Reducing Risk: An Examination of Use and Perceived Effectiveness of Risk Management Strategies at NCAA Collegiate Athletic Facilities

Angela I. Hayslett, J.D., and Emeka Anaza, Ph.D.

Hart School of Hospitality, Sport and Recreation Management, James Madison University

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Abstract

Facilities require security (U.S. Department of Homeland Security, 2009, 2013) and facility managers have a duty to protect people from harm or they risk liability (Whitley, Koenig & Roberts, 2007). This study examines risk management strategies utilized by NCAA athletic facility managers that may minimize risk and their perception of each strategy's effectiveness to reduce risk. Using Qualtrics, 113 athletic facility managers across all three NCAA divisions had the opportunity to report their use of 34 risk management strategies recommended by Pantera et al. (2003). However, inconsistent with Pantera et al., the only risk management strategy used by *all* research respondents is having "an athletic trainer or medical doctor onsite." For those strategies that are used, many are perceived as effective, like "having a central command to coordinate security responses," while others may occasionally lack perceived effectiveness like "signage detailing security practices and restricted items."

Keywords: risk management, NCAA, athletic facilities, athletic facility managers

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In the United States alone, there are numerous athletic facilities on college campuses for which there exists a need for effective risk management strategies to reduce risk. Risks are any threats, which could cause physical harm to a person or economic harm to property. This can be an issue to all who attend and work an event as well as those who live in the immediate area (Miller, Veltri & Gillentine, 2008). Failure to follow industry guidelines and best practices for risk management strategies could result in a breach of their legal duty of care ("Symposium: Panel I: Legal Issues in Sports Security," 2003).

Athletic facility managers serve as critical managers of campus facilities who need to understand which risk management strategies are used and which strategies are perceived as effective. This understanding can help to reduce the risk of harm, liability (Whitley, Koenig & Roberts, 2007), a costly legal defense, or damage to an organization's reputation (Inge Jr., June 15, 2012) to these athletic facility managers. Fan violence, crowd control issues, natural disasters, and terrorist attacks prompt athletic facility managers to consider how they manage risks (Hall, Marciani, Cooper & Rolen, 2007a, 2007b; McCann, 2006). To reduce the aforementioned risks, an athletic facility manager must understand potential threats and how to respond to risks using methods known as risk management strategies.

Terrorism is "an act of violence or the threat of violence with the goal of inciting terror to achieve a stated or implicit political, religious, or ideological goal" (Aven & Guikema, 2015, p. 2169). Ultimately, athletic facilities managers must protect employees and spectators from harm caused by terrorism, man-made threats and natural disasters since athletic facilities are some of the key assets on a college campus that are vulnerable to such harm. Acts of terror at athletic

facilities have occurred as recently as of 2017, when a suicide bomber detonated a bomb at the Manchester Arena (Smith et al., 2017) and in 2005, when a bombing took place outside of a crowded football stadium at the University of Oklahoma (Alfano, Oct. 1, 2005). Extensive counter-terrorism efforts are critical at facilities that host major sporting events (Sterling, Feb 4, 2018).

Beyond terrorism, man-made threats like spectator violence or lack of crowd control, are threats of great concern. Entrances and exits at athletic facilities are difficult to secure with large crowds who may enter with a weapon, alcohol, or bottles that can become dangerous projectiles (Hoch, 2008; Miller, Veltri & Gillentine, 2008). Rabin (2003) recognized that a security breach may cause mass panic and chaos, which can lead to more injuries (as cited in McCann, 2006). An example of such security breach occurred at the 2012 Port Said Stadium massacre where 72 people were killed (Soltan, Feb. 1, 2018). Although the scale or likelihood of man-made threats might be different in college athletic facilities, universities are not immune from such risk. For example, the University of Wisconsin paid legal fees to defend lawsuits from injuries caused by spectators rushing the football field in 1993 (Inge, June 15, 2012).

In addition, athletic facility managers must prepare for the inevitable natural disasters that cause extensive property damage, harm to spectators, and require games to be rescheduled. Examples of some incidents include a tornado in 2008 that impacted the SEC college basketball tournament (Sugiura, Mar. 9, 2011) and heavy snowfall that caused the Minneapolis Metrodome roof collapse in 2010 (DePass, Zulgad & McGrath, Dec. 13, 2010). Other examples include an earthquake before a 1989 World Series game (Inge, June 15, 2012), and a wildfire (McCann, 2006) that compromised the air quality affecting the game between the Oakland Raiders and Los Angeles Rams (Frank, Dec. 6, 2017; The Associated Press, Oct. 12, 2017). Not surprisingly,

natural disasters such as these place a strain on athletic facility managers, the entire campus facilities staff, and campus resources.

To manage athletic facilities, recommended risk management strategies include proper security staffing and training (Baker et al., 2007; Smith et al., 2017), a hardened perimeter security, access control, and security technology (Smith et al, 2017). Hall (2010) discussed using technology to protect and communicate risks as well as to control access, conduct searches, and regulate traffic. Baker et al. (2007) recommended comprehensive risk management policies and procedures, as well as having emergency action plans. Brown and Sawyer (1998) discussed risk management strategies that include personnel, transportation, facilities, emergency procedures and equipment. Hall et al. (2007b) recommended establishing a command post, coordinating emergency responders, emergency response preparedness, parking and tailgating setback and restrictions, policy signage, and barricades. Hall et al. (2007b) also recommended secured vendor procedures, access control such as media identification cards, having metal detectors, prohibiting fan reentry, restricted areas, illumination and lights, removal of onsite chemicals, and using clear trash bags.

There are numerous collegiate athletic facilities, as well as other campus facilities, in the United States for which exists a need for effective risk management strategies. For athletic facility managers to reduce risk, they should understand which risk management strategies are used and are effective. To this end, the purpose of this study is to explore which risk management strategies the athletic facility managers at NCAA Division I (D-I), II (D-II), and III (D-III) use and their perceived effectiveness of those strategies. There are two research objectives for this study:

1. To explore which risk management strategies are used by NCAA athletic facility managers

2. To examine NCAA athletic facility managers perception of the effectiveness of risk management strategies to reduce risk

Methods

Data Collection

Data was collected with the aid of Qualtrics to allow for collection of a large amount of open-ended qualitative responses. This method of collecting data allows researchers to investigate seldom researched questions such as the perceived effectiveness of risk management strategies. Purposeful expert nonprobability sampling was used to gather research participants. Research participants were athletic facility managers at NCAA D-I, D-II, and D-III institutions. Email addresses of the head athletic facility managers were retrieved from their athletic departments' website and email messages were subsequently sent. Two reminder email messages were sent. In addition, the survey was sent out via a listserv to members of the National Association of Collegiate Directors of Athletics.

Sample Characteristics

Responses to each question were optional. From the three NCAA divisions, 46 athletic facility managers responded from D-I, 29 athletic facility managers responded from D-II, and 42 athletic facility managers responded from D-III schools. Of the D-I respondents, 8 belong to the NCAA Football Bowl Subdivision (FBS) and 12 to the NCAA Football Championship Subdivision (FCS) with the rest not reporting. The respondents represent 17 D-I athletic conferences, 13 D-II athletic conferences, and 21 D-III athletic conferences. Other characteristics are in the tables below.

Table 1. Institution size (# of undergraduate + graduate students)

	D-I	D-II	D-III
Less than 5,000	2	8	18
5,000 to less than 10,000	9	3	6
10,000 to less than 20,000	2	6	1
20,000 to less than 30,000	8	0	0
30,000 +	2	1	0
Total	**23**	**18**	**25**

Table 2. Size of town / city

	D-I	D-II	D-III
Less than 25,000 people	3	7	12
25,000 to 50,000 people	4	4	8
More than 50,000 people	16	7	5
Total	**23**	**18**	**25**

Table 3. Athletic facility manager years of experience

	D-I	D-II	D-III
Less than one year	0	1	0
1 year to less than 2 years	1	1	3
2 years to less than 5 years	3	5	5
5 years to less than 10 years	2	2	9
10+ years	17	11	11
Total	**D-I**	**D-II**	**D-III**

Table 4. Athletic facility manager highest degree attained*

	D-I	D-II	D-III
Some college credit, no degree	0	0	1
Bachelor's degree	3	5	6
Master's degree	20	16	21
Doctorate degree	0	1	4
Total	**23**	**22**	**32**

Note. *Omitted from the table were options not selected by respondents

Table 5. Athletic facilities managed

	D-I	D-II	D-III
Baseball / softball stadium	17	10	15
Basketball arena	23	10	19
Equestrian facility	1	0	1
Football stadium	16	6	12
Gymnastics facility	4	1	3
Ice hockey rink	2	0	4
Indoor tennis facility	7	0	7

Indoor track and field facility	5	2	10
Multi-purpose field / stadium (soccer, lacrosse, field hockey, rugby, etc.)	19	9	15
Natatorium (swimming and diving, water polo, etc.)	11	3	10
Outdoor tennis facility	16	8	13
Outdoor track and field facility	16	6	12
Strength and conditioning facility	19	10	15
Wrestling facility	3	1	7
Other	6*	4**	6***
Total	**165**	**70**	**149**

Note. *outdoor golf short game; natural grass soccer field; indoor practice facility; intercollegiate athletics building; multi-purpose gymnasium; recreation center; **track and field throw center; cross country course; soccer field; ***gymnasium with basketball, volleyball and recreational area; 12 grass practice and club sport fields; indoor batting cages; soccer only facility

Measures and Interview Questions

Several open-ended questions were included in the survey instrument. These questions were split into personal demographics, institutional demographics, types of risk management strategies used, and whether or not those strategies are effective. Examples of personal demographic questions asked in the survey include: “the highest degree completed” and “how long have the athletic facility managers worked in the athletic facilities they manage.” Examples of institutional demographic questions asked include: “the total number of students (undergraduate and graduate students currently enrolled at these institutions),” “the athletic facilities of this institution are primarily located in a community with the population of,” and “which types of facilities do you manage at your current institution.”

A modified version of Pantera et al.’s (2003) risk management strategies were used in this survey instrument by expanding the game day security operations checklist. Two subject matter experts who are athletic facility managers provided face validity by reviewing the survey and providing recommendations. In addition, four research scholars likewise reviewed and provided feedback on the content of the survey.

The feedback led researchers to eliminate the ordinal scale of closed and pre-coded items regarding frequency of use of security measures – not at all, at 50% of events, at 75% of events, as a standard operating procedure, or no opinion. The ordinal scale was eliminated because it fails to account for use of a strategy that might fall between the given percentages (i.e., less than 50% but more than not at all). In the current study respondents instead were asked whether or not a strategy was ever used.

In addition, the survey instrument was expanded to inquire for strategies used during games, special events, practices, and daily operations of all athletic facilities, not just game day operations in football stadiums and basketball arenas. Additional minor modifications included grouping, reordering, and updating wording. Other modifications included expanding the instrument to include facility managers' perspectives on the effectiveness of each risk management strategy to reduce risk. Maloy (1991) suggests that "effective" risk management is the result of 1) identification of risk, 2) incorporation of legal principles, and 3) an expectation of organizations to practice risk management "to provide the most comprehensive program of facility safety and production" (p. 90). This research focused on the consequence reduction measures to minimize risk, which is the final step in the Sport Event Security Assessment Model (SESAM) by Hall et al. (2007a). Since athletic facility managers have economic concerns (Pantera et al., 2003; Smith et al., 2017), only effective risk management measures should be implemented.

The other types of questions asked about which types of risk management strategies are used and whether or not these strategies are effective. Some examples of these questions include: "whether or not the athletic facility managers use and have a risk management plan" and "whether or not the athletic facility managers use and have a central command to coordinate

responses." Other questions include "whether or not the facilities have a no spectator reentry policy" and "how effective is this strategy at reducing risk."

Data Analysis

An interpretive descriptive methodological research approach was used to analyze data. Thorne, Reimer Kirkham & MacDonald-Emes in 1997 created this methodological approach due to the need for a method that would allow researchers to generate knowledge from respondents (Thorne et al., 2004). This methodological approach digs up common meaning from the lived experiences of people (Akinade, et al., 2017). Moreover, it allows researchers to collect information about the experiences of respondents while maintaining an underlying assumption that being interested in the story of others is crucial for understanding the phenomenon under study (Akinade, et al., 2017).

Data analyses began after respondents completed the survey. The open-ended responses were exported to NVivo 10 to help organize data (Strauss & Corbin, 1990). Two researchers read through each response and coded the data independently. Common responses were batched together into identifiable nodes called first order codes (Strauss & Corbin, 1990). Once all first order codes were identified, additional analysis ensued where first order codes were further consolidated into second order codes. The credibility of the codes were reinforced with the aid of constant comparative analysis (Glaser & Strauss, 1967). The two researchers came together and read through the data set to review, compare, and contrast codes as a way to ensure the codes were representative of respondents' responses. Following the merging, second order codes were integrated into core conceptual categories that complemented both research objectives and questions posed to respondents.

Findings and Discussion

Risk Management Strategies Used

The risk management strategies in Table 6 are a modified version of the Pantera et al. (2003) study. Unlike Pantera et al.'s sole focus on game day operations for football and basketball, here respondents identified risk management strategies used for all operations at any of their athletic facilities.

Table 6. Modified Pantera et al. (2003) interview survey instrument items of 34 risk management strategies that are utilized by athletic facility managers

Risk Management Strategies	D-I		D-II		D-III		Total
Written risk management plan	64.71%	11	75.00%	6	77.78%	7	**24**
Pre-event training for all employees	94.12%	16	50.00%	4	66.67%	6	**26**
Prohibit third party deliveries within 90 minutes of an event	29.41%	5	12.50%	1	0.00%	0	**6**
Restrict critical areas (fields, kitchens, loading docks, communications center...)...	82.35%	14	100.00%	8	44.44%	4	**26**
Jersey barriers within 100-feet security of facility perimeter	11.76%	2	25.00%	2	0.00%	0	**4**
Conduct background checks	70.59%	12	100.00%	8	100.00%	10	**30**
Update background checks	23.53%	4	87.50%	7	60.00%	6	**17**
Issue zone passes to limit / restrict access	70.59%	12	37.50%	3	50.00%	5	**20**
Issue photo identification passes to all employees	58.82%	10	62.50%	5	80.00%	8	**23**
Issue personal identification cards, badges or passes for all media personnel	93.75%	15	37.50%	3	60.00%	6	**24**
Central command to coordinate security responses	100.00%	17	50.00%	4	44.44%	4	**25**
Minimum of one (1) security personnel for every 250	82.35%	14	50.00%	4	55.56%	5	**23**

spectators							
Live security patrols	88.24%	15	75.00%	6	55.56%	5	**26**
Surveillance cameras to monitor entire facility	58.82%	10	25.00%	2	22.22%	2	**14**
Patrol of bomb-sniffing dogs	41.18%	7	0.00%	0	0.00%	0	**7**
Anti-terrorism squad located within facility	11.76%	2	0.00%	0	11.11%	1	**3**
Monitor biological, chemical and/or radioactive substances and/or air quality	5.88%	1	0.00%	0	11.11%	1	**2**
Clear trash bags for visual inspection	18.75%	3	37.50%	3	55.56%	5	**11**
Visual inspection of spectators upon entry	94.12%	16	50.00%	4	66.67%	6	**26**
Spectator pat-downs upon entry	29.41%	5	0.00%	0	22.22%	2	**7**
Metal detectors for spectators upon entry	5.88%	1	0.00%	0	0.00%	0	**1**
Hand-held wand scanning upon entry	23.53%	4	0.00%	0	0.00%	0	**4**
Restrict backpacks and other large bags carried in by spectators	70.59%	12	12.50%	1	22.22%	2	**15**
No spectator re-entry policy	50.00%	8	0.00%	0	11.11%	1	**9**
Electronic scanning of all tickets	76.47%	13	25.00%	2	11.11%	1	**16**
Periodic broadcasts detailing security practices and restricted items	29.41%	5	0.00%	0	11.11%	1	**6**
Signage detailing security practices and restricted items	82.35%	14	50.00%	4	22.22%	2	**20**
Coordinate with police	94.12%	16	75.00%	6	66.67%	6	**28**
Coordinate no fly-zones over and around venue	23.53%	4	12.50%	1	0.00%	0	**5**
Helicopter patrols of airspace	5.88%	1	0.00%	0	0.00%	0	**1**
Ambulance / paramedic on-site	88.24%	15	50.00%	4	70.00%	7	**26**
Athletic trainer / medical doctor on-site	100.00%	17	100.00%	8	100.00%	10	**35**
Formal post-event debriefing	41.18%	7	0.00%	0	22.22%	2	**9**
Facilities closed to the public when not in use	76.47%	13	37.50%	3	40.00%	4	**20**
Total		**321**		**99**		**119**	**539**

Pantera, et al.'s (2003) study emphasizes that all 34 risk management strategies should be considered for implementation. However, the only strategy used by every respondent is to have an athletic trainer or medical doctor on site (see Table 6). All 34 risk management strategies are used by at least one D-I athletic facility manager (see Table 6) as they likely have the resources and motivation to employ more risk management strategies since they are typically larger institutions.

Even though D-I and D-III facility managers oversee a similar number of athletic facilities (see Table 5), on average, D-I uses a larger number of different risk management strategies than D-II and D-III (D-I = about 19; D-II = about 12; D-III = about 12) (see Table 6). All of the 34 risk management strategies are used by at least one school in D-I, whereas only 24 of the strategies are used in D-II and 27 of the strategies are used in D-III. Multiple strategies are used by at least half of the respondents (D-I – 20 strategies; D-II – 14 strategies; D-III – 14 strategies).

Although some risk management strategies might be costly such as helicopter patrols and bomb-sniffing dogs, even those strategies that are inexpensive are not universally used, like a no re-entry policy, a formal post-event debriefing, or a policy to prohibit third-party deliveries within 90 minutes of an event. It would be interesting to know if athletic facility managers perceive those inexpensive risk management strategies too inconvenient to implement or if they lack the resources to employ a strategy. Alternatively, athletic facility managers may not be familiar with a strategy or they may deem it ineffective and therefore do not use a strategy.

Interestingly, though, 100% of D-II and D-III schools conduct background checks, with a majority of them updating those background checks; whereas only 70.59% of D-I schools

conduct background checks with only 23.53% updating those background checks. While most schools conduct a visual inspection of fans entering their facilities, at the time of this study, few indicated use of pat-down searches, hand wands, or metal detectors.

Inconsistent with Baker, Connaughton, Shang & Spengler (2007), not all athletic facility managers across all divisions reported having a written risk management plan to prepare against risks such as terrorism, man-made threats, and natural disasters. Terrorism is a significant risk to facilities that are key infrastructures (U.S. Department of Homeland Security, 2009, 2013), like athletic facilities. However, only a few athletic facility managers reported using anti-terrorism techniques like bomb-sniffing dogs, monitoring biological and chemical substances or posting an anti-terrorism squad within the facility. Since not all Pantera, et al.'s (2003) strategies are used, even in D-I athletic facilities, this suggests that either athletic facility managers need to expand the number of risk management strategies employed or the list of Pantera, et al.'s essential risk management strategies needs updated.

Effectiveness of Risk Management Strategies

Athletic facility managers from all NCAA institutions were asked if they perceive the risk management strategies they use to be effective to reduce risk and to explain how they know it to be effective. These were asked as open-ended questions and coded into categories of either perceived effectiveness or lack of perceived effectiveness. The athletic facility managers were not asked to report on the effectiveness of strategies they do not use, but only those they reported that they do use. Those who indicated strategies are effective are reported in the perceived effectiveness (PE) column. When respondents reported that strategies were somewhat or

sometimes effective, it was documented in both the perceived effectiveness (PE) and lack of perceived effectiveness (LPE) columns (see Table 7).

Table 7. Athletic facility managers perception of effectiveness or lack of effectiveness of 34 risk management strategies to reduce risk*

Risk Management Strategies	D-I PE	D-I LPE	D-II PE	D-II LPE	D-III PE	D-III LPE	Total PE	Total LPE
Written risk management plan	1	nr	5	nr	4	2	**10**	**2**
Pre-event training for all employees	nr	nr	3	nr	2	nr	**5**	**0**
Prohibit third party deliveries within 90 minutes of an event	nr	nr	1	nr	null	null	**1**	**0**
Restrict critical areas (fields, kitchens, loading docks, communications center...)...	nr	nr	7	nr	2	nr	**9**	**0**
Jersey barriers within 100-feet security of facility perimeter	nr	nr	2	nr	null	null	**2**	**0**
Conduct background checks	nr	nr	6	nr	2	1	**8**	**1**
Update background checks	nr	nr	1	nr	nr	nr	**1**	**0**
Issue zone passes to limit / restrict access	nr	nr	3	nr	2	nr	**5**	**0**
Issue photo identification passes to all employees	nr	nr	2	2	nr	2	**2**	**4**
Issue personal identification cards, badges or passes for all media personnel	2	1	1	1	nr	1	**3**	**3**
Central command to coordinate security responses	10	nr	1	1	1	nr	**12**	**1**
Minimum of one (1) security personnel for every 250 spectators	3	2	3	nr	3	nr	**9**	**2**
Live security patrols	3	nr	6	nr	2	nr	**11**	**0**
Surveillance cameras to monitor entire facility	2	2	1	nr	null	null	**3**	**2**
Patrol of bomb-sniffing dogs	2	nr	null	null	null	null	**2**	**0**
Anti-terrorism squad located within facility	nr	nr	null	null	nr	nr	**0**	**0**
Monitor biological, chemical and/or radioactive substances	nr	nr	null	null	nr	nr	**0**	**0**

and/or air quality								
Clear trash bags for visual inspection	nr	nr	1	nr	nr	nr	**1**	**0**
Visual inspection of spectators upon entry	1	1	3	1	2	nr	**6**	**2**
Spectator pat-downs upon entry	1	nr	null	null	nr	nr	**1**	**0**
Metal detectors for spectators upon entry	nr	nr	null	null	null	null	**0**	**0**
Hand-held wand scanning upon entry	nr	nr	null	null	null	null	**0**	**0**
Restrict backpacks and other large bags carried in by spectators	nr	nr	nr	1	nr	nr	**0**	**1**
No spectator re-entry policy	1	nr	null	null	nr	nr	**1**	**0**
Electronic scanning of all tickets	2	1	nr	1	nr	nr	**2**	**2**
Periodic broadcasts detailing security practices and restricted items	nr	nr	null	null	1	1	**1**	**1**
Signage detailing security practices and restricted items	nr	1	3	3	nr	nr	**3**	**4**
Coordinate with police	nr	nr	6	1	1	nr	**7**	**1**
Coordinate no fly-zones over and around venue	nr	nr	1	nr	null	null	**1**	**0**
Helicopter patrols of airspace	nr	nr	null	null	null	null	**0**	**0**
Ambulance / paramedic on-site	3	nr	4	nr	1	nr	**8**	**0**
Athletic trainer / medical doctor on-site	3	nr	6	nr	2	nr	**11**	**0**
Formal post-event debriefing	nr	nr	null	null	1	nr	**1**	**0**
Facilities closed to the public when not in use	nr	nr	3	1	nr	nr	**3**	**1**
Total	**34**	**8**	**69**	**12**	**26**	**7**	**129**	**27**

Note. PE = perceived effectiveness; LPE = lack of perceived effectiveness; nr = not reported = indicates that at least one institution uses the strategy, but respondents did not indicate any perception of effectiveness or lack of effectiveness; null= indicates that respondents did not report using this strategy (see Table 6) and therefore there could be no report on its perceived effectiveness.

Indicators of effectiveness cannot be generalized to be an effective risk management strategy for all athletic facility managers or their facilities. Indicators of effectiveness were reported across all divisions for some of the risk management strategies, but not all (D-I - 13 strategies; D-II - 22 strategies; D-III - 14 strategies). Across the divisions more reported a risk management strategy to be perceived as effective rather than to lack perceived effectiveness (see

Table 7, 129 = PE; 27 = LPE). This could be because an athletic facility manager is unlikely to use a strategy perceived to lack effectiveness.

D-II athletic facility managers more readily reported on the perceived effectiveness of risk management strategies than the other divisions (see PE under Table 7). This is despite having the fewest number of respondents and reporting the use of far fewer risk management strategies than D-I and a similar number of risk management strategies as D-II (see Table 6). Although D-I uses more risk management strategies, they provided fewer indicators of perceived effectiveness of these strategies to reduce risk than other divisions.

For D-I, 10 respondents perceived effectiveness of the use of a central command to coordinate security responses, whereas, no more than 3 D-I respondents reported any other strategy as being perceived as effective. The highest number of D-II respondents (7) reported perceived effectiveness for restricting critical areas, whereas the highest number of D-III respondents (4) reported having a written risk management plan.

All NCAA divisions acknowledged a perception of effectiveness for 7 risk management strategies. These strategies include having a risk management plan, central command to coordinate security responses, and a minimum of one security personnel for every 250 spectators. The other strategies were live security patrols, use of visual inspection of spectators upon entry, having an ambulance and/or paramedic on-site, and having an athletic trainer and/or medical doctor on-site. This suggests that these are perceived as effective risk management strategies no matter the size of the school.

For lack of perceived effectiveness, athletic facility managers at D-I institutions reported 6 strategies, D-II reported 9 strategies and D-III reported 5 strategies. However, division overlap in lack of perceived effectiveness only existed for 5 strategies. Those strategies include issue

photo identification passes to all employees (D-II and D-III), issue personal identification cards, badges or passes for all media personnel (D-I, D-II, and D-III), use of visual inspection of spectators upon entry (D-I and D-II), electronic scanning of all tickets (D-I and D-II), and signage detailing security practices and restricted items (D-I and D-II).

Only one of the risk management strategies that is used across all divisions - "restrict backpacks and other large bags carried in by spectators" - had no reports of perceived effectiveness, but one respondent reported this strategy lacked perceived effectiveness. This is not surprising since only a few schools use this practice in D-II and D-III, but surprising for D-I since a majority of respondents use this strategy.

Some, though, failed to report on the effectiveness of a risk management strategy (see "NR" in Table 7). It is unclear why they failed to respond; perhaps they did not want to take the time to complete an open-ended response, they are uncertain about a risk management strategy's effectiveness or for another reason entirely. Although a successful risk management strategy cannot always be measured by a known result that demonstrated a reduction or avoidance of risk. Perception of effectiveness of risk management strategies might be determined through common sense, relying on the experience and best practices of others, understanding patterns of human behavior that contribute to terroristic or man-made incidents, or recognizing the threat of natural disasters.

Nonetheless, what is most compelling are the reasons why athletic facility managers perceive the risk management strategies to be effective or to lack effectiveness. The most compelling reason(s) to use a risk management strategy are proffered by those who provided examples of its effectiveness.

For instance, one facility manager indicated the perceived effectiveness of having a risk management plan by stating that “we have had an ‘active shooter’ near campus and our [lock-down] procedures [e]nsured anyone in our facilities were safe until local law enforcement gave an all clear.” Another facility manager indicated the perceived effectiveness of having a central command to coordinate security responses by stating “we have had fire alarms pulled in the arena and by having central command we were able to check the area where the alarm was pulled quickly and not have to evacuate the building for a fraudulent alarm.” Yet another indicated the perceived effectiveness of having a central command by reporting that the central command was able to confidentially report the details of a weapon threat and that “individual was apprehended before any incident and without mass public knowledge.”

Several comments indicated that live security patrols are perceived as effective to catch people trying to sneak into games, break into patron vehicles, and use alcohol. Others indicated visual inspections of spectators seem effective to confiscate alcohol and deter risk. Additionally, medical personnel on site help improve the response time and reduce severity of injuries as described by one athletic facility manager: “we had a full cardiac arrest...and the patient was breathing when he left.” Another athletic facility manager indicated medical personnel are “excellent in reducing pain, injury, suffering which could lead to legal action.” Other athletic facility managers presumed perceived risk management strategies to be effective suggesting that a lack of incidents indicate the strategies work to deter risk.

Other significant comments by facility managers regarding perceived effectiveness of risk management strategies include:

- Pre-event training for all employees: “We found after an incident this past year that the pre-event training/meeting helps remind everyone of what they are to be doing during an event and educate them on right and wrong behavior and signs to look out for.”
- Jersey barriers within 100-feet security of facility perimeter: “Very effective - keeps large groups from causing potential harm to self and others.”
- Conduct background checks: “Background checks have kept a couple individuals who would not fit the mission of University off of our payroll.”
- Updating background checks: “[It’s] effective in that on one occasion, we found out that an individual had an arrest that would otherwise have gone unmentioned to us, causing that individual to not be renewed.”
- Issue zone passes to limit/restrict access: “Having a media badge has been very effective. It also gives the event staff authority to ask someone without those permissions to leave. It has reduced the incidents of people not being where they belong greatly. It educates them as to where they are allowed to be or not to be. It educates our event staff to pay attention to where people are and consider if they are allowed to be there or not.”
- Issue personal identification cards, badges or passes for all media personnel: “A lot of people carry cameras and want to get up close. Without the passes, we would have a hard time determining who belongs.”
- Surveillance cameras to monitor entire facility: reports have indicated effectiveness in locating missing children, identifying fights and drunk people and solving robberies.
- Electronic scanning of all tickets: “We have caught many forged tickets.”

The following are facility manager comments that indicate a lack of perceived effectiveness of risk management strategies include:

- Issue photo identification passes to all employees: “ID’s not produced for known / familiar people.”
- Issue personal identification cards, badges or passes for all media personnel: “Some credentialed pass holders ‘talk their way into events.’”
- Minimum of one (1) security personnel for every 250 spectators: “We had a student run on our basketball court during a game” and “occasional theft or vandalism ‘nothing will work 100% of the time.’”
- Surveillance cameras to monitor entire facility: “Incident may have already started when identified on camera.”
- Use of visual inspection of spectators upon entry: “does not catch everything.”
- Electronic scanning of all tickets: “If forged tickets get scanned first the real ticket holder can be rejected.”
- Signage detailing security practices and restricted items: “Participants don't always read.”

Since several athletic facility managers reported that some risk management strategies lack perceived effectiveness, this begs the question why do they use a strategy that they may deem ineffective? Ultimately, many of the comments regarding lack of perceived effectiveness simply indicate that a risk management strategy does not always work. However, a risk management strategy that reduces risk can still be considered an effective risk management strategy despite not being effective at all times.

Conclusion and Implications

Risk management strategies are employed to reduce risk (Hall et al., 2008), such as reducing legal liability, a costly legal defense and damage to an institution's reputation. Therefore, all facility managers should apply their resources not just toward using any risk management strategy, but toward using effective risk management strategies, even those that may only be effective some of the time.

Academically, this study contributes to athletic facility risk management research with the expansion of Pantera et al.'s (2003) "Game Day Security Operations Checklist" instrument. This allows athletic facility managers to better understand which risk management strategies are being used and other athletic facility managers' perception of the effectiveness of risk management strategies. This research is significant because it is more comprehensive, unlike other studies, it includes risk management strategies used for all operations (game days, special events, practices and daily operations - not just game day operations) of all athletic facilities (not just football stadiums and basketball arenas) in all three NCAA divisions (not just one division).

Practically, this research provides a rare perspective on whether athletic facility managers believe their risk management strategies are effective. Athletic facility managers can use these results to compare risk management strategies used at other universities and the perceptions of effectiveness of each strategy. This perspective may also be relevant to managing other campus facilities, particularly those that accommodate large groups and support large events. This may, in turn, help prevent legal liability, reduce costs of litigation and avoid reputational harm.

Societally, if more effective risk management strategies are utilized, society can benefit from reduced harm to themselves and to their property. Ultimately, employment of effective risk management strategies has the potential to make communities safer.

Limitations and Future Studies

Several more risk management strategies should be considered in future studies since this study was limited to only 34 risk management strategies. Future studies should examine if athletic facility managers similarly define risk management and how and why they select their risk management strategies. Another study could isolate which risk management strategies are used only for games, like a central command, versus all of its operations, like having a written risk management plan, as well as by facility type (see Table 5). Future qualitative studies could include in-depth interviews that would allow for follow-up questions. Alternatively, a shorter, quantitative study may increase the response rate for the overall number of participants as well as response to every question item.

This study was also limited to athletic facility managers' perception of effectiveness of the risk management strategies used. Although subject matter experts (experienced athletic facility managers) were selected to respond to this instrument, a more objective determination of effectiveness of risk management strategies like a longitudinal study on a reduction in incidents over time might be another way to indicate effectiveness. Alternatively, the perceptions of athletic facility managers could be compared alongside their other campus partners (fire, police, environmental and safety, campus legal and risk management teams, etc.) as they might have similar or different perceptions of effectiveness of risk management strategies.

Another study could consider any difference in the risk management strategies used and effectiveness that varies by type of athletic facility. Future analysis could include whether the size of the town or city and institution (see Tables 1 and 2) or the experience and education of the athletic facility managers (see Tables 3 and 4) impact risk management strategies used and

their effectiveness. Yet other research could examine if D-II reported using fewer risk management strategies due to different experiences or failures in its perceived effectiveness. Alternatively, athletic facility managers should be asked about risk management strategies they do not use because they perceive them to be ineffective. Essentially, there are many possibilities to expand upon this area of research.

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