

10-Year Incident Monitoring Trends in Outdoor Behavioral Healthcare: Lessons learned and future directions.

Stephen E. Javorski, MA

Research Assistant

Outdoor Behavioral Healthcare Research Cooperative

University of New Hampshire

Michael A. Gass, PhD, LMFT

Director

Outdoor Behavioral Healthcare Research Cooperative

University of New Hampshire

Risk in Outdoor Programming

Risk is an inherent and requisite element of wilderness and adventure-based programming, intentionally used by skilled facilitators and therapists to create a state of eustress in clients to support positive development (Russell & Harper, 2006). Providers of adventure programming strive to minimize inappropriate risks in client experiences while maintaining appropriate levels of actual and perceived risks sufficient to create the adaptive dissonance necessary to support positive change (Gass, Gillis, & Russell, 2012; Priest & Gass, 2005). In addition to physical risks, Outdoor Behavioral Healthcare (OBH) programs provide clients opportunities to confront social, emotional, and behavioral risks through Adventure Therapy (AT) interventions. This involves the prescriptive use of adventure activities by mental health professionals to kinesthetically engage clients on affective, behavioral, and cognitive levels (Gass et al, 2012). The key to this process is to manage risks so that clients are engaged in these experiences enough to foster functional change while limiting their exposure to inappropriate dangers.

One important method professionals use to manage such risks is to track incidents occurring while clients are in the field so they may better understand the factors that lead to accidents and other negative incidents. This is done to enable OBH professionals to adapt programming to reduce the likelihood of similar incidents in the future. There have been considerable efforts to assess injury and illness rates in outdoor programs over the past 20 years (Boulware, Forgey, & Martin, 2003; Auerbach, 1992).

One of the most comprehensive analyses of incidents in adventure activities comes from data developed through the WRMC/AEE Incident reporting project conducted from 1992 – 2008. This project provided

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insight into the types and severities of incidents commonly occurring in guided adventure activities, and established industry-wide injury and illness rates by activity (Leemon, 2008). While this information can serve as a benchmark to compare OBH incident rates, several differentiating factors must be considered. OBH clients differ from most clients in other forms of adventure programming in two significant ways: (1) OBH clients are primarily drawn from at-risk adolescent populations and can be placed in program against their will and (2) training in high-risk adventure activities is not the primary focus of OBH programs (Russell and Harper, 2006). It is possible that these differences in client and program level characteristics may be related to higher or lower incident rates, therefore direct comparisons of OBHIC to WRMC/AEE or other expeditionary education providers such as the National Outdoor Leadership School (NOLS) are not ideal. In addition, the WRMC data does not track incident data regarding physical restraints, a practice that is often associated with behavioral healthcare programs.

Physical Restraints

The use of physical restraints is a frequent intervention in inpatient mental health settings (Prinsen & van Delden, 2009). A review of the literature prior to 2000 reports prevalence rates of 28% -60% in psychiatric facilities serving children and youth (De Hert, Dirix, Demunter, & Correll, 2011). There is some evidence that physical restraint is an acceptable practice with children and adolescents when they are in danger of causing harm to themselves and others (Dean, Duke, George, & Scott, 2007; Delaney, 2006). However, the majority of evidence supports the contrary, showing restraints to be physically and emotionally harmful to both staff and clients (De Hert, et al., 2011; Masters et al., 2002; Miller, Hunt, & Georges, 2006). Nunno, Holden, and Tollar (2006) reported 45 fatalities related to restraints in child and adolescent mental health facilities between 1993 and 2003, and there is significant ethical concern from the national and international community about these practices (Steinert et al., 2010).

In 2003, the Substance Abuse and Mental Health Services Administration (SAMHSA) published a National Action Plan for reducing the use of restraints in mental health services. The plan suggested changes in policy to empower staff to use treatment approaches that discouraged the need for restraints, and called for improved monitoring of restraint interventions in the mental health industry (SAMHSA, 2003). Several programs have been developed to address these goals, and evidence found significant decreases in restraint rates in child and adolescent mental health facilities following their implementation (LeBel et al., 2004; Martin, Krieg, Esposito, Stubbe, & Cardona, 2008; McCue, Urcuyo, Lili, Tobias, & Chambers, 2004; Miller, et al., 2006). Despite significant reductions in restraint rates in such programs, the National Association of State Mental Health Program Directors Research Institute (NRI) reported the national restraint rate for youth ages 13-17 in inpatient mental health care was 8.4 hours of restraint per 1000 client days, with 10.8% of all clients being restrained

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during treatment as of December 2009 (NRI, 2010). Given the Miller Bill's (Stop Child Abuse in Residential Programs for Teens Act, 2008) claims that wilderness therapy programs were excessively dangerous and frequently overused physical restraints, it became extremely important for OBH programs to examine the validity of these claims and accurately document restraint rates while working to reduce them as much as possible.

OBHIC Risk Incident Tracking

The Outdoor Behavioral Healthcare Industry Council's (OBHIC) risk management database specifically examines incidents, illnesses, and restraint rates in residential Outdoor Behavioral Healthcare (OBH) programs, and has contributed to this knowledge base since its inception in 2001 (Outdoor Behavioral Healthcare Research Cooperative (OBHRC), 2011; Russell & Harper, 2006). Previous analyses of OBHIC data have shown promising trends in OBH program incident, illness, and restraint rates (OBHRC, 2011). The OBHIC injury rate has been relatively stable since 2001, the illness rates have shown a consistent decreasing trend (OBHRC 2011), and the OBHIC restraint rate in 2010 was more than four times smaller than that found in inpatient mental health facilities serving youth in the United States (Gass, et al., 2012). Although the OBHIC data has clearly described incident types and frequencies, information about the circumstances surrounding each incident has not been included in the database to this point.

A deeper understanding of the factors related to incidents and actual incident rates in Outdoor Behavioral Healthcare programs is essential to practitioners seeking to improve their own risk management practices. Such findings may have substantial practical application for OBH practitioners, for once patterns in incident rates are established for OBH programs, practitioners can make informed decisions about when to increase staff to client ratios, alter programming to provide appropriate levels of physical and emotional challenges, and change timing for meals, technical skill lessons, therapeutic processing, and reflection in order to more effectively manage or reduce exposure to actual risk in the field.

The purpose of this study was to: (1) identify trending in OBHIC incident rates since data collection began in 2001; (2) explore the relationships between injury, illness, restraint, and runaway rates in OBHIC programs and time of day, current activity, and percentage of the program completed at the time of the incident; and (3) evaluate these results in the context of injury and illness data from the VRMC/AEE incident tracking project (Leemon, 2008), traditional expeditionary programming for youth, and national restraint and injury rate estimates for adolescent inpatient treatment centers.

Methods

The following criteria were established for incidents to be included in the annual report to the risk management database. Level one injuries and illnesses were defined as any such incident requiring a client to spend more than 12 hours out of regular programming (including time spent at rest in

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the field). Injuries and illnesses were categorized as Level two if the incident required the client be removed from regular programming for more than 24 hours. Runaways were similarly divided, with Level one runaways referring to clients who were away from regular programming for 12 hours or more, and Level two runaways referring to incidents when clients were away from their group for 24 hours or more. Restraints were defined as any action that restricted a client's freedom of movement against their will, even in the absence of physical or chemical restraint devices. While OBHIC has historically categorized such actions into three categories based on duration of the hold, they were collapsed this year to allow for easier comparison to restraint rates in other programs.

All injuries and illnesses (guides and clients), as well as runaways and restraints (clients only) meeting these criteria were recorded by OBHIC member programs for 2011 ($n = 12$) and submitted to the OBHIC incident database at the University of New Hampshire. Note that data was not collected in 2005. Starting in 2011, the activity the client/guide was engaged in, weather, number of client days in program, time of day, and date at the time of each reportable incident, as well as total client and staff field days, average length of stay, total clients enrolled, and total clients completing treatment were reported. In 2011, 181 client incidents were reported over 70,028 client field days, with an additional 28 guide incidents over 30,001 guide field days, for a total of 209 incidents over 100,029 user days.

Client and staff injury and illness rates, as well as client restraint and runaway rates, were calculated in terms of incidents per 1000 client/guide field days, where one field day was defined as a 24 hour period in a program for one client. In addition, total OBHIC incident and illness rates were calculated by aggregating client and guide incident data. Incident rates were calculated by combining Level one and Level two data in all categories. OLS regression analyses were conducted on all incident rates by year to identify trends in incident rates over time. Data was further disaggregated by activity, time of day, and percentage of program completed (based on average length of stay) at the time of incident. Data about activity duration was not collected in 2011, and therefore incident rates by activity could not be calculated. Frequency data was further explored through histograms.

Results

Injuries

The total client injury rate in OBHIC member programs for both Level 1 and 2 injuries was 0.51 per 1,000 client field days in 2011, or one client injury for every 1,961 client days of programming. When only Level 2 injuries were calculated, including both those that were field manageable and those that required evacuation for medical attention, the injury rate fell to 0.11 per 1000 client field days, or one injury every 9,091 client days. The average client injury rate for programs contributing to the OBHIC database since 2001 was 0.52 injuries per 1000 client field days, or 1 injury for every 1,923 days of client programming. Figure 1 illustrates OBHIC incident rates by year since 2001. Regression analysis indicated a slight positive trend in

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the incident rate since 2001, estimating a negligible increase of 1 additional client injury every 58,824 client field days per year. Note however that the regression coefficient of this increase was not significant ($\beta = .018, p = .34$). This suggests that with the currently available data time was not a significant prediction of client injury rate.

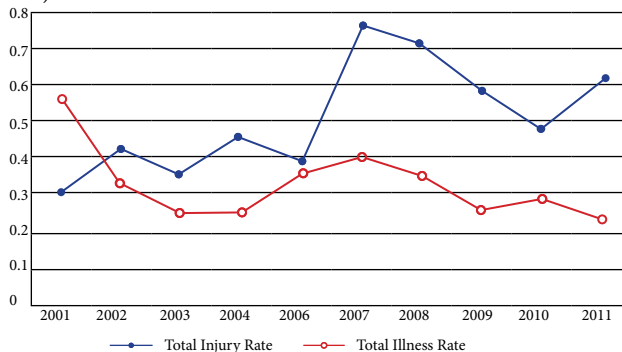
The guide injury rate on OBHIC ranged from a high of 0.83 injuries per 1000 field days in 2011 to a low of 0.32 injuries per 1000 guide field days in 2001 (see Figure 1). The 10-year average guide injury rate was 0.55 injuries per 1000 guide field days, or one guide injury for every 1,827 guide field days. Regression analysis indicated a slightly positive, but again insignificant trend in guide injury rate since 2001 ($\beta = .023, p = .107$).

Figure 1. Client and guide injury rates per thousand client/guide field days between 2001 and 2011



Total OBHIC annual injury rates are displayed in Figure 2. The average total injury rate in OBHIC programs since 2001 was 0.53 injuries per thousand field days, or about one injury for every 1,887 field days. The total injury rate ranged from a low of 0.36 per thousand field days in 2003 to a high of 0.75 injuries per thousand field days in 2007.

Figure 2. OBHIC total injury and illness rates per thousand participant days (clients & staff)

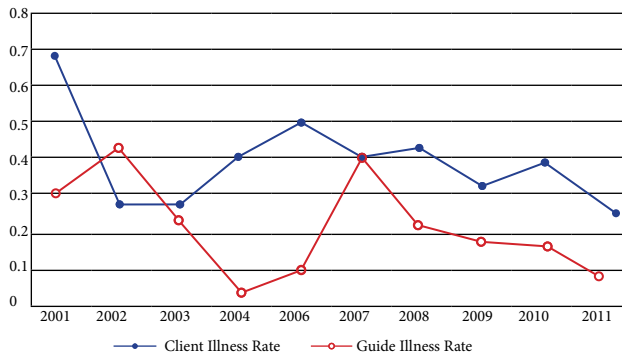


Illnesses

Client illness rates (see Figure 3) have ranged from 0.26 per 1000 client field days in 2003 and 2011 to 0.69 illnesses per 1000 client field days in 2006. Practically speaking, this range indicates at the highest point in 2006 there was one client illness for every 1449 client field days, while at the lowest illness rate in 2003 and 2011 there was one client illness every 4348 client field days. The average illness rate in OBHIC programs since 2001 was 0.40 illnesses per 1000 client field days or one client illness for every 2,529 day of client programming. Regression analysis indicated a slight negative trend in illness rates since 2001, estimating a decrease of one illness for every 71,429 client field days per year. As with the injury analysis, the regression coefficient was not significant ($\beta = -.014, p = .287$), indicating that time is not a significant predictor of illness rate with the available data.

Guide illness rates are displayed by year in Figure 3. The 10 year average guide illness rate in OBHIC programs was 0.22 illnesses per 1000 guide field days, or one guide illness every 4,632 days. The guide illness rate reached its lowest historical level in 2011, when there was one guide illness every 10,000 guide field days. Regression analysis indicated a slightly negative, but statistically insignificant trend in guide illness rates ($\beta = -.017, p = .189$).

Figure 3. Client and guide illness rates per thousand client/guide field days from 2001-2011



Client Restraints

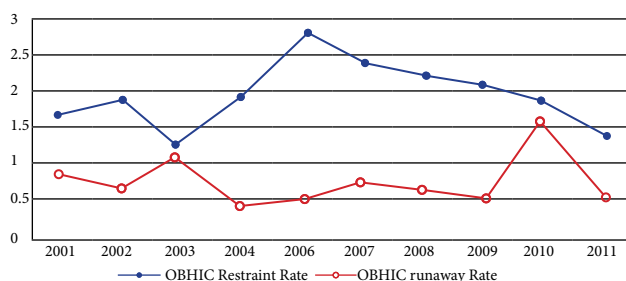
As illustrated in Figure 4, OBHIC restraint rates have been decreasing since 2006. It is of note that when OBHIC reported their highest restraint rate in 2006, one program reported 42% of all restraints. Since 2001, the OBHIC programs have reported an average restraint rate of 1.95 restraints per 1000 client field days, or one restraint for every 513 client days. In 2011, OBHIC reported the lowest restraint rate since 2001, with one restraint occurring every 763 days. Regression analysis suggested a slightly positive but statistically insignificant trend in restraint rate since 2001 ($\beta = .010, p = .828$).

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Runaways

The OBHIC runaway rate has ranged from a low of 0.32 per one thousand client days in 2004 to a high of 1.54 runaways per thousand client days in 2010. This translates to one runaway for every 3,125 client days in 2004 and one runaway every 649 client days in 2010. The increased runaway rate in 2010 can be largely attributed to one program reporting 82% of the runaways that year. The average OBHIC runaway rate since 2001 was 0.73 per thousand client days, or one runaway every 1,368 days. Excluding data from 2010, this rate fell to 0.63 runaways per thousand client field days or one runaway every 1,599 client days. Regression analysis indicated a relatively stable trend in the OBHIC runaway rate since 2001, though the relationship was statistically insignificant ($\beta = .005$, $p = .886$).

Figure 4. Client restraint and runaway rates per thousand client field days between 2001 and 2011

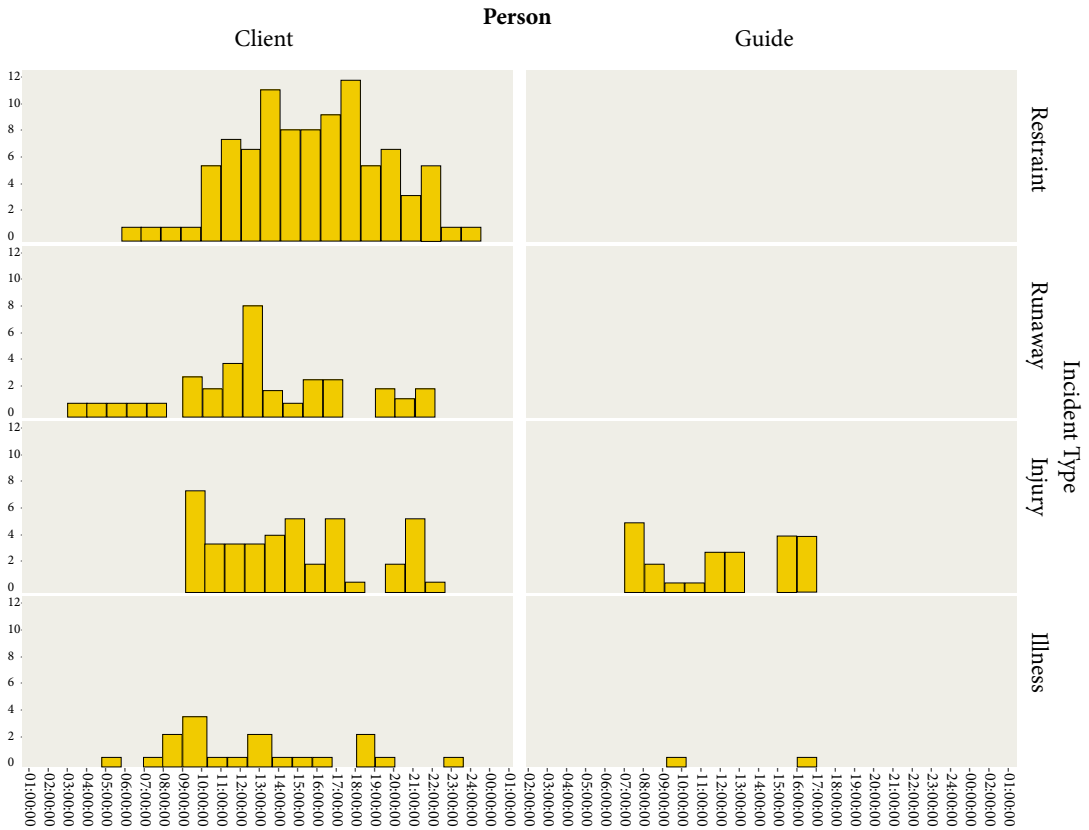


Incident Frequency and Time of Day

Figure 5 illustrates the frequency of restraints, runaways, injuries, and illnesses for both clients and staff by time of day. Client injuries did not occur before 9:00am, and they reached their greatest frequency between 9:00-10:00am. There were additional increases in injury frequency between 3:00-4:00pm and 5:00-6:00pm. Frequency of staff injuries also peaked early in the day between 7:00am and 8:00am, with a second increase between 3:00-5:00pm.

While there were insufficient staff illnesses data to identify any trends, the most frequent time of onset for client illness was 8:00-10:00 am, with additional increases in frequency around lunch and dinner time. Restraint frequency was very low before 9:00am, and most frequent between 12:30-1:30pm and 4:00-6:00pm. Runaway frequency was also highest between 12:30-1:30pm, and exhibited secondary increases from 9:00-10:00 am and 4:00-6:00pm.

Figure 5. OBHIC incidents by type, person, and time of day for 2011



Incident Frequency and Percentage of Program Completed

Figure 6 illustrates incident frequency by the percentage of the program the client had completed at the time of the incident for 2011. Incidents that occurred when the client had been in the program for longer than that program's average length of stay at the time of the incident were coded as 105% of the program completed. Data regarding staff days in program were not collected, and so the results refer only to client incidents for 2011.

Injury frequency was also greatest earlier in the program for clients, but unlike restraint and runaway frequencies, peaked between 6% and 20% of average treatment time. Injury frequency increased again slightly at 50% of average treatment time, then tapered off, with the exception of a small increase in injury frequency for clients who had been in treatment longer than the average length of stay for their respective program.

Illness frequency peaked early in the program, and tapered down over

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the first 20% of average time in treatment. There was a slight increase in illness frequency at the 40% program completion mark, followed by very few illnesses until the final 20% of time in treatment. There was a slight increase in illnesses reported for clients who had been in treatment longer than the average length of stay at their respective program.

Restraints most frequently occurred at the very beginning of treatment, with about 41% of all restraints reported during the first 6% of average treatment time and 64% of all restraints reported during the first 20% of average treatment time. There was a small increase in restraint frequency for clients who had been in treatment longer than the average length of stay for their respective program.

Runaways were also most frequent at the beginning of the program, with about 31% of all runaways reported during the first 6% of average treatment time and 57% of all runaways reported during the first 20% of average treatment time. As with injury, illness, and restraint frequency, there was a slight increase in runaway frequency for clients who had been in treatment longer than the average length of stay for their respective program.

Figure 6. Client incidents by incident type and %age of program completed at time of incident for 2011

