The availability and delivery of athletic training services in Iowa high schools

by

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TABLE OF CONTENTS

INTRODUCTION

In the United States there are more than 24,000 high schools with approximately 5.6 million young adults competing in athletics. In a study done by Stopka and Kaiser (1988), it was discovered that of these 5.6 million athletes, one out of every six will incur an injury that will result in the loss of one or more days of participation. Also, 36 of these young athletes will become permanently paralyzed or die each year from athletic-related injuries.

It is quite obvious that along with any athletic endeavor there is the possibility of injury. This was illustrated by Adams (1983) who performed an injury survey for the state of Tennessee. Adams found that each year 20% of the football players in Tennessee were injured and 8% received serious injuries. This means that of the approximately 36,000 high school football players in Tennessee 7,800 will be injured each year. One of the questions which needs to be asked is, "Are these injured athletes receiving proper health care?"

There are many studies that have attempted to address this question (Porter, 1980; Wrenn and Ambrose, 1980; Sherman, 1985; Rowe and Robertson, 1986). These studies found that up to 85% of the coaches were handling initial injury care, injury evaluations, and treatments of the injured athletes. Almost exclusively, coaches handle injury evaluation and treatment. These are people who, if the athletes are fortunate, have had an introductory course in athletic training. Most often, these people are trained to coach athletes and teach them

athletic skills rather than to take care of injuries. This is where the athletic trainer is needed.

For many years the need for athletic trainers in the high schools has been quite evident to many people. In the Fall, 1973 issue of Family Safety, it was pointed out that in 1972, a bill, the Athletic Safety Act, was proposed to the United States House of Representatives. This bill, if passed, would have mandated the hiring of a certified athletic trainer by every school by the end of 1981. The bill, proposed by Representative Ronald Dellums of California, would have been an amendment to the Occupational Safety and Health Act. The Athletic Safety Act proposed "to require educational institutions engaged in interscholastic athletic competition to employ certified athletic trainers" (p. 22). It also stated, "The certified athletic trainer makes many contributions to health and safety, but none is more vital than first aid" (p. 23).

We know that injuries are occurring and that many are an inherent part of athletics. Still, many are preventable. Ideally, a properly trained physician in sports medicine should handle all athletic injuries. In actual practice however, this will never occur due to the tremendous amount of money involved for the school to contract with a physician. An alternative is to provide a certified athletic trainer to handle the athletic injuries in a school sports program.

As defined by the National Athletic Trainers Association (NATA), a certified athletic trainer is:

> "an allied health professional who has fulfilled requirements for certification as established by the

> NATA Board of Certification. The certified athletic trainer works under the direction of a licensed physician when practicing the art and science of athletic training which includes the following areas: prevention of athletic injuries; recognition and evaluation of athletic injuries; rehabilitation of athletic injuries; organization and administration of an athletic training program; and education and counseling of athletes" (p. 1).

By this definition an athletic trainer could be a very valuable person to any school system. With the continuing rise in the perceived value of athletics, an injury could be a very traumatic experience to many students. Easing this trauma and the effects which it may have physically and mentally is a very important aspect of an athletic trainer's job.

Tolpin and Bentkover (1980) illustrated this fact:

> "Many injuries bring about personal catastrophes that are not qualitatively estimated. Victims may suffer loss of a body part or speech, disfigurement, disability, impending death, pain and depression. This person, as well as those around him or her, may be forced into a changed environment. . . . Such changes are likely to induce anxiety and resentment, reduce self-esteem, and precipitate emotional problems" (p. 32).

The reduction of emotional suffering is a large part of a trainer's job. This should be of great concern to parents and coaches alike.

In America today, athletics is one of the most enjoyed pastimes for our young people. The playing of sports starts when one is very young and does not end for many years. An injury of any kind can preclude an individual from ever participating again, but with the correct therapy and treatment an injured athletes can continue to participate.

While a child is competing on a school sponsored athletic team, there should be a person properly trained to handle injuries present at all times. Still, many schools choose to ignore this aspect of athletics without the realization that an athletic trainer will vastly help their program and the individuals within the program. Redfern (1975) stated that, "There is no other person who can unify a health care program for athletes with greater dispatch than a properly trained and accredited athletic trainer" (p. 38).

Contracting the services of a certified athletic trainer may not be as difficult or costly as one might first think. Many authors present different options, one of which should be feasible to most schools (DiNitto, 1985; Hossler, 1985; Kegerries, 1979; Stopka and Holyoak, 1988; and Stopka and Kaiser, 1988).

Statement of the Problem

It was, therefore, the purpose of this study to determine the availability and delivery of athletic training services to high school athletes in Iowa as described by high school athletic directors. The major assumption of this study was that the high school athletic directors would know the availability and delivery of athletic training services in their own high schools. Therefore, a

limitation of this study is the degree to which any individual high school athletic director was aware of the availability and delivery of athletic training services in his or her specific high school. These results will be limited to the state of Iowa and will not be generalizable to the nation.

REVIEW OF LITERATURE

A search of literature pertinent to athletic training services provided to high school athletes was conducted to ascertain what is currently known in this field. Based on this review, it was felt necessary to outline the duties of athletic trainers. This led to a review of what professional preparation is required to be a certified athletic trainer. From this point it was deemed appropriate to examine the injury statistics which were cited in the literature and what may be ascertained from these. Finally, since the main topic of study is the availability and delivery of athletic training services to high school athletes, completed research, program models, and known options became the final topics of review.

Definition of Duties

According to Hossler (1985), the fitness boom made people in the medical profession aware of three important facts: (1) there is and will be a huge increase in the scope and depth of athletic related injuries, (2) there is a shortage of qualified physicians to deal with athletic injuries, and (3) people are beginning to be involved with athletic endeavors at a much younger age. With this in mind, it is necessary to discuss the role of certified athletic trainers in the field of sport. As defined by Herzog (1983), an athletic trainer is a health care professional who is concerned with the prevention, care, and treatment of athletic injuries. Athletic trainers are involved in many aspects of the widely diverse field of sports medicine, including, but not limited to the

assessment of the nutritional needs of athletes, the advising of athletes on strength and conditioning programs, the analysis of playing fields and equipment for safety, the application of tape and protective padding to prevent injuries, and the handling of minor first aid situations as well as emergency situations, such as concussions and cardiac arrest. As described by Bean (1981), an athletic trainer's job encompasses first aid, care and rehabilitation, nutrition, and conditioning of athletic injuries. Also, an athletic trainer lends an ear to any athlete who needs to talk about a problem that he or she is concerned with, be it physical, psychological, or personal.

One of the most comprehensive definitions of an athletic trainer was put forth by DiNitto (1987). He defined an athletic trainer as a provider of prevention, care, recognition, treatment, and rehabilitation of all athletic injuries. Athletic trainers also assist in nutritional counseling, designing weight training programs, organizing preseason conditioning, supervising the training room and student trainers, and serving as a resource to the school and community in relation to the health and safety of their athletes.

Professional Preparation

According to DiNitto (1987), athletic trainers have a minimum of four years of undergraduate training under the supervision of a certified athletic trainer. They must complete a minimum of 1800 hours of supervised work directly with athletes. They must also obtain a bachelor's degree. Once these components are completed, or are near completion, the student trainer may take the certification exam, which is administered in oral, written, and

practical portions. All three sections must be passed to be a certified athletic trainer by the National Athletic Trainers Association.

In 1988, the NATA developed new guidelines for certification. As described by the National Athletic Trainer's Association Board of Certification Handbook (1988), these requirements are: proof of graduation from a four year institution; proof of current American National Red Cross Standard First Aid and current Basic CPR cards; and verification that at least 25% of the training hours were attained in actual practice or game coverage with football, soccer, hockey, wrestling, basketball, gymnastics, lacrosse, volleyball, and rugby. The applicant must have the endorsement of an NATA certified athletic trainer in good standing, and all three sections of the test must be passed.

The specialized requirements for graduates of an NATA approved curriculum program is successful completion of that program. The specialized requirements for a graduate from an internship program are that at the time of application each intern candidate must present documentation of at least 1500 hours of athletic training experience under the direct supervision of an NATA certified athletic trainer obtained over a minimum of two years and a maximum of five years. Also, it is required to show proof of completion of, or enrollment in, formal course work in personal health, human anatomy, kinesiology/biomechanics, human physiology, exercise physiology, basic athletic training, and advanced athletic training.

Wright (1984) attempted to evaluate the professional preparation of high school athletic trainers in North Carolina. Sixty-five athletic trainers completed and returned a questionnaire that assessed the academic background, current teaching responsibility, past and present athletic training

experiences, job longevity, and professional advancement of athletic trainers in North Carolina high schools. The results showed that 76% of athletic trainers were employed prior to assuming athletic training duties and had a limited knowledge of therapeutic modalities and adaptive exercise. Out of the 65 respondents, only 15 (23%) were certified by the National Athletic Trainers Association (NATA).

A study was undertaken by Prentice & Mishler (1986) to ascertain what academic preparation or professional qualifications give the athletic trainer optimal marketability in a public high school. A questionnaire was sent to 2,000 randomly selected high school principals across the nation. The authors concluded that in order to be considered for an athletic training position in a high school, the candidate should be a graduate of an athletic training education program and have the ability to teach within an academic discipline. Although a bachelor's degree is a minimal requirement, a master's degree was recommended. Certification by the NATA and having one to three years of previous experience were also strongly recommended.

Injury Statistics

Webster (1983) discovered that due to the maturity and growth factors related to the teen years, the younger and less mature an athlete is, the more susceptible to injury the athlete will be. The author also found that the younger athlete needs a carefully guided, gradual, progressive training and conditioning load throughout his or her teen years.

According to Stopka & Kaiser (1988), in the United States there are 24,000 high schools. In these high schools there are approximately 5.6 million

athletes. It was determined that one out of every six of these athletes will have an injury classified as a time loss injury, with 636,000 of these injuries occurring in football alone. It was found that each year 36 young athletes will die or become permanently paralyzed. Lastly, in American colleges there is an athletic trainer for every 25-30 athletes, but in the high schools there is one trainer for every 5,500 athletes. The authors concluded that high school athletes need the most attention due to their body structure, but they have the least access to proper care.

In a study done for the state of Tennessee (Adams, 1983), it was found that there were approximately 126,850 athletes participating in high school sports during the 1978-1979 school year. It was also determined that 20% of the high school football players were injured during the 1978-1979 school year and 8% were injured seriously. The author felt these statistics could predict future injury rates also. This breaks down into the prediction that out of every 1000 football players in Tennessee, 280 will be injured each year.

In a study done for the NATA, Powell (1987) surveyed 105 high schools nationwide. The author determined that in high school football in 1986 there were 636,279 time loss injuries. The definition used for a time loss injury was an injury that caused that athlete to miss at least the remainder of that day or miss the following day. Also, Powell determined that on the average, there were 41 time loss injuries per school. The author also stated that 62% of all injuries occurred in a practice situation. Additionally, 53% of the major injuries occurred in practice. A major injury was defined as an injury which forced the athlete to miss at least three weeks of practice and competition.

In a study funded by the Department of Health, Education, and Welfare, Kegerreis (1979) found that there was a serious void in the area of health care for student athletes at the high school level. His study was undertaken to answer three major questions: (1) Will a certified athletic trainer administer health care competently?; (2) Will a certified athletic trainer's care to these athletes be comprehensive?; and (3) Will hiring a certified athletic trainer be economical? It was found that a certified athletic trainer possesses a higher level of clinical and academic skills than any other personnel within the school. Thus, athletic trainers are prepared to provide a high quality of health care to the athletes. For any person to provide comprehensive coverage, this person would need to be available for all practices and follow-up care, which is part of an athletic trainer's duties.

Completed Research

Kelley & Miller (1976) proposed that athletic training is a profession that is constantly endeavoring to keep up with change. The authors set out to assess the extent to which knowledge in athletic training would become obsolete within the ranks of non-certified athletic trainers. They sent a questionnaire across the nation (N=128) and found that 85% of the practicing non-certified athletic trainers were obsolete in their current understanding of newly completed research in the field of athletic training.

Rowe & Robertson (1986) set out with the same purpose on a statewide level. The authors sent a questionnaire to all high school athletic directors in Alabama (N=479). Each athletic director was asked to forward the questionnaire to the person in his or her school who was responsible for the

care and treatment of athletic injuries. The 20-item, multiple choice questionnaire measured responses in the following areas: care and treatment of athletic injuries, anatomy, diet and nutrition, heat-related factors, conditioning, and equipment. The authors predetermined that 70% correct would be a passing score. Out of the 127 respondents, 34 passed (27%). The individual breakdown of the correct answers in each topic area are as follows:

Care & Treatment	58%
Anatomy	53%
Diet & Nutrition	85%
Heat Factors	70%
Conditioning	41%
Equipment	57%

They concluded that 73% of the individuals surveyed were obsolete in their present level of knowledge related to athletic training. The authors concluded that when only 27% of the individuals responsible for making precise, correct, and quick decisions about athletic injuries are making the correct decisions, there is great reason for concern.

Redfern (1975) sent a survey to 216 Michigan high school superintendents. He found that 27% of the high schools who returned the survey contracted with a physician to provided health care coverage for home varsity football contests but no other events. The author also found that less than 50% of these schools had emergency equipment available. The head coach of the sport was responsible for injury care in 84% of the cases. Most schools had no reporting system to track athletes' injuries. The author stated that in Michigan the pre-season physical exam set forth seven minimum requirements. Only three of these requirements were met in 50% of the

schools. The author concluded that high school athletic health care was very poor.

Porter et al. (1980) surveyed 191 randomly selected Chicago area high schools to determine the answers to such questions as: (1) Who assumes responsibility for management of athletic injuries?, (2) Who sees the athletes when they have an injury?, (3) Who decides whether the athlete should continue to participate or be seen by a physician?, (4) Who is responsible for taping and wrapping athletes?, (5) Who provides transportation and how is it provided to an injured athlete?, and (6) Who performs the daily treatments and rehabilitation of athletic injuries? The authors found that 23% of the responding schools had one individual designated as an athletic trainer, but 31% of these individuals were not NATA certified. In almost all cases, the coaching staff was responsible for protective taping and wrapping. In only 19% of the responding schools was there a physician or paramedic responsible for on-field care of an athletic injury during competition. The coach was usually responsible for on-field evaluation of injuries, however 40% of the treatments and rehabilitative exercises were handled by physicians. Physicians were found to handle the decision regarding when an athlete was ready to return to competition in 55% of the schools responding. Lastly, it was found that 34% of the schools had a commitment by a physician to see athletes on a referral basis.

Sherman (1985) surveyed a random sample of 50% of Wisconsin high schools (N=211) in each of the three participation classes. This survey addressed the questions of how these schools were handling organization of medical coverage, first aid and initial care of sport related injuries, and follow-

up care and rehabilitation. Of the 153 respondents, 7.8% had contracted with a physician to cover home events and to see athletes on a referral basis. Also, 16% of these schools had a person designated as an athletic trainer, but only 8.5% were NATA certified and 40% of these schools used a student trainer only. Coaches were found to be in charge of first aid and initial care in 44% of the schools, yet only 17% of these schools required their coaches to be certified in standard first aid, and only 5% required their coaches to be certified in cardiopulmonary resuscitation. Nearly half (46%) of the schools reported that the coach was responsible for follow-up care. However, only 35% of the schools indicated that they had definite guidelines for rehabilitating and reconditioning athletes.

Rider & Madaleno (1981), in assessing the type of medical attention athletes were receiving, mailed surveys to 167 high schools in Florida. It was found that of the 102 returnees (61% of the sample), two had full time athletic trainers, 15 had a teacher/trainer combination, 11 had a coach/trainer combination, and seven used volunteers. Out of these 35 trainers, 18 were certified by the NATA. Of the schools with a certified athletic trainer, the injury rates were found to be lower than the schools without a certified athletic trainer.

Wrenn & Ambrose (1980) used a 25-item survey in an attempt to determine what the existing health care practices were for high school athletes in the state of Maryland. The authors mailed 149 surveys and had an 80% return rate. It was determined that only 21% of the high schools utilized a team physician. Also, 85% of the coaches were responsible for the initial evaluations and treatments thereafter, but 85% of these coaches were unaware

of the state medical guidelines on the use of therapeutic modalities. The authors concluded that school administrators and parents should make every effort possible to ensure that all practices and competitions are attended by a qualified person trained in athletic injury care. Finally, the authors recommended that all coaches who were responsible for athletic training duties should be required to attend special workshops each year.

The health care provided to secondary school athletes in Indiana was the focus of a study completed by Schrader (1985). A survey was sent to all Indiana high schools and 186 responded. Schrader found that 66% designated an employee to provide health care to athletes (mostly a school nurse) with only 20% having an athletic trainer. It was also found that of the schools with a certified athletic trainer, 37% used a team physician; and of the schools without a certified athletic trainer, only 24% used a team physician. The author concluded that these results showed that the quality of health care of athletes in Indiana high schools was inconsistent and inadequate.

A study to address the epidemic proportion of high school athletic injuries in Illinois high schools was undertaken by Bell, Cardinal, & Dooley (1984). The authors sent a questionnaire to 602 Illinois high school athletic directors and received 397 responses (66%). It was found that 62.4% of the respondents felt that the state should mandate certified athletic trainers in each high school, but 87.4% did not plan to hire a certified athletic trainer within the next five years. Of the schools surveyed, 92% said coaches provided the care needed. To change these statistics, it was felt that athletic trainers in the state of Illinois would need a better liaison with the state high school athletic association through their Illinois Athletic Trainers Association to

consider the possibility of a mandate to hire certified athletic trainers in all high schools.

Culpepper (1986) investigated health care delivery and availability to Alabama high school athletes. A 42-question survey was sent to the athletic directors in all public high schools, with 119 responding. The findings showed that the smaller schools were generally farther away from medical care, making the quality of their care far below the rest of the schools. Also, approximately 71% had an emergency medical technician (EMT) at all home football games, but only one-third provided this service to their junior varsity athletes. Fewer than 25% of the responding schools had a designated athletic trainer, which, when combined with the other results, indicated that there was a serious need for more and better health care coverage for high school athletes in Alabama.

Twenty-nine northern Virginia high schools were surveyed to find out who performed the athletic training duties and what the teaching responsibilities, if any, of these individuals were. Matthews & Esterson (1983) reported that 15 of these schools had a trainer on staff (certification status was unknown) who received a coach's compensation as well as a teaching salary. Most taught in physical education, while 28.6% taught in the sciences.

Ray (1987) reported results from a survey directed toward Michigan school district superintendents (N=576). He found that 98% of his sample knew what an athletic trainer was, and 72% of these people had had personal contact with an athletic trainer. The author also found that 86% of the respondents felt that an athletic trainer was the most qualified person to prevent and treat

athletic injuries. Yet, only 8% of these people responded that they would be willing to hire an NATA certified trainer within the next 12 months.

Options and Program Models

According to the previously cited studies, the medical care to our high school athletes is lacking. There are many options available to improve this situation. The teacher/trainer option is the most affordable according to Kegerreis (1979). A teacher/trainer could provide elective courses in advanced health care services, train student trainers, and handle purchasing of athletic training equipment and supplies.

According to Hossler (1985), in the absence of a certified athletic trainer, coaches are faced with four options:

(1) Decide the severity of the injury,

(2) Call for a first aid team,

(3) Pull the athlete out and send home with recommendation to see a physician, or

(4) Make an appointment to see a specialist.

The problem with these options is that the athlete is not seen soon enough by a qualified individual who has been trained in skills of injury evaluation, first aid, and rehabilitation.

Hossler (1985) proposed the following options for schools currently without athletic trainers.

(1) Full Time Trainer--This is an ideal situation which allows the trainer to be available to work one on one with each athlete and supervise the training room and student trainers.

(2) Teacher/Trainer--This is perhaps the most economical option providing one person for two jobs.

(3) Substitute Teacher/Trainer--This option allows the trainer to receive additional income; the work schedule is very uncertain.

(4) Administrative Assistant/Trainer--This person would work closely with coaches on the purchasing of equipment.

(5) Part-Time Trainer--This allows a school to have a trainer.

(6) Nurses Office/Trainer--This would allow the trainer to work with the school nurse and be accessible to the athletes.

(7) Sports Medicine Clinic--A local clinic contracts to provide trainers.

(8) Trainer Rotation--One trainer rotates from school to school; a problem with this is who provides payment and benefits.

Stopka & Kaiser (1988) developed the same basic options:

(1) Full Time Trainer--This person would be in charge of all facets of the training room and be there for consultation.

(2) Traveling Trainer--The morning is to be spent travelling to each school while the afternoon is spent at one school on a rotational basis.

(3) Substitute Teacher/Trainer.

(4) Assistant Athletic Director/Trainer.

(5) Part-Time Trainer--This is economical for the school but has a high turnover rate.

(6) Contracting a trainer from a local clinic.

(7) Graduate Assistant from a nearby college--This is an inexpensive option, but the school will have a new trainer every one to two years.

(8) Teacher/Trainer--This is a very feasible option.

DiNitto (1985) also presented similar options:

(1) Full Time Trainer.

(2) Teacher/Trainer--This is the most feasible option. The individual teaches one-half to three-quarters time.

(3) Substitute Teacher/Trainer.

(4) Part-Time Trainer.

Stopka & Holyoak (1985) presented the idea that colleges could supply graduate assistants to area high schools which would be financed by the high schools. This would allow student trainers to gain quality work experience as well as supply the high schools with the much needed services of an athletic trainer. The $4500-6500 stipend would be covered by the high schools. The only problem stated was that the trainer would not be available at all times.

A model program was developed in North Carolina according to Legwold (1983). With the realization that NATA certification guidelines were very stringent, the state of North Carolina devised an original plan. Under new state legislation, a person could qualify as a teacher/athletic trainer (TAT) by becoming certified in first aid and cardiopulmonary resuscitation and then completing a basic and advanced course in athletic training. By the 1984-85 school year, each school was to have a teacher/athletic trainer or NATA certified athletic trainer on staff. The five-year study done by the state of North Carolina showed that schools with TAT's had a football injury rate of 22% and a re-injury rate of 11%. In 28 schools which had an NATA certified athletic

trainer, the injury rate was 29%, but the re-injury rate dropped to 3%. The author compared this to a similar study done by Blythe and Mueller from 1968 through 1972. Their study showed that schools without athletic trainers had an injury rate of 50% and a re-injury rate of 71%. The author concluded that the program in North Carolina must be working.

Wisconsin high schools felt that the injury date obtained showed medical coverage was poorly organized and supervised in their high schools (Sherman, 1985). The University of Wisconsin Hospital Sports Medicine Clinic and Fitness Center developed an outreach program for area high schools. Nineteen schools contracted for: (1) twice weekly visits by a certified athletic trainer, (2) educational programs for coaches, athletes, and parents, and (3) trainer coverage at all home competitive events.

Davenport, Iowa became one of the first districts in the Midwest to start a program of athletic training for their high school athletes (Bowlus, 1979). The administrators in this large school district felt they had serious shortcomings in the area of health care for their athletes. They set out by hiring two certified athletic trainers to teach 60% of the time and train 40% of the time. They converted space in each high school and acquired the basic supplies. They also received contributions from community sponsors and boosters.

Around the same time, Las Vegas, Nevada was developing its own program (Ryan, 1986). In 1978 Dr. Andrew Welch organized a clinic which would be available to area students for rehabilitative work. The only stipulation was that the students had to provide proof of insurance. The services provided by Dr. Welch were: (1) initial injury evaluations and

treatments, (2) X-ray, lab, and surgical services, (3) additional therapy and rehabilitation services, (4) educational seminars for coaches and parents, (5) pre-season exams, and (6) strength training and fitness facilities.

Bloomberg (1981) also presented a model program from the Seattle Public High Schools. This program consisted of four components: (1) an organized health care team, (2) comprehensive education for all coaches and student trainers, (3) a centralized training room equipped for all schools, and (4) an organized documentation system. Federal seed money ($134,000) paid for much of the development costs. It was estimated to cost approximately $8,400 to start the program for each school, with approximately $2,000 needed for yearly upkeep costs. The certified trainer was responsible for helping coaches lead stretching, dispensing water, and maintaining safety and protective equipment, as well as athletic training duties.

Conclusion

According to the literature reviewed, American high school athletes, generally, are not receiving health care from properly trained individuals. Many studies cited coaches as being the primary care giver who also handles much of the treatments and rehabilitation. According to the definitions cited, an athletic trainer would be the individual most suited to handle these duties along with other responsibilities for which an athletic trainer is specially trained.

There are many options available to each school to provide an athletic trainer. Each school is different but most options are flexible and can be modified for each situation or to satisfy special needs a school district might

have. In the end, an athletic trainer could be a very valuable addition to every school system. The purpose of this study was to determine the availability and delivery of athletic training services to high school athletes in Iowa as described by high school athletic directors.

METHODOLOGY

Sample

Data was collected from a random sample of Iowa high school athletic directors (N=230). The population was identified by using the member institutions of the Iowa High School Athletic Association who participate in interscholastic football (N=368). These high schools were identified by using the Iowa High School Athletic Association directory.

The population was then divided into five categories according to the Iowa High School Athletic Association football participation divisions of A, 1A, 2A, 3A, and 4A, with A being the smallest schools and 4A being the largest. Within the classifications, A had a total of 87 schools, 1A had a total of 82 schools, 2A had a total of 79 schools, 3A had a total of 74 schools, and 4A had a total of 46 schools. Using a computer random number generator, 46 schools from each classification were selected as the random sample (N=230).

Athletic directors were identified as the target of the survey due to their employment responsibilities within the school. It was felt that due to their responsibilities, education, experience, and position within the athletic department, they could provide this research with unique insight and knowledge. Due to the responsibilities and experiences of an athletic director, each should have been familiar with the availability and delivery of athletic training services in his or her respective school. Additionally, since the survey was designed to measure athletic training services, if a particular school had no designated athletic trainer, then no data would have been collected on

athletic training services if the survey had been sent only to schools with designated athletic trainers.

Measuring Instrument

The 27-item instrument used to obtain information regarding the availability and delivery of athletic training services was created by the investigator. This survey (Appendix A) was divided into six categories as follows:

(1) Demographic Information (6 questions)
(2) Staffing (5 questions)
(3) Athletic Training Responsibilities (1 question)
(4) Facilities And Equipment (3 questions)
(5) Team Physician(s) (7 questions)
(6) Considerations For The Future (5 questions)

The instrument was developed through an extensive review of the current literature in this field. The questions, consequently, were developed from previous research on the same topic with modifications made to fit this specific research project.

After the survey was developed it was then presented to four certified athletic trainers and five athletic directors for review as a pilot study. These individuals received the instructions to evaluate each question for clarity and pertinence. They were also asked to make comments on any important aspect that the instrument omitted.

The Iowa State University Committee on the Use of Human Subjects in Research reviewed this research project and concluded that the rights and welfare of the subjects being used were adequately protected, that risks were outweighed by the potential benefits and expected value of the knowledge sought, that confidentiality of data was assured, and that informed consent was obtained by appropriate procedures.

Answering the items in each section was usually a matter of checking the appropriate spaces. Although a few of the questions asked for open ended responses for clarity of information, this type of question was seldom used (5 questions). This was done to make the survey simple and quick to fill out in hopes of encouraging a prompt return of the instrument.

Administration of the Instrument

The instrument was mailed to each randomly selected athletic director with an accompanying cover letter. The cover letter (Appendix B) explained the purpose for the study, assurance of confidentiality, and a modified consent clause. These two items were mailed, along with a self-addressed stamped envelope for ease of return, to each of the selected athletic directors with the request that they return the survey within 10 days.

A follow-up letter (Appendix C) was then mailed to all of the athletic directors who had not returned their survey one week after the original deadline. This letter, again, explained the importance of the study, included an assurance of confidentiality, and included a plea for a return within one week.

A second follow-up letter (Appendix D) was used to solicit a response from all identified individuals who had failed to return the survey within 10

days after the first follow-up letter. Along with the letter, an extra survey was mailed with another self-addressed, stamped envelope in the event the individual had discarded the first survey packet.

Analysis of the Data

Analysis of the data was begun by doing a frequency analysis of each item. Next, one-way analyses of variance were computed on mean scores by level of football classification for items 1, 2, 5, 6, 8, 11, 16, 17, 18, 19, and 22. A one-way analysis of variance was also computed on mean scores summing the responses to questions 12 and 15. There was a need to generate an objective measure of athletic training services and equipment. Two formulas were created to generate a number to conduct appropriate comparisons by football classification. Using the mean scores reported, the average number of services within each level of football classification was computed using the equation (2 - M) * 13. Similarly, the mean amount of equipment possessed within each level of football classification was computed utilizing the equation (2 - M) * 16. A one-way analysis of variance was also utilized to compare the mean scores for the number of male and female sports within each level of football classification.

The number of male and female sports was computed by totalling responses to item 4. Post-hoc analyses were conducted using the Scheffe method. This method was utilized due to its conservative nature to guard against identifying significant results where no true significant differences actually exist. A significance level of .05 was used for all tests.

A chi-square goodness of fit test was used for analyzing if a significant difference existed between who performed the athletic training duties (item 7) by level of football classification. T-tests were conducted on items 1, 2, 5, 8, 16, 17, 20, 21, and 24 by who performed the athletic training duties. Additionally, t-tests were conducted on each of the athletic training services in question 12 by who performed the athletic training duties. T-tests were also conducted on the number of female and male sports by who performed the athletic training duties. A .05 level of significance was used for all tests.

RESULTS

Frequency Analysis of Demographic Information

The responses, when analyzed by Iowa High School Athletic Association football classification, showed that 40 "4A" schools (19.7%), 39 "3A" schools (19.2%), 38 "2A" schools (18.7%), 41 "1A" schools (20.2%), and 44 "A" schools (21.7%) responded to the survey. One school did not respond to this classification item (N=203). The analysis of the responses showed that the mean number of students in each school (grades 9-12) was 433.225 with a standard deviation of 438.281. The range of students per school ran from a minimum of 52 and to a maximum of 2100. The mean number of varsity athletes was 197.356 with a standard deviation of 163.728. The range in the number of varsity athletes per school was a minimum of 35 to a maximum of 800.

In response to the question of the number of varsity sports offered, the data showed a mean of 7.167 male sports offered per school with a standard deviation of 1.632. The range in number of male sports offered was found to be from a minimum of 4 to a maximum of 10 sports. Similarly, the mean number of female varsity sports offered was 6.276 with a standard deviation of 1.520. The range of female varsity sports was from a minimum of 3 to a maximum of 9.

The athletic training budgets ranged from zero dollars up to $50,000. The mean budget for athletic training was found to be $3,095.63 with a standard

deviation of $5,903.25. Table 1 shows the various budget sources for the athletic training budget as identified by the subjects (N=203).

Table 1. Analysis of athletic training budget sources (N=203)

Source of Budget	Mean	Standard Deviation	Range
Athletic Budget	80.00	30.522	0-100%
Physical Education Budget	6.11	16.217	0-100%
Boosters	3.25	9.579	0-80%
Private Donations	.61	2.677	0-20%
Other	9.50	26.474	0-100%

Frequency Analysis of Staffing Options

The frequency analysis of the individual(s) primarily responsible for the athletic training responsibilities indicated that coaches handle the athletic training duties most often (75.4%), while 23.2% of the schools utilize a designated athletic trainer. Of the schools responding that they have a designated athletic trainer (n=47), 14 (29.8%) indicated that they have an individual from a local clinic call on their school once a week. Additionally, 24 of the schools with designated athletic trainers (51.1%) also indicated that coaches assist in a secondary manner in providing athletic training services to athletes. Also, when coaches were responsible for primary care, 20 schools (29.9%) responded that high school students assist in providing athletic

training services. Responses of other combinations were fairly limited, yet of the 26 total other responses, 23 (85.2%) indicated that they have a trainer visit one time per week from a local clinic.

The data indicated that athletic training services had been offered in the school districts (n=47) for an average of six years with a standard deviation of 5.573 years. These responses ranged from 1 to 26 years.

Table 2 summarizes the analysis of the designated athletic trainers' qualifications (n=47). This analysis shows that most of these individuals were certified by the National Athletic Trainer's Association or had an athletic training concentration in undergraduate school. Many people responded to the question by answering more than one qualification. An example would be an individual who is certified by the NATA and is also a Registered Physical Therapist.

Table 2. Analysis of designated athletic trainers' qualifications (n=47)

Qualification	Frequency	Percentage
NATA certified	29	61.7
Athletic training concentration in college	14	29.8
Multiple college courses in athletic training	11	23.4
Registered physical therapist	7	14.9

Table 2. (continued)

Qualification	Frequency	Percentage
Single college course in athletic training	6	12.8
Other	6	12.8

The statistics in Table 3 summarize the data related to additional job responsibilities of the designated athletic trainers (n=47). The results indicate that the designated athletic trainers were most commonly either part-time trainers or full time teachers with athletic training responsibilities. Some designated athletic trainers performed more than one additional responsibility.

Table 3. Analysis of designated athletic trainers' job responsibilities (n=47)

Job Responsibility	Frequency	Percentage
Part time trainer	16	34
Full time teacher	16	34
Full time trainer	6	12.8
Coaches multiple sports	6	12.8
Job outside school - trainer services donated	6	12.8
Contracted from clinic	5	10.6

Table 3. (continued)

Job Responsibility	Frequency	Percentage
Coaches single sport	5	10.6
Shared trainer with other schools	4	8.5
Job outside school - trainer services contracted	4	8.5
Graduate assistant trainer	3	6.4
Equipment manager - all sports	3	6.4
Equipment manager - some sports	3	6.4
High school student trainer	2	4.3
Assist the nurse	2	4.3
Part time teacher	1	2.1
Athletic director	1	2.1
Guidance Counselor	1	2.1
Educational administrator	1	2.1
Job within school - trainer services donated	1	2.1
Substitute teacher	0	0.0
Athletic administrative assistant	0	0.0
Other	0	0.0

Frequency Analysis of Athletic Training Services

Table 4 shows the data related to the athletic training services provided by each school (N=203). It was determined that taping and wrapping, basic first aid, and the inventorying of athletic training supplies were duties performed at more than 75% of the responding schools. Similarly, record-keeping, evaluation of injuries, development of pre-practice stretching programs, and the scheduling of preseason physical examinations were duties indicated by over 50% of the respondents.

Table 4. Analysis of athletic training services provided in high schools (N=203)

Service	Frequency	Percentage
Taping and wrapping	160	78.8
Basic first aid	155	76.4
Inventorying of athletic training supplies	153	75.4
Record-keeping	118	58.1
Evaluation of injuries	117	57.6
Developing pre-practice stretching programs	111	54.7
Scheduling pre-season physical exams	109	53.7
Strength and conditioning advising	94	46.3
Practice supervision for injury prevention	86	42.4
Obtaining home event medical coverage	78	38.4
Rehabilitation protocols for injured athletes	71	35.0
Nutritional counseling	40	19.7

Table 4. (continued)

Job Responsibility	Frequency	Percentage
Supervising student trainers	38	18.7
Other	4	2.0
Missing data	24	11.8

Frequency Analysis of Facilities and Equipment

When asked if the school had an area designated as the athletic training room, 57.8% (n=137) of the athletic directors responded in the affirmative. Of the schools that indicated that they did not have a designated athletic training room, only 13% (n=9) indicated that they had renovation plans to create a designated athletic training room. There were only two different responses to when this renovation was expected. Four schools indicated that the renovation would take place within one year, while one school indicated that renovation would begin within two years.

The athletic training room must be equipped; thus the next set of questions dealt with what equipment was available for athletic training purposes. Table 5 shows the results of the frequency analysis related to training room equipment. Respondents indicated that free weights, expendable supplies, and whirlpools were the most common equipment, utilized by over 95% of the schools. Next were the Universal-type weight machines and refrigerators, each at well over 80%.

Frequency Analysis of Medical Coverage

The availability and coverage of medical services at athletic events was analyzed next. The data indicated that 59.3% of the schools utilized the services of a team physician. In 77.4% of these schools, this service was donated. It was also ascertained that 80.9% of the responding schools with a team physician had this physician at each home varsity football contest but, only 4.5% of the schools had a medical doctor present at daily practice sessions.

The analysis of the question related to ambulance coverage at all athletic contests showed that 86.5% of the schools had ambulance coverage at home varsity football competitions, while only 17.8% answered they had ambulance coverage at any other athletic events. The analysis of the time it takes for an ambulance to reach the athletic facilities showed that the mean time was 7.095 minutes with a standard deviation of 4.768 minutes. These times ranged from a minimum of 1 minute to a maximum of 35 minutes. The median measure was reported as being 10 minutes while the mode was 5 minutes.

Table 5. Analysis of type of equipment available for athletic training/rehabilitative purposes (N=203)

Equipment	Frequency	Percentage
Free weights	198	97.5
Expendable supplies	194	95.6
Whirlpool(s)	193	95.1
Universal weight machine	181	89.2
Refrigerator	170	83.7

Table 5. (continued)

Job Responsibility	Frequency	Percentage
Exercise Bicycle	160	78.8
Freezer	140	69.0
Ice machine	99	48.8
Hydrocollator/hot packs	42	20.7
Swimming pool	41	20.2
Nautilus equipment	40	19.7
Ultrasound	9	4.4
Orthotron	5	2.5
Muscle stimulator	4	2.0
Paraffin bath	2	1.0
Other	3	1.5

Frequency Analysis of Considerations for the Future

When the schools with no designated athletic trainer were asked if they planned to employ a certified athletic trainer within the next five years, only 13 schools (6.4%) answered affirmatively. Yet, when questioned if they believed that an athletic trainer was an integral part of a total athletic program, 82.3% of the entire sample answered yes. In response to the question regarding whether the state should license athletic trainers as it does physical therapists, 79.3% of the entire sample felt the state should. In response to the question regarding interest in a partially state-subsidized, geographically centrally

located trainer for each area of the state, 74.9% of the entire sample answered that they would be interested in such a program.

For schools that did not have a designated athletic trainer, respondents were presented with various options of providing athletic training services in the future (Table 6). The desirable option to these athletic directors was the full time teacher/trainer combination, with 45.3% of the sample (n=92) indicating this as their preferred option. Following this was a high school student trainer, a student or graduate assistant from a nearby college, a trainer shared with other schools, and a trainer contracted from a local clinic.

Table 6. Analysis of athletic director's responses regarding the feasibility of athletic trainer options for their school (N=203)

Option	Frequency	Percentage
Teacher and Trainer combination	92	45.3
High school student trainer	60	29.6
Student or graduate assistant from nearby college	60	29.6
Shared trainer with other school(s)	55	27.1
Contracted service from a local clinic	49	24.1
Part time trainer	43	21.2
Substitute teacher and trainer combination	29	14.3
Athletic administrative assistant and trainer combination	23	11.3
Full time trainer	1	0.5

Table 6. (continued)

Job Responsibility	Frequency	Percentage
Other	3	1.5
Missing data	42	29.6

Analysis of Demographics by Football Classification

A one-way analysis of variance was conducted to determine whether significant differences existed in the mean number of high school students per school among the five high school football classifications. The statistics in Table 7 summarize the differences in mean responses of the number of high school students in each school. The results show significant differences among the mean number of high school students at the five levels of football classification, $F(4,195) = 324.952$, $p < .000$. This analysis indicated that Class 4A schools had significantly more students than Classes 3A, 2A, 1A, and A; Class 3A had significantly more students than Classes 2A, 1A, and A; and Class 2A had significantly more students than Class A schools.

A one-way analysis of variance was conducted to determine whether significant differences existed in the mean number of high school varsity athletes per school among the five high school football classifications. The statistics in Table 8 summarize the differences in the mean number of high school varsity athletes per school in each of the five classifications. The data indicate significant differences in the mean numbers of high school varsity athletes across the five levels of classification, $F(4, 186) = 148.956$, $p < .000$. This

analysis indicated that Class 4A had significantly more athletes than Classes 3A, 2A, 1A, and A; Class 3A had significantly more athletes than Classes 2A, 1A, and A; and Class 2A had significantly more athletes than Class A schools.

Table 7. Summary of a one-way analysis of variance by football class: Number of high school students

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	33239381.81	8309845.45	324.952	.000
Residual	195	4985631.06	25572.47		
Total	199	38226012.87			

Table 8. Summary of a one-way analysis of variance by football class: Number of varsity athletes

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	3879333.034	969833.258	148.956	.000
Residual	186	1213952.756	6526.628		
Total	190	5093285.791			

Table 9 summarizes the one-way analysis of variance of the mean number of boys' sports by football classification. Again significant differences

were reported, $F(4,197) = 123.947$, $p < .000$. The data indicated that Class 4A schools offered significantly more male sports than Classes 3A, 2A, 1A, and A; Class 3A offered significantly more boys' sports than classes 2A, 1A, and A; and Class 2A offer significantly more boys' sports than Classes 1A and A.

Table 9. Summary of a one-way analysis of variance by football class: Number of boys' sports

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	384.254	96.063	123.947	.000
Residual	197	152.681	.775		
Total	201	536.935			

The same analysis was done for girls' sports. Table 10 summarizes the differences in mean responses to the item on the number of girls' sports offered per school. As with the boys' sports, significant differences were indicated, $F(4, 197) = 118.121$, $p < .000$, among the five high school classifications. The data indicated that 4A schools offered significantly more girls' sports than 3A, 2A, 1, and A; 3A schools offered significantly more girls' sports than 2A, 1A, and A; and Class 2A schools offered significantly more girls' sports than Class A schools.

Table 10. Summary of a one-way analysis of variance by football class: Number of girls' sports

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	328.111	82.028	118.121	.000
Residual	197	136.804	.694		
Total	201	464.995			

The statistics in Tables 11-15 summarize differences in mean responses regarding budget sources of the athletic training budgets. Table 11 indicates a significant difference existed among the five levels of football classification in the percentage of the athletic training budget from athletics. Upon further evaluation using the Scheffe' post-hoc analysis, no significant differences were indicated. No other significant differences were reported. Table 15 shows that Class 4A schools received budget allotments significantly more often from other sources than Class A schools. Fifteen out of 21 of the other responses were reported as a percentage on the budget coming from the general fund. Other responses included gate receipts and fundraisers.

A one-way analysis of variance was conducted to determine whether significant differences existed in the mean amount of money in the athletic training budgets among the five high school football classifications. The data indicated significant differences in the mean amount of money in the athletic training budgets across the five levels of classification, $F(4,162) = 5.607$, $p < .000$. Table 16 summarizes this information. This analysis indicated that Class 4A

schools had significantly larger athletic training budgets than Classes 2A, 1A, and A. No other significant differences were reported. The mean budget for Class 4A schools was $6458.57; for Class 3A schools, it was $4558.33; for Class 2A schools, it was $1615.71; for Class 1A schools, it was $1526.66; and for Class A schools, it was $1484.19.

Table 11. Summary of a one-way analysis of variance by football class: Percentage of athletic training budget from athletics

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	10813.107	2703.277	3.017	.019
Residual	174	155911.753	896.044		
Total	178	166724.860			

Table 12. Summary of a one-way analysis of variance by football class: Percentage of athletic training budget from physical education

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	1446.989	361.747	1.390	.239
Residual	174	45272.005	260.183		
Total	178	46718.994			

Table 13. Summary of a one-way analysis of variance by football class: Percentage of athletic training budget from boosters

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	782.682	183.170	2.032	.092
Residual	174	15680.446	90.117		
Total	178	16413.128			

Table 14. Summary of a one-way analysis of variance by football class: Percentage of athletic training budget from private donations

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	30.441	7.610	1.058	.379
Residual	174	1251.961	7.195		
Total	178	1282.402			

Table 15. Summary of a one-way analysis of variance by football class: Percentage of athletic training budget from other sources

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	10304.580	2576.145	3.896	.005

Table 15. (continued)

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Residual	174	115059.666	661.262		
Total	178	125364.245			

Table 16. Summary of a one-way analysis of variance by football class: Athletic training budget

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	706539887.9	176634972.0	5.607	.000
Residual	162	5103492845	31503042.3		
Total	166	5810032833			

Analysis of Availability of Athletic Training Services by Football Classification

A chi-square goodness of fit test was used to analyze the responses to the item on who performs the athletic training duties by level of football classification. The data indicated that there was a significant difference among the five levels of football classifications, X^2 (10, $\underline{N}$ = 203) = 35.973, $\underline{p} < .000$. The responses by classification included 22 Class 4A schools reporting they

had a designated athletic trainer, while only 7 schools reported similarly in Classes 3A and A, 6 in Class 2A, and 5 in Class 1A.

The statistics in Table 17 summarize the differences in mean responses among the five football classifications regarding how long a designated athletic trainer had been available at each school. The data indicated that no significant differences existed among the five groups, F (4,42) = 2.457, p = .060. The mean number of years reported for Class 4A was 8.6; for Class 3A, 5.3; for Class 2A, 4.4; for Class 1A, 3.0; and for Class A, 2.8 years.

Table 17. Summary of a one-way analysis of variance by football class: Years a trainer has been provided

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	270.872	67.718	2.457	.060
Residual	42	1157.681	27.563		
Total	46	1428.553			

The statistics in Table 18 summarize the differences in mean responses among the five football classifications concerning the utilization of a team physician. The data indicated that there were significant differences among the five levels of football classifications, F (4,193) =10.227, $p < .000$. Class 4A schools reported utilizing a team physician significantly more often than Classes 2A, 1A, and A; and Class 3A reported utilizing a team physician

significantly more often than Class A schools. No other significant differences were reported. Class 4A schools reported 36 schools utilizing a team physician. Also, 28 Class 3A schools, 21 Class 2A schools, 19 Class 1A schools, and 14 Class A schools reported utilizing a team physician.

Table 18. Summary of a one-way analysis of variance by football class: Utilization of a team physician

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	8.338	2.085	10.227	.000
Residual	193	39.338	.204		
Total	197	47.676			

Table 19 summarizes the differences in mean responses among the five football classifications to the question on whether a physician attends any athletic contests. The data indicated that significant differences existed among the five levels of football classification, $\underline{F}$ (4, 146) = 6.011, $\underline{p} < .000$. The statistics indicated that Class 4A reported that a physician attended athletic contests significantly more often than Classes 1A and A. No other significant differences were reported.

The statistics in Table 20 summarize the differences in mean responses among the five football classifications regarding whether the team physician attends any practices. The data indicated that no significant differences existed among the five levels of football classification, $\underline{F}$ (4,145) = 2.202, $\underline{p} = .072$.

Table 19. Summary of a one-way analysis of variance by football class: Physician attendance at athletic contests

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	3.225	.806	6.011	.000
Residual	146	19.582	.134		
Total	150	22.807			

Table 20. Summary of a one-way analysis of variance by football class: Physician attend any practices

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	.382	.095	2.202	.072
Residual	145	6.291	.043		
Total	149	6.673			

The statistics in Table 21 summarize the differences in mean responses among the five football classifications related to how the services of a physician are obtained. The data indicated that no significant differences existed, $F(4, 125) = .295$, $p = .881$, in whether the team physician is contracted or volunteers the service.

Table 21. Summary of a one-way analysis of variance by football class: How physician services obtained

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	.257	.064	.295	.881
Residual	125	27.311	.218		
Total	129	27.568			

The statistics in Table 22 summarize the differences in mean responses among the five football classifications in the time it takes an emergency vehicle to arrive at the athletic complex. No significant differences were indicated by the data, $F(4,193) = 1.951$, $p = .104$. The mean time it takes for an emergency vehicle to arrive was 5.8 minutes for Class 4A schools, 6.08 minutes for Class 3A schools, 7.66 minutes for Class 2A schools, 8.02 minutes for Class 1A schools, and 7.86 minutes for Class A schools.

Table 22. Summary of a one-way analysis of variance by football class: Time for an ambulance to arrive

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	173.899	43.474	1.951	.104
Residual	193	4301.191	22.286		
Total	197	4475.091			

Analysis of Delivery of Athletic Training Services
by Football Classification

The statistics in Table 23 summarize the differences in mean responses among the five football classifications regarding athletic trainer event coverage. No significant differences were indicated by the data, $\underline{F}$ (4,40) = 1.246, $\underline{p}$ = .307, in what athletic events were covered. This indicated that there was no significant difference in the degree to which athletic training services were provided for both boys' and girls' sports.

The statistics in Table 24 summarize the differences in mean responses to the question on type of equipment available for athletic training purposes. The data indicated that there were significant differences in the availability of the various pieces of athletic training equipment among the five levels of football classification, $\underline{F}$ (4,197) = 25.393, $\underline{p} < .000$.

Table 23. Summary of a one-way analysis of variance by football class: Athletic trainer coverage

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	12.532	3.133	1.246	.307
Residual	40	100.578	2.514		
Total	44	113.110			

Table 24. Summary of a one-way analysis of variance by football class: Amount of athletic training equipment offered

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	.919	.230	25.393	.000
Residual	197	1.784	.009		
Total	201	2.704			

Class 4A schools possessed significantly more equipment than Class 3A, 2A, 1A, and A schools. Also, Class 3A schools possessed significantly more equipment than Class A schools. No other significant differences were determined among the five levels of football classification. The mean number of pieces of selected athletic training equipment possessed was 9.328 for Class 4A schools, 7.440 for Class 3A schools, 6.832 for Class 2A schools, 6.799 for Class 1A schools, and 6.851 for Class A schools.

The statistics in Table 25 summarize the differences in mean responses among the five football classifications regarding the number of athletic training services offered by each school. The results of this analysis indicated significant differences in the number of athletic training services offered across the five levels of football classification, $F(4,173) = 3.835$, $p = .005$. The data indicated that Class 4A schools offered significantly more athletic training services than Classes 1A and A. No other significant differences in the number of athletic training services offered were determined across the five football classifications. The mean number of services provided per class

showed that Class 4A schools offered a mean number of 8.814 services, while Class 3A schools offered 7.514 services, Class 2A schools offered 7.267 services, Class 1A schools offered 6.799 services, and Class A schools offered 6.851 services.

Table 25. Summary of a one-way analysis of variance by football class: Number of athletic training services offered

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	.585	.146	3.835	.005
Residual	173	6.598	.038		
Total	177	7.184			

Table 26 summarizes the differences in mean responses among the five football classifications regarding whether the respective schools offered evaluation of injuries. The data indicated that no significant differences were found among the five football classifications in the degree to which athletic injuries were evaluated by whoever was responsible for the delivery of athletic training services.

Table 26. Summary of a one-way analysis of variance by football class: Evaluation of injuries

Source of variance	df	Sum of squares	Mean squares	F-ratio	F-prob.
Football class	4	.925	.231	1.021	.398
Residual	173	39.170	.226		
Total	177	40.096			

Analysis of Demographics by Who Performs Athletic Training Duties

The analysis of the difference in school size based upon who performs the athletic training duties is presented in Table 27. The data show a significant difference in the mean number of students in the two categories of schools. This indicates that the mean number of high school students was significantly greater for the schools with designated athletic trainers than those without designated athletic trainers.

The analysis of the difference in number of high school varsity athletes based upon who performs the athletic training duties is shown in Table 28. The results of this analysis show a significant difference in the mean number of high school varsity athletes in the two groups. This analysis indicates that the mean number of varsity athletes was significantly greater for the schools with designated athletic trainers than those without designated athletic trainers.

Table 27. Analysis of number of students per school by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	45	744.222	569.589	4.62	.000
Coaches	154	333.875	333.717		

Table 28. Analysis of number of varsity athletes by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	43	317.000	224.945	4.45	.000
Coaches	145	158.324	115.493		

The analysis of the difference in the number of boys' sports based upon who performs athletic training duties is shown in Table 29. The data show a significant difference existed between the number of boys' sports in the two groups. This indicates that the mean number of male sports offered per school was significantly greater for schools with designated athletic trainers than for those without designated athletic trainers.

Table 29. Analysis of number of varsity athletes by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	47	8.043	1.744	4.53	.000
Coaches	153	6.869	1.490		

A similar analysis was executed for the number of girls' sports by who performs athletic training duties. The data for this analysis show that a significant difference existed among the number of girls' sports in the two groups. This indicates that the mean number of girls' sports offered per school was significantly greater for the schools with designated athletic trainers than for those without designated athletic trainers. (Table 30)

Table 30. Analysis of number of varsity athletes by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	47	7.064	1.647	4.37	.000
Coaches	153	6.005	1.384		

The analysis of the athletic directors' responses to the question on the amount of money in the athletic training budget by who performs athletic training duties is shown in Table 31. The data indicate that no significant mean difference was present between the amount of money in the athletic training budget and whether the primary delivery agent for athletic training duties was a designated athletic trainer or the coaches.

Table 31. Analysis of number of varsity athletes by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	41	4275.610	7643.658	1.32	.192
Coaches	124	2586.815	5024.173		

The analysis of the athletic directors' mean responses to the question regarding whether they believe an athletic trainer is an integral part of the total athletic program is shown in Table 32. The data indicate that there was no significant mean difference between the two groups regarding their belief that an athletic trainer is an integral part of the total high school athletic program.

Table 32. Analysis of belief an athletic trainer is an integral part of the athletic program by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	46	1.152	.363	-.23	.817
Coaches	150	1.166	.374		

Analysis of Availability of Athletic Training Services by Who Performs Athletic Training Duties

The analysis of the athletic directors' mean responses to the question on whether the school utilizes the services of a team physician by who performs the athletic training duties is shown in Table 33. The data show that no significant mean difference was present between the responses to the question on the utilization of a team physician between the two groups. Therefore, there was not a greater tendency to utilize a team physician based upon whether a school had or did not have a designated athletic trainer.

Table 33. Analysis of utilization of a team physician by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	46	1.304	.465	-1.72	.087
Coaches	150	1.447	.499		

The analysis of the athletic directors' responses to the question on how the team physician was obtained by those schools with a team physician is shown in Table 34. The data indicate that no significant mean difference existed between the responses to the question on how the team physician was obtained between the two groups. Therefore, there was not a greater tendency for a school to contract or have a physician volunteer services based upon whether a school had or did not have a designated athletic trainer.

Table 34. Analysis of how the team physician is obtained by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	31	1.806	.467	-.08	.934
Coaches	91	1.813	.469		

The analysis of the mean responses to the question on whether the team physician attends any games by who performs the athletic training duties is shown in Table 35. The data show that no significant mean difference existed between the mean responses to the question on whether the team physician attends any games and who performs the athletic training duties. Therefore, there was not a greater tendency for the team physician to attend games based upon whether the school utilized a designated athletic trainer.

Table 35. Analysis of whether the team physician attends any games by who performs the athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	39	1.128	.339	-1.22	.225
Coaches	110	1.218	.415		

Table 36 shows the analysis of the mean responses to the question on whether the team physician attends any practices by who performs the athletic training duties. The data indicate that there was no significant difference between the mean responses to the question on whether the team physician attends any practices by who performs the athletic training duties, indicating that there was not a greater tendency for the team physician to attend practices based upon whether the school utilized a designated athletic trainer.

Table 36. Analysis of whether the team doctor attends any practices by who performs the athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	39	1.923	.270	-.86	.395
Coaches	109	1.963	.189		

The analysis of the athletic directors' responses to whether an ambulance was present at each home varsity football contest by who performs the athletic training duties is shown in Table 37. The data show a significant difference existed between the two groups on this question. This analysis indicated that the schools in which the coaches were primarily responsible for the athletic training duties utilized an ambulance service more often than did those with a designated athletic trainer.

Table 37. Analysis of an ambulance service present at each home varsity football contest by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	45	1.311	.468	3.28	.002
Coaches	153	1.072	.259		

The analysis of the mean responses to whether an ambulance service was present at any athletic contests other than varsity football by who performs the athletic training duties is shown in Table 38. The data indicate that there was a significant difference in the mean responses to this item between the two groups. The analysis indicated that the schools in which the coaches were primarily responsible for the athletic training duties utilized an ambulance service significantly more often than did those schools with a designated athletic trainer.

Table 38. Analysis of an ambulance service present at any other athletic contests by who performs the athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	46	1.935	.250	3.03	.003
Coaches	153	1.784	.413		

Analysis of Delivery of Athletic Training Services by Who Performs Athletic Training Duties

The analysis of the mean responses to the questions regarding the delivery of athletic training services provided by the schools by who performs the athletic training duties are shown in Tables 39-51. Numerous significant differences were indicated. Athletic directors who indicated that they had a designated athletic trainer for their school offered the services of injury evaluation, record keeping, nutritional counseling, organization of pre-season physical examinations, inventorying of athletic training supplies, conducting injury rehabilitation protocols, development of stretching programs, and supervision of student trainers significantly more often than did those schools without a designated athletic trainer. No significant differences were indicated for the services of strength and conditioning advising, obtaining home event medical coverage, supervising practices for injury prevention, performing basic first aid, and the taping and wrapping of athletes.

Table 39. Analysis of service of injury evaluation by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	43	1.116	.324	-4.76	.000
Coaches	133	1.428	.497		

Table 40. Analysis of service of record keeping by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	43	1.186	.394	-2.58	.011
Coaches	133	1.398	.491		

Table 41. Analysis of service of strength and conditioning advising by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	43	1.442	.502	-0.53	.595
Coaches	133	1.489	.502		

Table 42. Analysis of service of nutritional counseling by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	43	1.605	.495	-2.70	.009
Coaches	133	1.594	.493		

Table 43. Analysis of service of obtaining home event medical coverage by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	43	1.465	.505	-1.48	.140
Coaches	133	1.598	.494		

Table 44. Analysis of service of organizing pre-season physical examinations by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	43	1.651	.482	4.29	.000
Coaches	133	1.300	.460		

Table 45. Analysis of service of supervision for injury prevention by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	43	1.511	.505	-0.08	.935
Coaches	133	1.518	.502		

Table 46. Analysis of service of basic first aid by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	43	1.186	.394	1.23	.224
Coaches	133	1.105	.308		

Table 47. Analysis of service of taping and wrapping by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	43	1.186	.394	1.85	.069
Coaches	133	1.105	.252		

Table 48. Analysis of service of inventory of training supplies by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	43	1.256	.441	2.08	.042
Coaches	133	1.105	.308		

Table 49. Analysis of service of injury rehabilitation protocols by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	43	1.256	.441	-5.93	.000
Coaches	133	1.721	.450		

Table 50. Analysis of service of development of stretching programs by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	43	1.558	.502	3.01	.003
Coaches	133	1.308	.464		

Table 51. Analysis of service of student trainer supervision by who performs athletic training duties

Who Performs Duties	Number	Mean	S.D.	T-value	2-tailed probability
Designated trainer	43	1.488	.506	-4.87	.000
Coaches	133	1.887	.318		

DISCUSSION

As reported by Hossler (1985), the fitness boom of America made the medical profession aware of three important facts: (a) there is, and will be, a huge increase in athletic-related injuries, (b) there is a shortage of qualified individuals to deal with athletic injuries, and (c) people are beginning to be involved in athletics at a much younger age. The realization of these three statements makes this study very important. As reported by DiNitto (1987), a certified athletic trainer is a well qualified individual to help deal with these problems. The NATA has set forth very strict guidelines to help insure quality of care and knowledge of athletic trainers (NATA, Inc. 1988). Also, a certified athletic trainer can help bridge the gap between the medical profession and our public school system.

This study was undertaken with two purposes in mind. The first purpose was to ascertain what athletic training services were being made available to Iowa high school athletes. The second purpose was to answer the question of how these services were being delivered. Through an extensive review of literature, the questionnaire (Appendix A) was developed with this duality of purpose in mind. By comparing the results of this study with similar studies in other states, certain conclusions can be reached. A random sample of 230 Iowa high schools was conducted with a response from 203 (88.3%). With such a high return rate, these findings can be viewed with a high degree of confidence.

Discussion of Demographics

It was assumed that many of the items in this study would show significant differences based upon the size of high schools. Naturally, the number of high school students and the number of high school varsity athletes would differ with football classification (Tables 7 & 8). These differences are explained due to the fact that school size is the basis for the football classification system.

Analyses utilizing these same two variables, number of high school students and number of varsity athletes, by who performs the athletic training duties also showed significant differences for each (Tables 27 and 28). Since larger high schools tended to have a designated athletic trainer more often than smaller high schools, the breakdown tended to be similar to the analysis of these items by level of football classification. In the state of Iowa, the number of students in grades 9-12 is considered the population pool eligible for athletic competition. This number determines what classification the school will compete in for state high school athletic championships. The classifications in football run from A for the smallest schools to 4A for the largest schools. For other sports, the classification system is based upon the same premise, but with different breakdowns by number of students. It was felt that due to the relatively high injury rate for the sport of football (Adams, 1983; Stopka & Kaiser, 1988), it would be most advantageous to use this classification system to break down the sample population for the purposes of this study.

It was also assumed that larger high schools would offer significantly more sport participation opportunities for their athletes than smaller schools.

This assumption held to be true (Tables 9 & 10). As with many aspects of our society, money talks. The larger high schools have the opportunity to have larger budgets, which correspond to larger amounts of money available for the athletic programs. Larger schools have larger budgets due to the greater number of students involved, causing larger amounts of government appropriations due to the greater number of individuals in that school district. Also, communities with larger high schools have larger tax bases as well as a larger population base from which to draw private donations and volunteer assistance. Lastly, with a greater number of students, there is a greater demand for opportunities to participate. With a greater number of students, a greater number of sports can be offered because there will be a greater number of students interested in the sports. Thus, it is feasible to field more teams in the larger schools. T-tests determined that schools with designated athletic trainers tended to offer significantly more boys' sports and significantly more girls' sports than schools without designated athletic trainers. Again, this relates to the fact that the larger schools were the schools that tended to have designated athletic trainers, so the results should run similar to the analysis by football classification.

It also follows that larger schools would report significantly larger athletic budgets (Table 16) due to their size. When analyzing the size of the athletic training budget by who performs the athletic training duties, no significant differences were found. This might have been due to the possibility that the designated athletic trainers' stipends are not included as part of the athletic training budgets. Instead, they could be located within general athletic department personnel salaries or general school district salaries.

Discussion of Availability of Athletic Training Services

There are many aspects to measuring the availability of athletic training services. In developing this study it was determined, through the review of literature, that certain aspects of availability of services were more important than others (questions 7, 8, 16, 17, 18, 19, 20, 21, and 22). These questions dealt with staffing, medical support, and ambulance assistance. These items were developed with the purpose of measuring the availability of athletic training services.

The primary method of delivering the athletic training services certainly might be the most informative item concerning availability. It was found that differences existed among the five football classifications in who performs the athletic training duties. The results of the analysis show, quite significantly, that the larger schools offer the services of a designated athletic trainer more often than the smaller schools. It follows perhaps that due to their smaller programs and budgets that the smaller schools have relatively few designated athletic trainers and more coaches handling the athletic training duties. With money and size come various benefits. More money allows greater freedom in hiring. When one considers the fact that larger schools have more positions available within the school, one realizes that the larger schools have more options in hiring an athletic trainer. It would be very difficult to obtain an athletic trainer in each high school without coupling this position with another, such as a teaching position. One of the most important explanations as to why the larger schools have significantly more athletic trainers is perhaps the existence of more available positions. Smaller high schools have fewer opportunities to fit an athletic trainer into their job openings.

Redfern (1975) reported that 84% of the schools in his study indicated the head coach was responsible for athletic training duties. Porter (1980) reported that 23% of the schools surveyed in the Chicago area had a person designated as an athletic trainer. However, 31% of these people who called themselves athletic trainers were not certified by the NATA. Sherman (1985) found that, of the responding schools in Wisconsin, 16% had an individual designated as an athletic trainer, yet only 8.5% were certified by the NATA. Wrenn and Ambrose (1980) reported that in the state of Maryland, of the responding schools, 85% gave the responsibility of injury care and prevention to the head coaches. Rider & Madaleno (1981) indicated that 34% of their sample had an individual designated as an athletic trainer, yet only 51% were NATA certified.

These studies closely parallel the findings in this study. Of the 203 responses, 47 reported having an individual designated as an athletic trainer (23.3%). Of these individuals designated as athletic trainers, 61.7% (29 of 47) were reported as being certified by the NATA. Since this percentage seemed high in comparison to other studies, further inspection showed that 12 of these 29 schools (41%) reported the service as being a once a week visit from a local clinic. Therefore, many of the designated athletic trainers were not actually employed at the high schools nor were they available to athletes on a generous daily basis.

Granted, this is better care than no care at all, but it still leaves the athlete and school somewhat vulnerable. When over 60% of the injuries occur during practice time, it might be two, three, four or even five days before an injured athlete is visited at the school by a certified athletic trainer. During

this time many complications might develop and even inappropriate treatments might be given to an injured athlete.

Only 6.4% of the schools without designated athletic trainers indicated that they planned to hire a certified athletic trainer within the next five years. The most common reason why schools did not plan to hire an athletic trainer was lack of money (83.9%). Athletic directors indicated that they simply could not afford to hire athletic trainers. Although the athletic directors expressed this reluctance to make room in the budget for an athletic trainer, 82.3% believed a certified athletic trainer to be an integral part of an athletic program. This seems to be a contradiction. If the athletic directors believe athletic trainers are an integral part of a total athletic program, why would they not make the effort to find room in the budget for an individual who is perceived as being very important?

Ray (1987) reported similar findings. In a survey of Michigan athletic directors, Ray found that 86% of the athletic directors felt a certified athletic trainer may be the most qualified person to prevent and treat athletic injuries, yet only 8% planned to hire one within the next 12 months. Bell, Cardinal, & Dooley (1984) also presented similar findings. They found that even though 62.4% of the athletic directors felt the state should mandate certified athletic trainers in each high school, 87.4% did not plan to hire one within the next five years.

When analyzing the belief that an athletic trainer is an integral part of the total athletic program by who performs the athletic training duties, no significant difference was observed (Table 32). One might assume that schools with a designated athletic trainer would answer this question in the

affirmative more often than those without a designated athletic trainer; but since there was such a high positive response to the question, no significant difference was able to be detected between the two groups. This means that among the schools with and without a designated athletic trainer each group believed an athletic trainer was a very important part of a total athletic program.

Availability of medical coverage was also felt to be pertinent to this study. The utilization of a team physician is a very important aspect of athletic training. As reported in Table 18, significant differences were determined among the five levels of football classification in the degree to which they utilized the services of a physician. The assumption that larger high schools would utilize team physicians more often than would smaller high schools held to be true in this study.

The common thread of economics was woven throughout this study. Larger schools were shown to have larger budgets and thus have the ability to pay for such a service. Larger high schools have greater numbers of students. The chance that one of these students' parents being a physician and thus donating his or her time to the school is greater than that in smaller schools.

Also, smaller schools may not even have a physician in the school district to offer such a service. Larger schools tend to be located in urban areas. Usually, these urban areas have hospitals and clinics which employ many physicians. Thus, the availability to such a service is greater in larger schools.

At the onset of this study, it was assumed that schools with a designated athletic trainer would be more likely to utilize a team physician. This analysis,

however, did not show a significant difference (Table 33). Although the confidence level did not fall within the .05 parameter, it was close. Utilizing the services of a team physician might guard against a lawsuit brought against a school for failure to meet a certain standard of care set forth by our court system. It was felt that athletic trainers are trained to utilize all services available to them. This includes utilization of a team physician. By using this service, greater continuity of care can be obtained while communication lines are free and open. Perhaps one reason why this finding was not significant might be because more administrators are becoming aware of what the courts are determining as an acceptable standard of care. Therefore, many of the schools without designated athletic trainers might have recognized this need and therefore obtained the services of a team physician. Also, the previously cited studies are a few years old and, as time passes, individuals tend to learn lessons from others' mistakes. Hopefully, in the state of Iowa, school systems are learning from these mistakes made in other school districts and consequently are contracting with team physicians. There is also the chance that the athletic director does not know if this relationship with a team physician exists, although this does not seem likely.

In the present study, 59.3% of the subjects reported that they utilize a team physician, but only 19.2% contracted with this individual. This indicates that the service provided may be sporadic and the instant availability, which is needed in some cases, might not be what it should. Also, 80.9% of the schools responding to this survey answered that they have a physician attend athletic contests, while only 4.6% have a physician cover any practices. As stated previously, 60% of the injuries occur during practices. This would indicate

that most of the physicians are not on site for the majority of the injuries. When asked to list what sports this physician attends, 100% responded with football, 20% responded with wrestling, and 12.7% responded with basketball. This is a positive finding. Since football athletes incur the greatest amount of injuries, they should be covered by a physician.

Redfern (1975) reported that, of the responding schools, 27% had contracted with a physician to cover home varsity football contests but no other events. Porter (1980) found that only 19% of the responding schools had a physician or paramedic responsible for on-field care of an injured athlete during competition. Sherman (1985) found that only 7.8% of the responding schools had contracted with a physician to cover home events and to see athletes on a referral basis.

In a study done in Maryland (Wrenn & Ambrose, 1980), it was found that of the responding schools, 21% had a team physician of any type. Lastly, of the studies reviewed, Schrader (1985) reported that of the schools with an athletic trainer, 37% had a team physician, while of the schools without an athletic trainer, only 24% had a team physician.

When the data for whether the team physician attends any games or practices were analyzed by level of football classification (Tables 19 and 20), significant differences were found for the physician attending games. Larger schools reported the presence of a team physician at games significantly more often than did smaller schools. This was felt to be justified due to the fact that, since the larger schools utilized a team physician significantly more often than did the smaller schools, it would then follow that the larger schools would

have a team physician at games significantly more often than would smaller schools.

When the same two variables were analyzed by who performs the athletic training duties (Tables 35 and 36), no significant differences were indicated. It would be hard to find significant differences for these variables due to the fact that none was found for the utilization of a team physician.

Ambulance services were analyzed by who performs the athletic training duties (Tables 37 and 38). Each analysis showed a significant difference. Schools without designated athletic trainers have ambulance services present significantly more often than those schools with designated athletic trainers. This is very hard to explain. It was assumed that schools with designated athletic trainers would have an ambulance service present significantly more often than those schools without designated athletic trainers. The reason might be two-fold. First, larger schools tend to offer the services of a designated athletic trainer significantly more often than smaller schools. Since larger schools tend to be closer to hospitals, the need for an on-site ambulance might not have been felt to be as critical by large school athletic directors as by smaller school athletic directors. Secondly, schools with a designated athletic trainer might feel that the trainer can handle the situation adequately, therefore, if an ambulance is needed one can be called while the designated athletic trainer deals with the situation until the ambulance arrives.

Although no significant differences were found for the analysis of the time it takes for an ambulance to arrive at the athletic complex by the level of football classification (Table 22), the mean times show a difference of up to

almost two minutes in some cases. When time difference is considered in a life threatening situation, one realizes that a matter of seconds plays a paramount role. Therefore, this difference might be significant when considered in the proper context.

Discussion of Delivery of Athletic Training Services

There were three survey questions which dealt specifically with the delivery purpose of this study (items 11, 12, and 15 in Appendix A). Item 11 dealt with the designated athletic trainers' coverage of the athletic events. Table 23 shows that no significant differences were found among the five levels of high school football classification. This tells us that no significant differences were found in how the events were covered by gender of the participants. The frequency analysis showed that 40% of the schools with a designated athletic trainer have the trainer cover all boys' and girls' events. Also, 46.7% of the respondents answered "other." When asked to specify how the events were covered when answering "other," 44.4% responded with coverage of some boy's and some girls' events, 38.9% responded with only covering football, and 16.7% stated the trainer only visited the school once a week.

Probably the most informative question to be asked when analyzing the delivery aspect of athletic training services related to what athletic training services were being delivered. These analyses are shown in Tables 25, 26, and 40-52. Numerous significant differences were reported. First, larger high schools offered significantly more athletic training services than did smaller high schools. This analysis proved to be very interesting and supportive of the

assumption that smaller high schools offer a lower level of health care for their athletes. The number of services were logically higher for larger schools due to the fact that previous analysis showed larger high schools offer significantly more designated athletic trainers. Also, it shows that larger high schools are delivering more athletic training services to their high school athletes, which translate into better health care.

When analyzing the service of injury evaluation by level of football classification, no significant differences were indicated. This simply shows that size of school does not indicate whether the school offered injury evaluation as an athletic training service. This result was also interesting. One might assume that larger schools would offer injury evaluation significantly more often than would smaller schools due to the fact that the larger schools had significantly more designated athletic trainers. According to the data though, athletes in schools of all sizes were having their injuries evaluated on a similar basis.

If a certified athletic trainer were to prioritize the importance of services listed, the items where significant differences were indicated would be at the top of the list. These would be areas in which a designated athletic trainer would have specific training and expertise but where a coach would likely not have the similar training and expertise. If these specific services were left up to an untrained individual, serious consequences could result. Specific examples include: injury evaluation, rehabilitation protocols, record keeping, nutritional counseling, and student trainer supervision.

The other items where significant differences were not indicated were all areas in which the coaches should have at least a minimal level of

competency to be able to perform the duties adequately. The differences indicated by the analysis on the items related to inventorying and stretching programs might be explained by the possibility that athletic directors felt these duties were perhaps better left up to the coaches of the specific sport programs, and thus they answered that coaches would often take care of these duties.

The importance of this question is that it tells us what we have assumed all along. Smaller high schools receive a lesser quality of health care than larger high schools, and even the larger high schools' care can be considered sub-standard when examined from the prospective of what the athletes should be receiving. The high school students should be receiving the highest degree of care due to their increased chance of injury (Webster, 1983), yet they are not receiving this care.

The most frightening statistic that can be garnered from the frequency analysis of this item is that 117 (65.4%) of the high schools responded in the affirmative regarding the service of injury evaluation. This statistic is very troubling when only 47 of the high schools answered that they had a designated athletic trainer, and it is especially troubling when 11 of these individuals do not meet the standard of being NATA certified or being a registered physical therapist. This means that 81 (69.2%) of the schools are offering injury evaluation by an unqualified individual. These schools are asking to be submitted to any number of problems, including a lawsuit.

The service of rehabilitation protocols also raises an interesting issue. Seventy-one of the athletic directors (39.7%) responded in the affirmative regarding this service (n=71). When this number is compared to the 36 schools who have an NATA certified athletic trainer or a registered physical therapist

in the school, it shows that 35 schools in the sample are administering therapeutic exercises to injured athletes without involving a qualified professional. This is very troubling when one considers the possible harm that could be done to the athletes if the wrong exercises are performed or if the exercises are performed improperly, not to mention the possibility of a lawsuit.

The other aspect of a delivery of services which was analyzed related to the equipment being used for athletic training purposes. The frequency analysis showed some predictable results. One might assume the breakdown would be as shown (Table 5). The most common pieces of equipment were fitness types of equipment that are highly used in physical education programs. Many individuals do not realize that these pieces of equipment can be used quite effectively in the athletic training aspect of sport. Some of the specific athletic training equipment, such as the ultrasound and muscle stimulator, were not expected to show up too often. This is because of the relative cost of each item and the difficulty in obtaining this equipment.

One troubling figure showed that only 48.8% (n=99) of the schools had access to an ice machine. Ice is the most effective acute injury modality. Immediately upon injury ice should be applied to prevent excessive amounts of inflammation. If the injured athlete must wait to apply ice for any length of time, the inflammatory process could be well out of control.

The analysis of amount of athletic training equipment offered by level of high school football classification is shown in Table 24. This shows, again, that the larger high schools have more equipment available for athletic training purposes. This then means that the students in larger schools are being

offered better health care due to the diversity of equipment available for rehabilitation and treatment of injuries.

Feasible Options Available for Each School

As indicated before, most schools responded that money was the main reason that the school did not employ a designated athletic trainer. This argument has its merits, yet for every high school there is a possible option which could be feasible. Many schools do not realize that, for the cost of a coach, a designated athletic trainer could be hired. Also, for a similar amount, an individual could be contracted from a clinic or from a nearby college or university to serve in this capacity. There are many options available which would cost no more than a few thousand dollars but which could increase the level of health care offered to the athletes and decrease the chances for a lawsuit.

Table 6 shows that a teacher and trainer combination was the most feasible option according to the athletic directors (45.3%) in this sample. This option involves the hiring of a teacher with athletic training credentials to fill an open position within the school district. The regular teaching salary would be paid and, in addition to this, the teacher would receive a coach's salary to perform the athletic training duties. Many other options exist which would cost the school little or nothing when compared to the cost of one injured athlete whose condition was aggravated by mistreatment, improper evaluation, or the cost of a lawsuit for failing to follow reasonable procedures.

SUMMARY AND RECOMMENDATIONS

As a result of the data collected in this study, one conclusion is that the state of Iowa should consider following the lead of North Carolina, Texas, and other states of mandating certified athletic trainers for all high schools competing in athletics. It can no longer be a valid excuse to claim lack of funding as the reason for not having an athletic trainer. There are many options available to each school. In some cases the cost of an athletic trainer would be no more than a coach's stipend. This cost would be counterbalanced by the reduced chance of liability, the possibility of reduced insurance premiums, the more economical spending of the athletic training budget, reduced injury rates, as well as the benefits to the students and parents.

An option that perhaps would be the most feasible for the numerous small school districts in Iowa would be the centralized training room. Similar to the programs offered in Seattle (Bloomberg, 1981) and Las Vegas (Ryan, 1986), a centralized training room could be developed for each geographic location. Each training room would cover an approximate radius of 20-25 miles by offering all possible assistance to each participating school within this area. This training room would be provided with all the necessary equipment. It would offer drop-in visits and visits by appointment six days per week. The training room would be staffed by no less than two certified athletic trainers and numerous student and intern assistants. The student and intern assistants would be responsible for the on-site daily care of the athletes. Also, the possibility of using a Registered Physical Therapist would be feasible.

Physical Therapists could be housed in the main offices of the 16 Area Education Agencies. The administrative and consultation duties would lie with the Physical Therapists. Also, a state supervisor could be appointed and could be located in the Des Moines area.

With this type of program, the cost to the schools would be minimal. There would be an initial, one-time start-up cost which would be quite substantial, yet with state funding added to the individual school district funding, this cost would be reasonable. Once this cost is met, theoretically, the program could be self-sufficient. With minimal yearly payments by the school districts, virtually all the costs would be paid through fees charged to the patients and through state subsidies.

There are many other values of a program like this. There could be educational courses taught to the student trainers, coaches, and even athletes. Workshops could be held for the coaches and student trainers on injury care and prevention. Athletes could be taught different aspects of health, conditioning, and fitness. The athletic trainers could also be a community resource for individuals who are non-athletes. The potential possibilities are limitless.

A great majority of the athletic directors (84.9%) felt they would be interested in such a program. A few chose to comment on this new program concept. "The idea is great . . ."; ". . . would help our athletes greatly in rehabilitation and in instructing our coaches that deal with the individual athletes in taping and rehabilitation"; "It is no longer a luxury to have a trainer, it is a necessity"; ". . . trainer is a very integral part of an athletic program"; "I feel this is an area in which the state of Iowa needs to catch up.

Would very much like to see this a must"; and "It is time the DPI mandate athletic trainers for high schools in Iowa." The comments went on and on.

With the advent of our current "age of litigation," it is no longer a luxury to hire an athletic trainer. One can envision, in the near future, when every high school in the nation will be required to provide athletic training services in some capacity. Without athletic training services offered to their high school athletes, the high schools will be opening what might be considered the proverbial "Pandora's Box." If the health care of the athlete is not of paramount concern, the chances of litigation will continue to increase. Many individuals now claim that the lack of an athletic trainer could be grounds for a suit in itself.

To institute the program which has been briefly outlined, there would be months of legislative processes to go through to achieve a state mandate. Without changing and adding legislation, it would be very difficult to institute such a program in the state of Iowa. To do this, literally hundreds of people need to get involved. First, and foremost, the parents need to be aware of what is currently available and what could be available if this program were implemented. The support of the numerous Parent-Teacher Associations across Iowa would be needed, as well as the Iowa Athletic Trainer's Society, the Iowa High School Athletic Association, the Iowa High School Girls' Athletic Union and the Iowa High School Athletic Directors' Association. Also, the Iowa Physical Therapists' Association and the Iowa Chapter of the American Medical Association could be very instrumental. With the support of these groups, this type of program could pass into law.

It is difficult to comprehend how this type of service has been denied to the individuals who need it the most. As Webster (1983) indicated, the younger the athlete is, the more susceptible that athlete is to injury. It is with this thought in mind that this thesis is dedicated.

A coach is not extensively trained to deal with athletic injuries and, in most cases, will not know and understand the nature of many injuries. An athletic trainer is an individual specially trained to deal with athletes who have been injured. Additionally, athletic trainers possess special knowledge in the prevention of injuries. A "normal" sprained ankle or strained muscle might, and usually will, have life-long consequences if not treated properly. If untrained coaches are left to decide, evaluate, devise rehabilitation protocols, and treat these injuries, major complications could develop.

Thus, it is difficult to understand how the athletic trainer can be denied employment by Iowa high schools for much longer. With the advent of many other states mandating athletic trainers in each high school, Iowa perhaps will not be far behind. Once various options are presented and the legislative effort is formally organized, the mandate could shortly follow. Iowa has always been a national leader in high school academic and athletic programs. Providing quality health care for all high school athletes would be another way to demonstrate this genuine concern for Iowa students.

Based upon what has been learned from this study, the following are suggestions for further study on this topic:

1) Examine the present legislative mood concerning state mandated athletic trainers for each school district and the feasibility of this law in Iowa.

2) Examine the feasibility of a state licensing procedure for athletic trainers to help control the quality of services provided to the athletes.

3) Examine the feasibility of geographically centralized training rooms.

4) Examine the possibility of changing the coaching endorsement to require prospective coaches to be certified in CPR, basic life support, standard first aid, and additional athletic injuries courses.

5) Examine the differences in injury rates between schools with certified athletic trainers and schools without certified athletic trainers.

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Secondly, to my committee members, Dr. Richard Englehorn and Dr. Martin Miller. Thank you for your input, guidance, and assistance with this project.

A special thank you must be extended to my friends and associates for helping with all the "minor details" of envelope stuffing and proofreading, and listening to all my frustrations along the journey.

Lastly, I would like to thank my family. Without your constant support and love over the past 25 years the realization of this goal may never have been met. The American society is forever changing, yet we have never succumbed to the typical pressures of family life. May we never change.

APPENDIX A. QUESTIONNAIRE

Athletic Director Survey on ATHLETIC TRAINING Services

DEMOGRAPHIC INFORMATION

1. How many students do you have in grades 9, 10, 11, and 12? _____

2. How many total students in grades 9, 10, 11, and 12 participate in the athletic program? _____

3. In what class does your school compete in football? (A, 1A, 2A, 3A, 4A, or Do Not Compete) _____

4. Please check the varsity sports which your athletic department sponsors.

__ Baseball	__ Soccer
__ Boys' Basketball	__ Softball
__ 6 on 6, Girls' Basketball	__ Boys' Swimming
__ 5 on 5, Girls' Basketball	__ Girls' Swimming
__ Boys' Cross-Country	__ Boys' Tennis
__ Girls' Cross-Country	__ Girls' Tennis
__ Football	__ Girls' Track
__ Boys' Golf	__ Volleyball
__ Wrestling	__ Other (please list)
__ Cheerleading	_____
	_____

5. Please indicate the approximate dollar amount of your ATHLETIC TRAINING budget. $_____

6. Please indicate by approximate percentage the sources of funds for your total ATHLETIC TRAINING budget.

A. Athletic Budget	_____%	
B. Physical Education	_____%	
C. Boosters	_____%	
D. Private Donations	_____%	
E. Other (please list)	_____%	_____
Total =	100 %	

STAFFING

7. In your school, who performs the ATHLETIC TRAINING responsibilities?

__ Designated Athletic Trainer
__ Coaches
__ High School Student Trainer/Manager
__ Athletes
__ No One
__ Other (please specify)
_____

If your school does not have a Designated ATHLETIC TRAINER, proceed to question 12

8. How long has your school provided the services of a designated ATHLETIC TRAINER? ___ yrs

9. Please check all appropriate qualifications that your Designated ATHLETIC TRAINER possesses.

___ Single College/University Athletic Training Course
___ Multiple College/University Athletic Training Courses
___ Athletic Training Concentration with Bachelor's Degree
___ National Athletic Trainer's Association (NATA) Certification
___ Registered Physical Therapist
___ Other (please specify) _____

10. Please check any job responsibilities the person designated as your ATHLETIC TRAINER assumes in your school district. Also, please list any other job responsibilities that might not be listed.

___ Full Time Trainer, No Teaching Responsibilities
___ Assists in Nurses Office
___ Part Time Trainer, No Teaching Responsibilities
___ Guidance Counselor
___ Full Time Teacher
___ Equipment Manager For All Sports
___ Part Time Teacher
___ Equipment Manager For Assigned Sports
___ Substitute Teacher
___ Coaches Single Sport
___ Shared Trainer With Other School(s)
___ Coaches Multiple Sports
___ Student Trainer From Within The School
___ Educational Administrator

___ Graduate Assistant/Student From Nearby College
___ Works Outside of School, Services Contracted
___ Athletic Director
___ Works Outside of School, Volunteers Training Services
___ Athletic Administrative Assistant
___ Volunteer From Within The School
___ Contracted From Local Clinic
___ Other _____

11. Please check the ATHLETIC TRAINER'S coverage of boys' and girls' varsity competitions.

___ Boys' Only
___ Girls' Only
___ All Boys' and Girls' Events
___ Some Boys', All Girls' Events
___ Some Girls', All Boys' Events
___ Other _____

ATHLETIC TRAINING RESPONSIBILITIES

12. Please check all of the ATHLETIC TRAINING services provided by your school. Please specify any that are not included.

___ Evaluation of injuries
___ Record keeping
___ Strength and conditioning advisor
___ Nutritional counseling
___ Obtain home event medical coverage
___ Scheduling pre-season physical exams
___ Practice supervision for injury prevention
___ Basic first aid
___ Taping-wrapping
___ Inventorying of athletic training supplies
___ Rehabilitation protocols for each injured athlete
___ Develop pre-practice stretching programs
___ Supervise student trainers
___ Other _____

FACILITIES AND EQUIPMENT

13. Does your school have an area designated as the ATHLETIC TRAINING room?

___ Yes ___ No

14. If not, are there plans for renovation which include space for a training room?

___ Yes ___ No
If yes, when is it planned to be in operation? _____

15. Please check the equipment your school has available for athletic training/rehabilitative purposes.

___ Hydrocollator/Hot Packs
___ Whirlpool
___ Ultrasound
___ Refrigerator
___ Freezer
___ Swimming Pool
___ Universal Weight Machine
___ Nautilus Equipment
___ Expendable Supplies (tape, gauze, etc.)
___ Paraffin Bath
___ Muscle Stimulator
___ Steam Bath/Sauna
___ Ice Machine
___ Exercise Bicycle
___ Free Weights
___ Orthotron
___ Other (please list)
_____
_____

TEAM PHYSICIAN(S)

16. Does your school utilize the services of a team doctor or clinic?

___ Yes ___ No (If no, proceed to question 20)

17. Does a physician attend any athletic contests? ___ Yes ___ No

If yes, for which sports? _____
_____

18. Does a physician attend any practice sessions? ___ Yes ___ No

If yes, for which sports? _____
_____

19. How is this medical service obtained?
___ Contracted Service
___ Donated Service
___ Other (please describe)
_____

20. Is an ambulance service present at each home varsity football contest? ___ Yes ___ No

21. Is an ambulance service present at any other athletic competitions?
___ Yes ___ No

If yes, which sport(s)? _____

22. In minutes, how long would it take for an emergency medical vehicle to arrive at your athletic complex? ___ mins.

CONSIDERATIONS FOR THE FUTURE

23. If your school does not employ a certified athletic trainer, is it in your plans to hire one within the next five years? ___ Yes ___ No
If No, would you please indicate the reason(s)?_____
_____

24. Do you believe that a certified athletic trainer is an integral part of a total athletic program? ___ Yes ___ No

25. Do you feel the state of Iowa should have a licensing procedure for athletic trainers, such as it does for physical therapists? ___ Yes ___ No

26. Would you be interested in obtaining an athletic trainer if one would be offered by centralized colleges and universities throughout the state, subsidized in part by a state-sponsored program and part by your institution? ___ Yes ___ No

27. If your school does not have a designated athletic trainer, please indicate which option(s) might be feasible for your situation.

___ Full Time Trainer
___ Part Time Trainer Only
___ Substitute Teacher and Trainer Combination
___ High School Student Trainer
___ Contracted Service From Local Clinic
___ Shared Trainer With Other School(s)
___ Teacher and Trainer Combination
___ Athletic Administration Assistant and Trainer Combination
___ Student or Graduate Assistant from Nearby College/University
___ Other (please specify)
_____

*** If you wish to receive the results from this survey, please indicate so by checking the following blank. ___

PLEASE FEEL FREE TO WRITE ANY COMMENTS OR QUESTIONS REGARDING THIS TOPIC AND SURVEY IN THE SPACE BELOW.

APPENDIX B. COVER LETTER

February 23, 1990

Dear Athletic Director:

Across the nation there is a trend developing. For some time now, many people in athletics have felt the need for an athletic trainer. This has been most prevalent at the collegiate and professional levels. Now, this need is starting to be realized at the high school level. As a Certified Athletic Trainer I am very concerned about the quality of medical care being administered to our young people.

Being in pursuit of my Masters Degree from Iowa State University, I have selected this topic for my graduate thesis. Enclosed you will find a survey which I have developed to evaluate the availability and delivery of athletic training services to our high school athletes in Iowa. This survey is being sent to a random selection of the high school athletic directors in all five classifications of interscholastic football. I am asking you to participate in this study by completing the enclosed survey. Since this survey is being sent only to a random sample of Iowa high school athletic directors, it is very important for me to receive a high response rate. I sincerely hope that you will be willing to participate.

I realize your time is very valuable so this survey has been designed to be quickly completed. Along with the survey, a self-addressed stamped envelope has been enclosed for your ease of return. The ten to fifteen minutes necessary to complete this survey will be greatly appreciated by myself, the Department of Physical Education and Leisure Studies, and ultimately the high school athletes of the State of Iowa. I assure you, all responses will be confidential.

You do, of course, have the right not to participate in this study. By completing this survey and returning it to me, it will be assumed that you are voluntarily choosing to participate. I shall be pleased to send you the results of this study for your information if you wish. If you wish to receive a copy of the results please check the appropriate space at the end of the survey.

If at any time you have any questions regarding this survey, please feel free to contact me at the above address or by phone at (515) 294-5146 (office) or (515) 292-7827 (home). I would appreciate receiving your completed questionnaire within 10 days, if at all possible.

I trust that you will see the value of this study and will enhance the results by participating. Thank you very much for your time and cooperation.

Respectfully Yours,

Jamie L. Butikofer, A.T., C.
Graduate Assistant Athletic Trainer

APPENDIX C. FOLLOW-UP LETTER

March 5, 1990

Dear Athletic Director:

Within the past few weeks you should have received a survey from me. The topic of this survey was ATHLETIC TRAINING SERVICES TO IOWA HIGH SCHOOL ATHLETES. As of today, I have not received your completed survey. Perhaps you have already mailed it to me, or perhaps you have not yet had the time to complete it.

Your survey is very important to me. First, as a certified athletic trainer I am very concerned with our nation's young athletes. This will help me compare Iowa to other states in the nation to see where we stand in providing athletic training services. Secondly, since only a random sample of Iowa high school athletic directors was selected, it is very important that I receive a high response rate to maintain the statistical integrity of the study.

I am asking you to please take 15 minutes, complete the survey, and return it in the envelope provided. If you have happened to misplace the survey and need another, or have any questions, please do not hesitate to call me at (W) 515-294-5146 or (H) 515-292-7827. If you have already returned your survey, thank you very much for participating in this project.

Thank you for your understanding and cooperation.

Respectfully yours,

Jamie L. Butikofer, A.T., C.
Graduate Assistant Athletic Trainer

APPENDIX D. SECOND FOLLOW-UP LETTER

March 23, 1990

Dear Athletic Director:

Within the past month you should have received a survey from me on the topic of HIGH SCHOOL ATHLETIC TRAINING SERVICES WITHIN THE STATE OF IOWA. As my records show, I have yet to receive your completed survey. Perhaps you have already mailed it to me, or perhaps you have not yet had the time to complete it.

Receiving your survey is very important to this study. Iowa has always been a nationwide leader when it comes to our public school systems, academically as well as athletically. Your individual information may provide new insight or provide extra support for universally asked questions regarding high school athletics.

In the research process, a random selection of Iowa high school athletic directors was made. Consequently, your survey is important for that reason also. To insure the statistical integrity of this study it is imperative that I receive your survey. I hope that you understand my situation.

As the athletic director, you can benefit from this study. By checking the appropriate blank you will receive the results. Thus, you may use the findings from this study to support your own needs in this area. Ultimately, it will be the student-athletes who will benefit from this study.

At this time I am sincerely asking you to take the next 15 minutes, complete the survey, and return it in the envelope provided. Since I understand how items can become misplaced I have enclosed another survey and return envelope for your convenience. As a reminder, all responses will be held in the strictest confidence. The surveys will be destroyed after being coded for the computer analysis.

Thank you for your time and cooperation.

Respectfully yours,

Jamie L. Butikofer, A.T., C.

APPENDIX E. HUMAN SUBJECTS APPROVAL FORM SHEET

Information for Review of Research Involving Human Subjects

Iowa State University

(Please type and use the attached instructions for completing this form)

1. Title of Project The Availability and Delivery of Athletic Training Services in Iowa High Schools

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are protected. I will report any adverse reactions to the committee. Additions to or changes in research procedures after the project has been approved will be submitted to the committee for review. I agree to request renewal of approval for any project continuing more than one year.

Jamie L. Butikofer	2-12-90	V
Typed Name of Principal Investigator	Date	Signature of Principal Investigator

PE/LS	114 Beyer Hall	4-5146
Department	Campus Address	Campus Telephone

3. Signatures of other investigators

	Date	Relationship to Principal Investigator
[signature]	2-12-90	Major Professor

4. Principal Investigator(s) (check all that apply)
☐ Faculty ☐ Staff ☒ Graduate Student ☐ Undergraduate Student

5. Project (check all that apply)
☐ Research ☒ Thesis or dissertation ☐ Class project ☐ Independent Study (490, 590, Honors project)

6. Number of subjects (complete all that apply)
230 # Adults, non-students ___ # ISU student ___ # minors under 14 ___ # minors 14 - 17 ___ other (explain)

7. Brief description of proposed research involving human subjects: (See instructions, Item 7. Use an additional page if needed.)
The purpose of this study is to determine the availability and delivery of athletic training services to high school athletes in Iowa as described by high school athletic directors. This information will be obtained through the use of a 28-item questionnaire assessing different aspects of athletic training services available to high school athletes. The survey and cover letter are attached.

(Please do not send research, thesis, or dissertation proposals.)

8. Informed Consent:
☐ Signed informed consent will be obtained. (Attach a copy of your form.)
☒ Modified informed consent will be obtained. (See instructions, item 8.)
☐ Not applicable to this project.

9. Confidentiality of Data: Describe below the methods to be used to ensure the confidentiality of data obtained. (See instructions, item 9.)

Subjects will each receive a 3-digit code number to facilitate keeping track of those subjects who have returned their surveys. Identity codes will be removed from the surveys and the surveys will be destroyed as soon as the data is coded for statistical analysis. All responses from subjects will be treated in strict confidence.

10. What risks or discomfort will be part of the study? Will subjects in the research be placed at risk or incur discomfort? Describe any risks to the subjects and precautions that will be taken to minimize them. (The concept of risk goes beyond physical risk and includes risks to subjects' dignity and self-respect as well as psychological or emotional risk. See instructions, item 10.)

None.

11. **CHECK ALL** of the following that apply to your research:
- ☐ A. Medical clearance necessary before subjects can participate
- ☐ B. Samples (Blood, tissue, etc.) from subjects
- ☐ C. Administration of substances (foods, drugs, etc.) to subjects
- ☐ D. Physical exercise or conditioning for subjects
- ☐ E. Deception of subjects
- ☐ F. Subjects under 14 years of age and/or ☐ Subjects 14 - 17 years of age
- ☐ G. Subjects in institutions (nursing homes, prisons, etc.)
- ☐ H. Research must be approved by another institution or agency (Attach letters of approval)

If you checked any of the items in 11, please complete the following in the space below (include any attachments):

Items A - D Describe the procedures and note the safety precautions being taken.

Item E Describe how subjects will be deceived; justify the deception; indicate the debriefing procedure, including the timing and information to be presented to subjects.

Item F For subjects under the age of 14, indicate how informed consent from parents or legally authorized representatives as well as from subjects will be obtained.

Items G & H Specify the agency or institution that must approve the project. If subjects in any outside agency or institution are involved, approval must be obtained prior to beginning the research, and the letter of approval should be filed.

Checklist for Attachments and Time Schedule

The following are attached (please check):

12. [X] Letter or written statement to subjects indicating clearly:
    a) purpose of the research
    b) the use of any identifier codes (names, #'s), how they will be used, and when they will be removed (see Item 17)
    c) an estimate of time needed for participation in the research and the place
    d) if applicable, location of the research activity
    e) how you will ensure confidentiality
    f) in a longitudinal study, note when and how you will contact subjects later
    g) participation is voluntary; nonparticipation will not affect evaluations of the subject

13. [ ] Consent form (if applicable)

14. [ ] Letter of approval for research from cooperating organizations or institutions (if applicable)

15. [X] Data-gathering instruments

16. Anticipated dates for contact with subjects:

First Contact	Last Contact
2-21-90	3-23-90
Month / Day / Year	Month / Day / Year

17. If applicable: anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual tapes will be erased:

3-30-90
Month / Day / Year

18. Signature of Departmental Executive Officer | Date | Department or Administrative Unit

PE/LS

19. Decision of the University Human Subjects Review Committee:

___ Project Approved ___ Project Not Approved ___ No Action Required

Patricia M. Keith
Name of Committee Chairperson

Date

Signature of Committee Chairperson