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Current First Aid and CPR Credentials of Selected Head High
School Athletic Coaches in
West Virginia

Thesis Submitted to
The Graduate College of
Marshall University

In partial fulfillment of the
Requirements for the Degree of Master of Science
Health and Physical Education

by
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Marshall University
Huntington, West Virginia

May 6, 2000

This thesis was accepted on

Month May Day 2 Year 2000

as meeting the research requirements for the master's degree.

Advisor 

Department of UPER

Committee Member 

Committee Member 


Dean of the Graduate School

TABLE OF CONTENTS

Acknowledgements	1
CHAPTER ONE	2-5
CHAPTER TWO	6-12
CHAPTER THREE	13-14
CHAPTER FOUR	15-18
CHAPTER FIVE	19-21
REFERENCES	22-23
APPENDIX A	24
Letter to School	25
APPENDIX B	26
Survey	27
APPENDIX C	28
Charts & Tables	29-40
ABSTRACT	41

Acknowledgements

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CHAPTER ONE

Introduction

The number of student athletes has increased steadily in the United States high schools (Howard & Gillis, 1999). Accompanying this is a rise in the number of athletic injuries, approximately one in five will sustain an injury (Lyznicki, Riggs & Champion, 1999). It was thought that many of the injuries occur during practice participation, in fact according to Lyznicki et al, 1999, most occur during game participation. The absence of a certified athletic trainer forces the coaching staff to be the immediate care provider for these injured athletes. In the state of West Virginia, there are two types of athletic trainers: the state certified athletic trainer and the nationally certified athletic trainer. Although most injuries are minor, according to Cantu and Mueller, from 1982-1996, fall sports accounted for 387 fatal and/or catastrophic injuries (Cantu & Mueller, 1999). The number of injuries has decreased in football due to numerous variables, one is improved medical coverage at practices and games (Cantu & Mueller, 1999). Many times at rural high schools the athletic trainer is available only once a week or during games. Many states, including Ohio, require their coaches to attend a sports injury clinic every four years while maintaining a valid and current cardiopulmonary

resuscitation card(personal communication by E-mail, March 6, 2000). The need for adequate health care for our students is not only an issue of health, but of legality. The high school can be found negligent for having inappropriate personnel providing emergency care for the injured athlete. For the athletes to receive appropriate care coaches must be trained in CPR and first aid. This concern can be eliminated with the department of education establishing regulations for maintenance of current first aid and CPR cards, requiring all coaches to maintain continuing education units in sports injury management, and the hiring of a nationally certified athletic trainer. This risk of liability can be further reduced with a physician present at all games and once a week for practices.

Statement of Problem

The purpose of this study was to determine the CPR and first-aid certification levels of West Virginia's high school head coaches.

Operational Definitions

First Aid Certified- One who is certified by the American Red Cross, National Safety Commission, or who has had EMT/paramedic training.

CPR Certified- One who is certified in providing cardiopulmonary resuscitation (CPR)by the American Heart

Association, American Red Cross, or National Safety Commission.

Outside of System Coach- One who is not employed by the school as an instructor.

Continuing Education Unit (CEU)- A point given to a professional for attending a educational program related to their field.

Basic Assumptions

1. All subjects had the same desire to participate in the study.
2. The subjects are able to read and fill out the correct answers on the survey.
3. A reasonable number of surveys will be returned.
4. The subjects are honest on survey.
5. The tester records the data correctly.

Limitations

1. The survey is one page long and has one open ended question.
2. Not all surveys will be returned.
3. This study did not test the responses of assistant coaches.
4. The subjects are high school head coaches.
5. The subjects are randomly selected by the principal of their respective school and may not report all coaches.

Research Questions

This study is an explanatory study therefore the following questions will be answered.

1. What is the percentage of coaches certified in first aid and/or CPR?
2. What is the percentage of certified coaches are female and male?
3. What is the level of education for those coaches certified and those not certified?
4. What is the average years of coaching experience of certified coaches and non-certified?
5. What sport(s) has the most certified coaches?

CHAPTER TWO

Review of Literature

Injuries to the athlete occur during practice participation at a higher rate when compared to game day participation (Lyznicki, Riggs, & Champion, 1999). The coach is primarily the first on-site caregiver in many areas (Ransone & Dunn-Bennett, 1999; Rowe, 1991; & Janhunnen & Green, 1997). The need for the injured athlete to return to play as quickly as possible has become a demand on not only the medical staff, but the entire coaching staff (Stapleton, Tomlinson, Shepard, & Coon, 1984). In the state of West Virginia there is a requirement for coaches to participate in a 12 hour Sport First Aid course, but it is not stated that this is an annual condition (WVSSAC Rule 127-3-6). This in turns poses a dilemma for the state, the school, and the athlete.

Injury Rate at the High School Level

The number of student participating in athletics is on the rise, passing six million student-athletes in the United States (Powell & Barber-Foss, 1999; Lyznicki, Riggs & Champion, 1999; & Howard & Gillis, 1999). Even with an increase in the amount of high school athletes, the medical coverage has not increased (Stapleton et al, 1984). Collision sports result in the largest number of injuries

(Cantu & Mueller, 1999). Cantu and Mueller (1999) a study concerning injuries in high school and college sports, they show the percentage of injures per sports (Cantu & Mueller, 1999). These percentages can be found in Table 1, 2, and 3 in Appendix C. The total number of direct fatalities and injuries by season at the high school level can be found in Table 1. During the fall season there were 387 total direct fatalities and injuries. The winter season accounted for 70 total direct fatalities and injuries, and the spring season had 68.

Table 1

Season, 1982-1996	Total Direct Fatalities and Injuries
Fall	387
Winter	70
Spring	68

In an article by Weidner, he states that 37% of high school football players are injured during every season, and 60% of these injuries occur during practice (Weidner, 1989).

First Aid & CPR

First aid and CPR are the basic foundation for health care professions. First aid is defined by the *Mosby's Medical, Nursing & Allied Health Dictionary* as, "the immediate care that is given to an injured or ill person

before treatment by medically trained personnel." CPR is defined as, "a basic emergency procedure for life support, consisting of artificial respiration and manual external cardiac massage" (Anderson, 1994). Injuries left untreated or improperly treated by coaches waiting for proper medical care could cause the injury to become worse and/or life-threatening. According to Fiske (1999), OSHA recommends that individuals be re-trained every year for CPR and for first aid every three years.

State Requirements for Coaches

The Department of Education does not have a policy that addresses the qualifications of a coach, but the West Virginia Secondary School Activity Commission (WVSSAC) does address the qualification requirements. WVSSAC Rule 127-3-6 states that a coach must complete a Sport First Aid training that includes 12 hours of instruction and testing. The Sport First Aid course according to the American Sports Education Program is described as, "...created to teach school and club sport coaches how to be safe, capable, and effective first responders to injured athletes. During this course, coaches learn to develop a plan for emergency procedures, reduce the number of avoidable injuries, recognize serious and minor injuries; provide proper, immediate care for common sports injuries, and respond to

life threatening emergencies." (www.asep.org). The West Virginia Secondary School Activity Commission requires the course, but it is unclear if there are regulations for review, yearly re-testing, or other supplemental courses.

Coaches Responsibility

The coach has a very crucial role. In many high schools they are the primary respondents to the injured high school athlete (Rowe & Miller, 1991; Weidner, 1989; & Lyznicki et al, 1999). Many times the coaches are not properly trained in the care of athletic injuries (Culpepper, 1986). Coaches in the state of West Virginia may not decide whether an athlete can return to play, that decision is made by the athletic trainer if a physician is not present (Policy 5512 §126-118-8 8.3). The coach's performance criteria as based on Title 126-142-26.3.1 (c) states that a coach must be able to handle athletic injuries, this policy does not state what duties specifically should be carried out by the coach.

Coaches are not prepared to handle athletic injuries if they are not properly trained. In the study by Stapleton, Tomlinson, Shepard and Coon (1984), it was reported that athletes reported their injuries to their coach first not an athletic trainer. Sixty percent of the coaches made the return to play decision during a game day

(Stapleton et al, 1984). Many coaches rely on their previous experiences they have faced during coaching, not on their athletic injury knowledge (Stapleton et al, 1984). In Stapleton et al (1984), football coaches appeared to have differing responses compared to the other sport coaches, for example they felt that taping, testing joint mobility, and ability to diagnosis as part of their duties. Other coaches felt that following physician treatment plans and administering modalities were their duties. Another duty that the football coaches stated in Stapleton et al was to administer modality treatments (86%), create exercise program (57%), and follow physician's instructions on rehabilitation (57%), but of these football coaches 88% felt uncomfortable providing first aid. Stapleton et al (1984) also reported that 57% of all coaches felt uncomfortable with providing injury care (Stapleton et al, 1984). Fifty-seven percent of the coaches that reported in Stapleton et al are uncomfortable providing injury care and 100% of the coaches reported that athletes were reporting injuries to them first, infers that the athletes also see the coach as their health care provider.

Coaching Requirements in Area States

According to the American Sports Education Programs 200 report on coaching requirements (2000) stated the

requirements for the surrounding states deviate to the policies West Virginia follows. The state of Ohio requires their coaches to complete a 4 hour first aid course and maintain current CPR card and they must attend a sports injury symposium every 4 years (personal communication by E-mail, March 6, 2000). In Kentucky the requirements are even more stringent. Kentucky requires coaches to attend a sports injury symposium hosted by the Kentucky Medical Association every two years while maintaining their current CPR card. The school districts in Pennsylvania and Virginia have the sole discretion to determine what the requirements for coaches should be.

Liability

Liability is defined as; the legal responsibility one has for harming another. (Arnheim & Prentice, 1997) The tough part of liability is having a clear understanding of the meaning of the phrase "reasonable/ordinary care". Ordinary care is when the care provider acts according to their educational abilities and knowledge, not exceeding their scope of employment (Arnheim &Prentice,1997). The coach cannot act beyond their education, employment, and training. The result of liability is negligence. When the coach acts beyond their scope they can be found negligent.

The negligence issue arises when the coach does not do what a reasonably prudent person would do or the coach does what a reasonably prudent person would not do (Arnheim & Prentice, 1997). Example of negligence by a coach would be moving a possible spinal cord injured athlete. Arnheim & Prentice (1997), state that the coach should condition and prepare athletes appropriately, be able to warn athletes of potential dangers of the sport they choose, be able to properly instruct athletes in proper and safe techniques, and finally be able to provide safe equipment and playing surfaces.

As noted the coach is the primary caregiver in most situations, the first person that the athlete confides in about an injury, and the person in most cases the least qualified. The coach has a liability to be educated in sports injury if they are going to be the first on-site. The schools need to provide the coaches with opportunities to learn about athlete injuries and the mangament of them.

CHAPTER THREE

Methodology

There is an increase every year in the number of high school athletes and with this increase there is an increase in the number of injuries. Coaches are typically the immediate responders to injuries. To date the state of West Virginia mandates those coaches take a 12 hours sports first aid course, but there is no statement in the law that states they must keep this certification up to date. Many school systems have installed requirements for continuing education credits in this field for their coaches.

Subjects

Subjects were head athletic coaches in the state of West Virginia. All 136 high schools in West Virginia were sent a package that included 5 surveys each.

Instrumentation

The instrument used was a survey. The survey asked for demographic information as well as current CPR and first aid information. The survey can be found in Appendix B.

Procedures

Packets were sent to one hundred thirty six high schools in West Virginia. The packet included a letter (Appendix A) explaining the study to the principal as well as five surveys. When the principal agreed to conduct the study in his/her school he/she had to sign at the bottom of the letter and give the surveys to five head athletic coaches in their school. The principals were asked to give at least two surveys to men and two to women coaches. The return date was set at two weeks from arrival of packet. Labels were obtained via the West Virginia Secondary School Activities Commission. Return envelopes were obtained through Marshall University, and return labels were made addressed to Dr. Dan Martin.

The signed letters were placed in a separate envelope from the surveys to allow schools to stay anonymous. Data was computed using Microsoft Excel program.

CHAPTER FOUR

Results

The primary purpose of this study was to exam the current status of West Virginia's head high school coaches in first aid and CPR certification. A central tendency was used to analyze the data from the surveys.

Subjects

One hundred and twenty (82 male coaches, 30 female coaches) responses representing thirty-one schools were obtained. Forty-three surveys representing another twelve schools were not used due to the absence of signed consent, and one respondent was a junior high coach. All subjects were head athletic coaches at a West Virginia high school. The age of the subjects ranged from 20-60+ years of age. All coaches reported holding a bachelor's degree or higher, no coach held a doctorate. One hundred and thirteen of the subjects were also teachers, six were out side of system coaches, and one survey had no response. The average years of coaching experience was 16.5 years. Appendix C contains charts (Charts 1 & 2) that provide the complete breakdown of gender and school divisions that responded.

Certification Status

Eighty (66.7%) responded being not certified in either first aid or CPR. While only 33.3% (40) responded being

certified in first aid and/or CPR. The coaches responding as being certified (40) were broken down as the following 67.5% were certified in CPR and first aid, 20% were certified in CPR only, and 12.5% were certified in first aid only. Appendix C provides the complete breakdown of information in Charts 3, 4, &5.

CPR Certification

Out of the coaches 6.8% (8) reported holding current CPR cards. Seventy-five percent of the coaches certified in CPR only were male and 25% were female. 37.5% of those coaches were multi-sport coaches and 12.5% reported coaching the following sports: boy's track, baseball, softball, girl's basketball, and golf. 37.5% of coaches certified in CPR only reported from A and AAA schools, while 25% reported from AA schools. The majority of the coaches holding CPR certification had a BS/A +15 degree at 37.5%. The full breakdown can be found in Appendix C in Charts 14, 15, 16 & 17. The average years of coaching experience for coaches holding CPR cards was 14.5 years.

First Aid Certification

Five (4.2%) of the coaches who responded to the survey were certified in First Aid. Males in this category made all responses (100%). Sixty percent of the coaches certified in First Aid held multi-sport coaching positions.

Boy's basketball and football each accounted for 20% of certified coaches. Single A schools accounted for the largest number of coaches certified in First Aid only at 60%, the AA and AAA schools each reported with 20%. Coaches who responded as having only first aid certification held master's degrees or higher, one did not respond. The complete breakdown for coaches holding current first aid can be found in Appendix C in Charts 18, 19, 20, & 21. The average years of coaching for first aid cardholders were 22.6 years.

Certified in CPR and First Aid

Twenty-two point five (27) of the coaches responding to survey held both current CPR and first aid cards. Fifty-five point six percent of the respondents were males and 33.3% were female. The majority of coaches responded as being certified in both were multi-sport coaches (33.3%). The next highest percent was 18.5% in coaching football. The complete breakdown of sports coached can be found in Appendix C. AAA schools reported with the most coaches certified in CPR and first aid, 44.4%. AA reported 33.3% and A reported 22.2% of their coaches certified in CPR and first aid. The majority of these coaches held a BS/A +15, the complete listing is found in Appendix C in Charts 10, 11, 12, & 13. The average years of coaching for coaches

holding both certification in CPR and first aid was 13.2 years.

Noncertified Coaches

Sixty-six point seven percentage of coaches who responded were not certified in either first aid or CPR. The responders were 71.3% male and 23.8% female. Triple A schools were noted with the most non-certified coaches (35%). Multi-sport coaches were the majority of non-certified coaches (30%). The majority of non-certified coaches responded having a MS/A +45 degree (20%). Charts 6, 7, 8, & 9 in Appendix C show the breakdown of results. The average years of coaching experience for a non-certified coach was 17.3 years.

CHAPTER FIVE

Discussion

The primary purpose of this study was to determine the current certification status in first aid and CPR for the head coaches in West Virginia's high schools. The differences in sex, size of school, the degree earned by the coaches, the average years coached compared to certification status, and finally sports coaches compared to certification status.

Improvements/Future Research

A reason for the outcome for this study is the research on this topic is outdated. The more recent studies cite the studies from the 1980's or earlier, a reason for that could be the increased awareness for the need of improved coverage at the high school level. Another improvement that could be made is adding questions concerning the reason for the current certification status of the coach. This study did not exam if there was an athletic trainer available. The time factor is an important variable in this study. This study perhaps did not allot for the appropriate time to allow the needed amount of surveys to be returned and a second mailing was not utilized.

There could be many differing reasons for the lack of certification in high school coaches. The lack of funding

available for coaches to take these courses, the lack of time the coaches are able to commit to the courses, or the availability of an athletic trainer at their respective schools. Further research should be conducted to determine the reason for the current certification status of West Virginia's coaches, and also if the school is being served by an athletic trainer, and the availability of a physician at that school. American Sport Education Program (ASEP, 2000) says it best "Athletes First Winning Second".

Summary and Conclusion

The wellbeing and future health of the athletes should be the main concern for those dealing with athletes on a regular basis. The results of this study show that the majority of the coaches that responded are not certified in either CPR or first aid. Ballard (1996) stated that coaches do not have the time to properly instruct players as well as be the care provider, therefore the state must provide appropriate care. Some suggestions for the Department of Education are the following: that coaches be mandated to renew their CPR and first aid certifications every year, the state should provide clinics/workshops to the coaches dealing with injury management, much like Ohio. The gold standard would be states mandating the placement of NATABOC certified athletic trainers in their high school. The WV

Department of Education and WVSSAC should rise to this need for improved medical coverage for the high school athletes. The biggest dilemma facing school systems is the lack of money, but the benefit is worth the money spent (Furlan, 1999). West Virginia is very similar in to the findings of Lindaman (1991), where the majority of coverage is found at the high school varsity levels. The state should provide equal coverage to each sport at the high school level.

Certified athletic trainers need to rise to this occasion, they need to educate the athletic staff. Certified athletic trainers could provide some of the injury management clinics at their school, area schools, and the American Sport Education Program ask for ATC's to teach their Sport First Aid courses. The profession of athletic training needs to take this opportunity to raise the awareness not only to schools but also to the legislatures of West Virginia.

One county reported that all coaches must maintain current first aid and CPR cards, the state of West Virginia should follow this counties example of providing appropriate care for their athletes. This county has raised the standard of care for their athletes, and the state should follow their example.

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Appendix A
Letter to School

Dear Principal,

My name is Amy Robinson and I am a Graduate Student in Athletic Training at Marshall University. I am conducting a research project as part of my graduation requirement, with the help of my advisor Dr. Daniel Martin. The objective of this study is to determine the level of first aid and CPR certification of West Virginia high school coaches.

I would appreciate your help in this matter. If you agree to conduct this survey in your school please sign the bottom and then give the surveys to five of your head coaches (at least 2 male and 2 female). Return the completed surveys in the envelope provided, along with a signed copy of this letter. I would appreciate them returned within two weeks. All schools will remain anonymous.

Should you have any questions or concerns you may call Dr. Dan Martin at (304) 696-2412 or Dr. Henry Driscoll (IRB Chair) at (304) 696-7320.

Thank you very much for your time and effort.

Sincerely,

Amy Robinson, ATC
Master's Degree Candidate

I give my permission to conduct this survey in my school.

Print Name _____
Signature _____ Date _____

Appendix B

Survey

*Current First Aid and CPR Credentials of Selected Head High School Athletic Coaches
in
West Virginia*

PLEASE CHECK AND FILL IN THE APPROPRIATE ANSWERS

Sex: M ___ F ___ **Age:** 20-29 ___ 30-39 ___ 40-49 ___ 50-59 ___ 60+ ___

School Division: A ___ AA ___ AAA ___

Sport Coach:

<i>Basketball:</i>	<i>Football</i> ___	<i>Track:</i>
Girl's ___	<i>Golf</i> ___	Girl's ___ Boy's ___
Boy's ___	<i>Softball</i> ___	<i>Wrestling</i> ___
<i>Baseball</i> ___	<i>Swimming</i> ___	<i>Volleyball</i> ___
<i>Cheering</i> ___	<i>Soccer:</i>	<i>X-Country:</i>
<i>Crew:</i>	Girl's ___ Boy's ___	Girl's ___ Boy's ___
Girl's ___	<i>Tennis:</i>	
Boy's ___	Girl's ___ Boy's ___	

Type of Position: Teacher/Coach ___ Outside of System ___

Total Years of Coaching Experience: _____

Degree Earned: BS/A: ___ +15 ___ +30 ___ MS/A ___ +15 ___ +30 ___
+45 ___ Ed.D/Ph.D ___

Have current First-Aid Card? Y ___ N ___ **Date Issued:** _____

Type of card: American Red Cross ___
National Safety Commission ___
Paramedic/EMT training ___
Other _____

Have current CPR card? Y ___ N ___ **Date Issued:** _____

Type of card: Child Only ___ Adult Basic ___ Health Care Provider ___
Instructor ___ Automated External Defibrillator ___

Received card from: American Heart Association ___
American Red Cross ___
National Safety Commission ___
Other _____

Have you recently attended any sports medicine seminars, if so please list with dates.

Appendix C
Charts & Tables

Chart 1

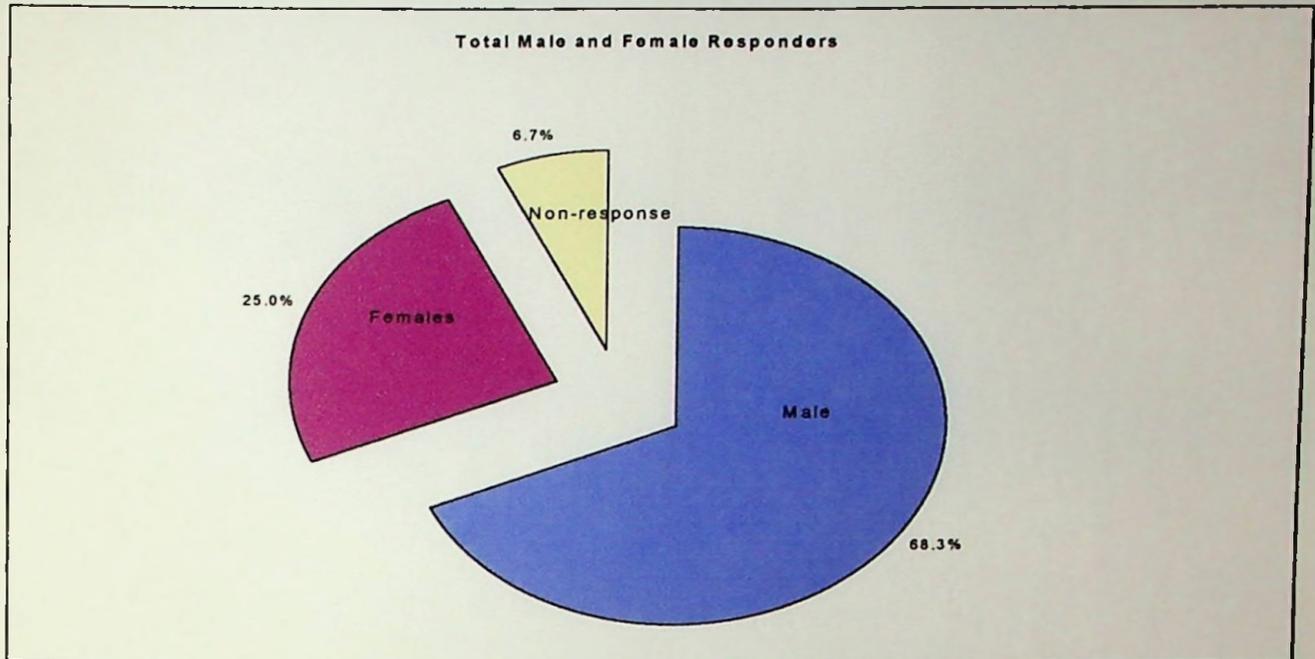


Chart2

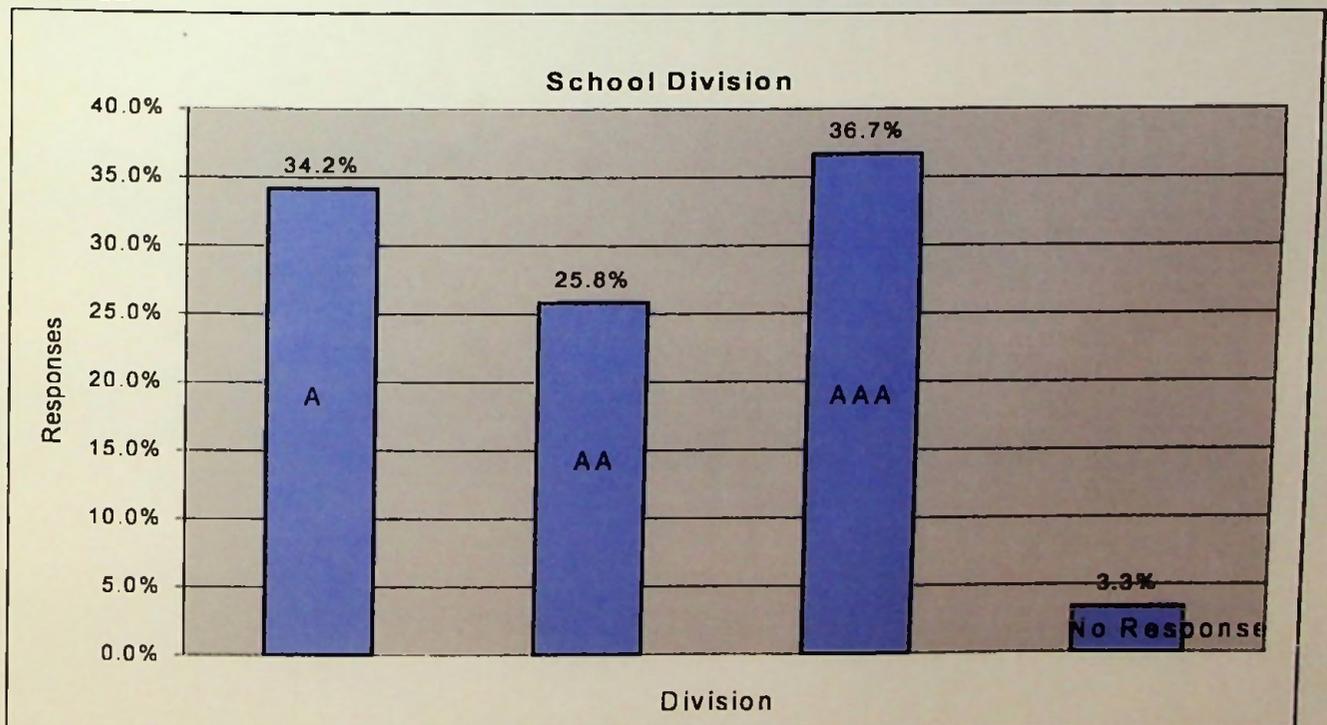


Chart 3

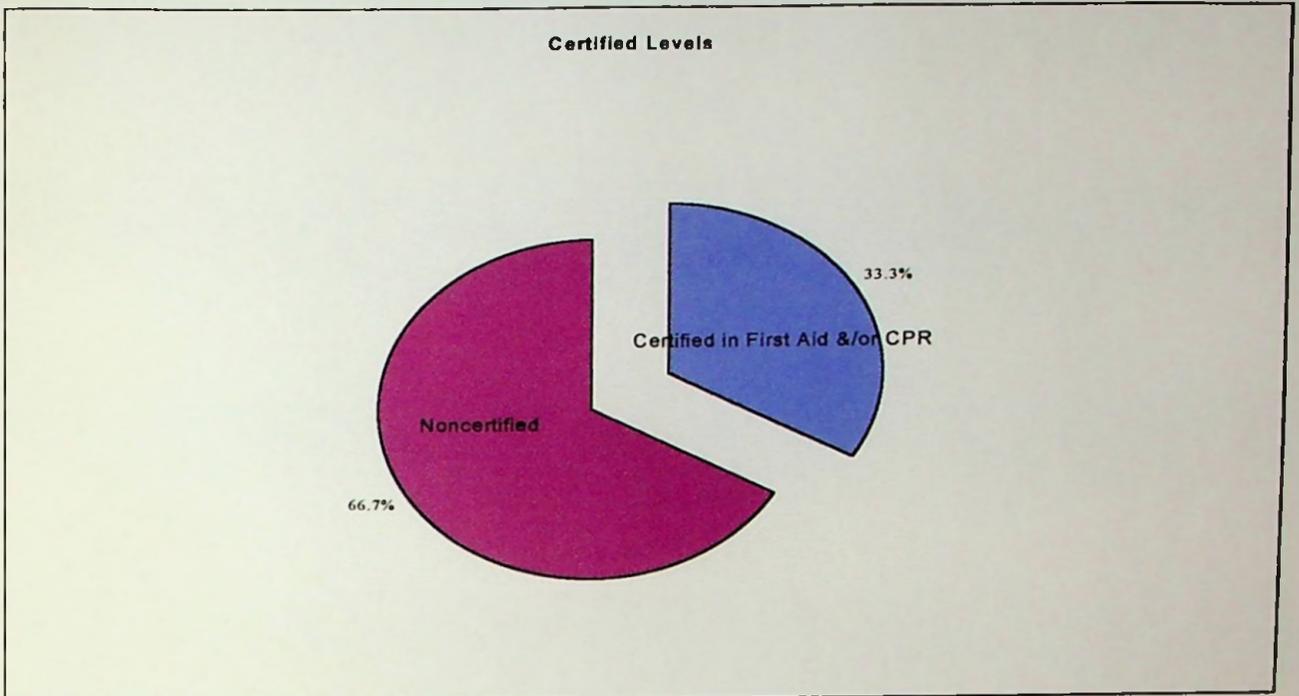


Chart 4

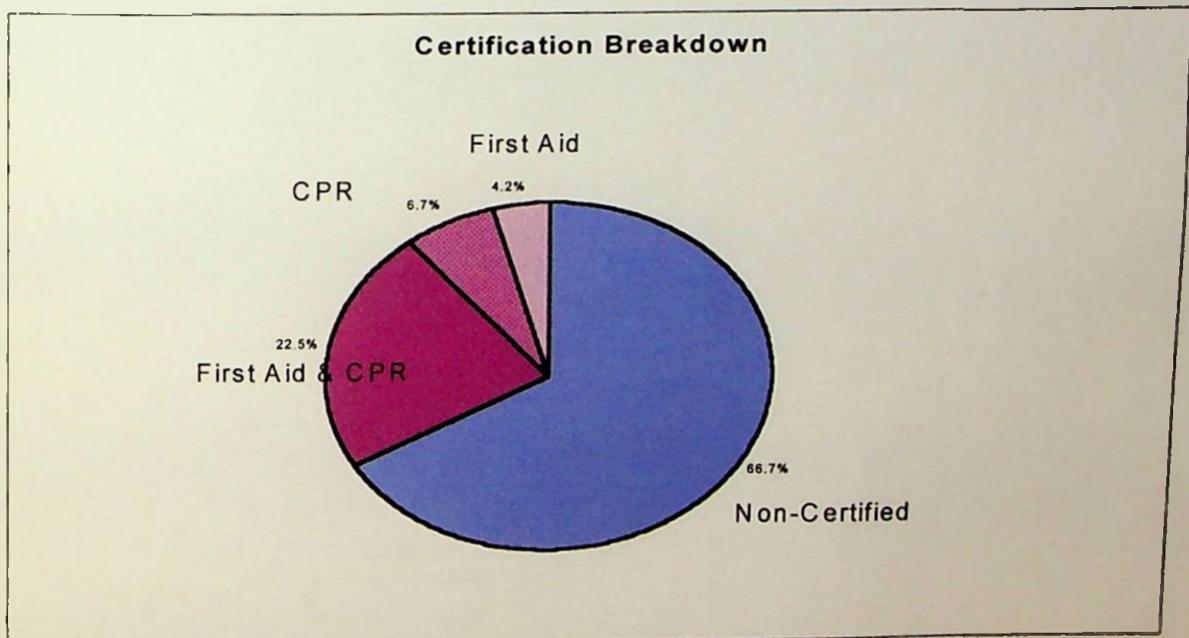


Chart 5

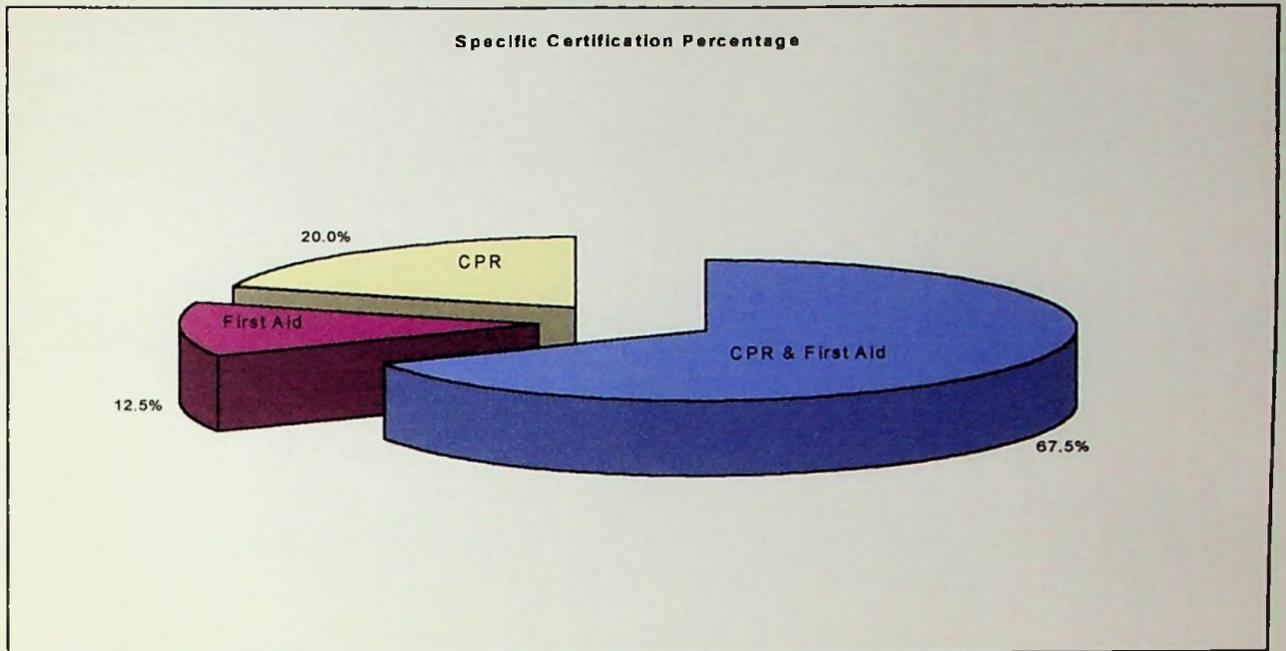


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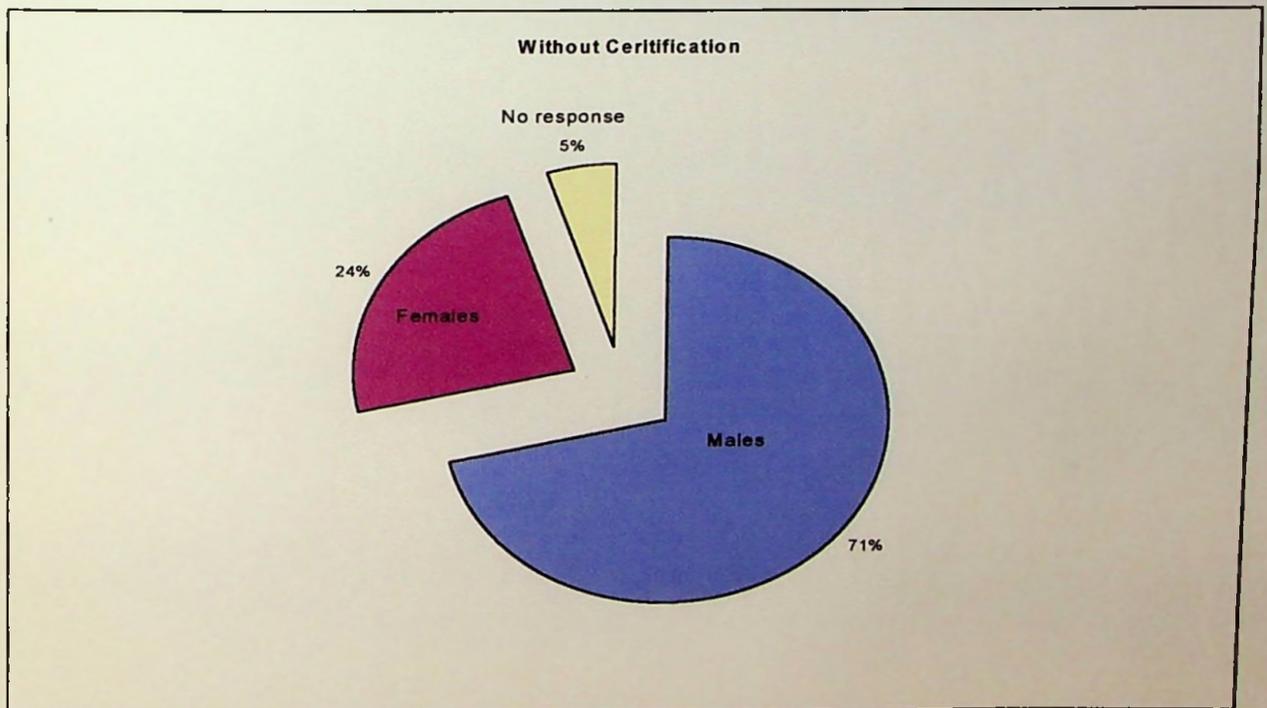


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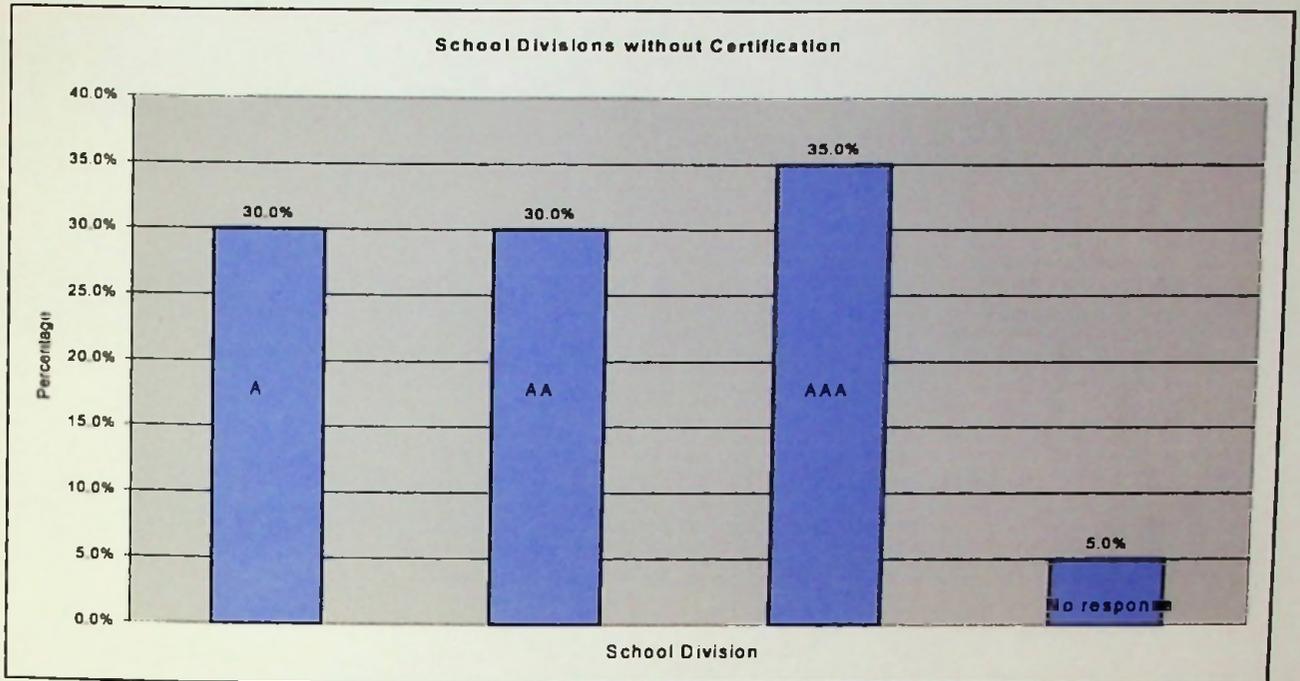


Chart 8



Chart 9

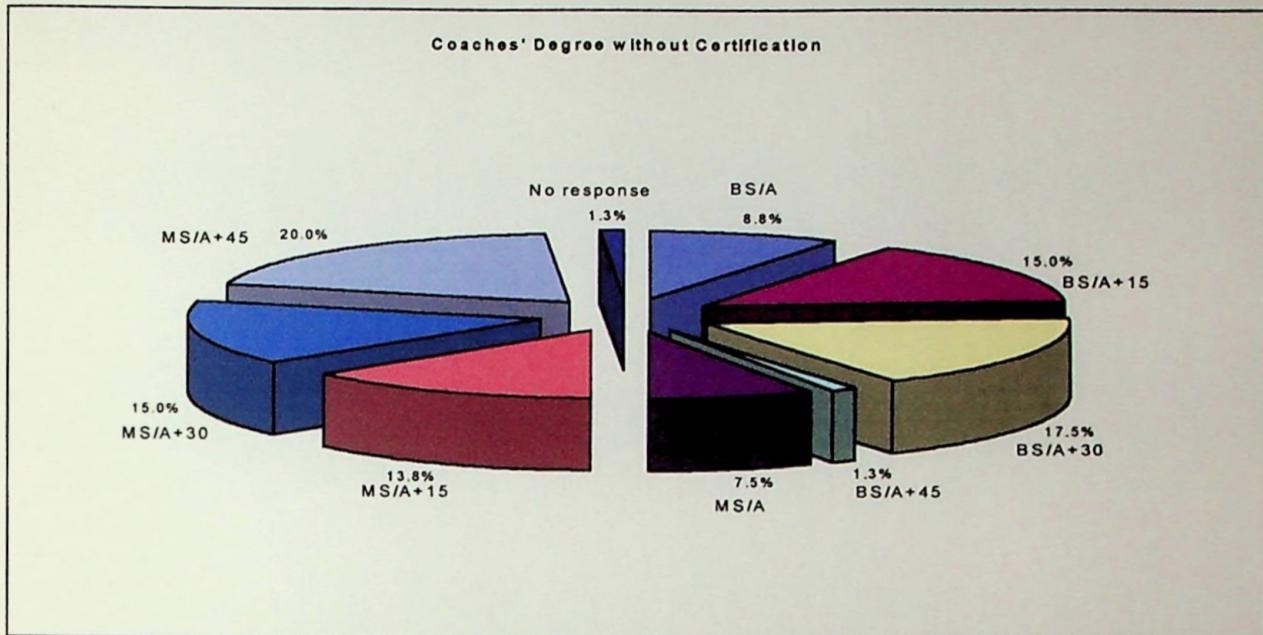


Chart 10

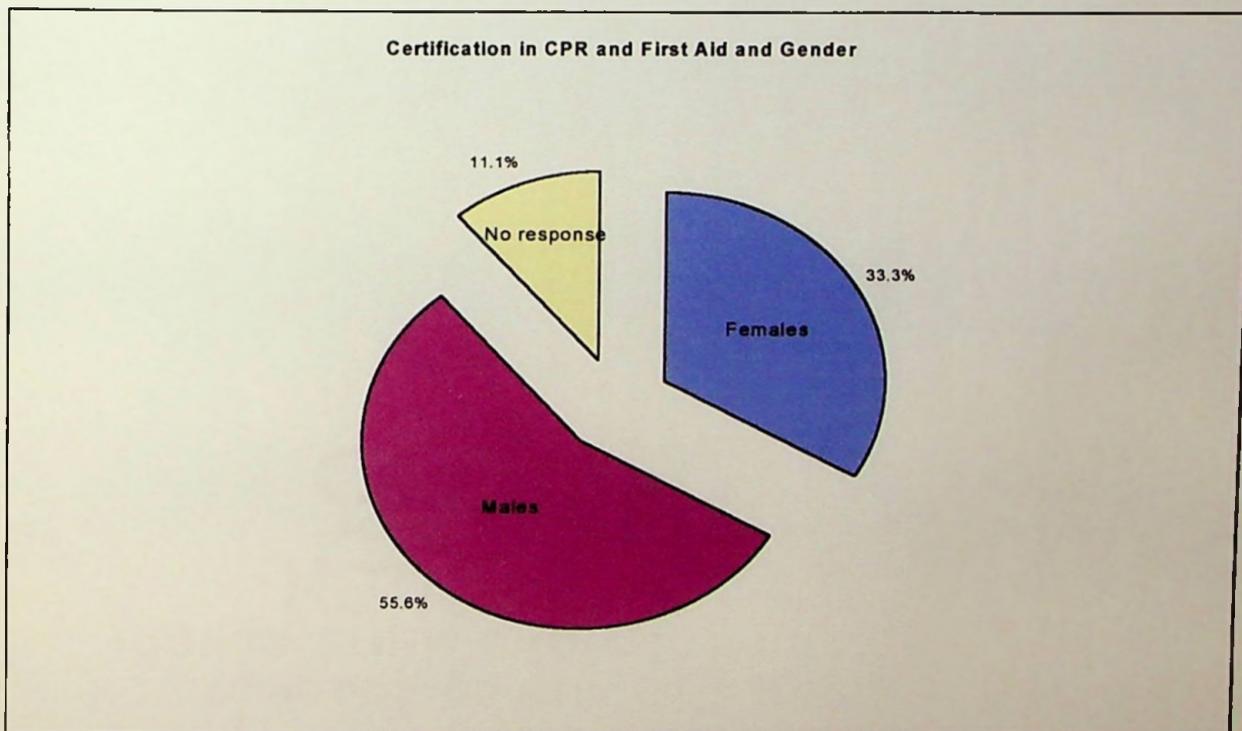


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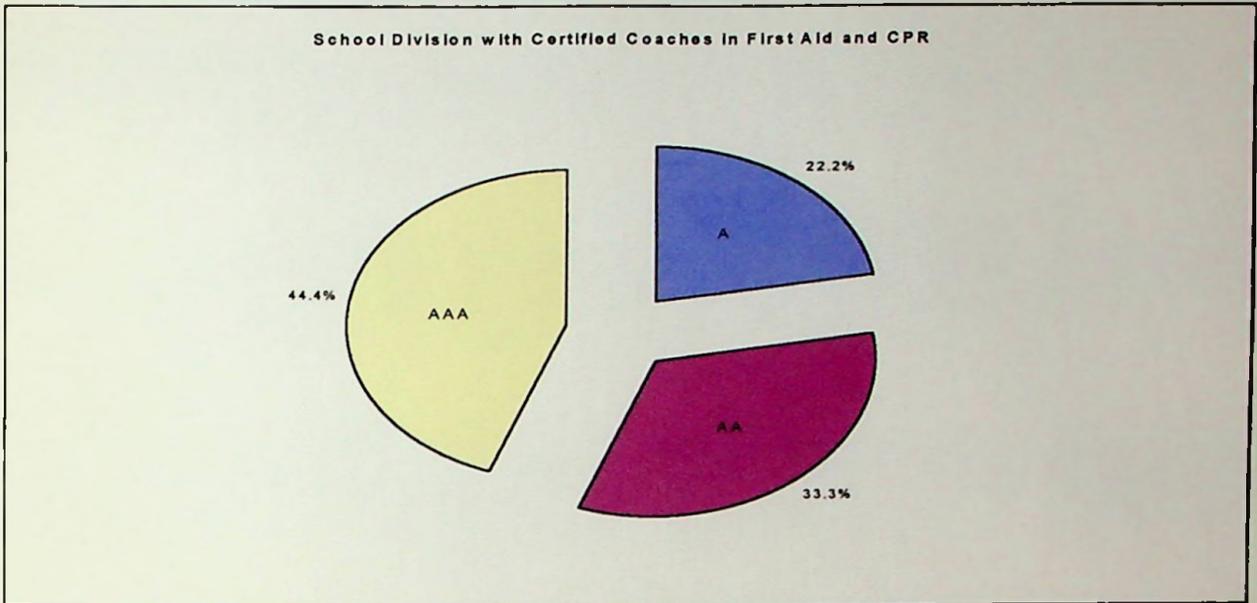


Chart 12

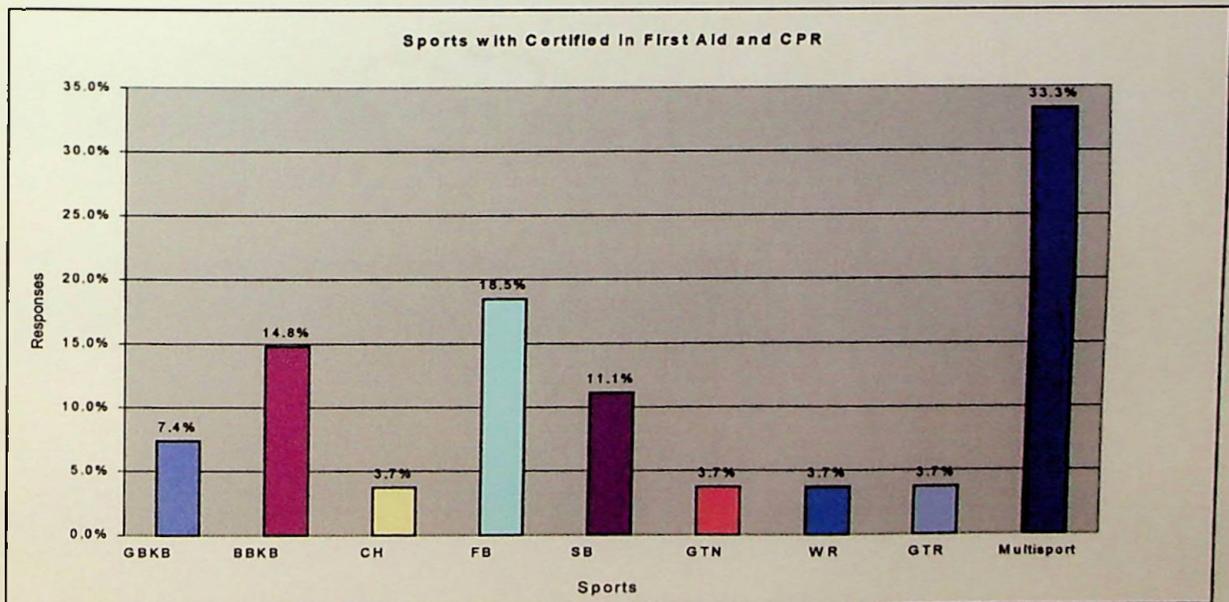


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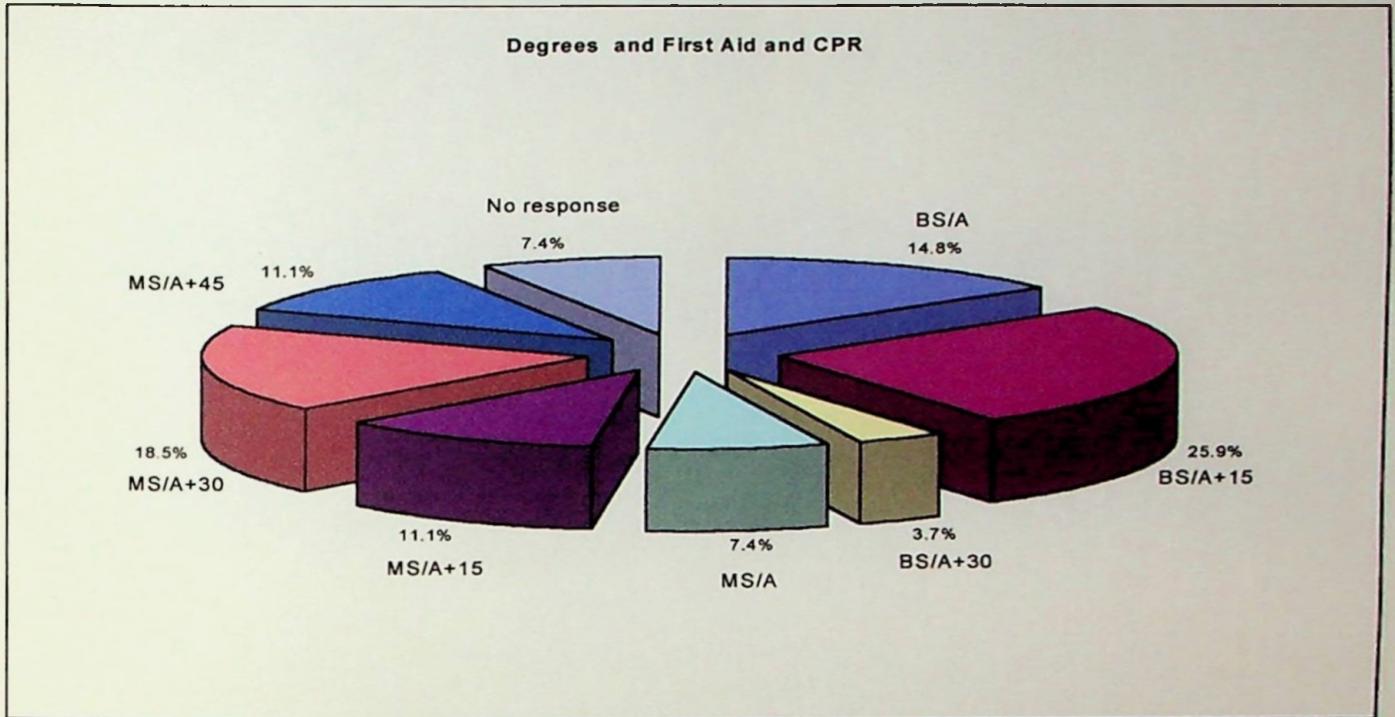


Chart 14

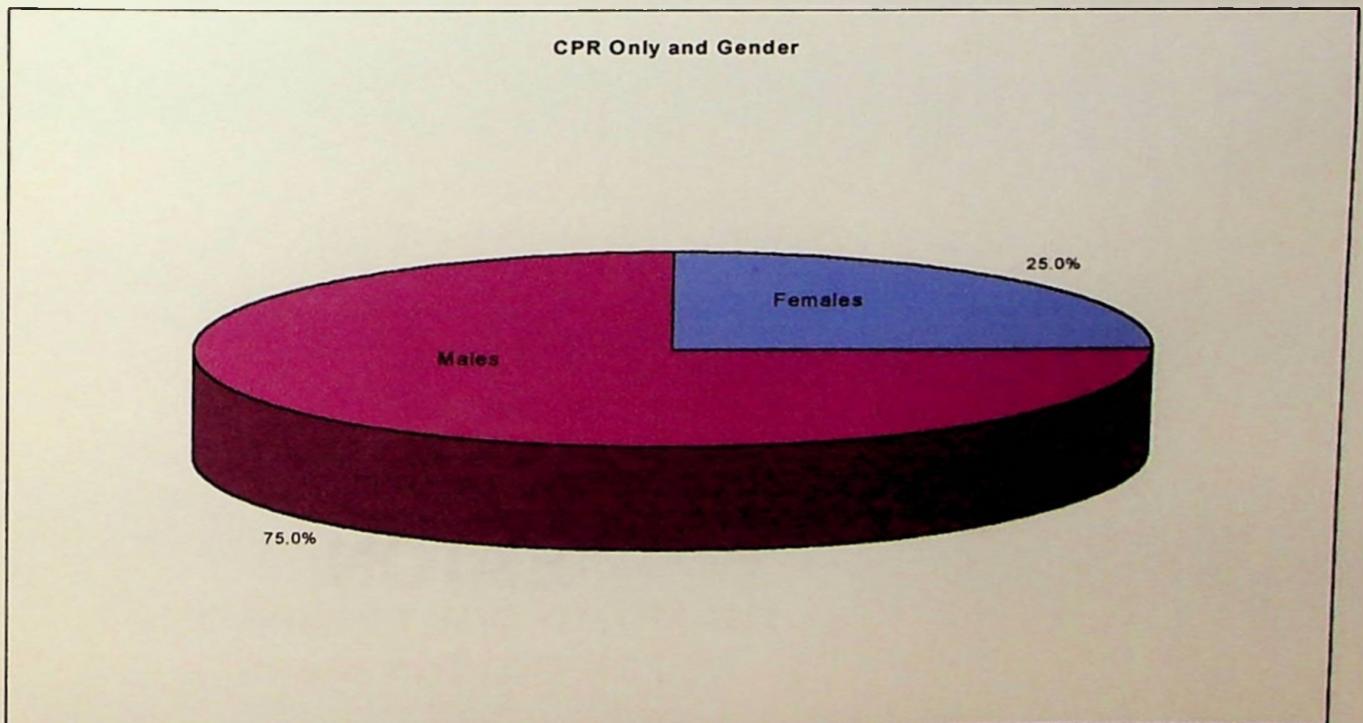


Chart 15

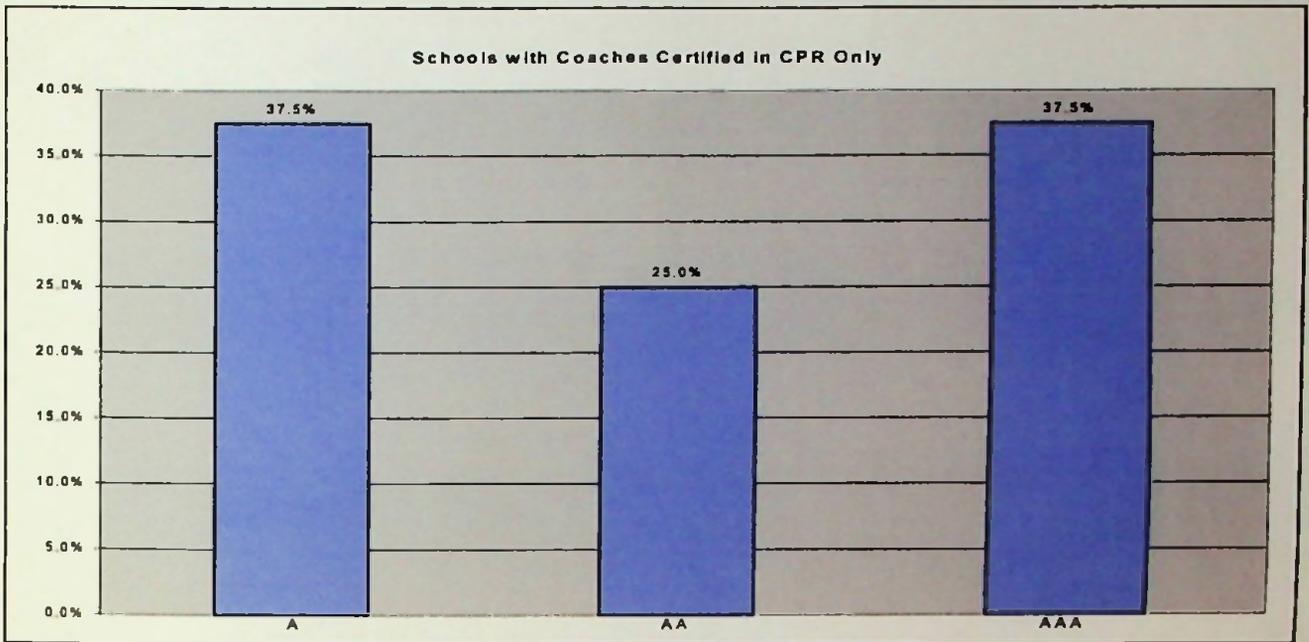


Chart 16

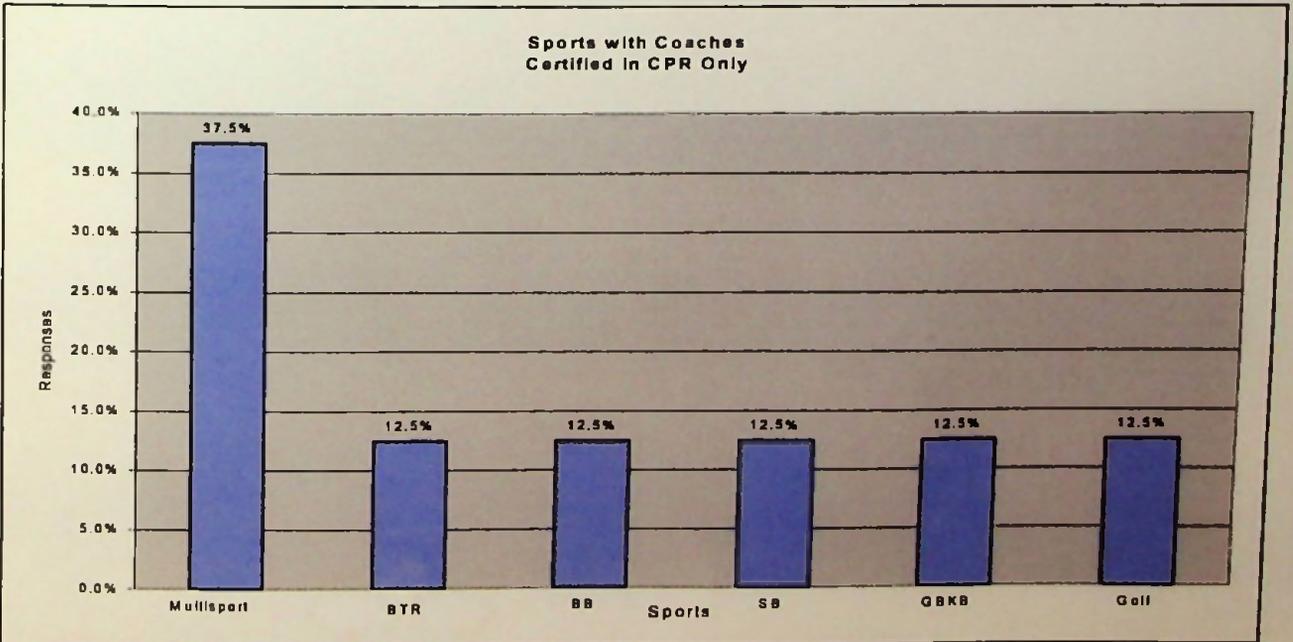


Chart 17

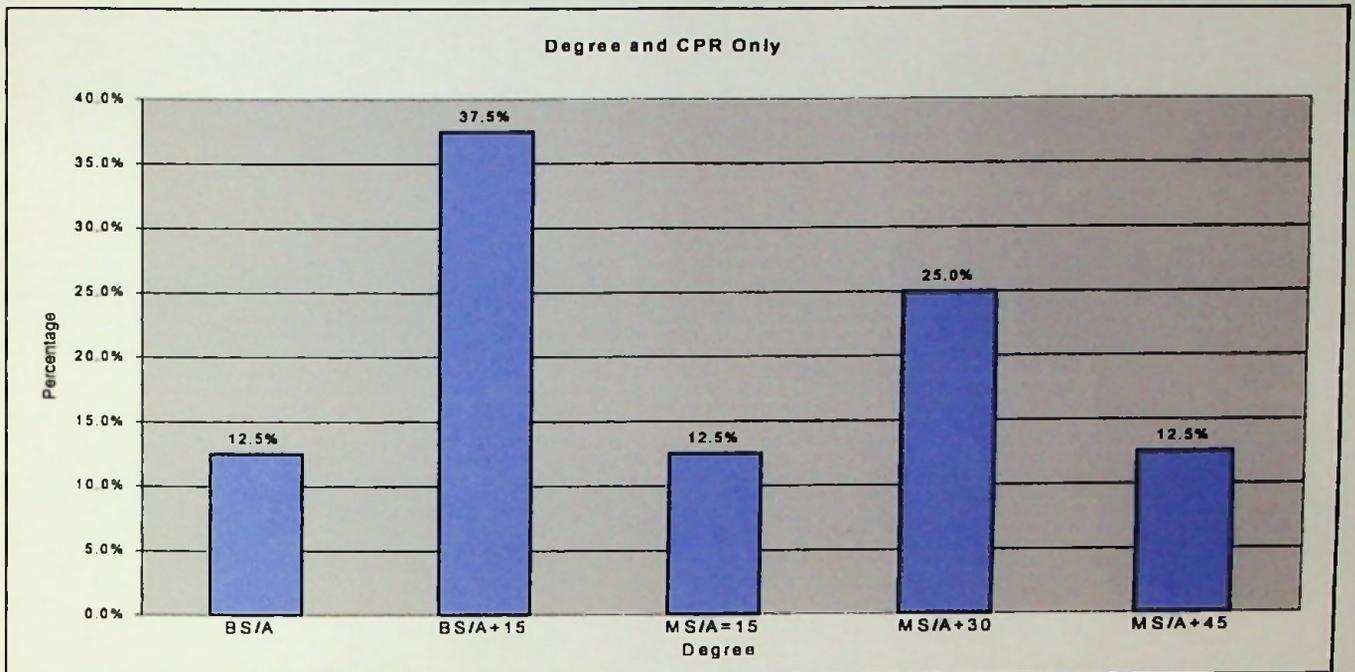


Chart 18

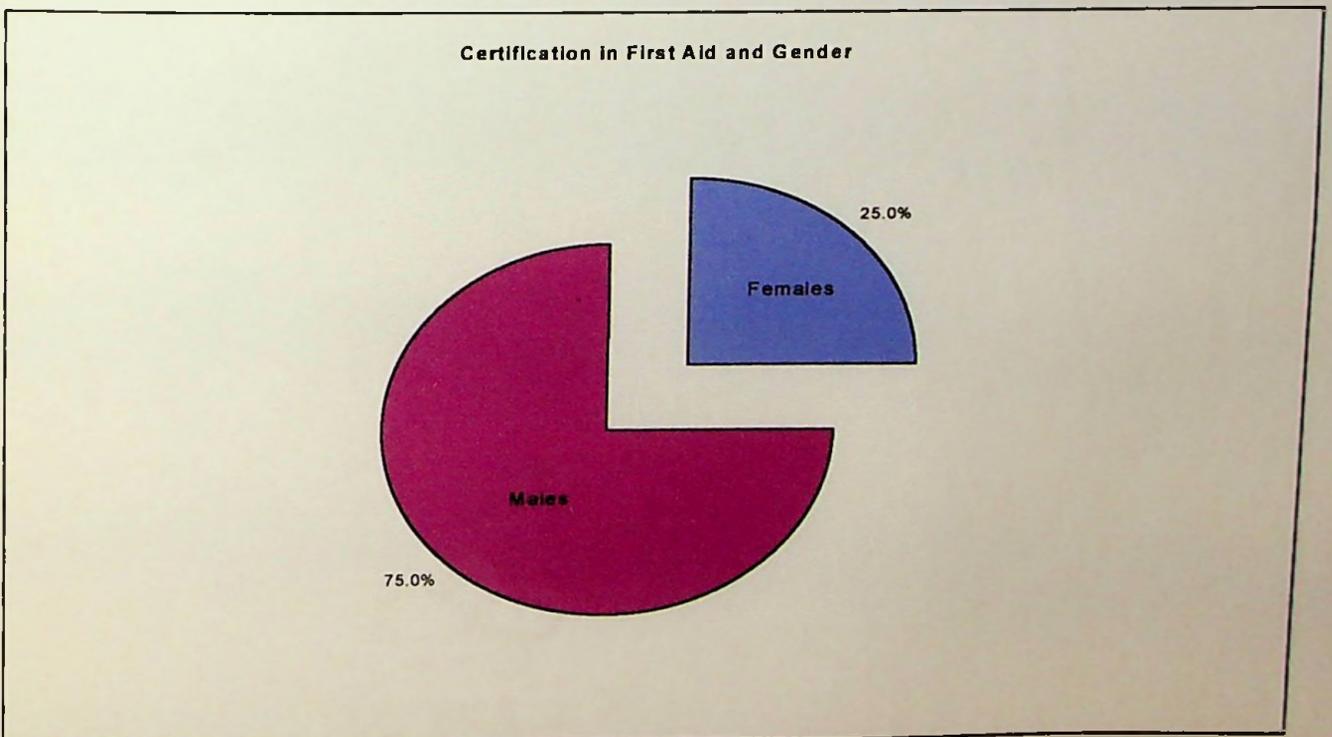


Chart 19

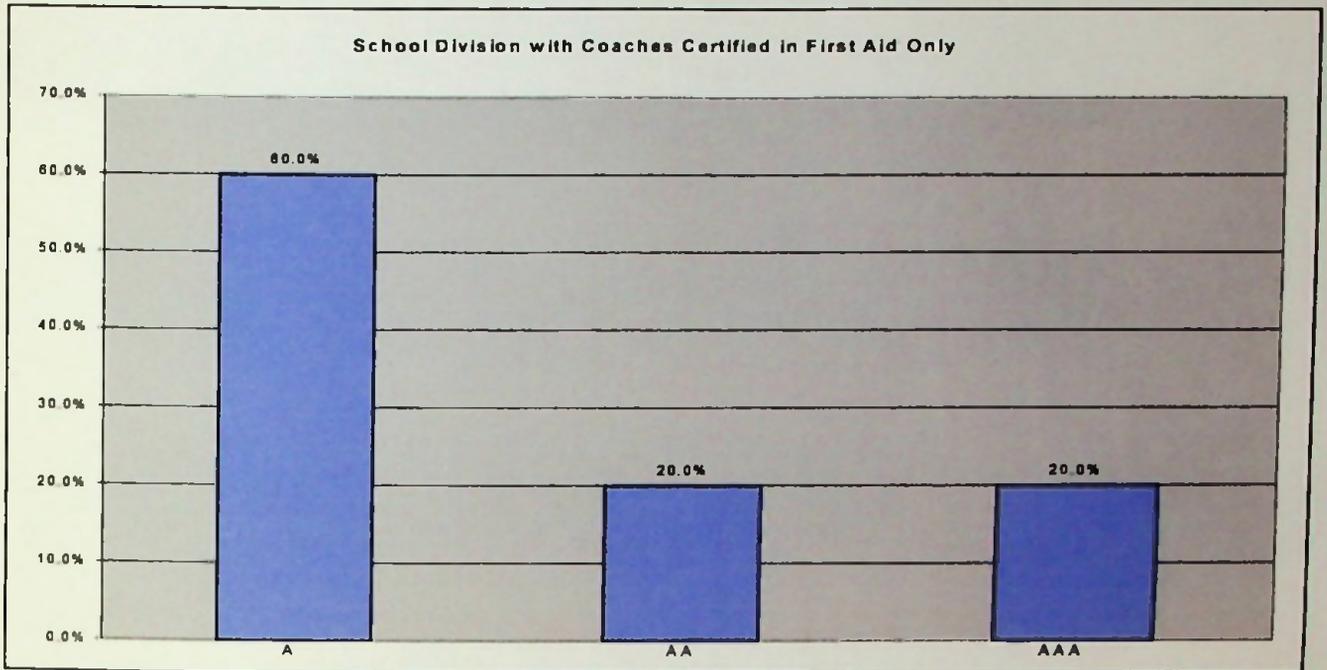


Chart 20

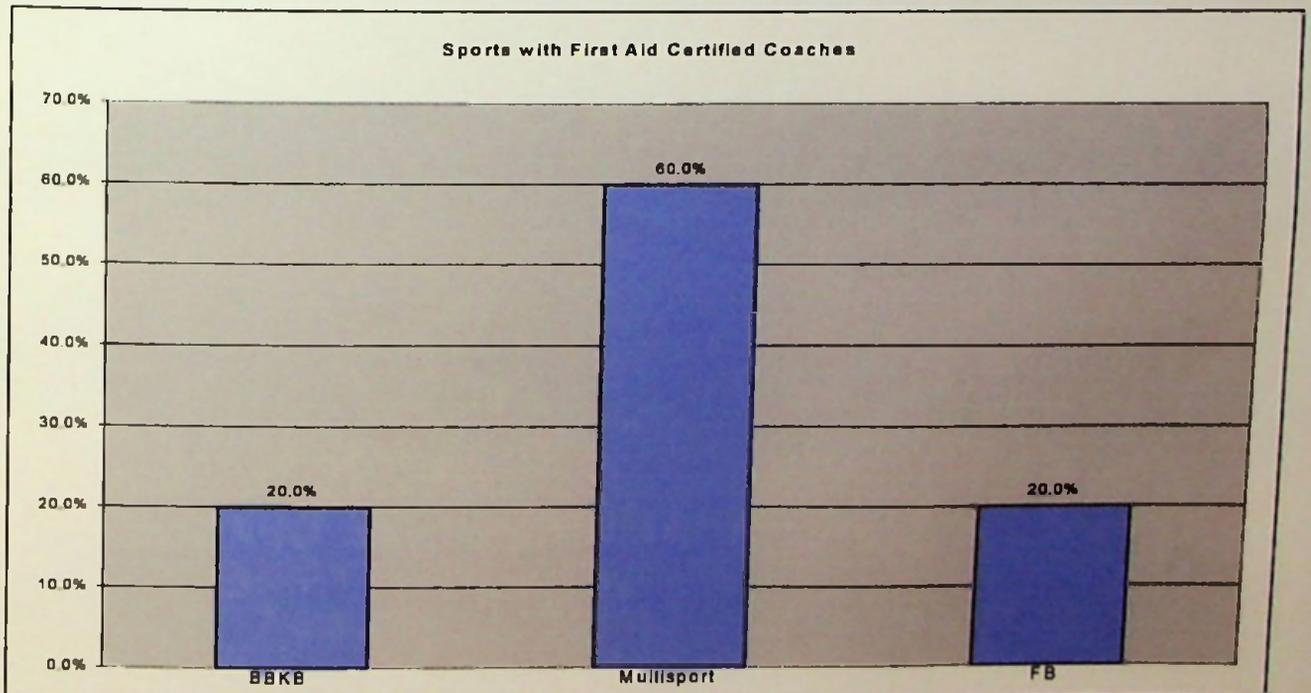


Chart 21

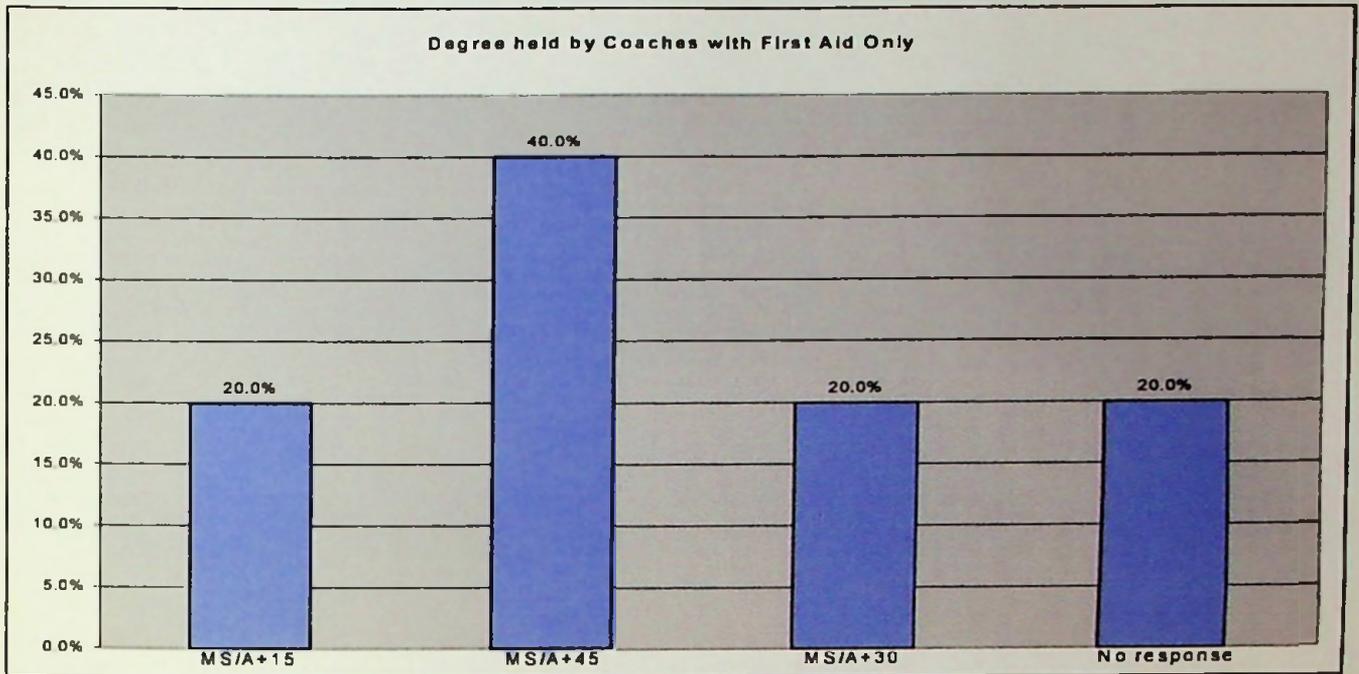


Table 1. Fall Sports

<i>Sport</i>	<i>Fatalities</i>	<i>Direct Injuries</i>
Cross Country	Direct-0 Indirect-10	Nonfatal-1 Serious-0
Football	Direct-61 Indirect-89	Nonfatal-147 Serious-166
Soccer	Direct-4 Indirect-16	Nonfatal-2 Serious-6

Table 2. Winter Sports

<i>Sports</i>	<i>Fatalities</i>	<i>Injuries</i>
Basketball	Direct-0 Indirect-54	Nonfatal-2 Serious-5
Gymnastic	Direct-1 Indirect-0	Nonfatal-7 Serious-4
Ice Hockey	Direct-2 Indirect-2	Nonfatal-4 Serious-5
Swimming	Direct-0 Indirect-4	Nonfatal-4 Serious-3
Wrestling	Direct-2 Indirect-13	Nonfatal-20 Serious-11

Table 3. Spring Sports

<i>Sport</i>	<i>Fatalities</i>	<i>Injuries</i>
Baseball	Direct-6 Indirect-7	Nonfatal-11 Serious-11
Lacrosse	Direct-1 Indirect-2	Nonfatal-0 Serious-0
Track and Field	Direct-16 Indirect-19	Nonfatal-10 Serious-13
Tennis	Direct-0 Indirect-1	Nonfatal-0 Serious-0

ABSTRACT

Coaches are typically the immediate caregivers to high school athletes. To date the state of West Virginia has no mandatory laws that coaches be first-aid and CPR certified before they are hired as a coach. The general purpose of this study is to assess current status of first-aid and CPR certifications held by high school head athletic coaches in the state of West Virginia. A packet will be sent to the 160 high schools in West Virginia. The principal will randomly choose five head coaches, at least two females and two males, to fill out the survey which are to be sent back to Marshall University. The principals are being asked to send the surveys back within two weeks. The survey will include the following questions: size of their school, their sex, their age, the sport they coach, the status of their position, total years of coaching experience, date of most recent first-aid certification and where they obtained it, date of their most recent CPR card and how it was obtained. The survey will also include one open ended question at the end asking if they have attended any sports medicine seminars and the date they did. The data will be computed to analyze the current status of the certification holding of head athletic coaches in West Virginia. The data will then be used to help assess the status of first-aid and CPR certifications in West Virginia and to provide some recommendations to the state to improve the emergency care of the athletes.