maintains records for all states/organizations that have joined the program, as well as information for participants who have completed the online program.

## Evaluation Goals

The goal of this evaluation was to determine the effectiveness of the WWA program in improving asthma management among youth athletes. Years 2006 through 2008 of implementation of the program were evaluated.

The evaluation answered the following questions:

1. Do coaches and others who work with athletes continue to understand exercise-induced asthma and how to manage it?
2. Was capacity to manage asthma increased through participation in the online program and through the receipt of asthma clipboard materials?
3. Have coaches, referees, PE teachers, and others involved in youth athletics made changes to more effectively help youth athletes manage their asthma?
4. Have marketing/promotional tactics been effective in increasing participation in the program?

## Methods

A goal-based evaluation model was followed, using predetermined program goals as the standard for evaluation. Data were collected from multiple sources and included a combination of pre- and post-tests, an online evaluation survey, and administrative records. The pre- and post-tests were administered online directly before and after the training video, and results were recorded and saved in a database at the time of completion. Results were recorded only for participants who completed both the pre- and post-tests and entered their demographic information. Online evaluation surveys were administered to coaches and others who have completed the program to determine if changes have occurred as a result. Lastly, administrative records housed at the Utah Department of Health and managed by the Utah Asthma Program were used.

Asthma Program staff from the Utah and Minnesota Departments of Health worked collaboratively to develop and administer the online evaluation survey. Program staff from each health department administered the surveys in their respective states.

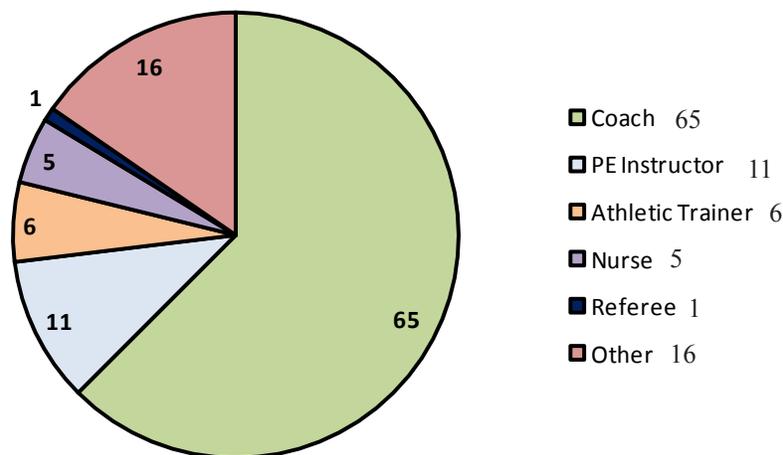
Data analyses included the Wilcoxon signed rank test to determine if there was a difference between pre- and post-test asthma knowledge and the Wilcoxon rank sum test to determine if long-term asthma knowledge was retained. Other analyses included the calculation of simple frequencies for the online evaluation survey and qualitative data analysis from administrative records.

# RESULTS

## Results

The online evaluation survey was sent out to 210 coaches, referees, and physical education instructors in Minnesota and to 65 coaches, referees, physical education instructors, nurses, parents, and others who participated in the program in Utah. The response rate for the online evaluation survey was 41% (n=86) in Minnesota and 34% (n=22) in Utah, giving an overall response rate of 39%. Figure 1 shows the distribution of online evaluation survey respondents. Respondents who identified their role as a coach plus an additional role were included in the “coach” category for evaluation purposes. Due to small sample sizes, respondents not identified as coaches were grouped together into one “non-coach” category for many of the analyses.

Figure 1. Number of Online Evaluation Survey Respondents, by Role



*Note: The “Other” category includes various roles including teachers, facility directors, safety directors, and team managers, among others. Role was missing for four of the respondents, who are not included in the results.*

### 1. Do coaches and others who work with athletes continue to understand exercise-induced asthma and how to manage it?

#### A) Immediate knowledge gain

To determine if the WWA online training video caused an increase in asthma knowledge, participants were asked eight questions to test their asthma knowledge immediately before and after viewing the training. Table 1 contains the percentages of respondents who answered each pre- and post-test question correctly among everyone who completed the program. For every question except question 8, a significantly higher percentage of respondents answered the questions correctly on the post-test when compared to the pre-test.

Table 1. Percentages of WWA Participants Who Answered the Pre- and Post-test Questions Correctly

Question	Pre-test Percentage (95% CI)	Post-test Percentage (95% CI)
1. Which statement is true for an athlete whose asthma is well controlled? (Multiple choice)	69.9 (67.7 – 72.0)	85.5 (83.8 – 87.2)
2. What happens in the airways of people whose asthma is poorly controlled? (Multiple choice)	78.7 (76.8 – 80.7)	94.6 (93.6 – 95.7)
3. You should call 911 if an athlete is having which of the following symptoms? (Multiple choice)	93.9 (92.8 – 95.1)	98.3 (97.6 – 98.9)
4. What is recommended to prevent exercise-induced asthma (EIA) symptoms? (Multiple choice)	70.9 (68.8 – 73.1)	88.1 (86.6 – 89.6)
5. Athletes should return to competition only when they can breathe easily and are free of asthma symptoms. (True/False)	91.7 (90.4 – 93.0)	99.1 (98.6 – 99.5)
6. Some athletes must take medications every day to prevent symptoms or episodes from developing. These medications are called “controller or preventive” medications and are not used as emergency rescue medications. (True/False)	91.6 (90.3 – 92.9)	96.3 (95.4 – 97.2)
7. What item(s) is/are used to evaluate lung function and provide information on asthma symptoms and medications? (Multiple choice)	58.7 (56.3 – 61.0)	81.4 (79.6 – 83.2)
8. Parents should always inform the coach that their child has asthma and provide him/her with an asthma action plan (AAP), discuss proper symptom management for when the child is under the direction of the coach. (True/False)	99.1 (98.6 – 99.5)	99.5 (99.2 – 99.9)

Comparisons of overall pre- and post-test scores using the Wilcoxon signed rank test indicate that participants experienced an increase in asthma knowledge due to the training, with an average increase in score of 0.9 on a possible scale of 0 to 8 ( $p < .0001$ ). An increase in understanding was experienced for all participating states overall and individually for Utah (average increase of 0.9,  $p < .0001$ ) and MN (average increase of 0.8,  $p < .0001$ ). Results for different groups of participants in the program are included in Table 2.

# RESULTS

Table 2. Average Post-test Score Increase for All WWA Participants, by Role

Role	Number that Viewed Online Training	Average Score Increase	Associated P-value
All	1,715	0.9	<.0001
Coach	954	0.9	<.0001
Nurse	90	0.6	<.0001
PE Instructor	20	1.3	<.0004
Referee	26	0.6	.0044
Other	140	1.0	<.0001
Unknown	485	0.8	<.0001

*Note: The “Other” category includes results for teachers, parents, students, various types of athletic instructors, and other miscellaneous categories. The “Unknown” category includes participants who did not specify any role.*

## B) Long-term knowledge gain

In the online evaluation survey, participants were asked four questions testing their retention of asthma knowledge since viewing the online training video. The four questions were selected from questions that were asked immediately before and after viewing the online training. Percentages of participants who answered each question correctly are included in Tables 3 and 4. For all questions, there was a significant increase in the percentage who answered the post-test questions correctly when compared to the pre-test. Results show a decrease in the percentage of participants who answered the online evaluation questions correctly when compared to post-test percentages; however, the percentages appear to have remained slightly higher than the pre-test percentages, though pre-test and online evaluation percentages are not statistically different for most questions. These results suggest that some but not all of the knowledge gained through the training video was retained over time.

Table 3. Percentages of Utah and Minnesota Participants Who Answered Pre-test, Post-test, and Online Evaluation Survey Questions Correctly

Question	Pre-test	Post-test	Online Evaluation
1. What happens in the airways of people whose asthma is poorly controlled? (Multiple choice)	80.1 (76.4 – 83.8)	94.2 (92.0 – 96.4)	81.3 (73.8 – 88.8)
2. You should call 911 if an athlete is having which of the following symptoms? (Multiple choice)	94.2 (92.0 – 96.4)	98.4 (97.3 – 99.6)	99.1 (97.2 – 100.0)
3. What is recommended to prevent exercise-induced asthma (EIA) symptoms? (Multiple choice)	73.2 (69.1 – 77.3)	90.0 (87.2 – 92.7)	83.3 (76.2 – 90.5)
4. Some athletes must take medications every day to prevent symptoms or episodes from developing. These medications are called “controller or preventive” medications and are not used as emergency rescue medications. (True/False)	91.3 (88.7 – 93.9)	96.4 (94.7 – 98.2)	90.6 (84.9 – 96.2)

Table 4. Percentages of Coaches in Utah and Minnesota Who Answered Pre-test, Post-test, and Online Evaluation Survey Questions Correctly

Question	Pre-test	Post-test	Online Evaluation
1. What happens in the airways of people whose asthma is poorly controlled?	79.7 (74.9 – 84.5)	95.1 (92.5 – 97.7)	84.6 (75.7 – 93.5)
2. You should call 911 if an athlete is having which of the following symptoms?	94.7 (92.1 – 97.4)	98.9 (97.6 – 100.0)	98.5 (95.4 – 100.0)
3. What is recommended to prevent exercise-induced asthma (EIA) symptoms?	72.9 (67.6 – 78.3)	90.2 (86.7 – 93.8)	84.6 (75.7 – 93.5)
4. Some athletes must take medications every day to prevent symptoms or episodes from developing. These medications are called “controller or preventive” medications and are not used as emergency rescue medications.	90.6 (87.1 – 94.1)	96.6 (94.4 – 98.8)	93.8 (87.7 – 99.8)

Combined results for Utah and Minnesota indicate that, while there was an initial increase in asthma understanding, that knowledge was not retained over time. The Wilcoxon rank sum test was used to compare online evaluation survey scores with post-test scores (possible overall scores range from 0 to 4).

# RESULTS

Online evaluation scores (average = 3.5) were significantly lower than post-test scores for the two states (average = 3.8,  $p < .0001$ ). However, they were not statistically different from original pre-test scores, suggesting that asthma knowledge had regressed to the original level before viewing the online training.

Analysis results for coaches only also indicate that not all of the asthma knowledge gained from viewing the online training was retained long-term. However, while online evaluation scores were significantly lower than post-test scores ( $p = .0289$ ), they remained significantly higher than pre-test scores ( $p = .0263$ ), suggesting that among coaches, at least some asthma knowledge was retained over time.

Wilcoxon rank sum tests were conducted to determine if online evaluation survey results differed based on length of time that had passed since viewing the online training. Average scores for those who completed the program less than three months ago (4.0) appeared to be higher than average scores for those who completed the program 3-12 months ago (3.5) or 1-3 years ago (3.5). However, the scores were not statistically different from one another. Differences may be present but undetected due to the small sample size of six individuals who completed the program less than three months ago.

Table 5. Average Pre-test, Post-test, and Online Evaluation Survey Scores

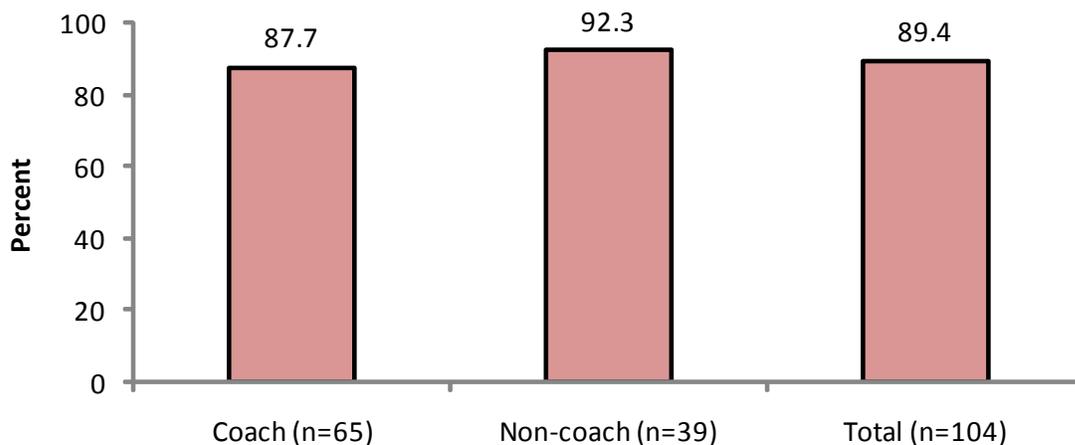
<b>Role</b>	<b>Average Pre-test Score (4 questions)</b>	<b>Average Post-test Score (4 questions)</b>	<b>Average Online Evaluation Score (4 questions)</b>	<b>Associated P-value (testing for difference between post-test and online evaluation scores)</b>
All, Utah and Minnesota	3.4	3.8	3.5	$p < .0001$
Coaches, Utah and Minnesota	3.4	3.8	3.6	$p = .0289$

## 2. Was capacity to manage asthma increased through participation in the online program and through the receipt of asthma clipboard materials?

Participants were asked several questions in the follow-up online evaluation survey to assess whether their capacity to manage athletes' asthma had increased due to the WWA program. Questions were designed to assess improvements in participants' ability to assist an athlete with asthma and the usefulness of the mailed asthma materials in helping participants manage athletes' asthma.

### A) Participants are more prepared to assist an athlete with asthma

Figure 2. Percent of Winning With Asthma (WWA) Participants Who Feel Better Prepared to Assist an Athlete with Asthma After Viewing the Online Training



In the follow-up online evaluation survey, the majority of respondents agreed or strongly agreed that they feel better prepared to assist an athlete with asthma after watching the training (89.4% overall). Of coaches, 87.7% agreed or strongly agreed that they feel better prepared to assist an athlete with asthma (see Figure 2).

# RESULTS

B) Clipboard materials provided useful resources to help coaches or others involved in youth athletics to manage athletes' asthma

Of the coaches who were mailed the WWA clipboard materials, 82.5% report still having them, compared to 86.5% of non-coaches. Those who reported still having the materials were asked how often they carry them during practice or games. Results for coaches and non-coaches are in Figures 3 and 4.

Figure 3. Percent of Coaches Who Report Carrying Asthma Materials During Practice or Games

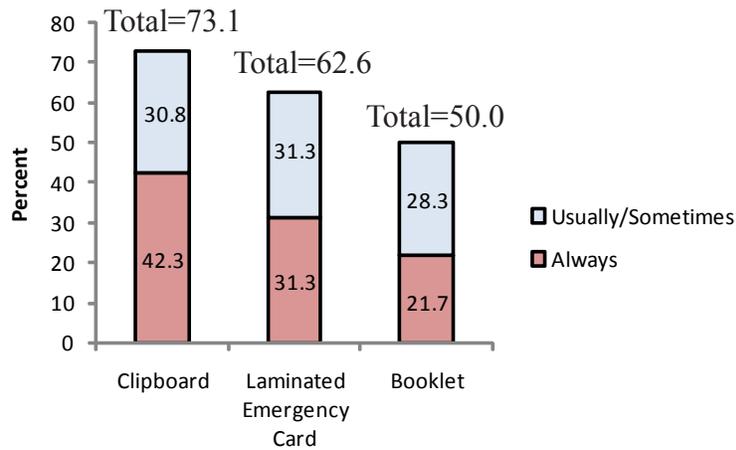
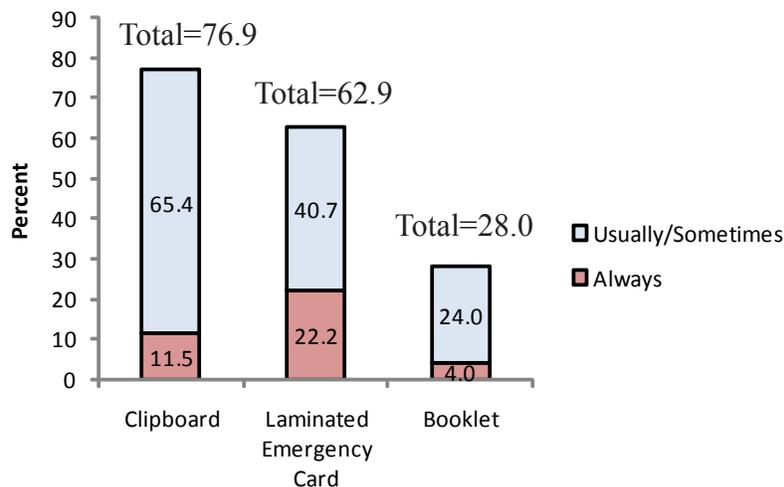


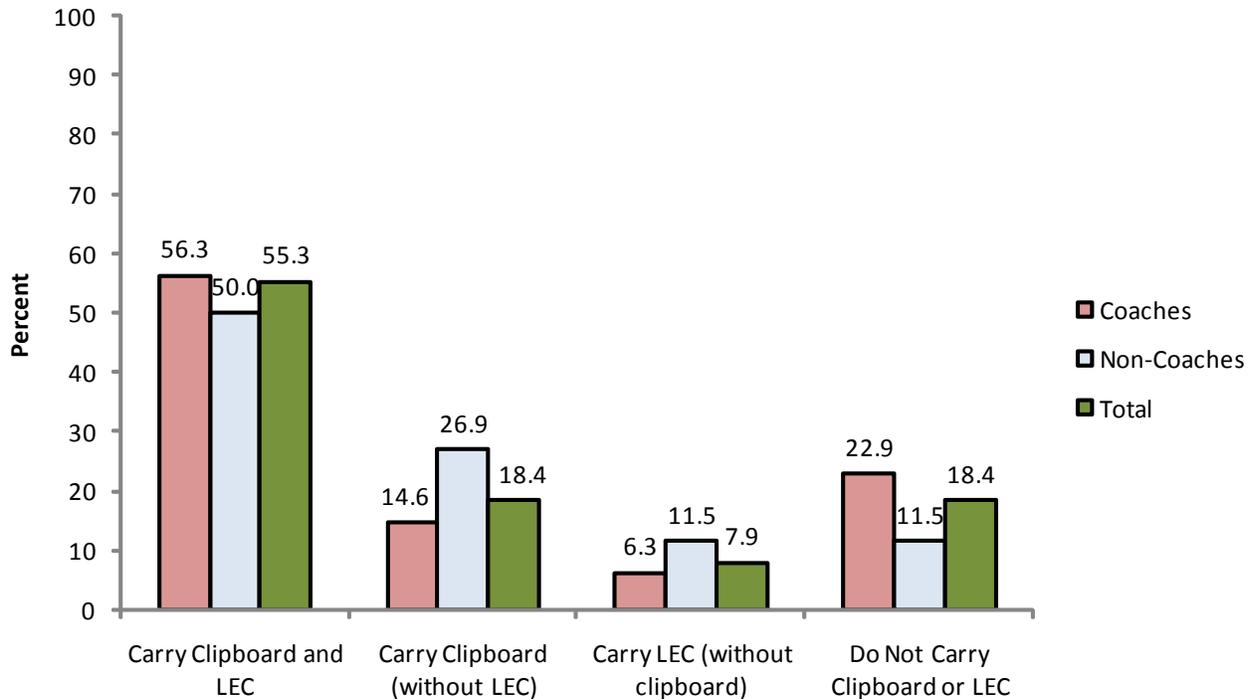
Figure 4. Percent of Non-Coaches Who Report Carrying Asthma Materials During Practice or Games



From online evaluation survey responses, it appears that coaches and others who have participated in the WWA program carry the asthma clipboard materials more frequently than the laminated emergency card (LEC) or the booklet. A higher percentage of coaches report carrying the asthma

clipboard during practice or games (73.1%) than those who report carrying the LEC (62.6%) or the asthma booklet (50.0%). For non-coaches, overall percentages of respondents who report carrying the clipboard (76.9%) and LEC (62.9%) are similar to coaches. A lower percentage of non-coaches (28.0%) report carrying the booklet when compared to coaches.

Figure 5. WWA Participants' Use of the Asthma Clipboard and Laminated Emergency Card (LEC), by Role



*Note: Percentages are given for respondents who said they “Always”, “Usually”, or “Sometimes” carry the clipboard and LEC.*

More than half of coaches (56.3%) and half of the non-coaches (50.0%) reported carrying both the asthma clipboard and the LEC. Of the coaches, 14.6% carry only the clipboard, and 6.3% carry only the LEC. For non-coaches, 26.9% reported carrying only the clipboard, and 11.5% reported carrying only the LEC.

# RESULTS

Of those who completed the online evaluation survey, 34.4% of coaches and 39.5% of non-coaches reported having encountered an asthma attack with an athlete since viewing the WWA online training. Frequency of carrying the asthma clipboard, LEC, and booklet do not appear to be affected by whether or not an asthma attack has been encountered. This can be seen in similar percentages of participants who reported carrying those materials, comparing those who did and did not experience an asthma attack since viewing the program (see Figures 6, 7, and 8).

Figure 6. Percent of WWA Participants Who Carry the Asthma Clipboard, by Asthma Attack Experience

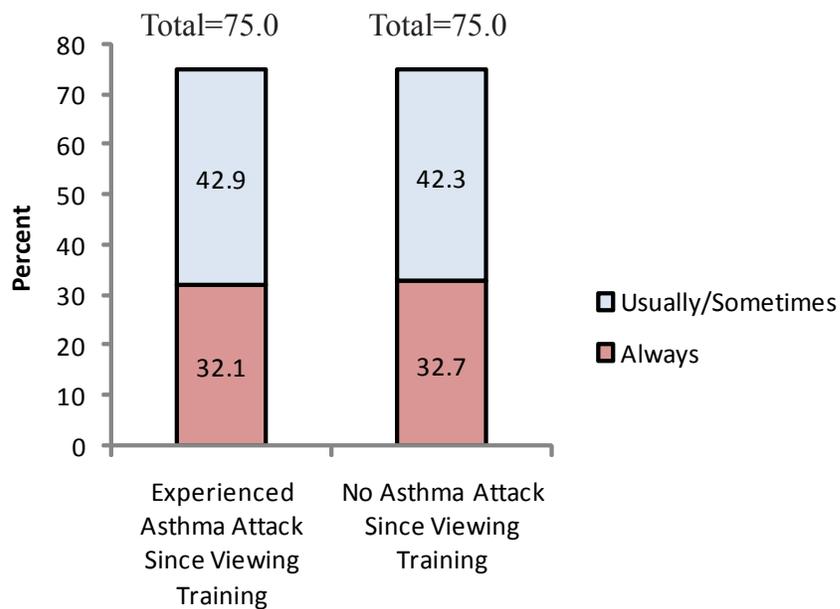


Figure 7. Percent of WWA Participants Who Carry the LEC, by Asthma Attack Experience

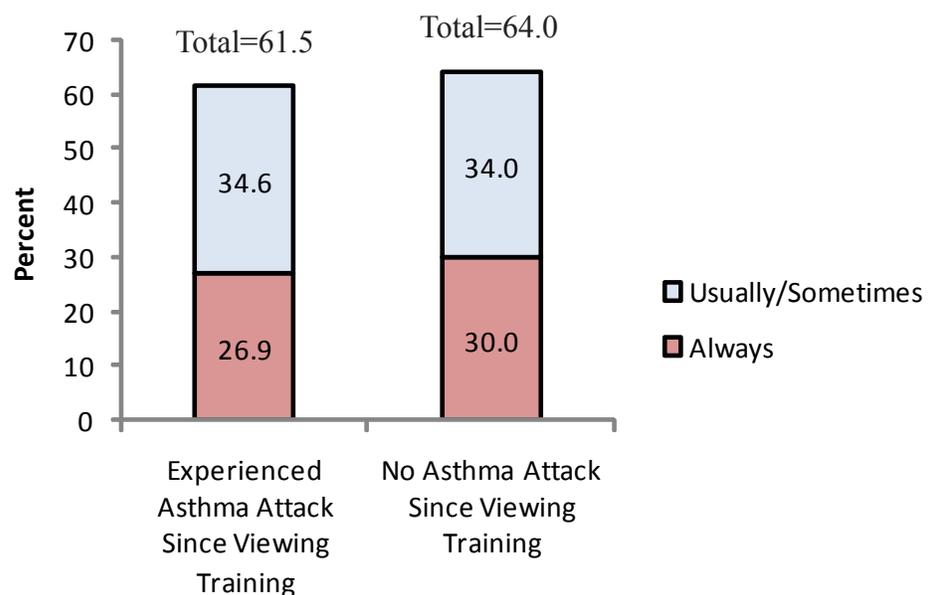


Figure 8. Percent of WWA Participants Who Carry the Booklet, by Asthma Attack Experience

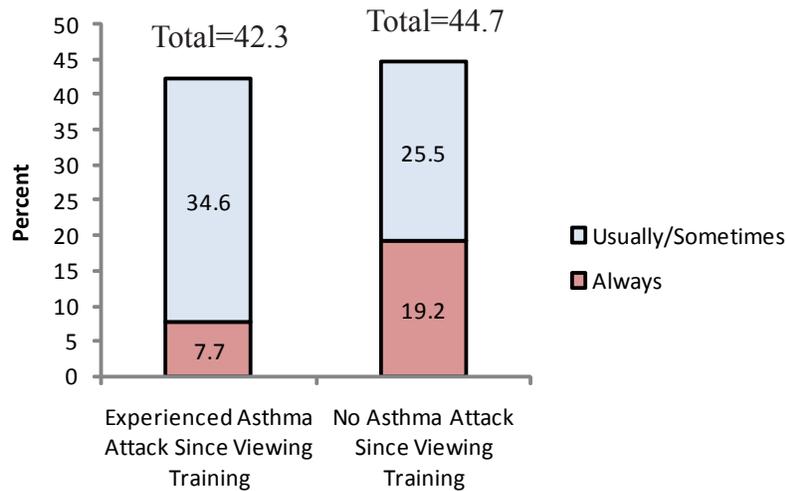
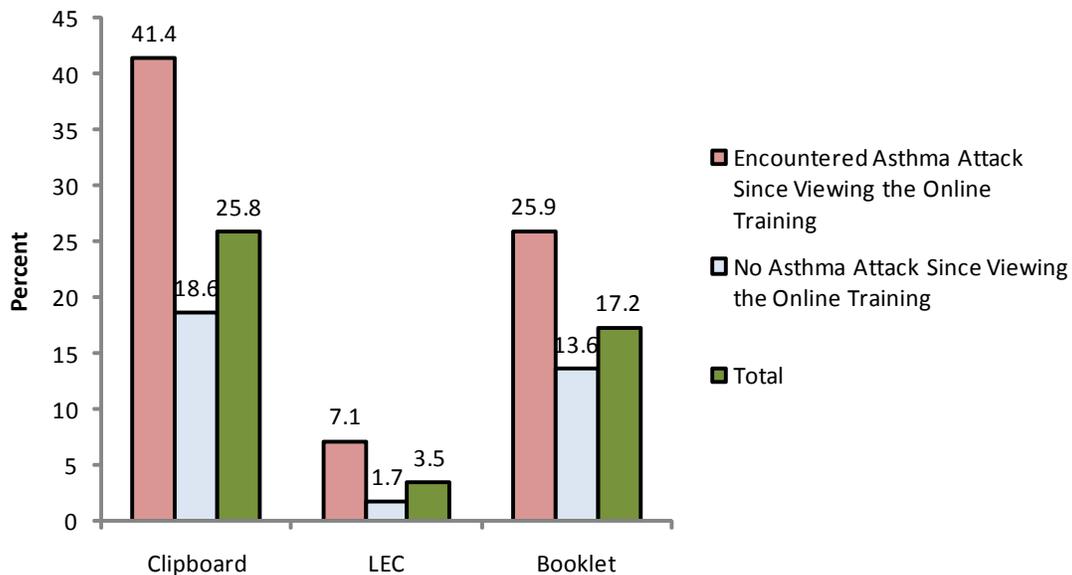


Figure 9. Percent of WWA Participants Who Have Used the Mailed Asthma Materials When Assisting an Athlete with Asthma, by Asthma Attack Experience



Only 25.8% of WWA participants who completed the online evaluation survey reported having used the asthma clipboard to assist an athlete with asthma, and lower percentages reported having used the LEC or booklet. Among those who have experienced an asthma attack since viewing the online training, higher percentages reported having used the mailed clipboard, LEC, and booklet when compared to those who have not experienced an asthma attack or to the percent of total participants. More than one-third of participants who have encountered an asthma attack since viewing the online program reported having used the clipboard materials when assisting an athlete with asthma (41.4%), and approximately one-quarter (25.9%) reported having used the booklet. Only 7.1% reported having used the LEC to assist an athlete with asthma.

# RESULTS

## Use of Materials

Respondents who said they used the mailed materials when assisting an athlete with asthma were asked to describe how they used them. Responses included the following:

- Use of clipboard only:
  - I put my game lineups on the clipboard so I have reference in my hands. I have shown the board to an athlete with asthma - not having an asthma attack.
  - Make sure they have warmed up adequately and used their inhaler.
  
- Use of clipboard and booklet:
  - As a reference to help them.
  - Asthma education - know the warning signs and how to prevent an asthma attack from occurring.
  - I always follow instruction as I go along.
  - Make sure I was doing the right procedure.
  - Review material before practice and games from time to time.
  - Use it as a quick reference reminder.
  - Used for reference – used to educate other staff – used to educate student athlete.
  
- Use of clipboard and LEC:
  - Basically just as a reference when I want to refresh my memory.
  - I use the clipboard to carry my practice plan and the laminated card is taped to my coaching folder so I have a quick reference when we are at home or away.

From the responses, it appears that the mailed asthma materials are mostly being used as a reference and when assisting athletes who experience asthma attacks.

### 3. Have coaches, referees, PE teachers, and others involved in youth athletics made changes to more effectively help youth athletes manage their asthma?

#### A) Changes occurred in attitudes toward players with asthma

Table 6. Coaches' Attitudes Toward Athletes With Asthma

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	Number (Percent)	Number (Percent)	Number (Percent)	Number (Percent)	Number (Percent)
Asthma is a serious medical condition, but it can be controlled.	0 (0.0%)	0 (0.0%)	0 (0.0%)	18 (27.7%)	47 (72.3%)
Asthma is just an excuse for athletes to not work hard.	41 (63.1%)	20 (30.8%)	1 (1.5%)	1 (1.5%)	2 (3.1%)
It is not my responsibility to help athletes manage their asthma.*	37 (56.9%)	21 (32.3%)	2 (3.1%)	3 (4.6%)	2 (3.1%)
Athletes with asthma can compete at the same level as other athletes if their asthma is well controlled.	1 (1.5%)	0 (0.0%)	0 (0.0%)	19 (29.2%)	45 (69.2%)
I feel better prepared to assist an athlete with asthma after watching the Coach's Asthma Clipboard Program – Winning With Asthma.	1 (1.5%)	0 (0.0%)	7 (10.8%)	28 (43.1%)	29 (44.6%)

\* Note: The wording of this question was slightly different for Utah and Minnesota. For Utah, the question was worded as included in the table. For Minnesota, the question was worded "It is not my responsibility, as a coach, to help athletes manage their asthma." While exact percentages for the individual states differed slightly, the response trends were similar. Results shown are combined responses for both states.

The majority of coaches appear to have attitudes in accordance with the goals of the WWA program. For example, 100.0% of the respondents agreed or strongly agreed that asthma, though a serious medical condition, can be controlled. Also, 89.5% agreed that it is their responsibility as a coach to help athletes manage their asthma, and 98.4% of coaches agreed or strongly agreed that athletes with controlled asthma can compete at the same level as other athletes.

# RESULTS

Table 7. Non-Coaches' Attitudes Toward Athletes With Asthma

	Strongly Disagree Number (Percent)	Disagree Number (Percent)	Neutral Number (Percent)	Agree Number (Percent)	Strongly Agree Number (Percent)
Asthma is a serious medical condition, but it can be controlled.	1 (2.6%)	0 (0.0%)	0 (0.0%)	14 (36.8%)	23 (60.5%)
Asthma is just an excuse for athletes to not work hard.	23 (60.5%)	11 (29.0%)	3 (7.9%)	1 (2.6%)	0 (0.0%)
It is not my responsibility to help athletes manage their asthma.*	16 (43.2%)	13 (35.1%)	5 (13.5%)	1 (2.7%)	2 (5.4%)
Athletes with asthma can compete at the same level as other athletes if their asthma is well controlled.	0 (0.0%)	0 (0.0%)	0 (0.0%)	8 (20.5%)	31 (79.5%)
I feel better prepared to assist an athlete with asthma after watching the Coach's Asthma Clipboard Program – Winning With Asthma.	0 (0.0%)	0 (0.0%)	3 (7.7%)	24 (61.5%)	12 (30.8%)

\* Note: The wording of this question was slightly different for Utah and Minnesota. For Utah, the question was worded as included in the table. For Minnesota, the question was worded "It is not my responsibility, as a coach, to help athletes manage their asthma." While exact percentages for the individual states differed slightly, the response trends were similar. Results shown are combined responses for both states.

Table 7 shows responses concerning attitudes toward athletes with asthma among others who work with youth athletics. Respondents included referees, PE instructors, nurses, and others. As with coaches, their attitudes appear to be in accordance with the goals of the WWA program.

Though reported attitudes are in accordance with program goals, it is difficult to attribute those attitudes to participation in the program due to lack of baseline information regarding their attitudes before watching the online training program.

## B) Changes occurred in coaches' interaction with athletes with asthma

Table 8. Coaches' Current Interaction with Athletes With Asthma, Combined Results for Utah and Minnesota

	Always Number (Percent)	Usually Number (Percent)	Sometimes Number (Percent)	Rarely Number (Percent)	Never Number (Percent)
I request an asthma action plan for athletes with asthma when one is not provided. (n=61)	17 <b>(27.9%)</b>	11 <b>(18.0%)</b>	12 (19.7%)	13 (21.3%)	8 (13.1%)
I encourage athletes with asthma to warm up before practice or competition. (n=62)	39 <b>(62.9%)</b>	15 <b>(24.2%)</b>	4 (6.5%)	4 (6.5%)	0 (0.0%)
I work with athletes with asthma to help them manage their symptoms during practice and games. (n=61)	24 <b>(39.3%)</b>	20 <b>(32.8%)</b>	10 (16.4%)	5 (8.2%)	2 (3.3%)
I feel prepared to help an athlete during an asthma attack. (n=64)	26 <b>(40.6%)</b>	28 <b>(43.8%)</b>	9 (14.1%)	1 (1.6%)	0 (0.0%)

The results of the online evaluation survey with regard to coaches' interaction with athletes with asthma indicate that a large percentage practice behaviors that are consistent with the goals of the WWA program. The lowest percentage is for the proportion of coaches who request an asthma action plan when one is not provided, though nearly half of coaches (45.9%) reported that they usually or always request one when it is not provided. Over 70.0% of the coaches reported that they "usually" or "always" practice the other desired behaviors, which include encouraging athletes to warm up before practice or competition, helping them to manage their symptoms during practice and games, and feeling prepared to assist an athlete with an asthma attack.

Though results in Table 8 indicate that the majority of coaches are practicing desired behaviors, they do not provide any information regarding change due to the program. In Utah, participants were also asked to describe their behavior prior to participation in the program. Because baseline data regarding behavior prior to participation in the program were not gathered, results represent coaches' perceptions of change due to the program rather than actual change and should be interpreted accordingly. Results indicate that in coaches' perceptions, there was behavioral change in a positive direction (see Tables 9 and 10).

# RESULTS

Table 9. Coaches' Current Interaction With Athletes With Asthma, Utah Only (n=11)

	Always Number (Percent)	Usually Number (Percent)	Sometimes Number (Percent)	Rarely Number (Percent)	Never Number (Percent)
I request an asthma action plan for athletes with asthma when one is not provided.	3 <b>(27.3%)</b>	0 <b>(0.0%)</b>	2 (18.2%)	5 (45.5%)	1 (9.1%)
I encourage athletes with asthma to warm up before practice or competition.	7 <b>(63.6%)</b>	3 <b>(27.3%)</b>	1 (9.1%)	0 (0.0%)	0 (0.0%)
I work with athletes with asthma to help them manage their symptoms during practice and games.	4 <b>(36.4%)</b>	4 <b>(36.4%)</b>	3 (27.3%)	0 (0.0%)	0 (0.0%)
I feel prepared to help an athlete during an asthma attack.	7 <b>(63.6%)</b>	1 <b>(9.1%)</b>	3 (27.3%)	0 (0.0%)	0 (0.0%)

Table 10. Coaches' Interaction With Athletes With Asthma Before Participation in the Online Training, Utah Only (n=11)

	Always	Usually	Sometimes	Rarely	Never	Don't Remember
	Number (Percent)	Number (Percent)				
Before participation in the online training, how often did you request an asthma action plan for athletes with asthma when one was not provided?	0 <b>(0.0%)</b>	0 <b>(0.0%)</b>	0 <b>(0.0%)</b>	2 <b>(20.0%)</b>	8 <b>(80.0%)</b>	0 <b>(0.0%)</b>
Before participation in the online training, how often did you encourage athletes with asthma to warm up before practice or competition?	4 <b>(36.4%)</b>	3 <b>(27.3%)</b>	0 <b>(0.0%)</b>	1 <b>(9.1%)</b>	3 <b>(27.3%)</b>	0 <b>(0.0%)</b>
Before participation in the online training, how often did you work with athletes with asthma to help them manage their symptoms during practice and games?	2 <b>(18.2%)</b>	3 <b>(27.3%)</b>	2 <b>(18.2%)</b>	2 <b>(18.2%)</b>	2 <b>(18.2%)</b>	0 <b>(0.0%)</b>
Before participation in the online training, how often did you feel prepared to help an athlete during an asthma attack?	0 <b>(0.0%)</b>	3 <b>(27.3%)</b>	6 <b>(54.6%)</b>	1 <b>(9.1%)</b>	1 <b>(9.1%)</b>	0 <b>(0.0%)</b>

Utah results show that in coaches' perceptions, improvements were made across all of the behavioral areas. None of the coaches surveyed reported usually or always requesting an asthma action plan prior to viewing the WWA program, while after viewing the program, 27.3% reported that they currently request one. There was an increase of 27.2% of coaches reporting they usually or always have athletes with asthma warm up before practice or games and an increase of 27.3% who reported usually or always working with athletes with asthma to help them manage their symptoms during practice and games. The largest increase was in the percentage of coaches who reported feeling prepared to help

# RESULTS

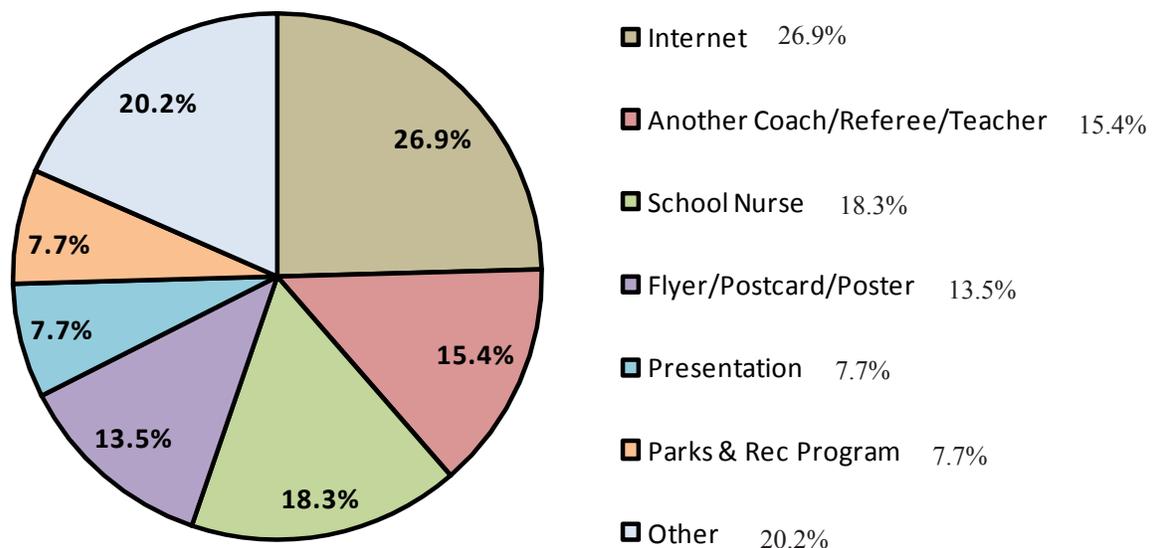
an athlete during an asthma attack, with 72.7% reporting usually or always feeling prepared to help during an asthma attack after viewing the online training, compared to only 27.3% who usually or always felt prepared before viewing the training.

The results are limited in the fact that they are subject to recall bias and are thus the coaches' perceptions of positive changes made due to participation in the program. Also, due to the small sample size, results should be interpreted with caution. However, they are suggestive that the program has been successful in producing behavioral change.

## 4. Have marketing/promotional tactics been effective in increasing participation in the program?

A) Where participants learned about the WWA program

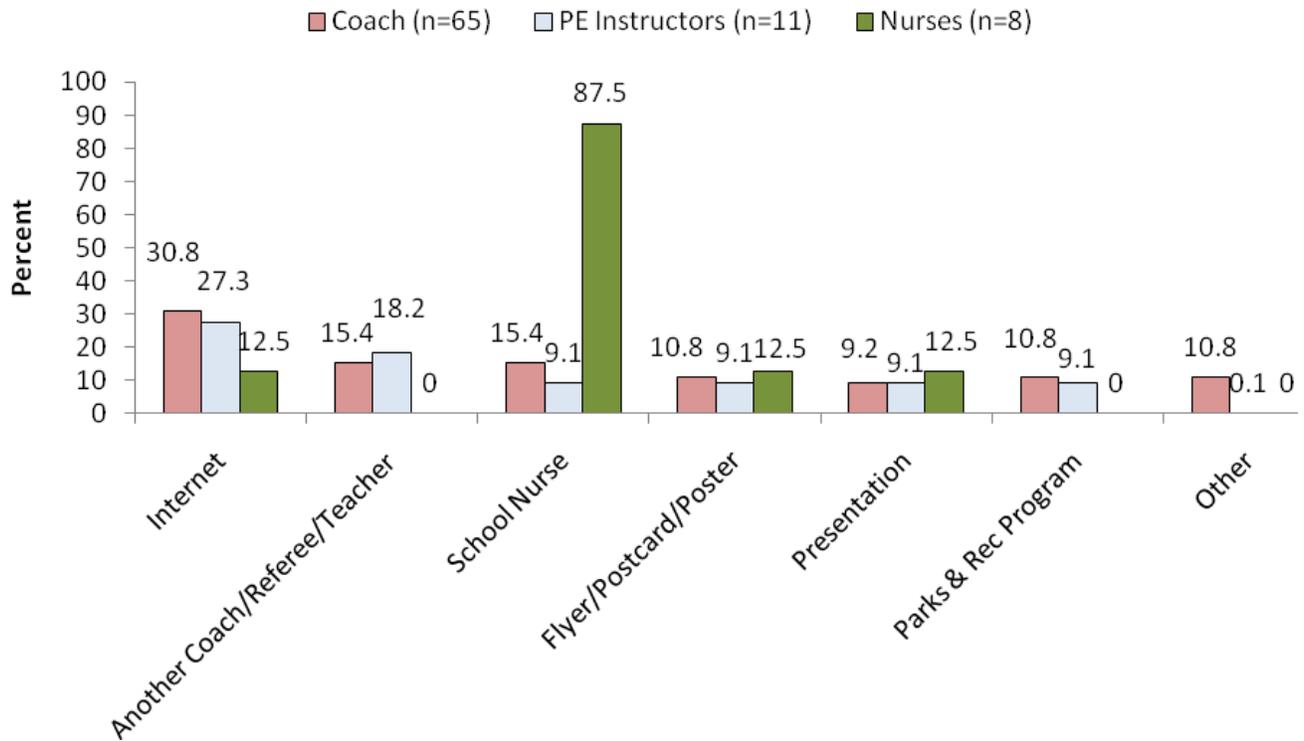
Figure 10. Sources Where WWA Participants Heard About the Program



*Note: The "Other" category includes responses such as media, parent of an athlete, health care providers, etc.*

In the online evaluation survey, participants were asked where they had learned about the WWA program. They were allowed to mark more than one response. The majority of participants reported having learned about the program through the internet (see Figure 10). Internet sources most likely include links to the WWA program on other related websites; web tracking records housed within the Utah Department of Health show that for all states, participants have been directed to the WWA program through approximately 200 other websites, ranging from Google searches and blogs to official county or state websites. The next highest sources from which participants reported having learned about the program were through another coach/referee/teacher (15.4%), school nurse (18.3%), or through a flyer/postcard/poster (13.5%).

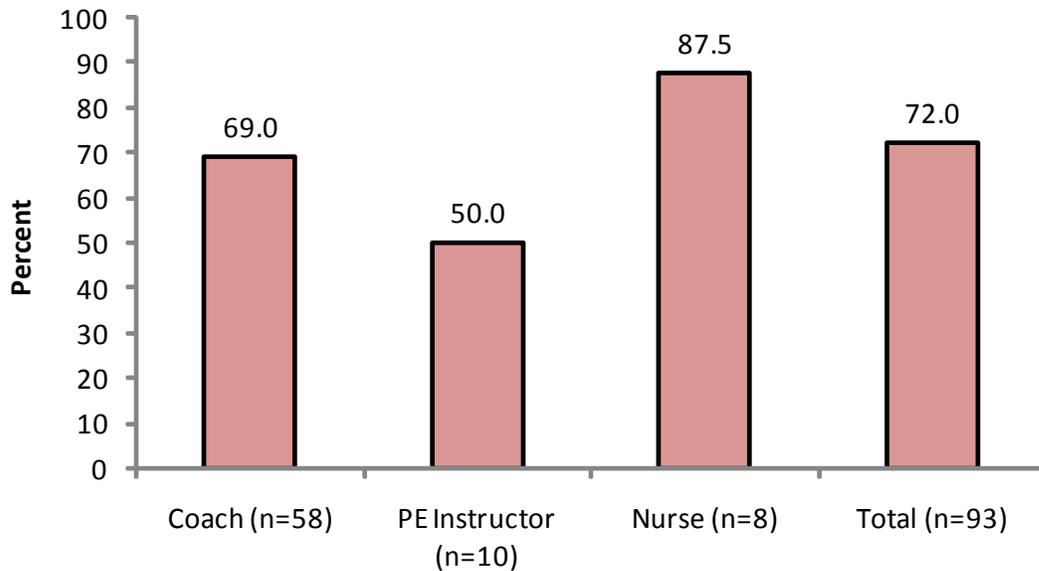
Figure 11. Sources Where WWA Participants Heard About the Program, by Role



Responses were similar for coaches and PE Instructors. The largest difference can be seen with nurses, 87.5% of whom reported having heard about the WWA program through another school nurse.

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Figure 12. Percentage of WWA Participants Who Encouraged Other Coaches to View the Online Training

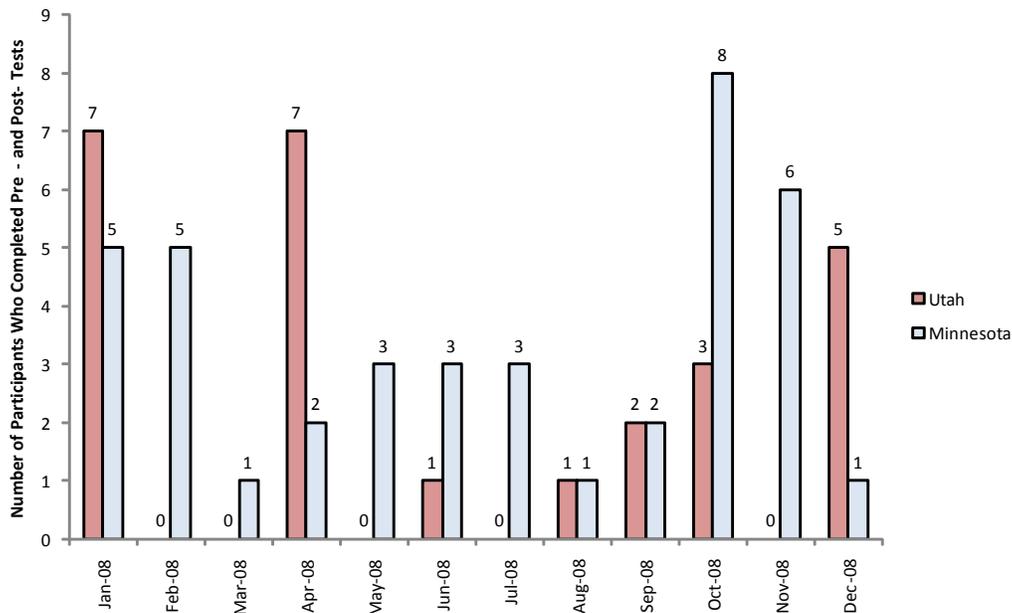


WWA participants were asked if they had encouraged other coaches to view the online training program. Overall, 72.0% of participants reported having referred another coach to the program. When categorized by role, half of PE instructors (50.0%) and more than two-thirds of coaches (69.0%) and nurses (87.5%) reported having referred another coach.

## B) Marketing/promotional activities conducted by the Utah and Minnesota Departments of Health compared to monthly WWA participation

Administrative records from Utah and Minnesota were reviewed to assess WWA marketing/promotional activities that had been conducted in 2008 in correlation with the number of WWA participants each month. Participation in the program was determined by the number of pre- and post-tests that were taken each month. The numbers of participants by month for 2008 are included in Figure 13. Overall, 26 people in Utah and 40 people in Minnesota viewed the online training that year.

Figure 13. Number of WWA Participants in Utah and Minnesota Who Completed the Pre- and Post-tests, by Month, 2008



Various marketing/promotional activities were conducted by Utah and Minnesota in 2008. In Minnesota, the Minnesota Asthma Coalition (MAC) coordinators distributed fliers and information as part of their outreach activities. Other activities included the distribution of fliers, posters, and postcards with a link to the program at the State Fair, the teachers association annual conference, the state school nurses annual conference, a local public health conference, and at other presentations and health fairs throughout the state. In Utah, activities included the following: mailed promotional items such as letters, posters, fliers, postcards, and DVDs to schools and ski resorts; radio advertising; displays and distribution of materials at the nurses annual conference and; presentations at local meetings for coaches and PE instructors. Specifically, over 1,000 fliers were distributed, a radio and TV segment took place, three presentations were given to about 80 coaches and 92 PE instructors, and approximately 100 letters were mailed in Utah.

In Utah, the months with highest participation were January, April, and December, during which a presentation was given or information was distributed at coaches' and PE instructors' meetings. The highest months of participation in Minnesota were October and November, but it is unknown what promotional activities occurred during those months. During several months, there were zero people who took the program, although fliers and promotional packets were mailed or given out during those months.

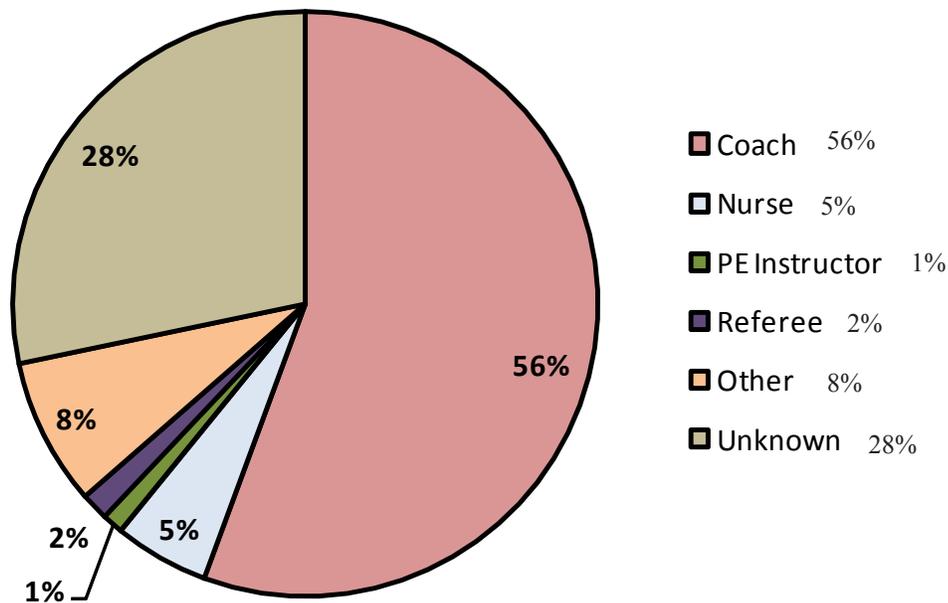
Overall, it appears that the mailing of fliers and promotional materials has not been effective in gaining participation in the program. Presentations or distribution of informational materials directly to coaches or others involved in youth athletics during training meetings seems to have been more effective based on Utah administrative records. However, participation for both states appears to have been low relative to the many marketing/promotional activities conducted.

# RESULTS

## Unintended Outcomes of the Program

Though originally created for coaches, referees, and others involved in youth athletics, others such as school nurses, students, parents, and teachers have benefited from the WWA program. This can be seen in the distribution of individuals who completed the pre- and post-tests in connection with the online training (see Figure 14). During the first three years of program implementation, 5.0% of those who completed the program were nurses, and 8.0% were a combination of students, parents, teachers, health educators, and others not directly involved in youth athletics (included in the “Other” category). Approximately 28.0% of participants did not identify their role.

Figure 14. Overall Distribution of WWA Participants, by Role, 2006-2008



The assessment of long-term effects of the program for nurses and others not directly involved in youth athletics was limited in this evaluation due to small sample sizes for those groups of individuals. However, their participation demonstrates interest in the program and suggests that the program may be useful to a wide variety of individuals beyond those directly involved in youth athletics.

## *Conclusions*

Overall, the WWA program appears to have been effective in causing the desired outcomes of the program by increasing asthma knowledge and capacity to handle an asthma attack with an athlete. Pre- and post-test scores indicate that short-term asthma knowledge increased as a result of viewing the online training video, though online evaluation survey results suggest that not all of the knowledge was retained over time. However, approximately 90.0% of coaches and other WWA participants reported feeling more prepared to handle an asthma attack with an athlete after viewing the online training. The usefulness of the mailed asthma materials can be seen through the high percentage of coaches and others who reported carrying the materials during practice or games and by the percentages who reported having used them when assisting an athlete with asthma, particularly among those who have experienced an asthma attack with an athlete since viewing the online training. The laminated emergency card (LEC) appears to have been the least used to assist an athlete with asthma; however, nearly two-thirds of online evaluation survey respondents reported carrying it during practice and games.

Results also indicate that WWA participants mostly demonstrate the desired attitudes and behaviors of the program. The behavior least practiced is the requesting of an asthma action plan from an athlete with asthma when one was not provided, with not quite half of coaches reporting that they do so. Because baseline data were not collected, it is difficult to know if the desired attitudes and behaviors are due to the program. However, questions regarding prior behavior for Utah indicate that at least in coaches' perceptions, they have made positive changes in their interactions with athletes due to the program. Results suggest perceived improvements in requesting an asthma action plan when one is not provided, encouraging athletes with asthma to warm up before practice or games, working with athletes to help them manage their symptoms during practice or games, and feeling prepared to help an athlete handle an asthma attack.

Online evaluation survey results and comparisons of marketing/promotional efforts in 2008 relative to the number of WWA participants during the year indicate that some marketing efforts have been largely ineffective in recruiting participation in the program, while others have been more effective. Correlations of monthly marketing/promotional activities in Utah with monthly participation in the program indicate that the distribution of fliers, posters, postcards, and other mailings have been ineffective in recruiting participation in the WWA program. Also, the total number of participants for the year is not reflective of the large numbers of fliers and other promotional materials distributed during the year. Utah records do suggest that presentations to groups of coaches may be more effective in encouraging participation, which was demonstrated by higher numbers of participants during months in which presentations were given. From the online evaluation survey and web tracking records, it seems that Internet sources such as including links to the WWA program on other websites may also be an effective way to market the program.

An unintended outcome of the program includes participation by nurses, parents, students, teachers, and others not directly involved in youth athletics. They constitute approximately 13.0% of overall WWA participants, demonstrating that the program may have a wider effect than originally intended.

# RECOMMENDATIONS

## *Recommendations*

Recommendations for the program are based on evaluation findings and, if implemented, may improve the effectiveness of the WWA program. They should be assessed for feasibility and prioritized by the Utah and Minnesota Asthma Program staff.

- 1) Increase long-term knowledge retention by encouraging viewing of the program or asthma materials on a yearly basis. This may include providing incentives such as certifications for coaches who do so.
- 2) Improve marketing/promotional activities to encourage greater participation in the program:
  - a) Seek to promote the program through additional links on other websites or social media outlets relating to youth athletic programs.
  - b) Conduct presentations of the program directly to groups of coaches or others who are involved in youth athletics.
  - c) Increase marketing efforts to parents, teachers, or other individuals in the community who may have an interest in the program and who may be influential in promoting the program to coaches.
  - d) Create a forum to find out what marketing/promotional activities are effective in other states.
- 3) To increase participation in the program, work with public officials, school administrators, sports associations, or others as appropriate to create a policy requiring periodic WWA training for coaches and others involved in youth athletics.
- 4) Emphasize the importance of requesting an asthma action plan from athletes when one is not provided. This could be done by the following:
  - a) Obtain funding to modify the online training to emphasize the importance of obtaining an asthma action plan from athletes with asthma.
  - b) Include with the mailed asthma clipboard materials a sample copy of an asthma action plan for athletes to fill out.

# APPENDIX - PRE-TEST QUESTIONS

## *Pre-test*

Question 1: Which statement is TRUE?: An athlete whose asthma is well controlled:

- a) Only has asthma symptoms at night.
- b) Can participate in sports like other athletes. (78%)
- c) Still has abnormal lung function.
- d) Should never warm up before exercise.

Question 2: What happens in the airways of people whose asthma is poorly controlled?

- a) Swelling of the airways
- b) Excessive mucus production
- c) Spasms of muscles surrounding the airway (bronchospasm)
- d) B&C only
- e) A, B & C (79%)

Question 3: You should call 911 if an athlete is having which of the following symptoms?

- a) Rescue medication (albuterol or pirbuterol (Maxair)) is not relieving breathing difficulties, is not available, or used too recently to take again
- b) Lips or nail beds are bluish or dusky gray
- c) Peak flow reading moving from yellow zone to red zone
- d) Rapidly deteriorating symptoms (you are worried how to get through the next 20 minutes)
- e) Any one or more of the symptoms in A – D (94%)

Question 4: What is recommended to prevent exercise-induced asthma (EIA) symptoms?

- a) After an athlete has started competition and is already having difficulty breathing, he/she should take pre-exercise medications (Albuterol or Pirbuterol)
- b) Warming-up and stretching before strenuous aerobic activity
- c) Taking rescue (quick-relief) medications 10-15 minutes before beginning aerobic activity
- d) Avoiding strenuous exercise or aerobic sports activities
- e) B&C only (71%)

Question 5: Athletes should return to competition only when they can breathe easily and are free of asthma symptoms.

- a) True (92%)
- b) False

Question 6: Some athletes must take medications every day to prevent symptoms or episodes from developing. These medications are called “controller or preventive” medications and are not used as emergency rescue medications.

- a) True (92%)
- b) False

# PRE AND POST-TEST QUESTIONS

Question 7: What item(s) is/are used to evaluate lung function and provide information on asthma symptoms and medications?

- a) Peak flow meter
- b) Asthma action plan
- c) Nebulizer
- d) A & B (58%)
- e) B & C

Question 8: Parents should always inform the coach that their child has asthma, provide him/her with an asthma action plan (AAP), and discuss proper symptom management for when the child is under the direction of the Coach.

- a) True (99%)
- b) False

## *Post-test*

Question 1: For an athlete whose asthma is well controlled, which is TRUE?

- a) Only has asthma symptoms at night.
- b) Can participate in sports like other athletes. (92%)
- c) Still has abnormal lung function.
- d) Should never warm up before exercise.

Question 2: What happens in the airways of people whose asthma is poorly controlled?

- a) Swelling of the airways
- b) Excessive mucus production
- c) Spasms of muscles surrounding the airway (bronchospasm)
- d) B&C only
- e) A, B & C (95%)

Question 3: You should call 911 if an athlete is having which of the following symptoms?

- a) Rescue medication (albuterol or pirbuterol (Maxair)) is not relieving breathing difficulties, is not available, or used too recently to take again.
- b) Lips or nail beds are bluish or dusky gray
- c) Peak flow reading moving from yellow zone to red zone
- d) Rapidly deteriorating symptoms (you are worried how to get through the next 20 minutes)
- e) Any one or more of the symptoms in A – D (98%)

## POST-TEST QUESTIONS

Question 4: What is recommended to prevent exercise-induced asthma (EIA) symptoms?

- a) After an athlete has started competition and is already having difficulty breathing, he/she should take pre-exercise medications (Albuterol or Pirbuterol)
- b) Warming-up and stretching before strenuous aerobic activity
- c) Taking rescue (quick-relief) medications 10-15 minutes before beginning aerobic activity
- d) Avoiding strenuous exercise or aerobic sports activities
- e) B&C only (88%)

Question 5: Athletes should return to competition only when they can breathe easily and are free of asthma symptoms.

- a) True (99%)
- b) False

Question 6: Some athletes must take medications every day to prevent symptoms or episodes from developing. These medications are called “controller or preventive” medications and are not used as emergency rescue medications.

- a) True (96%)
- b) False

Question 7: What item(s) is/are used to evaluate lung function and provide information on asthma symptoms and medications?

- a) Peak flow meter
- b) Asthma action plan
- c) Nebulizer
- d) A & B (82%)
- e) B & C

Question 8: Parents should always inform the coach that their child has asthma, provide him/her with an asthma action plan (AAP), and discuss proper symptom management for when the child is under the direction of the Coach.

- a) True (99%)
- b) False

If you would like a copy of the tool used to conduct this evaluation please contact the Utah Asthma Program at [asthma@utah.gov](mailto:asthma@utah.gov) or 801-538-6141 or the Minnesota Asthma Program at 651-201-5909 (toll free at 1-877-925-4189) or [health.asthma@state.mn.us](mailto:health.asthma@state.mn.us).

