

ORIGINAL RESEARCH

Health Supply Utilization at a Boy Scout Summer Camp: An Evaluation for Improvement and Preparedness



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Objective.—To describe the health conditions treated by a health services center at a Boy Scout summer camp and make recommendations for appropriate resources and supplies.

Methods.—We conducted a retrospective review of health center utilization at a Boy Scout camp in central Missouri during the summers of 2012 and 2013. Health logbook data were compiled and analyzed using descriptive and comparative statistics.

Results.—During the study period 19,771 camp participants made 1586 visits to the health care center. The overall incidence rate of health center visits was 6.20 visits per 1000 camp days. Two-thirds of visits were for illness and the remainder for injury. Over 90% of patients were returned to camp, 7.3% were transferred to another health facility, and 1.6% were advised to leave camp and return home. The most common treatments were rehydration (17.8 %) and administration of analgesics (13.4%) and topical creams (12.3%).

Conclusions.—Summer camps need to be prepared for a wide range of conditions and injuries in youth campers, leaders, and staff members. Over 90% of presenting complaints were managed on site, and the majority of conditions were easily treatable minor injuries and illnesses. We provide recommendations for appropriate medical supplies and suggest opportunities for improvement to aid health centers in planning and treatment.

Key words: camping, wounds and injuries/prevention and control, adolescent health services, quality improvement

Introduction

More than 11 million individuals attend one of the approximately 12,000 summer camps in the United States annually.¹ Campers are at potential risk for a wide spectrum of injuries and illnesses depending on the camp environment and scope of activities, nevertheless, information on the health care needs of camp participants is limited. The available literature on health issues in summer camps focuses on health risk factors, trends in healthcare center usage, and basic analyses of illness and

injuries reported by heterogeneous types of camps and outdoor experiences.^{1–11} These studies, and the guidelines published by the American Academy of Pediatrics,^{8,12} commonly exclude adults. Several studies have focused on specialized types of camps or populations of campers (such as persons with disabilities),^{13–15} limiting the generalizability of findings. The literature on wilderness travel is limited in applicability to summer camps, and recommendations are not generally evidence-based.^{6,16–18} This lack of information impedes appropriate planning for efficient treatment and prevention of health issues in participants in summer camps.

This study of youth and adults attending a Boy Scout camp aims to describe the health conditions of patients that presented to the health services center and to make recommendations about appropriate resources to meet those needs. The Boy Scouts of America has 2.3 million members aged 6–17 years, the majority of whom attend a summer camp at least once.¹⁹

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Methods

DESIGN AND POPULATION SOURCE

This study is a retrospective review of logbook data from the health center of a large Boy Scout camp in the central United States (H. Roe Bartle Scout Reservation, Osceola, MO, 2014). The 4200-acre camp resides in a hilly and densely wooded area in central Missouri. Data from the National Oceanic and Atmospheric Administration database shows a typical summer temperature range of 18.9°C to 43.3°C in the area with average daytime high temperatures of 27.4°C. Six camping sessions of 10 days each are conducted from June to August. Approximately 1600 participants attend each session, for an annual census of over 6600 scouts and 3000 leaders. Each session accommodates about 40 Boy Scout troops. Each Boy Scout troop has an average of 25 Boy Scouts and 5 adult leaders who attend camp. Over 400 camp staff members are present for all 6 sessions. Staff members consist of individuals, aged 16 years or older, who are involved with the Boy Scouts of America and wish to work at the camp and guide campers on merit badge courses, supervised activities, and other camping-related events. Leaders are individuals, over the age of 18 years, who come to camp with their troop and manage the troop campsites and their campers. Leaders are typically parents of campers in the troop or other adult volunteers in the troop. All camp participants, including adults, are required to complete a health history form, obtain a physical examination, and receive approval for participation in activities from his or her personal physician before attending camp. Camp participants are overwhelmingly male and come from a wide range of socioeconomic backgrounds in urban, suburban, and rural communities.

The health center provides health care 24 hours/day when the camp is in session. The center has 4 beds and is equipped with basic equipment including a defibrillator, blood pressure cuffs, glucometer, suture kits, bandages/wraps, and a small supply of prescription and non-prescription medications. No laboratory or radiological capabilities are available. As most medications and supplies are donated, availability is highly variable. Health care is provided by 1 or 2 volunteer physicians from a variety of specialties, including but not limited to orthopedic surgery, pediatrics, cardiology, internal medicine, otorhinolaryngology, emergency medicine, and family medicine. Three to 4 full-time volunteer health professionals assist in patient care administrative duties, including recordkeeping. Patients who require a higher level of evaluation or medical care are transported by private vehicle or ambulance to the nearest hospital, 48 km (30 miles) away.

DATA COLLECTION

During the study period all visits to the health center were documented manually in logbooks containing brief descriptions of the injuries or illnesses, examination findings, treatment provided, and disposition. Reasons for individual visits were categorized as illness, injury, prescription medication administration, or patient recheck. Follow-up visits for the same complaint were documented with a new study identification record and were marked as a “patient recheck” instead of an injury or illness. The definition of injury was adopted from that used in military studies as being a traumatic wound or other condition caused by an external force.²⁰ Prescription medication administration was defined as prescription medication brought by the patient from home, such as growth hormone injections or other medications that the health center administered. Any condition that did not meet criteria for injury, medication administration, or recheck was classified as an illness.

The study covered all logbook entries for camp residents and staff. Entries for visitors and those logbook entries that had missing or illegible data were excluded ($n = 27$).

CATEGORICAL MEASUREMENTS

Logbook data for 2 consecutive summer camp years (June–August 2012 and 2013) were retrieved by a medical student and entered into a computerized database. The data were categorized by patient age, chief complaint/findings, treatment provided, and disposition. Each patient was assigned a study identification number. No personal identifying information was recorded to ensure patient confidentiality. The University of Kansas Institutional Review Board approved these methods of collection and analysis.

STATISTICAL ANALYSIS

The incidence of reported events is described as rates per 1000 camper days, similar to other camp studies.^{1,7,18,20}

The custom-built database used REDCap database software for secure storage of data. Continuous variables are described using mean and standard deviation, while categorical variables are described using frequency and percentage. The χ^2 test was used for comparisons between categorical variables. Logistic regression models were used to calculate odds ratios. Unless specifically stated for a correction, statistically significant differences and associations were identified by P values $< .05$. All statistical analysis were conducted using SAS v.9.4 (copyright 2002–2012 by SAS Institute Inc, Cary, NC).

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