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**Venue**  
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**An Investigation of Risk Management  
Protocols at Triathlon Events**

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## Abstract

Arguably, triathlon competitions have become one of the most popular participant activities in the United States. Along with an increase in triathlon participation, the sport has also seen a series of fatalities over the past several years that have raised concerns over the safety of triathlon participation (Dallam, Jonas, & Miller, 2005; Harris, Henry, Rohman, Haas, & Maron, 2010; McArdy, Pollard, & Fernandez, 2006). The purpose of this investigation was to identify the risk management protocols that triathlon race directors employed. Of the 48 triathlon race directors who responded to an online survey, 57% revealed that participants had required emergency medical service or hospitalization and 18% indicated that at least one participant had died while competing in their triathlon over the past three years. The race directors also indicated that more than 80% required all of the triathlon participants to attend a pre-race meeting and 79% reported that they provided a list of safety practices to the participants prior to the start of the event. However, 34% of the race directors did not require all water safety members to possess a current lifeguard training certification or any other water safety certification and 30% did not require event safety personnel to attend an emergency action training session before they were allowed to work at the event. The results of this study indicate that the management of potential triathlon risks is being relatively well conducted regarding participant safety. However, it is a dangerous sport. By considering the results of this study, perhaps future triathlons will be even safer for competitors in the future.

## An Investigation of Risk Management Protocols at Triathlon Events

Arguably, triathlon competitions have become one of the most popular participant activities in the United States (USA Triathlon, 2012b). Although there are a number of variations, the most popular order that triathlons follow is swimming, cycling, and running (USA Triathlon, 2012b). According to the national triathlon governing body, USA Triathlon (USAT), races may be categorized as sprint, standard/Olympic, long, and ultra distance (USA Triathlon, 2012b). In the sprint distance the competitors typically swim 750 meters, bike 20 kilometers, and run 5 kilometers. In the standard or Olympic distance the competitors generally swim 1.5 km, bike 40 km, and run 10 km. The most recognized long-distance event is the Ironman branded event in which the participants swim 3.8 km, bike 180 km, and run a marathon distance of 42.2 km (USA Triathlon, 2012b).

Despite the apparent physical rigor of triathlons, participation in the United States is at an all-time high, following unparalleled increases in the past 10 years (USA Triathlon, 2012b). USA Triathlon (2012b) further cited a study which indicated that approximately 2.3 million individuals completed a triathlon in 2010. The report went on to say that annual membership in USA Triathlon reached an all-time high in excess of 140,000 last year while another 326,000 individuals were one-day license holders. This is a remarkable increase since, in 2000, USA Triathlon had 21,341 annual members and only 58,073 annual members in 2005. Hence, the growth was 557 percent since 2000 and 141 percent growth since 2005 (USA Triathlon, 2012b).

While the increase of participants is striking, it is important to note that each triathlete faces a variety of environmental conditions and physiological demands (Dallam, Jones, & Miller, 2005). It is not uncommon for participants to develop dehydration, muscle cramps, heat illness, musculoskeletal injuries, and trauma as well as battle foot and vehicle traffic while running or bicycling in a triathlon (Harris, Henry, Rohman, Haas, & Maron, 2010). For the most part, if these traumas and injuries are addressed properly, they are not life-threatening. However, Kathy Matejka, safety event services director for USA Triathlon stated, "The fact is, triathlons are inherently dangerous" (Held, 2009, para. 22).

Reports have indicated that triathlete fatalities have occurred over the past several years which have raised concerns regarding the safety of triathlon participation. In 2012, USA Triathlon released the findings of a five-member medical review panel that assessed data regarding participant fatalities that occurred during triathlons from 2003 through 2011. During this eight-year span, 43 triathlete fatalities happened during a race event (USA triathlon fatalities, 2012). The study categorized the fatalities as traumatic or non-traumatic. Traumatic deaths were the result of a violent collision or force whereas non-traumatic fatalities were the result of non-violent interactions. The study indicated that five of the fatalities were categorized as traumatic and were the result of injuries from cycling crashes. According to the investigation of the remaining 38 non-traumatic fatalities, 30 happened in the swim segment, three occurred during the run, and three happened

during the biking segment of a triathlon. The final two deaths occurred after the person had completed the race.

Regarding the 30 swimming fatalities, the USA Triathlon review committee stated that the non-traumatic "... fatalities appear to be caused by episodes of sudden cardiac death (SCD) (USA triathlon fatality..., 2012, para. 17). This information supports a previous research study that addressed the issue of sudden deaths in USA Triathlon sanctioned races between 2006 and 2008 (Harris et al., 2010). The study revealed that 14 deaths occurred during a triathlon competition in this timeframe. Specifically, the research indicated that 93% (13 of 14) died during the swimming part of the competition. Of the 13 deaths identified in the study, six happened in short triathlons, four in intermediate and three in long races. Further analysis showed that half of the individuals who died in the competitions exhibited pre-existing hypertrophic cardiomyopathy while one deceased competitor had the pre-existing condition of dilated cardiomyopathy (Harris et al., 2010). Dilated cardiomyopathy is a potentially life-threatening disease which prevents the heart's main pumping chamber from circulating blood throughout the body as forcefully as a healthy heart (Mayo Clinic, 2011a). The other pre-existing ailment in the deceased triathletes found in the Harris et al. (2010) study, hypertrophic cardiomyopathy, often goes undiagnosed because it is related to only a few symptoms (Mayo Clinic, 2011b). Hypertrophic cardiomyopathy is a disease in which the heart muscle (myocardium) becomes unusually thick and is the foremost cause of heart-related sudden death in individuals under the age of 30 (Mayo Clinic, 2011b).

Triathlon race directors/coordinators whose position includes coordinating event personnel and participant safety must be able to recognize that harmful conditions may exist and be constantly vigilant of providing an environment in which the competitors are not exposed to foreseeable dangers. According to Dallam et al. (2005):

...for the safety of the competitors, the lowering of liability risk for the sponsors that is, (positive risk management), the organisation [sic] of a triathlon requires considerable medical support, effective risk management and a detailed knowledge of the racing conditions that may predispose triathletes to an increased risk in competition (p. 146).

Although injuries and fatalities have befallen triathlon participants, little research has been conducted regarding how triathlon race directors provide a safe environment for the participants to compete. Thus, the purpose of this

study was to analyze how triathlon race directors manage risks for a competition.

## Review of Literature

Training of personnel is essential as triathlons can vary widely in the training, experience, number, and ability of athletes who enter the competition (USA Triathlon, 2012b). According to Dobbs (2000) an organization must provide appropriate supervision and emergency care when an organization knew, or should have known, that a person may be exposed to harm. If a person is unnecessarily exposed to a danger due to the lack of supervision or emergency care, the organization may face litigation from the injured party (Dobbs, 2000). This takes added significance when events, such as triathlons, do not require a level of experience to participate (USA Triathlon, 2012b). When the person is inexperienced, it is likely they do not understand the potential risks that may be presented during the competition. As a result, the participant will have to rely on the organization's ability to know the risks and take appropriate steps to provide a reasonably safe environment.

According to Sean Ryan, a triathlon event director, regardless of how much effort goes into preparing against potential participant deaths, "It's just an unfortunate reality of the sport. There's always allegations of 'could the organizers have done more?'" (van Berkel, 2012, "Midwest Sports Events face," para. 19). In order to address the potential risks, the review of literature included an investigation of pertinent lawsuits. Two of them, *Moore v. North America Sports* (2010) and *Schmidt v. Midwest Sports Events, Inc.* (2010), will be briefly discussed in the next section. After addressing these lawsuits, the literature review will discuss aspects such as event sanctioning, foreseeability, and the benefits of implementing a risk management plan to decrease the likelihood of litigation.

## Triathlon-Related Litigation

### Moore v. North America Sports (2010)

In 2006, a triathlete (Bernard Rice) died during the swimming portion of the Ironman Florida competition. A representative of Rice's family (Brian Moore) sued North America Sports, Inc., USA Triathlon, Inc., and World Triathlon, Inc., alleging that Rice's death was the result of negligence in conducting the triathlon (*Moore v. North America Sports*, 2010). Among the allegations made against North America Sports was that the organization did not: possess a risk management program; provide enough supervision at the swim competition event; provide enough lifeguards or other persons trained in first

aid or cardiopulmonary resuscitation for the number of participants in the triathlon; or provide adequate safety equipment, safety floatation equipment and life-saving equipment to aid in rescue efforts (Rothenbaugh, 2009).

While an initial autopsy on Rice indicated that he died of accidental drowning, the defense countered by showing that Rice suffered a massive heart attack that was so severe that no able assistance would have saved him (Rothenbaugh, 2009). As a result, a federal court jury did not hold the organizers of the Ironman triathlon liable for Rice's death (Moore v. North America Sports, 2010).

### **Schmidt v. Midwest Sports Events, Inc. (2010)**

Another lawsuit, Schmidt v. Midwest Sports Events, Inc. (2010) alleged that a Wisconsin-based triathlon organization as well as the event director was negligent by failing to train lifeguards or provide adequate emergency care. The Schmidt complaint stated that Midwest Sports Events knew or should have known that "...the swimming phase of a triathlon is the most dangerous for participants because the risk of drowning is compounded by a sudden increase in a competitor's heart rate at the start of the race" (para. 9), since a triathlete died during the swim portion of the triathlon conducted by Midwest Sports Events only a month earlier (Schmidt v. Midwest Sports Events, Inc., 2010). The plaintiff alleged that Schmidt began to experience obvious difficulty and even though she was observed by lifeguards in a distressed state, those lifeguards did not come to her aid. Only later, after a fellow racer came to the rescue of an incoherent Schmidt, did event lifeguards begin to come to her aid. When she was ultimately pulled to the beach, "... there were no emergency medical personnel to render aid required for a drowning and/or cardiac arrest victim. Finally, no event personnel even called 911 to request help (Schmidt v. Midwest Sports Events, Inc., 2010, para. 14).

Other specific allegations in the complaint included that the organization and triathlon director did not request or obtain on-site ambulance and EMT / paramedic service for participants prior to the event "because they did not want to pay for such a service and thereby diminish their profits, nor had they ever requested or obtained such service for participants in any previous Oshkosh Area Triathlon, for the same reason" (Schmidt, 2010, para. 13). Ultimately, the parties entered into a settlement of \$110,000 for the plaintiff that was approved by the court (Schmidt v. Midwest Sports Events, Inc., 2012). It is important to note that according to the court in Schmidt (2010):

The Event was not sanctioned by any triathlon orga-

nization, nor was Ms. West certified as a Race Director. Had the Event been sanctioned, there would have been an event safety plan, including provisions for the immediate rendition of emergency medical care (para. 15).

Further investigation revealed that, while Midwest Sports Events, Inc. conducted several other triathlon competitions, none of them were sanctioned events. A discussion concerning the importance of sanctioning an event will be addressed in the next section of this article.

### **Sanctioning a Triathlon**

Although a significant number of triathlon competitions are sanctioned, many others are held without safety policy reviews and approvals (Schmidt v. Midwest Sports Events, Inc., 2010). Sanctioning requires that the organization conducting the event complies with specific safety requirements (Dougherty, Goldberger, & Carpenter, 2002). To that extent, governing bodies such as the USA Triathlon possess rules to preserve consistency and order in sanctioned events. However, as noted in the Schmidt case, organizations often conduct events such as triathlons without any sanctions from governing bodies.

When triathlons are sanctioned, such as those approved by the USA Triathlon, they may require standards for on-water rescue personnel, safety considerations for all triathlon designs for each of the swimming, biking, and running courses, mandatory pre-race meetings with competitors, training to recognize the potential for sudden cardiac death at any point during the race, and training in life-saving skills such as cardiopulmonary resuscitation (CPR) or automatic external defibrillator (AED) (USA triathlon fatality..., 2012). While the USA Triathlon, as a governing body, provides rules to deal with participant conduct in the swimming, cycling, running, and transition phases, they are not intended to institute standards of care for the safety of participants or other persons. For example, the USA Triathlon states that: "Each participant, official, volunteer and spectator should consider all risk or safety issues and make related decisions prudently without reliance upon the competitive rules" (USA Triathlon, 2012a, para. 3).

Even when an event is sanctioned, however, neither the sanctioning organization nor triathlon race director should ever be considered a sole provider of the safety of all participants. After all, accidents do happen. Accidents that could not have been foreseen or could not have been anticipated by a reasonable person cannot be used as a foundation for litigation (Miyamoto, 1988). However, the on-site organization (generally) and the event race direc-

tor (specifically) have a responsibility to make certain that strategies are in place to identify areas that may expose a competitor to harm and to address those foreseeable risks (Miller & Gillentine, 2006). The concept of foreseeable risks will be discussed in the next section.

## Foreseeability

Foreseeability is considered to be the degree to which an organization knew, or should have known, that a participant may be exposed to harm (Dobbs, 2000). For example, the plaintiff in *Schmidt v. Midwest Sports Events, Inc.* (2010) alleged that the organization generally knew, or should have known, that the swimming phase of a triathlon is the most dangerous for participants because of the risk of drowning. The ability of the event director to identify foreseeable risks provides a basis by which the risk of potential injury to a participant and the duty by a sponsoring organization to exercise appropriate care for an injured person exists (American Jurisprudence, 2004). As such, triathlon event managers must be cognizant of risks, including, but not limited to injuries and fatalities, which participants may be exposed to during a competition.

## Foreseeability in Triathlons

Because triathlons can vary widely in the training, experience, number, and ability of athletes, several instances may be used to apply the concept of foreseeability to conducting a triathlon. First, many triathlon participants may train in indoor pools in which they might be the only one in the lane and they can see the bottom of the pool clearly. However, the swim segment of a triathlon is usually conducted in open-water settings, such as a lake, in which large numbers of athletes begin to swim together. As result, it is foreseeable that injuries such as being kicked in the head or being forced underwater may occur through inadvertent collisions with other participants. In addition, some participants become afraid of dark water due to the depth which may be ten feet or more. According to Dr. William Roberts, who specializes in triathlon injuries:

Most of the people who die during the swim portion panic, ingest water and drown. It's easy to get kicked, scratched or have your eye gouged by the throng of bodies. It's not like you're in the pool and you can grab a side. You're in the middle, and boom — down you go" (van Berkel, 2012, "Midwest Sports Events face," para. 12–13).

To the untrained individual, a drowning person may be perceived to be resting, conserving energy, or catching

their breaths. Because it is difficult, at best, to identify a distressed swimmer, appropriately trained lifeguards should be in positions of supervision (Fenner, Leahy, Buhk, & Dawes, 1999). Thus, it is advisable that the race director have people who are certified lifeguards supervising the swimming portion of the event (Fenner et al. 1999).

Another foreseeable component is the number of triathlon participant deaths that were attributed to the competitors having cardiovascular diseases. For example, hypertrophic cardiomyopathy (HCM) has been reported to be the leading cause of sudden death in young competitive athletes, accounting for up to 40% of sports-related deaths in the United States (Corrado et al., 2006; Maron, 2002, 2003). Additionally, atherosclerotic coronary artery disease (narrowing of a major coronary artery) and hypertrophic cardiomyopathy have been cited as two of the most prevalent causes of fatalities in athletes over 35 years of age (Corrado et al., 2006; Maron, Thompson, Puffer, et al. 1996). To that extent, the role of previously existing heart defects in triathletes resulting in their deaths due to sudden cardiac arrest should not be totally rejected in some cases (Harris et al. 2010).

Prior research has indicated two aspects as having a significant effect on the survival from a sudden cardiac arrest (SCA): 1) the time from collapse to the administration of CPR and 2) the time from collapse to defibrillation (Aufderheide et al. 2006; Hazinski et al. 2005). Aufderheide and colleagues (2006) reported when SCA victims were provided CPR and defibrillation within 3 to 5 minutes after a collapse, survival rates increased from 49% to 74%. Conversely, the SCA survival rates dropped to 5% when early defibrillation or resuscitation efforts are not given (Aufderheide et al. 2006). Therefore, it would be prudent for the sponsoring organization and race director to have as many workers as possible, if not all, possess CPR and/or automatic external defibrillator (AED) certification and training (Kerber et al., 1997).

Another foreseeable issue is the physical fitness of the triathletes taking part in the event. Although some triathletes may be well-conditioned, experienced competitors, many other participants in the same competitions may be "weekend warriors" who have trained infrequently or began competing again after being physically inactive for an extended period of time (Maron et al., 2001). As sedentary individuals start an exercise program such exertion can cause a cardiac event (Siscovick, Weiss, Fletcher, & Lasky, 1984). Moreover, previous research has also reported that inexperienced triathletes are at increased risk of injury

due to an elevated cardiovascular response and failure to adequately replace fluids resulting in dehydration (Dallam et al., 2005). As a result, competitors, who have been sedentary and not trained properly for the event, may put themselves at risk of a significant injury or worse (Maron et al., 2001). To ensure that the participants are fit enough, it would be worthwhile to have them present a physical fitness assessment prior to the competition (Dallam et al., 2005; Maron et al., 2001).

When foreseeable dangers exist appropriate risk management strategies should be considered to decrease the probability of injuries or fatalities. These strategies should result in the development and implementation of a risk management plan. The following section of this article examines the context of wider operational risk management efforts and addresses the role of a risk management plan in providing an environment in which the participants can compete safely.

### **Risk Management Plan**

It is evident that the allegations in both the Moore and Schmidt lawsuits indicated that the supervising organization may have lacked a risk management plan, particularly if they were not sanctioned. Risk management may be regarded as the ability to foresee circumstances that may expose a person, to whom a duty is owed, to harm (Wendt & Miller, 2010). The consequences of being able to foresee potential harm may cause economic loss as well as negatively impact the reputation of the organization (Wendt & Miller, 2010). At an operational level, effective risk management policies and procedures require a balance between the foreseeable risks to the organization and the costs to protect a particular asset (Cawood, 2002). Thus, risk management offers the decision-makers an opportunity to advance a wide-ranging organizational policy for managing risks (Miller, Wendt, & Young, 2010).

Specific to events such as triathlons, a risk management plan may be designed to identify, evaluate the likelihood, plan and deal with foreseeable risks in conducting a sporting event (Miller et al., 2010). Since risk has been cited as the consequences of human actions or events that lead to harming another person (Klinke, & Renn, 2002), organizations may incorporate various means to classify and manage them (Klinke, & Renn, 2002). The main reason for classifying risk is to obtain a general viewpoint which may assist the managers in recognizing the areas in which significant harm may occur (Ammon & Brown, 2007). The integration of risk classifications and risk management alternatives will be discussed next.

### **Risk Classification and Risk Management Alternatives**

Risk management policies should never be thought of as prophetic in nature, however, they can uncover the sources by thoroughly analyzing and classifying possible risks (Miller et al, 2010). In its' most basic form, risk classification allows organizational decision makers to identify "... effective, efficient, and legally feasible strategies and measures for risk reduction and mitigation (Klinke & Renn, 2002, p. 1085). As previously described, triathletes may experience a range of significant medical or environmental problems that must be taken into consideration by triathlon directors. Classifying foreseeable risks is a two-step process in which both the impact and the likelihood of an injury are analyzed to determine the potential risk. The amount of risk is produced by its impact (e.g., low, medium, high) and the likelihood of occurrence (e.g. never, sometime, or often).

Risk classification allows a manager to select or recommend risk management strategies, predicated on the foreseeable magnitude and/or likelihood of harm to which participants are exposed. Regarding the safety of triathlon events, the organization could analyze the likelihood of potential injuries occurring and classify them relative to the severity. Generally, there is a relationship between the severity of the risk and the favored strategy. According to Dallam et al., (2005), the rate of occurrence of foreseeable risks and the severity of their potentially negative outcomes is employed by triathlon organizations to "... prevent and respond to the conditions imposed by the race" (p. 144).

The classification may take the form of a numerical scale rating system of 1–5 in which one represents the least assessed frequency and five the most (Ammon & Brown, 2007).

When a foreseeable risk, such as a fatality, is considered unlikely there may be less urgency to manage the risks (Miller & Gillentine, 2006). In this instance, the risk could be assigned a one or two on the frequency and impact scale. Conversely, if the likelihood of an incident occurring is perceived as being probable, the management of such a risk would be important. In this circumstance, the likelihood and impact may receive a classification of four or five. Thus, classifying a risk can enable triathlon event managers to provide the required level of importance in the risk management process and implement the appropriate risk management alternative (Ammon & Brown, 2007). Depending on the type of risk and its classification, there are three potential courses of action that may be

used independently or in combination to retain the event: avoidance, transfer, or reduction.

## Risk Avoidance

Risk avoidance, as a risk management alternative, reflects the notion that the risk is too great and, therefore, the associated activity with the risk should be eliminated (Klinke & Renn, 2002). Realizing how and when to properly avoid exposing participants to unnecessary risks is a significant consideration when analyzing and classifying a situation. Because triathlons can vary widely in the number of athletes as well as their ability (USA Triathlons, 2012a), an organization may elect to avoid the swimming portion if it cannot get enough certified lifeguards. If this situation were to occur, the organization may sponsor a dualthon in which the participants only compete in the biking and running segments. If avoidance were deemed the most prudent method to treat the risk due to the significant lack of human resources (not enough lifeguards or supervision) or due to environmental conditions (lightning or severe water turbulence), the triathlon race would be cancelled and thereby avoided.

## Risk Transfer

An alternative in managing risks is risk transfer. It should be noted that risk transfer does not mean risk avoidance. Rather, a risk transfer strategy will generate risks that still require proactive management, but reduces the level of risk to an acceptable level (Cotten, 2007). Whereas the avoidance strategy eliminates a risk, the transference strategy often leaves the risk intact but shifts responsibility for it elsewhere (Cotten, 2007). Transfer of risk refers to the notion that the responsibility of a certain risk will be re-allocated to another entity, usually in the form of a waiver (Miller, Young, & Martin, 2009). Because a waiver serves as a contractual agreement between two parties where the opportunity to participate is exchanged for a promise not to sue, it may serve as an important litigation deterrent (Miller et al., 2009).

Notwithstanding their widespread use, waivers are often misinterpreted. Waivers should not be confused with “informed consent,” “assumption of risk” or “participant” agreements. While waivers require the participant to consent responsibility for the acknowledged inherent physical risks of the sport activity, they do not ask them to accept responsibility for another party’s negligence (Cotten, 2007). Additionally, it is important to remember that waivers usually do not ask the participants to provide any evidence of their ability, background, physical health or previous training (White & Cardinal, 2004). White and

Cardinal (2004) also indicated that organizations may not be protected from liability due to injury unless the participant fully comprehends what they are signing. Thus, while a properly developed and implemented waiver may assist in decreasing the potential for litigation, failure to properly communicate its purpose can severely limit its effectiveness (Cotten, 2007).

## Risk Reduction

Reduction suggests the organization will employ some type of measure to minimize the risk. This technique is usually used when a risk cannot be avoided and efforts are centered on decreasing damage or loss (Ammon & Brown, 2007). Specific to the allegations in both Moore v. North America Sports (2010) and Schmidt v. Midwest Sports Events, Inc. (2010), there was an alleged failure to provide enough supervision and lifeguards or other persons trained in first aid or cardiopulmonary resuscitation at the swimming portion of those triathlons. To reduce the risk, the organization must ensure that an appropriate number of certified lifeguards will supervise the swimmers (Fenner et al., 1999). Additionally, a number of injuries and fatalities have occurred to triathletes while competing in the biking and running segments. Given this reality, it would be appropriate for some, if not all, on-course triathlon personnel to possess appropriate First Aid or lifesaving skills (i.e. CPR or AED training). Risk reduction could take the form of heightened supervisory procedures, training, lifesaving certifications or any of a number of policies the race organization could institute to minimize the likelihood that a participant becomes injured or dies.

Another important process to reduce potential risks is for an organization to be sanctioned, as discussed previously. It was reported in Schmidt v. Midwest Sports Events, Inc. (2010), that the triathlon was not sanctioned. Conversely, the triathlon in which Bernard Rice died during the swimming portion of the Ironman Florida competition was sanctioned. In part, because it was not sanctioned event, a settlement of more than \$100,000 resulted in Schmidt, whereas the court found in favor of the defendant in Moore. As a sanctioned event, the participant is assured that the event is conducted professionally and in accordance to the sponsoring organizations safety rules and regulations (Dougherty et al., 2002).

In a broad sense it is a good idea to incorporate and integrate a combination of risk management strategies within a plan, rather than to rely on just one. In retaining the potential risks, the organization assumes responsibility for foreseeable risks that might occur in the event. For

example, when the organization chooses to retain and reduce strategies, the foreseeable risks are usually low and moderate such as the occurrence of sprains and strains which are not usually life-threatening. On the other hand, when the foreseeable risks are high such as life-threatening incidents, the transfer and avoidance strategies may be used. However, in cases that it is not possible to cancel the event (avoidance), the organization must implement methods to reduce the likelihood of a catastrophic incident. Accordingly, the most suitable method to retain the event is to reduce the foreseeable risks as much as possible and then to transfer some portion of the liability.

## Methodology

### Questionnaire Instrument

A 27-item questionnaire was developed by the researchers. Through the review of the previously described reports and case law provided in the Schmidt and Moore cases, the investigators developed a questionnaire that consisted of seven items describing the triathlon; four questions that identified injury issues that the race directors have faced in their triathlon over the previous three years; eight Likert-scale statements regarding risk management procedures at their triathlon; three Likert-scale and one multiple choice questions concerning personnel safety training requirements at their triathlon; and four Likert-scale statements regarding participant safety requirements at their triathlon. All of the Likert-scale statements were identified on a one to five scale (1 = Strongly agree, 2 = Agree, 3 = Unsure, 4 = Disagree; 5 = Strongly disagree). It has been suggested that by incorporating different methods of answering a survey, the truthfulness of the answer may increase (Patten, 2000). For example, the respondent cannot simply check the same answers to all the statements.

To make certain the instrument was valid, content validity was employed. Since content validity is dependent on expert judgment regarding the appropriateness of the content (Patten, 2000), three university professors with sport event management expertise in survey-based research were asked for input. Each of these individuals had previously been involved in published survey-based research. After perusing the instrument, four grammatical changes were suggested by the experts. Once these suggestions were incorporated into the instrument, all of the experts approved that the content of the instrument was appropriate. Thus, content validity was provided.

The next step was to determine the reliability of the instrument. Reliability addresses the consistency of the

research findings' quantitative research (Litwin, 1995). As test-retest reliability is the most common method used to determine survey instrument reliability (Litwin, 1995), this method was adopted for the present study. Five individuals, who had not taken part in determining the validity of the questionnaire, were asked to participate in determining the reliability of the instrument. Each of the individuals had previous experience in conducting a multi-sport event and expertise in survey design. For example, two of the individuals were education psychology faculty members, two others were exercise and sport psychology assistant professors, and one was a university recreation administrator with a doctoral degree. Each of these individuals had previously been involved in published survey-based research. The results of the test-retest revealed  $\alpha = .84$ , which is above the criteria to establish reliability (Patten, 2000). Thus, the questionnaire was deemed to possess sufficient validity and reliability to continue the investigation.

To address the purpose of this study, the investigators distributed an online questionnaire via Survey Monkey to 240 triathlon race directors, nationwide. The names and emails of the race directors were gleaned from the USAT website (USA Triathlon, 2012c) and Active.com. Active.com is a well-regarded website that identifies physical activity competitions including triathlons. The reason that two sites were used was to provide an overall picture of the way triathlon organizations implement risk management procedures and not only those sanctioned by USA Triathlon. For example, most of the race directors listed in the USA Triathlon website probably adhere to USA Triathlon sanctions which would require implementing a risk management program. Thus, there would be little variance in using a risk management plan. Conversely, Active.com may list sanctioned USA Triathlon competitions as well as those not sanctioned. If an organization conducts a triathlon without a sanction, such as the one in Midwest Sports Events, the requirement of implementing a risk management plan may not be followed. Since this study was not conducted with the specific intent of identifying USA Triathlon sponsored events, using a website such as Active.com was imperative.

Two weeks prior to the distribution of the survey instrument, each of the race directors was sent an email introductory letter informing them of the intent of the study. Previous research has determined that pre-notification letters may minimize the possibility of inadvertent discarding of the survey, bolster the credibility to the investigator, and increase the response rate (Fox, Crask, & Kim, 1988; Kent & Turner, 2002). Two weeks after the

pre-notification, a second e-mail was sent providing all recipients with a reaffirmation of the purpose of the study as well as a link to the questionnaire webpage. When the questionnaire was distributed each of the listed race directors was notified of the deadline and that participation in the study was completely voluntary and there would be no penalties for choosing not to participate. Further, they were informed that they would be able to withdraw at any time, for any reason, without penalty. Nowhere on the questionnaire did the respondents need to either identify themselves or the event for which they were responsible.

Each email recipient was instructed to answer the questions or statements as they applied to their present site and/or supervisory position. For example, in the statements “To the best of your knowledge, has the number of triathlon participants increased over the last three years” or “Which of the following types of injuries have occurred during your triathlon?”, the answer was to apply only to the site and/or position responsibility of the respondent. Furthermore, many of the questions and statements in the survey included the words “in the past three years”. The rationale for the inclusion of this phrase was threefold. First, studies regarding fatalities happening during triathlons were published three years ago (Harris et al., 2010; USA triathlon fatality... , 2012). Secondly, it provided a sense of recent history that deaths and injuries had occurred during a triathlon competition. If significant injuries or fatalities had recently occurred, risk management procedures may be better implemented due to awareness of these problems (Miller et al., 2010). Finally, it provided a common number for the potential respondents to use as some of the triathlons may have been conducted for 20 or more years whereas others may have existed for much shorter periods of time.

Ultimately, 48 (20%) individuals responded to the online survey. Reasons for questionnaires not being included in the study were: unreturned questionnaires (136), email addresses that “bounced back” to the investigators (19), and one or more questions were incomplete (37). Although the response rate for this study was low, Cook, Heath and Thompson (2000) stated that, “A sample of fewer than 1% of the population can be more representative, indeed much more representative, than a sample of 50% or 60% of the population” (p.821). Since the investigation was exploratory in nature and not meant to be generalized, the investigators felt comfortable in proceeding with the study.

## Results

### Triathlon Race Director and Participation Information

All of the respondents indicated that they were the triathlon directors for the event. As the triathlon director, all of the respondents indicated that they were responsible for coordinating event personnel and participant safety conditions for their triathlons. Twenty-six (54%) of the respondents held their present position as race director for 1–6 years, 18 (37%) had done so for 7–15 years, and four (9%) had been the triathlon director for more than 15 years. Twenty-five (53%) respondents revealed that they have held the triathlon at the same location for 1–6 years, 12 (25%) had done so for 7–15 years, and eleven (22%) had held the triathlon at the present location for more than 15 years.

On average, 15 (31%) indicated that their triathlons host between 401–800 participants while nine (19%) averaged between 1 to 400 participants in the past three years. Additionally, six respondents indicated that an average between 1601–2000 triathletes had competed in their triathlons while six others estimated that their triathlons attracted an average of 2001 or more participants in the past three years. Thirty-one (65%) indicated that the number of participants has increased over the past three years, despite 30 (63%) establishing a cap on the number of entrants.

### Triathlon Participant Injury Issues

Although 18 (38%) indicated that none of the participants had required emergency medical service or hospitalization as a result of participating in their event, 28 (58%) reported that the sum total over the past three years of participants requiring such medical attention was one to ten triathletes participating in their triathlon. Additionally, eight (18%) respondents revealed that at least one participant had died competing in their triathlon over the past three years. The top five types of participant injury cited by the respondents over the past three years were broken bones (35%), bites and stings (26%), heat exhaustion (24%), dehydration (20%), and hypothermia (11%). Twenty-five (52%) of the respondents cited biking, followed by swimming with 22%, and running with 17% as the triathlon segment that had required the most medical attention in the past three years.

### Triathlon Risk Management Protocols

Forty-five (94%) agreed that their triathlon was sanctioned and 39 (83%) indicated that the risk management policies for the event were set by a national governing

**Table 1**  
**Triathlon Race Director and Participation Information**

Question	Frequency	%
<b>Does your job description identify you as the triathlon director for the event?</b>		
Yes	48	100%
No	0	0%
<b>Does your current position, as triathlon director, involve coordinating event personnel and participant safety conditions for the triathlons for the past three years?</b>		
Yes	48	100%
No	0	0%
<b>How long have you held your position with your current organization?</b>		
1-6 years	26	54%
7-15 years	18	37%
More than 15 years	4	9%
<b>How long have triathlons been conducted at its present location?</b>		
1-6 years	25	53%
7-15 years	12	25%
More than 15 years	11	22%
<b>On average, approximately how many people have participated in your triathlon over the past three years?</b>		
1-400	9	19%
401-800	15	31%
801-1200	5	10%

Table 2

## Triathlon Injury Issues

Question	Frequency	%
Altogether, approximately how many individuals have required emergency medical service or hospitalization as a result of participating in your triathlon over the past three years?		
None	18	38%
1-10	28	58%
11-20	1	2%
More than 20	1	2%
Has at least one participants died while competing in your triathlon over the past three years?		
Yes	8	18%
No	39	80%
Do not know	1	2%
Altogether, which of the following types of injuries have occurred due to participating in your triathlon over the past three years? Select all that apply		
Broken bones	16	35%
Bites and stings	12	26%
Heat exhaustion	11	24%
Dehydration	9	20%
Hypothermia	5	11%
Heat stroke	3	7%
Spinal injury	1	2%
Which segment of your triathlon has required medical or emergency attention most often over the past three years? Choose one.		
Biking	25	52%
Swimming	14	29%
Running	9	19%

Table 3

Triathlon Risk Management Protocols

Statement	Frequency	%
<b>Your triathlon is sanctioned by a national governing agency.</b>		
Strongly agree	30	63%
Agree	15	31%
Unsure	1	2%
Disagree	2	4%
Strongly disagree	0	0%
<b>Risk management policies followed at your triathlon are set by a national governing agency.</b>		
Strongly agree	25	53%
Agree	14	30%
Unsure	3	6%
Disagree	4	9%
Strongly disagree	1	2%
<b>The number of safety personnel for your triathlon is governed by a national governing body.</b>		
Strongly agree	21	44%
Agree	18	38%
Unsure	2	4%
Disagree	5	10%
Strongly disagree	2	4%
<b>Potential hazards such as weather- or injury-related related emergencies are outlined in a risk management plan prior to conducting your triathlon.</b>		
Strongly agree	22	46%
Agree	19	40%
Unsure	6	12%
Disagree	1	2%
Strongly Disagree	0	0%
<b>The swimming, biking and running courses used in your triathlon are checked before the competition.</b>		

body. Thirty-nine (82%) agreed that number of safety personnel for their triathlon is governed by a national governing body. Forty-one (86%) agreed that items such as weather- and injury-related emergencies were outlined in a risk management plan prior to their triathlon. Forty-seven (98%) agreed that the swimming, biking, and running courses were checked before the start of the competition.

### **Triathlon Personnel Safety Practices**

Within the questionnaire instructions, safety triathlon personnel were defined as individuals who were charged to observe and enact an emergency action plan if a competing triathlete was injured in the area. Twelve (26%) required 6–10 safety personnel to conduct a triathlon while nine (18%) needed 21–25 individuals to conduct a safe event. Twenty-six (53%) did not agree that event safety personnel were required to attend an emergency action training session before the event. Forty-two (88%) agreed that safety personnel were required to have current First/CPR to work at the triathlon. Although 24 (49%) agreed that all water safety members needed to possess a current lifeguard training certification or any other water safety certification, 18 (38%) did not agree with this statement.

### **Triathlon Participant Pre-Race Safety Practices**

Thirty-four race directors (71%) agreed that they provided a list of risks to the participants prior to the start of the event. Thirty-seven (78%) agreed that a list of the inherent dangers of the competition were provided to the participants prior to the conduction of the event. The results revealed that 41 (86%) of the respondents agreed that their triathlon participants had to complete and turn in a waiver prior to competing. Thirty-seven (76%) agreed that all of the triathlon participants were required to attend a pre-race meeting prior to competing in the event. Thirty-seven (77%) did not agree that triathlon participants had to complete and turn in a fitness/medical assessment form prior to competing in the event.

### **Discussion**

The purpose of this investigation was to identify the risk management protocols that triathlon event managers used to provide the safest environment possible for triathletes to compete. The results indicated all of the respondents, as triathlon directors, were involved in coordinating event personnel and safety issues at their triathlons. Most of the respondents had held the director position for multiple years while hosting the triathlon at the same venue for multiple years. Moreover, the results revealed that although the majority of respondents have attempted

to cap or limit the number of entries over the past three years, 65% reported that the number of participants entering their triathlons had increased. Thus, due to their personal experience as well as knowledge of the triathlon courses in combination with increasing participant levels, the respondents would be in a position to foresee potential risks in conducting a triathlon.

It is also important to note that nearly 60% of the respondents indicated that some previous participants competing in their triathlons needed emergency medical service or hospitalization. Additionally, almost 20% indicated that at least one participant had died while competing in triathlons they supervised over the previous three years. Despite this foreseeable aspect, 30% did not require safety personnel to possess a current First Aid/CPR certification to work at the event.

The results also indicated that the biking segment required the most medical or emergency attention. However, the five-member medical review panel that recently evaluated information about triathlon participant fatalities indicated that most of the deaths happened during the swimming part of the triathlon competition (USA triathlon fatality..., 2012). Despite this information as a foreseeable occurrence, the results of this study indicated that less than 70% of the triathlon race directors agreed that all water safety members should possess a current lifeguard training certification. Previous research has indicated that 50% of catastrophic swimming incidents happen due to the lack of appropriate supervision and training of safety personnel (Kumin, 2005). Drowning situations can be classified into passive and active victims. A passive victim often submerges under the water without waving or calling for help (Fenner, et al. 1999). An active victim usually does not call for assistance but will flail their arms to draw attention (Fenner, et al. 1999). Acknowledging that most deaths occur during the swimming portion of a triathlon, Sean Ryan stated “It’s not that they were flailing, asking for help...” (van Berkel, 2012, “Midwest Sports Events face,” para. 17). Every drowning signals the failure of the most effective intervention—namely, prevention through the use of an appropriate number of certified and trained lifeguards (Moran, Quan, Franklin, & Bennett, 2011). In situations in which the organization does not attain the level of a reasonable standard of care such as having certified lifeguards (as noted previously) or individuals with First Aid/CPR certification or AED training, it could be considered negligent and therefore liable for the participant’s injury (Restatement of Torts, 1965).

Another foreseeable consideration that emerged in this

Table 4

## Triathlon Personnel Safety Practices

Question	Frequency	%
How many triathlon safety personnel are needed to conduct your triathlon?		
1-5	5	10%
6-10	12	26%
11-15	4	8%
16-20	6	13%
21-25	9	19%
26-30	4	8%
More than 30	8	16%
Participation in a training session conducted prior to the event, focusing on medical or emergency actions, is required of all event safety personnel working at the triathlon.		
Strongly agree	6	13%
Agree	9	19%
Unsure	7	15%
Disagree	17	34%
Strongly Disagree	9	19%
All event safety personnel are required to have current First Aid/CPR certification to work at your triathlon.		
Strongly agree	32	67%
Agree	10	21%
Unsure	2	4%
Disagree	2	4%
Strongly Disagree	2	4%

Table 5

## Triathlon Participant Pre-Race Safety Practices

Question	Frequency	%
All participants are provided a list of safety risks prior to the start of your triathlon.		
Strongly agree	19	40%
Agree	15	31%
Unsure	3	6%
Disagree	9	19%
Strongly disagree	2	4%
All participants are provided a list of inherent dangers prior to competing in your triathlon.		
Strongly agree	18	38%
Agree	19	40%
Unsure	4	8%
Disagree	4	8%
Strongly Disagree	3	6%
All participants are required to submit a waiver before they are allowed to compete in the triathlon.		
Strongly agree	21	44%
Agree	20	42%
Unsure	7	14%
Disagree	0	0%
Strongly Disagree	0	0%
All triathlon participants are required to attend a pre-race meeting prior to competing in the event.		
Strongly agree	20	42%
Agree	17	34%
Unsure	3	6%
Disagree	7	15%
Strongly Disagree	1	3%

study was the absence of a participant fitness assessment by the organizations sponsoring the triathlons. According to Maron, et al. (2001) as the participation rate in events such as triathlons increase:

...greater numbers of athletes will be enrolled in intensive training programs or competition abruptly after long periods away from strenuous training and the competitive sports arena, often without pre-participation medical evaluations. Therefore, the prevalence of cardiac events among these athletes may increase further (p. 328).

As shown earlier in this investigation, the number of triathlon participants has increased dramatically over the past five years. Additionally, the contributions of a pre-existing cardiovascular conditions resulting in a sudden cardiac arrest cannot be discounted (Harris, et al. 2010). However, more than 75% of the race directors in this study did not require the participants to complete and turn in a fitness/medical assessment prior to competing in the event. This result is of particular concern since triathlon participants tend to “push their limits during competition (i.e. higher speeds and exhaustion during competition)” (McArdy, Pollard, & Fernandez, 2006, p. 132). Such an attitude towards intense physical activities may produce sudden cardiac arrests, especially when individuals have not trained properly to participate in such activities (Maron, Poliac, & Roberts, 1996; Maron, Shirani, Poliac, et al. 1996; Siscovick et al., 1984).

Supporting the need for pre-event physical assessment, Joel Aziere, a veteran triathlon and president of the TriWisconsin group, indicated that a full-physical assessment by a physician should be conducted prior to an event, particularly for first-time triathlon participants (Held, 2009). Moreover, an American Heart Association consensus panel reported that pre-participation cardiovascular screening for competitive athletes was justifiable and compelling on ethical, legal, and medical grounds (Maron, Shirani, Poliac, et al. 1996). Further, allegations in *Schmidt v. Midwest Sports Events, Inc.* (2010) included that the organization and triathlon director routinely minimized the risk and danger of participating in the triathlon while emphasizing that entrants did not have to be experienced or physically fit athletes.

The USA Triathlon medical review panel has stated that although fatalities may be rare; “Triathlon is not unique among sports activities. Indeed, our experience with event-related fatalities—and, particularly, the issue of sports-related sudden cardiac death—shares many

important similarities with the reported experiences in other athletic settings (USA triathlon fatality..., para. 38). Harris, et al. (2010) indicated that approximately three fatalities due to SCAs occurred in every 100,000 individuals competing in a triathlon. More recently, the USA Triathlon review panel reported that between 2006 and 2011 the approximate fatality rate was 1 per 76,000 triathletes (USA triathlon fatality..., 2012). Conversely the risk of young high school and college-aged athletes suffering a fatal cardiac event has been calculated to be about one fatality for every 200,000-300,000 participants per academic year (van Camp, Bloor, Mueller, Cantu, & Olson 1995). To put these results into perspective, potentially two-to-three times as many participants may die in triathlons as high school and college athletes. Yet, while it is often a requirement for young athletes to produce evidence that they are physically fit to participate, few, if any, such requirement exists for a person entering a triathlon according to the results of this study. As a result, organizations may expose themselves to lawsuits if they do not properly screen or test participants before exercise activities (Dougherty et al., 2002). As a risk reduction alternative, pre-participation fitness assessments by sponsoring organizations have been restricted, inconsistent, or totally absent (Maron et al., 2001). While it may be impractical to require mass fitness screening, creating an awareness of the participants’ fitness level may motivate them to have pre-participation evaluations done individually (Harris et al., 2010).

Perhaps the lack of pre-event fitness assessment may be due to a reliance on participant waivers as all of the respondents required the participants to complete and turn in a waiver prior to competing in the event. However, while waivers may be suitable for use in high-risk programs involving adults who are skilled in the sport, appropriateness of their use should be assessed with extreme care (Cotten, 2007). As a risk management alternative, waivers may transfer the liability from the sponsoring organization to the individual. The primary purpose of a waiver is to protect an organization against the potential liability for injuries that may have resulted due to ordinary negligence on the part of the organization or its employees (Cotten & Cotten, n.d.). However, waivers often do not ask the participant to provide any evidence of their ability, background, physical health or training (White & Cardinal, 2004). Since other organizations in interscholastic, intercollegiate and even professional sports require all of their athletes to submit a physical fitness assessment prior to competing, it would be reasonable for organizations sponsoring triathlons to consider requiring physical fitness assessments as well.

## Research Limitations

As in any research study, limitations exist. First, the subjects that could reflect a measure of bias on behalf of the organization and/or event director base the results of the study upon self-reported information. Further, it can only be assumed that the respondents were truthful and honest in their answers. Additionally, convenience sampling was employed for this research. O'Leary (2004) stated that "... there is a growing recognition that non-random samples can credibly represent populations, given that the selection is done with the goal of representativeness in mind" (p. 109). Since the representativeness of this study was to determine risk management protocols used in conducting triathlons, such a non-random sampling technique was warranted. Lastly, the triathlon directors who did not participate in the study may have in fact possessed risk management plans but simply choose not to disclose them or did not believe that the study was important.

## Future Research

Future investigations could study several different aspects of conducting triathlons. First, the use of waivers or other transfer methods of risk management as they effectively apply to triathlons could be investigated. Second, a study could be undertaken concerning the perception of safety from the triathlete's point of view. Third, an investigation dealing with the extent of training volunteers assisting at triathlons could be addressed. Finally, based on the recent fatalities within the sport, USA Triathlon has created a task force to determine if anything more can be done to prevent deaths (USA fatality incidents..., 2012). As such future research could investigate the impact the task force has on triathlon risk management procedures.

## Conclusion

Injuries and fatalities to participants have been shown to exist in triathlon events, and therefore should be considered foreseeable. Because of the growth and popularity as well as the dangers that exist in triathlon participation, the triathlon race director must possess knowledge and skills that were often not required of them previously, including risk management. While the majority of respondents in this study appeared to conduct risk management procedures in good form, others appear to rarely create intensive efforts in managing potential risks. It is ultimately the sponsoring organizations' duty to provide a reasonably safe environment for triathlon participants to compete, even when it is sanctioned by a national governing body (Dougherty, et al. 2010). Although accidents happen and most injuries incurred by triathletes have been shown to be non-life-threatening, a risk management plan should

be developed by identifying and classifying the potential dangers to participants. To effectively manage these risks, safety personnel should be certified or at least appropriately trained to initiate an emergency action plan to alert certified personnel of the incident.

The results of this study indicate that the management of potential triathlon risks is being relatively well conducted regarding participant safety. However, it is a dangerous sport and, as an experienced triathlon race director mentioned, there are always concerns that the organizers could have been better prepared or have done more. By considering and implementing the recommendations of this study, triathlons will be even safer for competitors in the future.

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