Industry-Relevant Research for Camp Professionals from ACA

2007

Healthy Camp Update

Year One Results: Healthy Camp Study

Marge Scanlin and Ellen Yard

Attending summer camp has been a tradition for U.S. youth for over 140 years. In 2002, over 11 million children and adults attended one of the approximately 12,000 U.S. summer camps. In a recent American Camp Association (ACA) survey of over 5,000 campers, their parents, and camp staff, all three groups indicated that camp enabled the participant to make new friends, meet kids that were different from themselves, gain self-confidence, and participate in a variety of new activities.

In a society that recognizes the challenge of keeping youth healthy and safe, one may ask about the camp environment and whether camps are taking all the steps they can to protect the health and safety of campers and staff. In a recent issues of the *MMMR (Morbidity and Mortality Weekly Report*, DHHS, Centers for Disease Control [CDC], September 29, 2006) the CDC reports rates of injury for participation in various sports. This data shows that *per 1,000 athlete exposures* (in practice or competition . . . but generally a few hours in length), the overall rates are as follows:

	Injuries per Thousand Exposures
Boys' football	4.36
Boys' soccer	2.43
Girls' soccer	2.36
Girls' volleyball	1.64

In comparison and in summary, overall rates *per 1,000 camp days* for participation *for a full day* in camp programs were as follows considering both illness and injury:

	Illnesses/Injuries per Thousand Days
Day Camps	0.69 for campers
	0.83 for staff
Resident Camps	1.54 for campers
	1.33 for staff

These are impressive rates, but the Healthy Camp Advisory Committee thinks camps can do even better.

Project Purpose

The objective of *The Healthy Camp Study: An Illness and Injury Surveillance Project* is to monitor illness and injury among campers and staff at U.S. summer camps and identify risk and protective factors associated with such adverse events. Long-term objectives of the five-year study are to monitor these annual results so that preventive interventions can be identified and integrated into the risk management programs. Using evidence-based science to establish camp health and safety practices can help camps decrease illnesses and injuries among both campers and staff. Thus, the ultimate goals are to help camps:

1. Provide as safe an experience as possible for both campers and staff
2. Improve staff effectiveness
3. Lower camp health care costs
4. Reduce insurance claims in both number and value

Participation

In 2006, 186 U.S. camps enrolled in the study and 140 of them provided 2006 data. Of those camps, 37 percent were day camps, and 63 percent were resident camps. This percentage breakdown matches the breakdown of camps affiliated with ACA.

Project Design

Data were collected and analyzed by The Ohio State University and Columbus Children's Research Institute utilizing RIO™ (Reporting Information Online) to perform surveillance of illness and injuries sustained by campers and staff over a ten-week period. For the purposes of this study, a reportable adverse event was defined as:

For campers,

A) An illness or injury that occurred during a camper's participation in the camp program, whether at camp or during an off-site camp activity (e.g., canoeing), and

B) That removed and/or restricted the camper from their normal camp routine for ≥4 hours.

For staff,

A) An illness or injury that occurred during a staff member's contracted dates, and

B) That removed and/or restricted the staff member from their usual and routine camp responsibilities for ≥4 hours.

A camp day was defined as one camper or staff member at camp for one day.

Results

From the chart below it can be seen that while overall rates were low in 2006, analysis of the injuries and illnesses that occurred show that both campers and staff were more likely to become ill at camp than to become injured.

	All Day Camps			All Resident Camps		
	# Adverse Events	Camp Days	Adverse Event Rate*	# Adverse Events	Camp Days	Adverse Event Rate*
Overall	252	335,921	0.75	1071	721,038	1.49
Illness	162		0.48	710		0.98
Injury	90		0.27	361		0.50
Campers	180	259,969	0.69	766	498,360	1.54
Illness	119		0.46	497		1.00
Injury	61		0.23	269		0.54
Staff	63	75,952	0.83	296	222,678	1.33
Illness	39		0.51	207		0.93
Injury	24		0.32	89		0.40

* Adverse event rate is calculated as the number of adverse events divided by the total number of camp days and multiplied by 1,000. A camp day is defined as one camper or staff member at camp for one day.

- Since some reports did not indicate whether the individual was a camper or staff member, the number of camper and staff adverse events does not sum to the overall.

Day camps reported the highest percentage of illnesses and injuries occurring during scheduled activities. During free time, injuries were more likely to occur than illnesses. Injuries at *resident camps* were more likely to occur during scheduled activities when compared with occurrences during free time or evening programs. Illnesses were more likely to be reported during free time followed by overnight and camp activities.

Injuries were most likely to occur on the second day of camp for both day and resident campers. Staff were more likely to report injuries at the end of the week. For day camps, these injuries were more likely to occur in the morning, and for resident camps, they were more likely to occur in the afternoon. A prevalence of staff injuries in both day and resident camps occurred in the afternoons.

Complete results of year one data are posted on the ACA Web site at www.ACAcamps.org/research. Look for the link to "Healthy Camps —2006." This information will further explain results such as these:

- In day and resident camps, the most common camper and staff illnesses were classified as stomach flu, virus, and aches. Sore throats and fever also accounted for a significant number of illnesses.
- Communicable diseases accounted for 32 percent of day camp illnesses among campers, and 33 percent of illnesses among day camp staff. For resident camps, those numbers rose to 40 percent for campers and 51 percent for staff.
- Head injuries accounted for 41 percent of the injuries to day campers. This is contrasted with staff in day camps where injuries were more likely to affect the lower extremities (47 percent) than the head or face (5 percent). In resident camps, head injuries accounted for 21 percent of camper injuries, and 48 percent of resident camper injuries were to the lower extremities. Resident camp staff were most likely to experience injury to lower extremities.
- Common injuries for day camps included broken bones, head injuries from falls, and sprains or strains.
- Common injuries for resident camps included sprains or strains, bruises, and wounds.
- Trips and falls were the most common causes of injury in all groups: campers and staff, day and resident.
- In day camps, for events in which wearing protective equipment was applicable, *it was not being worn in 56 percent of reported situations.* In resident camps, failure to wear protective equipment was reported in 29 percent of incidents.

Camps Can Do Even Better!

Additional information in this newsletter addresses specific recommendations to reduce injury and illness rates in camps. Clearly, the use of appropriate protective equipment, enforcing camp rules and supervision practices, and using methods suggested in this newsletter to address the transmission of communicable disease would make a large dent in camp performance and the reality of campers and staff participating fully in the camp experience.

There Is Still Room to Join the Study!

Any day or resident camp program may participate in the study regardless of affiliation. It is not necessary to belong to any particular organization to participate. All camps in the study will receive an annual summary of their own camp data as well as a copy of the national data report for their type of camp (day or resident). *All* information provided to the Children's' Research Institute is *Confidential* and is aggregated with data from other camps for summary report purposes. No sponsoring organization ever sees data from individual programs. See the box in this newsletter with information on the Web site where you may register. An Internet connection during the summer is preferred for reporting purposes, but a limited number of camps who must phone in data on a weekly basis will be accepted into the study group. Camps are asked to commit for the four remaining years in the study—from the summer of 2007 through the end of the summer of 2010.

Marge Scanlin, Ed.D., former executive officer, research, for the American Camp Association.

Ellen Yard is a Children's Research Institute researcher.

Sign Up Now to Commit Your Camp to the Healthy Camp Study

- Agree to review your health log weekly and provide data on all events that meet study criteria (only those that keep campers/staff out of program for four or more hours).
- Provide weekly report via Internet or phone.
- Receive summary report for your camp compared to all U.S. data.
- Receive training on how to report incidents.
- No charge to participate.

Sign up today at www.ACAcamps.org/research/healthycamp.php, or go directly to the OSU Children's Research Center site at http://HealthyCampEnrollment.ccri.ws.

Appreciation is expressed to Markel Insurance Company for their generous support of this project.

Markel Insurance Company
4600 Cox Road
Glen Allen, VA 23060
Phone: 804-527-7758
www.campinsurance.com

Lessons from the Injury Analysis of the First Year of the Healthy Camp Study

Edward A. Walton, M.D.

From its inception, the Healthy Camp Study has had one underlying goal: to use the data gathered to help make the camp experience healthier and safer. Now that the data from the first summer has been collected and analyzed, some interesting findings have emerged.

The good news is that in comparison to other activities that many children participate in, camp is a very safe activity. In September 2006, the High School Sports-Related Surveillance Study reported the rate of injuries suffered by participants in high school sports (Center for Disease Control & Prevention 2005-2006). Overall, the risk of a child having to miss a day of their sport due to an injury in a practice or a game was more than five times the risk of a child or staff member missing four hours of camp participation secondary to an injury. This is powerful news to share.

While overall, camp is a very safe experience, the Healthy Camp Study did reveal data that may be useful in thinking about safety next summer. Interesting findings emerged in relation to camp activities, mechanisms and patterns of injuries, and the ages of those affected that could guide safety decisions in the future.

To begin, nearly one quarter of the time an adverse event had its onset was during unsupervised time. Clearly, unsupervised time has risks that should be examined by each camp. However, almost half of injuries had their onset during supervised, scheduled activities. Analysis of when and where these incidents occur in your camp may lead to conclusions that help to lower the incidence of injuries.

In addition, by a significant margin the most common mechanism of injury for both campers and staff was a fall/trip. One quarter of campers admitted to the hospital for an injury had fallen, and nearly half of all broken bones reported were caused by a fall. These findings underscore the fact that camps have varied terrain and active children on site. However, each camp should review its guidelines regarding footwear (closed-toed shoes are always safest) and watch for patterns of injury that may be related to activities which involve running over rocks, roots, or uneven ground.

Because of long-term effects, injuries to the head are of special interest. Of concern, injuries to the head and face made up one quarter of all injuries in 2006. Fifteen percent of those having head injuries were significant enough to report having symptoms of concussion. Additionally, head injuries were more common in day campers. This most likely is a result of younger children having larger heads in proportion to their bodies and underdeveloped motor skills, but is worrisome as longer-term disabilities may result. Day camp professionals need to be especially vigilant in supervision of their campers, especially on playgrounds and on wet surfaces surrounding pools and lakes. (See the sidebar on "Head Injury Prevention Tips.")

The most powerful benefit of the Healthy Camp Study will be its ability to follow trends over time. Every camp that enrolls will have the ability to review their own individual illness and injury data and then see what happens when they make interventions to make their camp safer and healthier. What a powerful tool!

Head Injury Prevention Tips

1. Use well-fitting, approved helmets in contact or velocity or height sports such as:
   - Baseball/Softball
   - Cycling
   - Football
   - Hockey
   - Horseback Riding
   - All Terrain Vehicles/Go-Carts
   - Skateboarding
   - Skiing
   - Wrestling
   - Martial Arts
   - Rock Climbing
2. Use sports equipment that is appropriate for participant age and level of development.
3. Wear equipment or clothing that does not obstruct vision.
4. Wear seat belts at all times. Use car seats for children under 40 pounds, and booster seats for children under 60 pounds when required.
5. Teach street smarts. Children can't cross the road safely by themselves until they are seven or eight.
6. Children under six should not be in a bunk bed. Be sure older children are well restrained by a side rail in an upper bunk.
7. Make sure playgrounds are safe. Surfaces around equipment should have at least 12 inches of safety materials.
8. Do not dive in shallow or murky water or above ground pools. Do not run on wet surfaces.
9. Supervise, supervise, supervise!

Web Resources

Refer to the following for additional information:

- Head Injury Prevention Tips: American Association of Neurological Surgeons, www.aans.org
- Falls : Brain Injury Association of America, www.biausa.org
- Pediatric Advisor Head Injury Prevention: University of Michigan, www.umich.edu

Reference

Centers for Disease Control and Prevention. Sports-Related Injuries Among High School Athletes – United States, 2005-2006 School Year. MMWR. 2006;55:1037-1038.

Edward A. Walton, M.D., is assistant clinical professor of emergency medicine and pediatrics at the University of Michigan in Ann Arbor, Michigan. He has been involved in camping and camp health research for seventeen years and is consultant on camp health issues to the American Academy of Pediatrics. For questions or more information, contact Dr. Walton at ewalton@umich.edu.

Illness at Camp: Making It Better

Linda Ebner Erceg, R.N., M.S., P.H.N.

Risk management has been alive and well in our camps for many years. Interestingly, in our efforts to reduce risk exposures, we tend to focus on incidents that cause problems. We are good at "making it better" by making it less likely the incident will occur.

This works well for injury management but not for illness. We notice situations that might cause injury; we're not as good at that when it comes to illness. Illness has a much more insidious onset. We touch doorknobs and faucets with little regard to their pathogen-bearing potential. We seat people tightly together in our camp dining rooms, so close that when someone sneezes or coughs, they do not have a "people free" area in which to do so.

Since 2006 data from the Healthy Camp Study indicated that the rate of illness (0.98) among campers and staff *was almost double* the rate of injury (0.50), we need to get better at managing illness. This is especially important because the data was based on incidents that impacted the person's camp experience for four or more hours. That's a lot of time to be out of the camp program. People sign up for camp not protracted time in the health center.

In trying to limit illness, be realistic. Human beings get ill or injured upon occasion. But when a camp's program, rules, facility, or equipment *cause* illness or injury, that is a factor we can improve. Illness happens because people get sufficiently exposed to a pathogen, and/or personal resilience is reduced, making it more likely that illness will occur. Consequently, the starting point for illness management in our camp communities is to:

A) maintain resilience so people are less susceptible to pathogens, and
B) implement practices that minimize the potential that someone will get ill.

Specific Strategies

Using data from the 2006 study, let's look at some specific strategies.

Maintaining Personal Resilience

Maintaining resilience to illness starts with understanding that a person's circadian rhythms (the natural cycles of human biological processes) influence when illnesses will manifest. Circadian rhythms research suggests that emerging illness tends to manifest later in the day. This was reflected in the 2006 data (e.g., time of onset by type of adverse event). Consequently, consider the following:

A) Prep health center staff to be responsive to the flow of the day.
B) Examine the camp schedule; are people—campers and staff—getting adequate sleep at night and breaks during the day?
C) Is this coupled with adequate nutrition and fluids to support their resilience?

Another notable point in the 2006 data was the percent of illness classified "homesickness, anxiety, fatigue" (6.3 percent) in combination with "stomach flu, virus, ache" (21.4 percent) among campers. Given that children often somatize their feelings and that ACA's *Inspirations* (2005) noted a tendency for campers to feel unsafe, it makes sense that another intervention is to reduce negative emotional stress by helping people label it and then implement reduction strategies. Use cabin councils, debriefing times, and small-group discussions to name stressors and identify stress-reduction strategies.

Practices That Minimize the Potential for Illness

Practices that minimize the potential for illness are drawn from classic communicable disease control strategies. Given 2006's data it was interesting to note two significant clusters of illness. One included throat, nose, lung, ear, and eye maladies; these "upper respiratory infections" pass from person to person as the camp season unfolds. The second was made up of upper and lower gastrointestinal illnesses, those often associated with what one eats or to what they are exposed (e.g., Norwalk virus).

Passing illness from person to person gets stopped in its tracks if the passing process gets interrupted. For example, everyone knows to wash their hands before eating, but not everyone does this. More and more camps are placing hand sanitizers right on the dining room table. Enhance this action by teaching people to keep their hands away from their faces . . . portals of entry.

Also think about the lowly cough, sneeze, or simply the air that surrounds each person. If that individual has an illness that can be passed to others via air—like chicken pox, the common cold, pertussis, strep throat—it makes sense to provide enough space in our camp areas so people can be a healthy distance from one another. That healthy distance is often described to children as the length of their arm, a distance roughly associated with their lung capacity. Because so many camp activities take place outdoors, we enjoy a natural dispersion that's hard to beat in other settings—except for the camp dining room. Even if a person wanted to sneeze away from others, it's impossible to do so. Spread things out, even if it's as simple as placing one table "on the veranda" so campers and staff can dine *al fresco* in an effort to keep people apart.

Other risk reduction strategies for illness management will surface as the study progresses. However, every camp can target a lower illness rate for next summer.

- keep people resilient via adequate rest, hydration, and nutrition;
- keep washed hands away from the body's entry points; and
- put as much space as possible between people.

Linda Ebner Erceg, R.N., M.S., P.H.N., is the health and safety coordinator for Concordia Language Villages and the executive director of the Association of Camp Nurses.