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Unintentional Death Rates in Selected Medical Districts among Males living in the United Arab Emirates

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To the Graduate Council:

I am submitting herewith a dissertation written by Amina Ahmed Sandal Ali entitled "Unintentional Death Rates in Selected Medical Districts among Males living in the United Arab Emirates." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Public Health.

Dr. Susan Smith, Major Professor

We have read this dissertation and recommend its acceptance:

Dr. June Gorski, Dr. Gregory Petty, Dr. Gene Hayes

Accepted for the Council:

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Vice Provost and Dean of the Graduate School

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To the Graduate Council:

I am submitting herewith a dissertation written by Amina Ahmed Ali Hashim Sandal entitled “Unintentional Death Rates in Selected Medical Districts Among Males Living in the United Arab Emirates.” I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Health and Human Sciences.

Susan Madison Smith, Major Professor

We have read this dissertation
and recommend its acceptance:

June Gorski

Gene Hayes

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**Unintentional Death Rates in Selected Medical Districts among Males Living in the United
Arab Emirates**

A Dissertation Presented for the Doctor of Philosophy Degree

The University of Tennessee, Knoxville

Amina Ahmed Ali Hashim Sandal

August 2010

DEDICATION

I dedicate this Doctoral dissertation to my wonderful family, especially...

To my husband, Mohamed, for his support and his recognition of the importance of hard work and higher education. Without his continued support I could not have completed this process. To my sons Saleh, Saif, Faisal, and Khalied for their encouragement and unending support. To my daughter Amna for her support, help, and assistance during all my years of study. To my daughters Mariam and Nada for their patience and understanding. To the memory of my parents, who passed on a love of hard work and respect for education, and especially to my father, who taught me that even the hardest task can be accomplished and nothing is impossible. To all my sisters and brothers for helping me to be what I am.

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ABSTRACT

The purpose of this research study is to determine if the rate of unintentional injury death in selected medical districts differs significantly among citizen and non-citizen males ages 20-65 living in the United Arab Emirates (UAE). A profile of unintentional injury deaths was generated by specific cause for the six medical districts of Ajman, Dubai, Fujairah, Ra's al-Khaimah, Sharjah and Umm al-Qaiwain managed for the UAE Ministry of Health for the years 2006-2008. During this time period the six medical districts reported a total of 14,101 deaths. Males were found to represent 73.9 per cent of the deaths reported by the six medical districts managed by the UAE Ministry of health for the years 2006-2008. Non –citizen males represented 74.8 per cent of the male fatalities reported by the six medical districts managed by the UAE Ministry of health for the years 2006-2008. Fatality rates for males ages 20-65 were generated and analyzed by citizen status and season of the year. This age group represented 6,141 deaths. In the two medical districts with the highest population (Dubai & Sharjah) unintentional injury deaths represented 77.1% of the total unintentional deaths reported by all the six medical districts managed by the UAE Ministry of Health for the years 2006-2008. A Chi-Square found the rate of fatalities among 20-65 years old male citizens and non-citizens in the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differed significantly by cause of unintentional injury death. The observed rate of death from accidental falls for non-citizen 20-65 males was found to be higher than expected for male citizens in the same age group. The observed unintentional injury death rate for males ages 20-65 caused by motor vehicle & traffic accidents and for accidental poisoning found the death rate for UAE citizens to be higher than the rate for non-citizens living in the UAE. The results of this study demonstrate the need for the reporting and analysis of unintentional deaths at the medical district level in the UAE by subgroups such as citizen status and age group.

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CHAPTER I

INTRODUCTION

More than five million people across the world die from unintentional injury every year (Bener, Hyder, and Schenk, 2007). This study reported one in every ten deaths to be caused by an injury (Bener et.al in 2007). Unintentional injury was also reported to rank as the third leading cause of morbidity worldwide among individuals between the ages of one and forty in 2008 (Patil, Kakade, Durgawale, & Kakade, 2008).

Motor vehicles were identified as a primary cause of deaths by unintentional injury for Mediterranean countries in 2002, making them the second highest leading cause of unintentional injury deaths in the world. The leading causes of death are in countries located in the African region (World Health Organization, Regional Office of the Eastern Mediterranean [WHO EMRO], Violence, Injury, and Disability). The most common cause of injury in Iran was also motor vehicle accidents. For example, in Iran, motor vehicle accidents were reported as the second leading cause of death by Montazeri in 2004. Road traffic accidents (RTAs) were recognized in 2005 as a growing public health problem in the Arabian Gulf countries in a report by Bener and Crundall (2005).

In 2009, unintentional injury was reported as the second leading cause of death in the United Arab Emirates (UAE). Unintentional injuries were reported as the cause of death for 27 deaths per 100,000 in the UAE (Barss, Addley, Grivna, Stanculescu, & Abu-Zidan, 2009). A 2006 report by the World Health Organization (WHO) ranked unintentional injury as the second leading cause of death in the UAE in 2005 (WHO Country Cooperation Strategy, 2006). The number of total deaths from unintentional injury in the UAE in 2005 was 1,151 deaths, with road traffic accidents found to be the main cause. Road traffic accidents were identified as the cause

of 708 deaths, representing 61.5% of all unintentional injury deaths. Of reported road traffic deaths, 88.5% were males and only 14.6% females (Ministry of Health, Preventive Medicine Annual Report, 2007).

As the standard of living for most residents in the UAE has improved over the past twenty years, a rapid growth in roads and traffic has also occurred. This growth in roads and traffic has been accompanied by an increase in the reported rate of motor vehicle deaths in the UAE (Bener & Crundall, 2005). The UAE was reported in 2005 to experience a higher rate of road accident-related deaths than either the United States or the United Kingdom (Bener & Crundall, 2005).

The growing economy in the UAE has also resulted in the rapid growth of the construction industry. A large number of buildings and roads have been constructed in a very short period of time (Al-Kaabi & Hadipriono, 2003). According to the UAE's Ministry of Labor and Social Affairs, construction workers comprised the largest work force in the UAE as of 2000 (Al-Kaabi & Hadipriono, 2003). The UAE labor force in 1998 was 1.3 million workers, and construction companies employed 19% of this labor force. As a consequence of this rapid increase in construction projects, many serious work place injuries and accidents occurred. In 2007, injury was reported to be the leading cause of death, responsible for 23% of total deaths in Abu-Dhabi, which is the largest Emirate in the UAE (Barss, Addley, et al. 2009). The most common construction accidents reported by a study published in 2003 were: Falls from same elevation, falls from heights, struck by equipment/objects, electrocution, caught by equipment/material, drowning, and fire related accidents (Al-Kaabi & Hadipriono, 2003). Accordingly, construction work is considered to be one of the most dangerous jobs in the UAE. A study conducted by the UAE Ministry of Labor and Social Affairs in 2000-2001 revealed that construction accidents represent 39.7% of all work accidents (Al-Kaabi & Hadipriono, 2003). In

the UAE, most workers are non-citizens. These non-citizen workers come to the UAE from Asian countries such as India, Pakistan, Bangladesh, and Sri Lanka. The majority of these non-citizen workers perform construction work and other manual labor jobs that are usually rejected by UAE citizens, who prefer to work in better-paid positions (Al-Kaabi & Hadipriono, 2003). These non-citizen workers are from different cultures. Many non-citizen workers are not well trained, and do not speak the local language. These unique characteristics of non-citizen workers in the construction industry have been reported to contribute to an increase in the frequency of injury or death (Al-Kaabi & Hadipriono, 2003). An additional injury risk factor reported by the UAE Ministry of Labor for construction workers in the UAE is exposure to extreme heat in the summer season, because of a rise in reported heat-related illnesses and injury among workers at construction sites. The UAE Ministry of Labor in 2005 directed construction companies to give their workers a break from 12:30 p.m. to 4:30 p.m. during the months of July and August. This rule was made because of increases in injury and death during the summer months when temperatures often reach 110 degrees Fahrenheit. In July 2006, after intense lobbying by construction companies, the government changed this regulation and reduced the mandatory afternoon break to the period between 12:30 p.m. to 3 p.m. This revised rule is still in place (Ministry of Labor, 2009).

Significance and Need for this Study

Unintentional injury has been reported as a major public health challenge for the UAE and as the second leading cause of death in 2005 (Ministry of Health, Preventive Medicine Annual Report, 2007). The researcher has found no published journal research focused on the rate of death by cause among male citizens or non-citizens within the UAE. Published government documents have reported only the frequency of death and have not analyzed the

rates of death among male citizens and non-citizens separately by cause. A literature review focused in the UAE as a whole revealed no published journal or government documents reporting the rate of unintentional injury deaths by season of the year for the total population or any sub-groups categorized by citizen status, gender, or age groups. Available published studies addressing the frequency or rate of death for citizens and non-citizens analyzed by cause were limited to three studies, by Abdalla (2002), Dawson, Harron, McGrath, Amirlak, Yassin, (1997), and Lunjsjo, Shaban, Ashour, Bashir, & Abu-Zidan (2004). These studies focused on the population centers of Dubai, Al-Ain, or Abu-Dhabi. A majority of these studies focused only on Al-Ain city and used reported data collected from hospital trauma registers. The health services in Al-Ain are managed by the Abu-Dhabi Health Authority. The Abu-Dhabi Health Authority was not included in this study because it collects data using a more detailed form incompatible with the form used by the other medical districts in the UAE. Therefore, this research study is limited to the six medical districts directly managed by the UAE Ministry of Health and does not include the three additional medical districts managed by Abu-Dhabi Health Authority.

Published government documents for the six medical districts under study were found to report only frequencies of death (Ministry of Health, Preventive Medicine Annual Report, 2006). One published research study was found focused only on the Emirate of Dubai and addressed unintentional injury (Abdalla, 2002).

The need for new research to provide further knowledge of the rates of death by manner at the medical district level in the UAE has been mentioned in several published studies. New research, if available, can serve as a resource for public health professionals as they plan and implement targeted prevention programs to reduce premature deaths by unintentional injury (Yavus, Yürümez, Kücükler, Fidan, Korkmaz, 2007).

The results from this research project will increase the access of public health professionals to an analysis of baseline data focused on the rate of unintentional injury deaths by district and for specific vulnerable sub-groups. Access to death data by rate for targeted high-risk sub-groups can also encourage public health professionals to improve and maintain fatality surveillance data collection and management systems. These updated systems can be used to initiate future prevention programs.

Purpose of the Study

The purpose of this research study was to determine if the rate of death by manner and cause of unintentional injury differs significantly for males ages 20-65 in the six medical districts managed by the UAE Ministry of Health. These results of this study can reveal critical areas of need for injury prevention programs for males identified by citizen status.

The objectives of this study were:

1. To establish an electronic research death database with monthly data provided by each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008. This database included deaths reported by frequency from each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008.
2. To create a descriptive profile using the frequency of reported deaths for the six medical districts managed by the UAE Ministry of Health categorized:
 - a. By citizen status, gender, and age group.
 - a. By manner of death (Natural and Non-natural).
 - b. By the causes of unintentional injury deaths.
3. To analyze reported fatality data by rate for manner and cause of unintentional injury among males ages 20-65 reported as fatalities from each of the six medical districts

managed by the UAE Ministry of Health for the years 2006-2008. This was necessary because using rate allowed the researcher to compare reported deaths in two or more groups more accurately even when reported numbers of deaths in each group varied substantially. Data analysis will be used to address the following research questions:

Research Question 1

1 - Does the rate of death for males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

- a) for all males ages 20-65 by manner (Natural, Non-natural)?
- b) for all males ages 20-65 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?
- c) for citizen males ages 20-60 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?
- d) for non-citizen males ages 20-60 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

Research Question 2

2 - Does the rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) within each season of the year (spring, summer, fall and winter) by manner (Natural, Non-natural)?

b) by specific Unintentional Injury Cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

c) within each season of the year (spring, summer, fall, and winter) by specific Unintentional Injury Cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

Research Question 3

3 - Does the rate of death among citizen and non-citizen males in the age group of 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) by manner (Natural, Non-natural)?

b) within each season of the year (spring, summer, Fall, and winter) by manner (Natural, Non-natural)?

c) by specific Cause of Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicles & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

d) within each of the four seasons (spring, summer, Fall, and winter) by specific Cause of Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicles & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

Assumption

In this research study it is assumed that the secondary data provided by each of the medical districts and analyzed in this research study accurately and reliably represented the deaths reported in the six medical districts managed by the UAE Ministry of Health for the years 2006-2008.

Limitations

This research study focused on the of unintentional injury deaths of males ages 20-65 reported by the six medical districts managed by the UAE Ministry of Health. This study is limited by the following factors:

1. The amount of information analyzed by the researcher was limited by the type and specific category of descriptive data recorded and provided to the researcher by the participating six UAE medical districts.
2. The large number of reported deaths in the six medical districts in the years 2006-2008 were provided to the researcher without a specific cause of death identified (3,014 deaths, 21.4%) limits the analysis of reported deaths by cause to only 79.6% of all reported deaths.

3. The ability to generalize these research results is limited to males ages 20-65 from the six medical districts directly managed by the UAE Ministry of Health. Results of this study cannot be generalized to address the rate of unintentional injury deaths in any of the three additional UAE medical districts managed by Abu-Dhabi Health Authority, which was not included in this study because these districts differ from the six medical districts in this study both in terms of the forms used to collect fatality data and the programs in place to prevent unintentional injury.

Delimitations

This research study includes the following delimitations:

1. This study was restricted to reported fatality data from geographic areas managed by the six medical districts managed by the UAE Ministry of Health.
2. The time period for the reported deaths was delimited to the years 2006-2008.

Definition of Terms

Accident. An Accident is any event that interrupts the normal work process. It may be caused by human, situational, or environmental factors or by any combination thereof. It results in personal injury, death, property damage, and other undesired events (Al-Kaabi & Hadipriono, 2003). This term is used interchangeably with the term “unintentional injury” by authors in many published studies.

Cause of Death. The cause of death refers to the disease or injury that directly led to the death, or the direct circumstances resulting in a fatality.

Motor Vehicle & Traffic Accidents. A cause of death code indicating fatality of a driver, passenger, pedestrian, or bicyclist whose injury or death was caused by car, truck,

or other motorized mean of road transportation (WHO *International Statistical Classification of Diseases and Related Health Problems*, 10th Revision, Version, 2007).

This is a specific categorical name assigned by each of the UAE medical district when recording a death.

Accidents & Adverse Effects. A cause of death code applied to cases including but not limited to deaths from abnormal reaction and complications of medical care and adverse effects from the therapeutic use of drugs (WHO, ICD 10 version, 2007). This is a specific categorical name assigned by each of the UAE medical district when recording a death.

Accidental Poisoning. A cause of death code indicating accidental poisoning by drug, medication, biological substance, gases, or vapors (WHO ICD-10 Version, 2007). This is a specific categorical name assigned by each of the UAE medical district when recording a death.

Accidental Falls. A cause of death code indicating death or injury from Falls associated with steps/stairs, ladders, scaffolds, one level to another, chair or bed, other and unspecified Falls, Falls from high places, jumping from high places (suicide or self-injurious) (WHO ICD-10 Version, 2007). This is a specific categorical name assigned by each of the UAE medical district when recording a death.

Misadventures during Medical Care. A cause of death code indicating mistakes involving patient care or treatment of patients during surgical and medical care (WHO ICD-10 Version, 2007). This is a specific categorical name assigned by each of the UAE medical district when recording a death.

Other Causes. A cause of death code applied by the researcher in this study to deaths originally categorized as caused by one of the following: Misadventure during Medical

Care, Accidents Due to Fire and Flames, Effects of Foreign Body Entering Orifice, Poisoning and Toxic Effects, Not Specified, Drowning, Burns and Other Causes of Accidental Death.

Citizen status. May be Citizen or Non-citizen.

Citizens. Nationals are UAE citizens (Coughlin, Mayers & Wooldridge, 2009).

Non-citizens. This term refers to expatriates who reside in the UAE and work as temporary residents.

Death Rate. The death rate used in this study represents the number of deaths per 10,000 males ages 20-65 living in a specific medical district in 2005.

Expatriates. People who have taken up or intend to take up residence in a foreign country for a period of six months or longer without changing their citizenship from the country of origin (Jones, 2000).

Immigrants. Some studies refer to immigrants as non-nationals and ethnic minority groups that include substantial numbers of individuals who were foreign born (Ahonen, Benavides & Benach, 2007).

Manner

Death in a Natural Manner. This category includes deaths originally categorized as death resulting from one of the following causes: chronic or communicable disease, congenital anomalies, or other illnesses or causes.

Death in a Non-natural Manner. This category includes all deaths originally categorized as resulting from one of the following causes: homicide, suicide, or unintentional injury.

Medical District managed by the UAE Ministry of Health. Administrative department affiliated by the Ministry of Health in the UAE and are responsible for the delivery of health care services, preventive services, and statistical and services for a specific geographical area.

MENA Region. A term referring to the entire Middle Eastern and North African Region.

Seasons

spring season includes the following months: March, April, and May.

summer season includes the following months: June, July, and August.

fall season includes the following months: September, October, and November.

winter season includes the following months: December, January, and February.

Test of significance. A procedure used to establish the validity of a claim by determining whether or not the test statistic falls in the critical region. If it does, the results are referred to as significant (Kuzma, 1998, p.124)

Unintentional Injury. This is a broad category including many injuries that were unplanned or not intended to happen, such as motor vehicle crashes, fires, and drowning (Maine Center for Disease Control and Prevention, Injury Prevention Program, Department of Health and Human Services). In this study the category of unintentional injury included specifically: Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes.

Chapter Summary

Chapter I provides background information about the magnitude of the problem of deaths caused by unintentional injury. This chapter discusses the significance and need for research addressing the causes of unintentional injury deaths, in the United Arab Emirates (UAE). A description of the purpose of this study, the research questions to be addressed, and limitations were provided. Chapter II focuses on the review of literature related to causes of unintentional injury deaths by citizen status, worldwide, in the Middle Eastern Countries and the United Arab Emirates.

CHAPTER II

REVIEW OF LITERATURE

INTRODUCTION

As a worldwide health problem, injuries are considered by many researchers to be “a global epidemic.” A study by Patil, Kakade, Durgawale, and Kakade (2008) estimated that 16,000 people die daily from an injury. Borse and Hyder in 2008 reported injuries to be the third leading cause of death for all age groups and the major cause of death for individuals in the age group of 1-40 years. This study reported that injuries account for more than 5 million deaths each year worldwide, with 90% of these deaths occurring in the low and middle income countries in the world (Patil et al, 2008). A study in 2007 by Bener, Hyder, and Schenk reported one in every ten deaths to be caused by an injury.

Leading Causes of Death Worldwide

Road Traffic Accidents

A study by Patil et al., 2008, found that one of the most common causes of injuries worldwide is road traffic injuries. The World Health organization estimated that deaths from road traffic injuries accounted for 25% of all deaths from injury (WHO EMRO, *Violence, Injury and Disability*). Every year an estimated 1.2 million people die in road traffic accidents and approximately 20 to 50 million are injured or disabled. Injuries due to road traffic accidents are also predicted to “be the third leading contributor to the global burden of disease” (Peden, 2005, p. 85). Eighty-five percent of all deaths and 90% of disabling injuries have occurred in the middle- and low-income countries of the world. According to Razzak and Luby (1998), road

traffic accidents are the primary cause of death and economic loss in developing countries. Road traffic accidents are the third most cause of mortality among males of the working age and particularly devastating in developing countries (Razzak & Luby, 1998). Previous research has reported the following risk factors have contributed to the high rate of injury and deaths from traffic accidents in developing countries: the habit of driving at a high rate of speed, and the lack of adherence to traffic regulations. A study by Worley found pedestrians, cyclists, and motorcyclists to be the individuals at highest risk when travelling by road in low-income countries (Worley, 2006). For example, in the United Arab Emirates road accidents were reported to be the ninth leading cause of premature death among adult males (Ministry of Health Annual Report, 2007).

Pedestrian Death

A study in 2003 by Koushki & Ali reported that the percentage of traffic deaths identified as pedestrian were much higher in non-industrialized countries than in industrialized countries such as Switzerland, in which pedestrians represent only 16.9% of the total deaths (Koushki & Ali, 2003). For example, this study reported 42% of traffic death in India to be pedestrians. This trend was also found in the developing countries of Bangladesh (60%), Thailand (47%), Libya (66%), Saudi Arabia (46%), and Kuwait (57%) (Koushki & Ali, 2003).

Koushki & Ali's 2003 study reported that the high percentage of pedestrian deaths in many non-industrialized countries have been ignored by policy makers. The study also stated that aggressive driving behaviors with no acknowledgment of the rights of pedestrians also contributed to a very high percentage of traffic deaths being pedestrian (Koushki & Ali, 2003). The same study also reported that most of these pedestrian deaths occur among either the young or the elderly.

Drowning

Drowning is also a major global public health problem. A report by Naci and Baker (2008) cited drowning as the second leading cause of unintentional injury death worldwide. It is estimated that, annually, 450,000 lives are lost globally. Males die from drowning more often than females. The global male to female ratio in 2000 was 2.2: 1 (WHO, *Facts about Injuries: Drowning*). This study stated the mortality rates from drowning in this region of Europe increased for individuals in the group of 15-45 (Naci & Baker, 2008). A study by Barss, Subait Ali & Grivna published in 2009 reported that World Health Organization estimated 97% of accidental drowning took place in low- and middle-income countries.

Falls

A study by Mack published in 2004 stated injury death rate from falls for males to be higher than females in every age group. While traffic accidents are reported as the leading cause of death for women between the ages of 17-24, falls have been cited as the leading cause of unintentional injury death for women age 75 and older (Mack, 2004).

Heat waves

A study by Michelozzi, et al. (2005) found that heat waves during summer 2003 had impacted the mortality on the population of four-Italian cities. The study stated that the observed high mortality among the population was due to the effect of heat waves, which can worsen the population health by increasing fatigue. This fatigue can result in a higher rate of injury and increase in the number of accidents.

Worker Fatalities and Injuries Caused by Accidents Worldwide

In a report by Takala in 2002 it was estimated that approximately 2 million men and women die from “occupational accidents and work-related disease each year” (Takala, 2002).

The Introductory Report about Decent Work-Safe Work by Takala at the XV World Congress on Safety and Health Work reported a difference in the characteristics of the “labor intensive” work environments in low-income and high-income countries. In low-income countries, the climate temperature and climate conditions are “more demanding” for workers than in comparable high-income countries. In addition, in the low-income countries that are most “labor intensive,” the level of knowledge, awareness, and accidents prevention practices about worker safety are lower. This report also stated that the use of less advanced machines and equipment allows workers to be directly exposed to hazards in low-income countries compared to high-income countries (Takala, 2002). The same report also indentified out that in some industries such as the ones in high-income countries the number of accidents death were declining due to the ongoing changes in the industry from heavy industry to services. These changes created exposure to less working hazards and less people working in jobs classified as hazardous. In less developed countries, agriculture, logging and mining are still major industries that report high levels of accidental deaths. It has been reported by the Safe-work program of the International Labor Office in 2002 that processes of industrialization (such as creating road infrastructure, telecommunication, and factory construction) exposed workers to a greater risk of injuries. Increased the employment of untrained workers in totally new jobs and expansion of road traffic accelerates the rate of accidents related fatalities and injuries. In the United States a study of petroleum workers found jobs such as floor-men, roustabout and derrick-men jobs accounted for 64% of fatal injuries for

all international petroleum drilling workers from 1988-1990 (McNabb, Ratard, Horan & Farley, 1994).

A report in 2002 by Takala found that most of the dangerous global jobs are “occupied” by men and men represent 80% of the reported accidental occupational deaths. A study published in 2000 by Herbert & Landrigan reported that work-related diseases and injuries kill 1.1 million people in the world annually. This number of deaths exceeded the number of deaths caused by road traffic accidents and war across the world. In the United States it was estimated in 1992 that 65,000 worker died from work-related injuries (Herbert& Landrigan, 2000). Herbert& Landrigan’s study published in 2000, compared the United States (US) occupational death rates with the more labor intensive work environment in Latin America and the Caribbean countries and reported that the occupational death rates in US was 5.5 per 100,000 people and the death rates in Latin America and the Caribbean countries was 13.5 per 100,000 people. The same report stated that in the Republic of Korea the occupation death rate was 34 per 100,000 workers. With this death rate from occupation deaths, Korea has the highest work related death rates in the world (Herbert & Landrigan, 2000). Herbert and Landrigan also found “motor vehicle accidents, machinery-related events, homicides, falls and electrocution” to be the primary causes of occupational death (p. 541).

Construction Injuries

Construction work is considered one of the most hazardous jobs globally. Improving safety in the construction industry is a critical issue. Safety in the construction industry is a global concern because of high rates of workers injury and death (Hinze, 1999).

Construction Fatalities from falls

Studies by (Helander, 1991) and (Suruda, Fosbroke, & Braddee, 1995) found that the most accidents in the construction industries are rated to falls. The most common type of fall was reported to occur during roof work. Helander (1991) also found falling from scaffold, ladders, collapsed structures and falling materials are also common causes of falls in the construction industry. It was reported that the cost of construction accidents could be estimated as 6% of the total cost of the building (Helander, 1991).

A study by Ore & Stout published in 1998 compared the risk of occupational injuries of the construction industries in both the United States and Australia. They found that the number of deaths ranged from 4,158 deaths caused by occupational injuries in the construction industry in the USA to 246 in Australia. The same study also reported that the most common injuries among workers in these two countries, U.S and Australia, in the construction industry were from falls, motor vehicle accidents, electrocutions and machinery accidents. Deaths from construction injuries between 1988 and 1991 in the USA accounted for 69% of the total occupational deaths. In Australia, construction injuries accounted for 71% of total occupational deaths in a 1998 study (Ore & Stout, 1998). A study by Fen-Chi, Chang & I'Ting published in 2005 found that the most contributing factors to the occupational death from falls were individual factors such as, age, the gender of the worker, the worker experience and whether they use the personal protective equipment. The other factors that contributed to the falls were the characteristics of the construction site, the size of the construction company and the difference in the unsafe conditions that caused construction falls (Fen-Chi, Chang, & I'Ting, 2005).

Worker Fatalities from Burns

A 1987 study by Wayne and Teel reported that mortality from burns was still an occupational health problem among US workers. This report noted that the number of deaths caused by burns had not improved since 1955. The study also found that Hispanic men who were roofing workers had the highest number of reported deaths from burns (Wayne and Teel, 1987). Wayne and Teel (1987) also found that the most common causes of burn fatalities were grease scalding, tar burns, electric burns, and direct flames.

Injuries among Citizens versus Non-citizens

Foreign-born workers face unique injury and safety issues in their host countries.

Jones's 2000 article reported that non-nationals globally are considered to be at high risk from accidents. He also stated that road traffic accidents were found to be the most common cause of repatriation among German workers. In addition, Jones found that non-nationals usually experience cultural shock and anxiety because of differences between their homes and their host country. Non-nationals have to operate within a different and unknown cultural or social environment characterized by different politics, attitudes, and values, often in addition to a foreign language and a different climate. These differences can lead to psychological problems, especially among workers, that may result in "chronic fatigue syndrome" and mental illnesses. These health problems can increase the workers' susceptibility to injuries and occupational death (Jones, 2000).

Carballo and Mboup, in their 2005 paper "International migration and health," reported that many factors can influence the health of non-nationals when they immigrate to another country. These factors can include the individual's cultural background, the type of work they

perform in the host country, the physical condition of housing in the host country, degree of access to health care, and degree or lack of access to their families. Also, many non-nationals are assigned to lower-skilled jobs and lower positions than nationals. The types of jobs that non-nationals are recruited to work in include mining, construction, heavy manufacturing and agriculture. Many of these jobs are considered hazardous and may put non-nationals at high risk of injury or disease. Carballo also reported occupational accidents to be almost two times higher among non-national workers in Europe than among national workers. Belgian, Moroccan, and Turkish workers who work in heavy industries have reported a higher rate of industrial accidents in their host countries than nationals (Carballo & Mboup, 2005).

Studies by Khlal and Courbage (1996) and Loh and Richardson (2004) indicated that fatal occupational injuries among foreign-born workers in their host countries were more common than fatal injuries among national workers who were born and worked in their own country. Loh and Richardson (2004) reported that immigrants who came to the United States during the period 1990-2001 “accounted for 50.3% of the growth in the Nation’s civilian labor force” (p.42). One of every two laborers in the U.S reported they were new foreign-born workers. As the number of foreign-born workers (non-nationals) increased in the United States, the number of deaths of foreign-born workers from occupational injuries also increased. This study stated that one of the major reasons non-national workers were at a higher risk for occupational injury was that the average level of education for non-nationals was lower than for nationals. This study also reported that the possible presence of communication barriers between workers and management could have contributed to the increase in occupational injuries. Many of the non-national workers in the U.S did not speak or understand English adequately (Loh & Richardson, 2004). According to the U.S Census Bureau, in 2000 “thirty three percent of the

foreign-born population aged 25 and older did not have a high school diploma” (Loh & Richardson, 2004, p. 42). This percent was compared to 13% of those who were born in the U.S.A. who did not have a high school diploma. A study by Loh & Richardson (2004) found more of the non-national workers were employed at low-wage jobs considered to be more dangerous than the jobs typically filled by national workers (Sincavage, 2005). In Sincavage’s report Asian Workers were defined as people born in a country in the “ Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine, Thailand, and Vietnam” (Sincavage, 2005, p.49). Sincavage (2005) compared the number of deaths of Asian workers born in US with non-national Asian workers, and found that the non-national Asian workers represented 86% of the deaths. National Asian workers represented only 14% of the total deaths.

Ahonen, Benavides & Benach in 2007 generated a review of published literature focusing on “immigrant populations, work and health”. Their summary states that most non-nationals arriving in their host country are assigned to jobs with poor working conditions and a very high risk of occupational injury. Ahonen, Benavides & Benach found that non-citizen workers faced many health problems while living in their host country. For example, one study in Sweden found that immigrant workers were reported to be in very poor health and to have many “physical and mental health disorders” (Ahonen, Benavides & Benach, 2007 p. 101). The review also found that fatal occupational injuries in the United States increased among non-nationals when the rate of injuries for this group was compared to the reported rate for nationals. The national group in this study included citizen workers of Hispanic origin. Studies conducted and published in the Netherlands, Germany, Switzerland, and France and reviewed by Ahonen, Benavides & Benach found that occupational injuries among non-nationals were twice as

common as among nationals. A study conducted in Lebanon and described in the review found that the type of occupational injuries among non-nationals differed from the type of injuries reported among nationals (Ahonen, Benavides & Benach, 2007). The results of the literature review by Ahonen, Benavides & Benach (2007) also indicated that non-national workers were often assigned to the most dangerous and hazardous tasks on a work site. Benavides and Benach stated that a possible contributing factor to the high rate of occupational injuries or death was not being able to understand safety training programs or daily worksite communication due to a language barrier (Ahonen, Benavides & Benach, 2007).

In summary, although no previous research documenting the difference in the rate of death between national and non-national workers within each of the six Medical Districts managed by the United Arab Emirates Ministry of Health has been published, a difference in the occupational death rates for national and non-national workers has been cited in published literature as occurring in many other countries across the world (Ahonen, Benavides & Benach, 2007; Jones, 2000; Khlat & Courbage, 1996; Loh & Richardson, 2004; Sincavage, 2005).

Middle Eastern Region (MENA)

The countries of the Middle East cover parts of West Asia and North Africa. The Middle East has its unique features. “The countries of the Eastern Mediterranean Region are very diverse socioculturally, economically, educationally and politically” (Al-Kharusi, 2008, pp.2458). Individual countries within the Middle Eastern region are at different stages of economic development (Borthwick & Horton, 2006). Borthwick & Horton, for example, reported in 2006 that the gross domestic product per capita in Qatar was 26,000 U.S dollars, which was more than three times the gross domestic product per capita of Yemen. In Yemen only 36% of the population has access to safe drinking water. This is a very small percentage when compared to

other Middle Eastern countries such as Kuwait or the United Arab Emirates (Borthwick & Horton, 2006). This inequity in basic health services and sanitation adversely impacts the standard of living of many countries in the region (Borthwick & Horton, 2006). In a study by Al-Kharusi in 2002 the mortality rate from injury was found to be twice as high in this region as the mortality rate from injury for the rest of the world. Al-Kharusi further reported that 16% of all deaths in this region were the result from injury (Al-Kharusi, 2008).

Road Traffic accidents in the Middle Eastern Countries of the MENA Region

Studies by Al- Kharusi (2008) and Makhoul & El-Barbir (2006) identified accidental deaths from road traffic collision to be one of the major public health problems and a leading cause of death in the Middle Eastern (MENA) Region (Al- Kharusi, 2008; Makhoul & El-Barbir, 2006). Al- Kharusi reported that in the Middle Eastern Region the death rate from traffic accidents was the highest rate in the world among young men in the age group 15-39. The death rate for this group was 34.2 per 100,000 deaths (Al- Kharusi, 2008). Low- and middle-income countries from this region were reported to have the second highest fatality rate from traffic accidents in the world. Only similar countries in Africa were reported to have a higher rate of death from traffic accidents than this region (Al- Kharusi, 2008). An increase of 68% in traffic deaths within this region between the years 2000 and 2020 has been projected (Al- Kharusi, 2008). Al- Kharusi also found that the number of road traffic accidents and injuries increased with the increase in the number of cars and the number of driving hours as well as the increase in road construction and urbanization (Al- Kharusi, 2008).

Makhoul & El-Barbir (2006) found that the highest rate of road traffic Accidents deaths in the world occurred in Middle Eastern countries: United Arab Emirates, Oman, Saudi Arabia, Qatar, and Kuwait. The rate of road traffic accidents for each of these countries resulted in more

than 18 deaths per 100,000 people. This same report also found that although Bahrain had the lowest traffic death rates in the region, they were still twice the rate of death from traffic accidents occurring in Hong Kong and Singapore. This report found, using WHO statistics, that “in Bahrain, more years of potential life are lost from injuries than from heart diseases, cancer, and infection combined” (Makhoul & El-Barbir, 2006, p. 860). A further study by Montazeri, published in 2004, reported that road traffic accidents in Iran were the second most common cause of death. In this study, the number of Iranians killed in car accidents was reported to be 15,482 deaths for the period between March 1999 and March 2000 (Montazeri, 2004). Of these deaths, 79% were male and 65% were at the age of 40 years of age or less. Of all traffic accident-related deaths in this period 65% were reported to be pedestrians or car passengers rather than drivers (Montazeri, 2004). The most common cause of death from traffic accidents in Iran was reported to be head injury. This study found that the majority who died from traffic accidents did not use safety procedures such as buckling seat belts or wearing helmets when using modes of transportation such as motorcycles (Montazeri 2004).

Published studies stated that the problem of road traffic accidents was increasing and should be considered as an emerging public health problem in the Arabian Gulf (Bener, Abu-Zidan, Bensialis, Al-Muila & Jadaan, 2003). The increase of wealth in the Arab Gulf countries as a result of the discovery and production of oil was also reported in 2003 by Bener et al. to be accompanied by an increase in the number of road traffic deaths in these countries. This increase in traffic-related death was attributed to the increase in population accompanied by the increase in the number of the vehicles per person. This increase in vehicles and population density has led to increasingly congested road networks. This report also found in spite of the increase in

congestion, the additional miles of multiple paved roads increased the ability of drivers to drive faster than conditions allowed for safety (Bener et al., 2003).

Factors reported to contribute to the high rates of fatalities from the road accidents in the Arab Gulf countries have included poor driving, high speed, and/or lack of adherence to traffic laws. Bener et al. (2003) reported that these high-risk behaviors contributed to 90% of the road traffic accidents in the Gulf region. Other behaviors contributing to the high rate of death from traffic accidents included crossing and walking in streets by pedestrians (Bener et al., 2003).

Further study conducted in Saudi Arabia by Bendak (2004) also found that sudden economic rise in the oil industry was associated with a high death rate from traffic accidents. This rapid rise in economic development coupled with the rapid increase in the standard of living of the population and an increase in the number of roads being constructed resulted in a higher rate of death from traffic accidents. The number of cars was projected to increase from “144,000 cars in the early seventies to almost two and half million cars by the end of the second millennium” (Bendak, 2004, p.367). This same study by Bendak reported that the Saudi Traffic Authority documented more than 4,100 people killed and approximately 28,000 injured every year as a consequence of 29,000 traffic accidents (Bendak, 2004). These death rates included only individuals who died either on the scene of the accident or who died while being transported to the hospital. This rate did not include the number of individuals who died from traffic accidents after being admitted to the hospital. If it had been possible to include those additional deaths, the death rate from traffic accidents would be significantly greater (Bendak, 2004).

In Bahrain a study by Hamza, Al-Mousawi and Husel-Pincock in 2003 found that road traffic accidents were the leading cause of death among young drivers in Bahrain and traffic accidents were responsible for high mortality and morbidity in all age groups. The same study by Hamza et al. reported the rate of death from road traffic accidents in UAE in 1998 to be 3.33 per

hundred million kilometers of vehicle travel. A death rate of 119.8 per 100,000 registered vehicles was determined. A death rate of 23.41 per 100,000 residents of UAE was also reported. This reported rate of death from road traffic accidents within the UAE was higher than the death rates reported by either Australia or New Zealand for the same year (Hamza et al., 2003).

The History of Immigration in the MENA Region

“The MENA region has a long history of migration, related to the growth of Islam, trade, tribal pastoralism as well war and conflict” (Al-Ali, 2004, p.13). The Arab–Israeli conflict led to major movements of immigrants between countries within the MENA region (Al-Ali, 2004). The immigration of 3 to 4 million Palestinians that began in 1948 was considered the largest immigration in the world as of 2004 (Al-Ali, 2004).

The discovery of oil in the early 1970s in several of the regional Gulf Cooperation Council countries (GCC), which are Saudi Arabia, Kuwait, Bahrain, Oman, Qatar, and the United Arab Emirates initiated a huge flow of immigrant workers to these oil countries (Al-Ali, 2004). The majority of the non-national workers who immigrated to the GCC were reported to be from Egypt, Jordan, Yemen, Palestine, Iraq, and Syria. This massive worker migration consisted primarily of young males who came to look for jobs and became non-national (non-citizen) workers. This large flow of young male immigrants into the population changed the demographic profile of workers in the GCC (Al-Ali, 2004). After the war between Iraq and Kuwait and the invasion of Kuwait in 1991 most of the non-national Arab workers were deported from the GCC countries. In 1991 the GCC countries started to increase the recruitment and employment of Asian workers from India, Pakistan, Sri Lanka, Indonesia, the Philippines, Thailand, Korea and Bangladesh. These Asian workers were found to be inexpensive and productive laborers (Al-Ali, 2004). Non-national workers from low-income developing countries were motivated to

immigrate and work in Middle Eastern countries because of the economic benefits. “Contract workers in the Middle East typically make 5-6 times as much as they would in their home countries” (Arnold & Shah, 1984, p 299). A study in 1996 reported that 25% of the 20 million immigrants (non-citizens) in the world in 1980 were employed in the oil-producing countries of the GCC. In 1985 non-citizens were reported to comprise 61% of the work force and about 40% of the population in all GCC countries. The GCC countries include Bahrain, Kuwait, Qatar, Oman, Saudi Arabia and United Arab Emirates (Atiyah, 1996). The rate of non-citizen immigrant workers in GCC countries in 1985 was very high when compared to the number of immigrants in Germany and France, where non-citizen workers accounted for only 10% of the total workforce (Atiyah, 1996). This study by Atiyah also found most of the non-citizens workers in the GCC countries performed manual labor in unskilled and low-paid jobs. These jobs were typically not attractive to citizens of the GCC countries. Citizens in the GCC countries typically preferred to work in positions related to management or as consultants because both provided greater incomes (Atiyah, 1996). Citizen workers in GCC countries were typically employed in government jobs that paid higher salaries and provided job security, as well as social allowance and retirement benefits. These government-related management jobs also required fewer working hours per week than jobs in the private sector (Fasano & Goyal, 2004).

History and Background of The United Arab Emirates (UAE)

The United Arab Emirates (UAE) are located in the Middle East, bordering the Gulf of Oman and the Arabian Gulf, between Oman and Saudi Arabia (Ministry of Economy, UAE, *The Annual Economic and Social Report*, 2007). The United Arab Emirates was formed on 2nd December 1971 under the leadership of Sheikayed bin Sultan. The United Arab Emirates

includes the following emirates: Abu-Dhabi, Dubai, Sarah, Ajman, Umm al-Taiwan, Ra's Al-Kamiah, and Fujairah (Ministry of Economy, UAE, 2007).

The expanded production of oil in the UAE in the late 1960s and early 1970s led to many changes in the UAE (Bender & Crandall, 2005). The UAE is considered to be one of the fastest growing and fastest developing countries in the Middle East. The UAE is recognized as a center of trade and commerce in the Middle East and considered to be one of the richest countries in the world (WHO Country Cooperation Strategy, 2006). "Although the U.A.E is categorized as a developing country, corresponding health and economic indicators rank the country among the prosperous nations" in the world (Abdalla, 2002 p. 484). Fifty years ago the country had no electricity, plumbing, modern schools, big hospitals, or bridges. At this time very few cars were used in the UAE for transportation (WHO Country Cooperation Strategy, 2006). Following the discovery of oil, the UAE has experienced rapid changes and has become an important economic center in the world (WHO Country Cooperation, 2006).

The prosperity and growth of wealth in the UAE has been used to increase significantly the UAE's infrastructures and has resulted in the expansion of building constructions and a substantial increase in road networks (Abdalla, 2002).

The UAE now has a higher Gross National Product (GDP) per capita than most of the other Gulf countries. In achieving this success the UAE population increased in part by expanding the number of non-national workers allowed to work (Abdalla, 2002). According to the 2005 census, the UAE population, including both citizens and non-citizens, increased from 2.4 million in 1995 to 4.1 million in 2005. In 2007 the population of the UAE reached 4.4 million and this number reflects an increase of 259,000 individuals since the previous year. Sixty-nine percent of this increase in population was reported to be males, while females represented 31%. The increase in males was twice the increase in females. This increase has

been attributed to the continuation of immigration of non-national males to UAE. The primary increase in demand for workers in the UAE has historically occurred in jobs categories typically filled by males (Annual Economic and Social Report, 2007).

The economic growth in UAE attracted immigrants from neighboring countries as well as from other regions of the globe (Abdalla, 2002). The number of individual workers in UAE increased from 2,870 thousand workers in 2006 to 3,098 thousand workers in 2007. “The construction sector employed 21% of the total workers in 2007,” (Ministry of the Economy, 2007). The trade sector in the UAE employed 20% of all workers in 2007 and included repair services, retail and wholesale trade. Manufacturing industries employed only 13% of employed workers in 2007; the government sector employed 11% of all workers. This group provided educational, social care, health, and municipal services (Ministry of the Economy, UAE, 2007).

The majority of workers in the UAE were reported to be young males of working age. Managing the health and safety of these workers is challenging (Abou-Taleb, Abdulrahman & Abdelmoneim, 1995). Male non-citizens have been reported to be involved in a majority of accidents in the UAE (Ministry of the Health, UAE, *Preventive Medicine Annual Report*, 2007).

Accidents in United Arab Emirates (UAE)

Accidents in the UAE were reported as a major health problem in 2006 (Ministry of Health, *Preventative Medicine Annual Report*, 2007). Accidents were ranked as the second leading cause of death in the UAE 2007 Country Cooperation Strategy published by the World Health Organization. In 2007 trauma was reported to be responsible for 18% of deaths. Most traumas were caused by accidents and accidents were found to be the primary cause of death among individuals younger than 45 years (Eid, Lunsjo, Torab & Abu-Zidan, 2007).

Road Accidents in the UAE

Road accidents have been reported to be the fastest growing public health problem in the UAE. This increase in road accidents has resulted from an increase in the number of vehicles in the UAE (Bener and Crundall, 2005). The WHO Country Cooperation Strategy in 2007 reported that road traffic accidents were the main cause of death. This report also stated that traffic accidents were increasing as the number of non-citizen workers increased. Lack of compliance with traffic laws was considered to be a contributing factor in 70.5% of total Accidents deaths. The WHO report found males represented 88.5% of injury/Accidents deaths in the UAE (WHO Country Cooperation Strategy, 2007).

The UAE is a small country with nearly 576,000 registered vehicles (Bener, Crundall 2005), and only 1,088 kilometers of roadways (Central Intelligence Agency, 2007). This means the UAE has approximately 529 cars per kilometer of roadway. In 2005 the UAE was reported to have a higher rate of road accident-related fatalities than either the USA or the United Kingdom (UK). The fatality rate per 100,000 vehicles in the UAE in 2000 was 116.8 compared to a rate of 19.1 in the USA and a rate of 11.8 for the UK (Bener and Crundall, 2005). Gulf countries, including the United Arab Emirates, have a higher rate of car accidents than the developing countries with comparable vehicle-ownership levels. Bener and Crundall (2005) have stated the problem of road accidents was significant. More research needs to be completed focusing on the risk factors and causes of traffic accidents in the UAE. A review of published literature found few studies about accidents analyzed by cause that focused on the country level in the UAE, and none that looked specifically at each of the six medical districts managed by the UAE Ministry of Health.

In 2001 one out of every 3,310 UAE nationals lost their lives in road accidents. In 2000, the UAE reported a rate of 3.33 road accidents fatalities for each hundred million vehicle kilometers. In 2001 it was reported by the *Asia Africa Intelligence Wire* that one out of every 3.5 vehicles registered in Dubai was involved in a reported accidents that resulted in injury (Asia Africa Intelligence Wire, 2002). Driver misconduct has been found to be a huge factor in 90% of all road accidents (Bener & Crundall 2005). In 36.5% of all road traffic accidents in UAE in 2000 carelessness was reported to be one of the primary factors (Bener & Crundall 2005). According to a 2004 study, drivers in the United Arab Emirates show more aggressive driving behaviors (such as excessive speed, failure to stop at stop lights, and passing in unsafe areas) than drivers in most western countries (Bener & Crundall 2005).

Other causes of fatal accidents in the United Arab Emirates

Drowning

In 2006 53 drowning deaths were reported by the Ministry of Health in the UAE and 37 of them were non-citizen males (Ministry of Health, *Preventive Medicine Annual Report*, 2007).

Occupational Injuries in the UAE

Barss, Addly, et al. reported in 2009 that in the city of Al Ain in the UAE workers were injured during construction, farm, and industrial jobs. The causes of these injuries were reported to be from falls (51%), falling objects (15%), power machines (11%), animals (7%), and burns (6%). Barss et al. reported that 98% of those injured were working males, 69% in the age group of 25-44. Of those injured at work 96% were found to be non-citizens.

Barss, Addley, et al. (2009) also found unintentional injuries to be the second most frequent cause of death in the UAE. This study reported that 27 deaths per 100,000 in 2004 were due to unintentional injury. In 2006 the UAE Ministry of Health Annual Report found non-

citizens males to be involved in a majority of reported accidents in 2006 (Ministry of Health Annual Report, 2007). A report by WHO stated males represented 88.5% of injury/accident deaths in the UAE (WHO EMRO, *Health System Profile - UAE*).

The United Arab Emirates has a hot climate and this creates very tough working conditions during the summer. It has been reported that the UAE working conditions in the summer are the “harshest in the world” (Bates & Schneider, 2008). This difficult summer climate can increase the hazards for workers in industries requiring outdoor work such as construction. These high-stress working conditions can increase the risk of injury and fatigue. Heat stress and dehydration can cause heat-related illnesses such as heat exhaustion, heat fainting, and chronic heat fatigue. These illnesses also can reduce the workers' cognitive capabilities and increase the likelihood of injuries and accidents in the work place (Bates & Schneider, 2008). To increase the protection of workers and reduce accidents the Ministry of Labor in UAE in 2009 enacted a regulation to minimize working hours for outdoor workers during the hottest part of the day in the summer season (Ministry of Labor, 2009)

UAE Medical Districts

The Ministry of Health in the United Arab Emirates (UAE) provides health services to nine medical districts according to Article 36 of the Council of Ministers Order No.11 of 1989. Each medical district is responsible for planning, organizing, supervising and developing its own health care services (WHO, EMRO, *Health System Profile - UAE*). Six federated authorities and nine regionalized medical districts provide health care. Regions within the UAE have decentralized health care services, with some powers reserved for each individual region. This distribution of power is part of the UAE's fundamental structure, which allows each region a wide measure of self-rule. For example the six medical districts included in this study were

managed directly by the United Arab Emirates Ministry of Health. However Abu-Dhabi health authority was established in 2007 to manage the health care services in the other three medical districts of Abu-Dhabi, Al-Ain, and the Western region. Decentralization of health care has been reported to improve the quality of care within the nation (Country Cooperation Strategy, WHO 2006).

Citizens of the UAE have access to free health services funded by the central and local federal government (Kirdar, 2004). Non-citizens, who make up 80% of the population, are required to obtain a health card for a price equivalent to US \$82 per year. This health card allowed them to get their health services at all Ministry of Health (Ministry of Health) facilities (WHO, EMRO, Health System Profile - UAE).

The health care for the individuals classified as non-citizens varies depending on the specific Emirate where the individual non-citizen works (Kirdar, 2004). The Abu-Dhabi government "enacted a new Code of Regulation of the Health Insurance Policy in July 2007" (Kirdar, 2004, p.14). This health policy required all employers in Abu-Dhabi to provide health insurance for their workers and if the employers fail to do so, the workers can report this violation to the Ministry of Labour (Kirdar, 2004).

Citizens and Non-citizens in the United Arab Emirates

A 5.5% annual rate of growth in the UAE population in 2008 was attributed to the continued growth in the number of foreign workers entering the UAE. The rapid increase in economic growth and the need for construction workers have been reported to be reasons for this continued high rate of immigration (Ministry of Economy, UAE, Millennium Development Goals, second report n.d).

According to the statistical data published for the UAE, “the number of workers has more than doubled from 1.2 million in 1995 to around 2.6 million in 2005” (Ministry of Economy, UAE Millennium Development Goals, second report, p.2). Because of this large increase in non-citizen workers, a labor law was passed to limit the stay of unskilled non-citizen workers to six years (Beuthe, 2008). This rapid increase in the number of non-citizen workers has been attributed to the continuous demand for non-citizens workers who arrived in the UAE from the Middle Eastern Region. Immigrants come to the UAE from neighboring countries of Oman, Yemen, Palestine, Egypt, Jordan, Iraq and Iran. Other non-citizens come from countries located in South and Southeast Asia including Pakistan, India, Bangladesh, Afghanistan, and Philipin. In 1999 these expatriates represented 70-75% of the UAE’s population (Kronfol, 1999). A country profile published in 2007 found that 55% of expatriates were singles individuals who immigrated to the UAE for the purpose of work (WHO Country Profile, 2006).

A 2008 publication by Beuthe reported that the UAE had the largest non-citizen population in the world. In this same report Beuthe stated that non-citizens represented 90% of the total employment and labor power within the UAE. The same report also found that 98% of the non-citizens were employed within the private sector (Beuthe, 2008).

Published fatality data in the UAE Ministry of Health within the medical districts

In a review of the Ministry of Health Annual Report published in 2007 and the Ministry of Health Statistical Book published in 2007 the researcher found that the fatality data was only available by frequency and no data categorized by cause of death or analyzed by citizen status was provided by rate at the national or district level. Rates allow comparing reported deaths in two or more groups more accurately, even when reported number of deaths in each group varied substantially.

This government document further described the number of deaths reported by each of the six medical districts directly managed by the UAE Ministry of Health for the year 2006. For this year, the total number of reported deaths in Ajman Medical District was 381; in Dubai Medical District, 2,075; in Fujairah Medical District, 230; in Ra's Al-Khaimah Medical District, 453; in Sharjah Medical District, 1,420; and in Umm al-Qaiwain Medical District was 105 in 2006 (Ministry of Health, Annual Statistical Report UAE, 2007).

Neither the Annual Report published by the Ministry of Health's Preventive Medicine in 2007 nor the UAE annual statistical report published by the Ministry of Health in 2007 provided an analysis by rate of the total reported deaths within any medical district. These reports did not provide a national- or district-level analysis by rate when deaths were grouped by citizen status, gender, or age group (Ministry of Health, Annual Statistical Report, 2007 & Ministry of Health Preventive Medicine Annual Report, 2007). Although these government documents were able to report the number of deaths by frequency within each district, no analysis by rate of death was provided for the UAE as a whole or for individual medical districts.

A further review of published literature only found journal articles focusing on death rates obtained from an individual hospital or representing only one city. Neither available published fatality research studies conducted at the hospital level nor the frequency death data provided by the annual reports provide a comprehensive profile of the medical districts' rates of fatality caused by unintentional injury. The lack of a detailed profile by rate of death for specific accidental causes within the medical districts reduces their ability to prioritize and implement effective prevention initiatives to reduce accidental deaths.

Data Surveillance Limitations

An analysis of the causes of death can be used to interpret trends and changes in mortality patterns. Knowledge of previous fatality rates can provide important clues for the development of future intervention programs (Hakulinen et al., 1986). “One may consider the very availability of national, “reasonable,” and reliable data on causes of death as a guide to the assessment of a country’s level of health and development of its statistical services” (Hakulinen, Hansluwka, Lopez, & Nakada 1986). Steenland, Nowlin, Ryan, and Adams (1992) developed mortality rates for the US by examining and tabulating multiple causes of death data over a 29-year span. Developing and implementing a surveillance system in which reported fatalities are documented in a consistent manner across all jurisdictions within a state or country provides frequency data that can be converted to death rates and compared across regions with varying population densities. When fatality rates can be generated and analyzed by categories such as citizen status, gender, and age group, valuable information concerning primary cause of death within a specific high-risk group can be provided to health policy makers.

Lu, Lee, and Chou (2000) published research on Taiwan comparing the accuracy of data provided on death certificates in hospital discharge records with the cause of death recorded in records managed by the Department of Health’s statistical unit. This study found the data managed by the department of health in Taiwan to be more complete and standardized than the information provided through the discharge records of hospitals (Lu, T. et al.2000). This study recommended that surveillance systems monitoring the cause of death should be established using cause of death statistics rather than hospital discharge data because death statistics data was found by Lu et al. in 2000 to be more consistent. The International Statistical Classification of Diseases and Related Health Problems Tenth Revision (ICD-10) was created and implemented

to allow for uniformity in the major categorization and reporting of fatality data between regions and/or countries. This includes a format for reporting causes of death on death certificates (Becker, Silvi, Fat, Hours, Laurenti, 2006). The ICD-10 was published by the World Health Organization (WHO) and implemented worldwide in 1994 (Becker et al. 2006).

This system of coding and sub-coding can provide detailed information concerning causes of death in a uniform manner so that it can be used by policy makers and health analysts to study patterns of morbidity and mortality (Becker et al. 2006).

One of the problems of surveillance systems is the lack or inconsistency of cause-related information. Researchers Johansson & Westerling found inconsistencies when they compared cause of death data from death certificates and hospital medical records. The underlying cause of death and the last hospital diagnosis were found to agree on only 46% of causes when the death occurred after the individual was discharged. However, when deaths occurred in the hospital rather than after discharge, 83% of the deaths were in agreement with hospital medical record (Johansson & Westerling, 2000 p. 495). This study also found that the completion of an autopsy did not create substantially more agreement between the main diagnoses and underlying cause of death. This study recommended that the diagnostic information continue to be reported to a local hospital discharge register and the death certificate continue to be provided to the national cause of death registry. This recommendation was made because the two registers “remain essentially different: the death certificate gives a case history, while the hospital discharge records provides a snap shot” (Johansson & Westerling, 2000, p.502). Johansson & Westerling found death certificates and hospital discharge records can "supplement each other" (Johansson & Westerling, 2000, p.502). The researchers determined “suppressing either of the two sources of

information would cause severe disruption of statistical trends and a serious impoverishment of basic epidemiological data” (Johansson & Westerling, 2000 p.502).

Surveillance System in the UAE

Maudsley and Williams (1993) reported there are discrepancies in death certifications in England and Wales. This report found that most discrepancies were due to inexperience and lack of training of those completing the report. Maudsley and Williams in 1993 also reported that insufficiencies were found in 20% of cause of death certificates nationwide (Maudsley and Williams 1993).

A study by Eid, Lunsjo, Torab, and Abu-Zidan (2007) indicated that there is a need for trauma research in the UAE. Surveillance research plays an important role in prioritizing local health problems focused on trauma caused by injuries and ways to reduce them. The study also reported that a good injury trauma audit process and effective injury registries are essential to trauma surveillance. Actions should include design programs to prevent injuries before they occur. Additionally, Barss, Addley, et al. (2009) stated that future research should address the lack of data in the UAE regarding causes of injury such as: Falls and falling objects, type of industry, occupations of workers description of workers tasks and location where injury occurred. More accurate death data can assist policy makers in their efforts to design and implement future prevention programs. In addition, Barss, Addley, et al. (2009) recommended information recorded in death notification forms in the UAE should be expanded to record the types of work the individual was performing when occupational fatalities are reported in order to improve death forms. In the Emirate of Abu-Dhabi, the Abu-Dhabi Health Authority has expanded and improved the traditional death notification form to ensure full information about causes of death. (See Appendix A for a copy of the traditional death notification form). This new

form consists of detailed information about the cause of death. However, the six medical districts managed by the UAE Ministry of Health still use the older traditional form. (See Appendix A for Abu-Dhabi Health Authority death notification form.)

The World Health Organization (WHO) reported in the Country Cooperation Strategy (2006) that UAE needs to develop digitally coordinated formatted information systems that support the country's health cooperation strategy (WHO Country Cooperation Strategy, 2006). A greater understanding of the current morbidity and mortality data at the regional and national level in the United Arab Emirates (UAE) can help direct future initiatives to reduce the number of fatalities caused by unintentional injury and chronic diseases (Harrison et al., 2007).

Chapter Summary

The purpose of this chapter was to provide a review of literature for specific causes of unintentional injury deaths such as Motor Vehicle & Traffic Accidents and Accidental Falls. Unintentional injury death rates of citizens and non-citizens males were described.

This chapter also describes prior research addressing the problems associated with managing death surveillance systems and the need for more specific information about the circumstances surrounding reported deaths in rapidly developing countries. Chapter III describes the methodology used in this baseline research study focused on the unintentional injury death rates of males ages 20-65 in the six medical districts managed by the UAE Ministry of Health for the years 2006-2008. Chapter III describes the management of data and statistical procedures used by the researcher to analyze secondary data provided by each of the six UAE medical districts.

CHAPTER III

METHODOLOGY

INTRODUCTION

The purpose of this chapter was to describe 1) the study population, 2) the type of data, 3) the procedures used in obtaining the data, 4) the method of data entry, and 5) the statistical procedures used to analyze the data. This study is designed as a retrospective study based on reported fatality data. The reported fatality data provided for this analysis includes all causes of deaths reported to the six medical districts managed by the Ministry of Health in the United Arab Emirates for the years 2006-2008 and categorized by citizenship status, age, gender and cause of death for each individual by month.

In the United Arab Emirates (UAE) there are six medical districts administered by the Ministry of Health at the national level. These are: Ajman, Dubai, Fujairah, Ra's al-Khaimah, Sharjah, and Umm al-Qaiwain. Three additional medical districts within the UAE are locally managed by the Health Authority of Abu-Dhabi; these are Abu-Dhabi, Al-Ain & the Western Region.

For the purpose of this study the researcher limited the investigation of the reported fatalities in the UAE to those fatalities reported by the six medical districts managed by the UAE Ministry of Health. In those six medical districts managed by the UAE Ministry of Health the fatalities were recorded using the same reporting form and were classified into monthly reports using a similar protocol. The three additional medical districts managed by Abu-Dhabi Health Authority utilized different death reporting forms for part of the period under study, and

therefore these districts were not included by the researcher in this study (Abu-Dhabi Health Authority, 2009)

Study Population

The initial secondary data provided for this study included all fatalities 14,101 reported and recorded by the six medical districts managed by the UAE Ministry of Health for the years 2006-2008.

The type of Data

This secondary data was composed of deaths recorded by the statistical department of each of the six medical districts managed by the UAE Ministry of Health, not including those managed by the Abu-Dhabi Health Authority. Each of the secondary death record reports provided to the researcher was originally generated by extracting data from a death certificate issued by one of the UAE medical districts. Death certificates were issued by each medical district's central authority after receipt of death notification documents prepared by physicians at local hospitals (public and private) in the district. When available, monthly reports and charts were provided to the researcher by each district in either electronic or paper form. The original death notifications, as well as subsequent charts and monthly reports prepared by each district, included the date of the death, citizen status, gender, age, and assigned cause. The cause of death was designated using one of the categories found in the *International Classification of Diseases and related health problems* the 10th revision (ICD-10).

The Procedures used in Obtaining the Data

The death reports were provided to the researcher in the form of monthly aggregate reports and were entered by the researcher with no identifiers or names. When the aggregated death data could not be provided by the medical district in a monthly report, charts listing each death categorized by gender, citizen status, age, and cause of death were provided to the researcher.

The Method of Data Entry

When monthly charts were provided rather than an aggregate monthly report, the researcher entered each death listed on the paper chart into a new electronic data file without including any individual names or identifiers. This process created a new aggregate electronic monthly report for the month when the district could not provide an aggregate report. The aggregate report created by the researcher was identical in format to the monthly reports provided by medical district. This new monthly electronic aggregate data file report created by the researcher was then merged with the existing electronic monthly reports to create one uniform surveillance database. Once the uniform surveillance data base file was created, each death record was numerically coded to describe the reflected reported death.

After the data was cleaned and entered, the researcher created a profile for all fatalities in the six UAE medical districts under study, tracking frequency by gender, citizenship status, age group and causes of death.

Citizens, Non-citizens

The researcher reviewed the published reports and government documents providing an analysis of the population of the UAE. The 2005 census showed the number of non-citizens to be substantially greater than the number of citizens in 2005. A review of literature focused on the rate and type of immigration within the Middle Eastern Region and more specifically in the UAE found that the increase in the number of non-citizens is attributed to continuing immigration by non-citizen males who come to work in the UAE (Al-Ali, 2004, The Annual Economic and Social Report (UAE), 2007, Abdalla, 2002 & Ministry of Economy, UAE, 2007).

Males, Females

A review of published literature and government reports revealed that over 2/3 of the population in 2005 (2,388,224) were males and less than 1/3 of the population (892,708) were reported to be females (Vine, 2008; WHO Country Cooperation Strategy, 2006).

Manner of Death

To gain a further understanding of the characteristics of the death data provided by the six medical districts managed by the UAE Ministry of Health, the researcher created a profile by frequency of death for the following variables: citizen status, gender, age group, manner of death, year, and (for deaths by unintentional injury) cause of death. Fatalities were categorized as Natural or Non-natural in manner, with the exception of the 1,471 (10.4%) coded as an Injury and the 3,014 (21.4%) reported fatalities provided by the medical districts with no cause identified. The researcher did not include deaths coded as injury (1,471 or 10.4%) from the database when conducting an analysis focused on manner of deaths. This was done because it was revealed through previous published reports that some deaths already coded as unintentional

injury, homicide, or suicide had also been found to receive a second code by manner of injury. This double coding by manner, if included in the data used for analysis by manner would result in deaths in this category being counted twice (Barss & Grivna, 2009). The fatalities reported with no cause identified totaled 3,014 (or 21.4%). The frequency of these fatalities could be analyzed only by gender and citizen status. No analysis could be established by cause since no cause was provided. The manner code “Natural” was assigned by the researcher to all 7,106 (50.4 %) deaths originally categorized as death resulting from one of the following categories: Chronic or non-communicable disease, congenital anomalies, and other illnesses or causes. For the 2,510 (17.8%) reported deaths coded as caused by unintentional injury, homicide, or suicide, the manner code “Non-natural” was assigned by the researcher.

For deaths reported as unintentional injuries, these additional cause categories were originally assigned by each of the six medical districts included in the study: Motor Vehicle & Traffic Accidents, Accidental Poisoning, Fractures, Drowning, Burns, Accidental Falls, Misadventure During Medical Care, Accidents Due to Fire and Flames, Accidents & Adverse Effects, Effects of Foreign Body Entering Orifice, Poisoning and Toxic Effects, and Not Specified. After the researcher reviewed the frequency of death by Unintentional Injury per each assigned cause, it was decided to merge these twelve categories into five categories for the purpose of statistical analysis. The five categories resulting from a consolidation of the 12 categories provided by the 6 UAE Medical Districts were: Accidents and Adverse Effect, Motor Vehicle & Traffic Accidents, Accidental Falls, Accidental Poisoning, and Other Causes. The researcher merged the following cause categories into the new category of Other Causes: Drowning, Burns, Misadventure During Medical Care, Accidents Due to Fire and Flames,

Effects of Foreign Body Entering Orifice, Poisoning and Toxic Effects, Not Specified. This is a specific categorical name assigned by each of the UAE Medical District when recording deaths.

Government documents published by the UAE further reported that the majority of non-citizen males living in the UAE in 2005 were in the age group 20-65 (Abou-Taleb, Musaiger & Abedlmoneim, 1995). Male non-citizens were reported in 2006 to die more frequently from accidents than UAE citizens (Ministry of Health UAE, Preventive Medicine, 2007). No published analysis was found through a review of literature comparing the death rate for citizen and non-citizen males. No comparison of rates of death by Unintentional Injury for males ages 20-65 was found for either the UAE as a whole or for any individual medical district (Ministry of Health Annual report, 2007; WHO Country Cooperation Strategy, 2006).

Institutional Review Board Approval

Prior to receiving the secondary data from each medical district in the UAE, an IRB form A was completed and submitted by the researcher to the University of Tennessee Internal Review Board. The researcher received a letter of approval from Dr Ali Ahmad Bin Shoukr, Director General of the Ministry of Health in 2009, for the researcher to receive compiled death data from each of the UAE medical district managed by the Ministry of Health. The IRB form A was submitted with the letter of permission attached. An approved IRB was received by the researcher in March 2009.

Following this approval, the researcher initiated the process of obtaining a record of all deaths reported in the years 2006-2008 from each of the following medical districts managed by the Ministry of Health: Ajman, Dubai, Fujairah, Ra's al-Khaimah, Sharjah, and Umm al-Qaiwan. All secondary data included in the study was received from the department of statistics of each of these medical these six medical districts. The data was stored in a secure location.

The Statistical Procedures used to Analyze the Data

Use of Rates for Analysis

The lack of reported information comparing death rates of citizen males 2,602 and non-citizen males 7,800 supported the need for a study focused on analysis of these deaths by rate. Rate allowed comparing reported deaths in two or more groups more accurately even when reported number of deaths in each group varied substantially. Therefore the researcher elected to design and conduct a study focused on whether the reported rate of death for citizen and non-citizen males ages 20-65 in the six medical districts managed by the UAE Ministry of Health differ significantly by manner (Natural, Non-natural), season of the year, and/or Unintentional Injury cause of death for the years under study. To create a new electronic death surveillance data base focused only on males ages 20-65, the researcher extracted all reported death data for males ages 20-65 coded by citizen status, manner, and cause of Unintentional Injury death from the original data profile provided by each of the six medical districts managed by the UAE Ministry of Health. No females, citizen or non-citizen, were included in the database used for this study. Also, no males under the age of 20 or over the age of 65 were included.

For the purpose of this study the researcher chose to analyze the reported causes of death by rates. Using rates allowed the researcher to compare death in two or more groups even when the reported numbers of deaths in each group varied substantially. Knowledge of death rates can provide important indications for the development of future research programs (Hakulinen, Hansluwka, Lopez, & Nakada, 1986).

To create a death rate for males ages 20 – 65 within each six medical districts, the researcher first needed a record of the male population living in each of the six medical districts

managed by the UAE Ministry of Health. The 2005 population census was selected and used by the researcher to create a rate because the 2005 census was the most recent completed and published source of data about the population. The researcher obtained the 2005 census population for each of the six medical districts managed by the UAE Ministry of Health, categorized by age group, gender, and citizenship status.

Prior to creating the death rate for males ages 20-65 using the manner categories (Natural, Non-natural) as previously described, the researcher omitted deaths coded by manner as injury to minimize the probability of duplicate error. To create these rates the number of deaths for males ages 20-65 reported by the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 was divided by the number of males ages 20-65 in each of the six districts in 2005. The resulting deaths rate represents reported number of deaths per 10,000 individuals. Rates were created by the researcher for all deaths previously coded as Natural and Non-natural in manner. The researcher also created a death rate for each cause of Unintentional Injury death for males ages 20-65 within each of the UAE medical districts included in this study for the years 2006-2008.

These rates address the following research questions:

Research Question 1

1 - Does the rate of death for males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) for all males ages 20-65 by manner (Natural, Non-natural)?

b) for all males ages 20-65 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

c) for citizen males ages 20-60 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

d) for non-citizen males ages 20-60 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

Research Question 2

2 - Does the rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) within each season of the year (spring, summer, Fall and winter) by manner (Natural, Non-natural)?

b) by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

c) within each season of the year (spring, summer, Fall, and winter) by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

Research Question 3

3 - Does the rate of death among citizen and non-citizen males in the age group of 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) by manner (Natural, Non-natural)?

b) within each season of the year (spring, summer, Fall, and winter) by manner (Natural, Non-natural)?

c) by specific cause of Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicles & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

d) within each of the four seasons (spring, summer, Fall, and winter) by specific cause of Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicles & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

Statistical procedures

A Chi-Square test and adjusted residual statistical test were used by the researcher to analyze the fatality database file by manner and by cause of death for deaths coded as Unintentional Injury deaths. The statistical procedures listed above were appropriate to apply to analyze data in this research study because the secondary data provided for this study was nominal or ordinal in nature. This type of data was non-parametric since the data was not normally distributed and the Chi-Square test and adjusted residual can be used with non-parametric data.

Popham & Sirotnik (1973) found that non-parametric procedures:

Can be used to treat data which have been measured in nominal, or classificatory, scales. Such data cannot, on any logical basis, be ordered numerically, hence there is no possibility of using parametric statistical tests which require numerical data. (p.271)

A non-parametric technique which may be used to test the difference between the distribution of one sample and some other hypothetical or known distribution is the chi-square test (χ^2). The χ^2 test can be used with data measured in nominal or stronger scales... This procedure involves a goodness of fit test wherein the sample frequencies... are contrasted with those which might be expected on the basis of the hypothetical distribution. If a marked difference exists between observed or actual frequencies falling in each category and the frequencies expected to fall in each category on the basis of chance, then the χ^2 test will yield a numerical value large enough to be interpreted as statistically significant. (p.273)

Hirsch & Riegelman (1984) also found that:

Nominal data, however, are often not directly translatable into variables... nominal variables are limited to dichotomous (yes/no) classification indicating the presence or absence of a condition. (p.23)

Therefore nominal data such as gender or a reported death can be represented by one nominal variable.

Utts & Heckard (2002) stated the Chi-Square test:

is an approximate method that required a 'large' sample. The larger the sample, the better the approximation. Commonly used guidelines for the term large sample are:

1. All expected counts should be greater than 1.
2. At least 80% of the cells should have an expected count greater than 5. (p.460)

Sheskin (2004) found the following:

Residuals allow one to compare two or more contingency Tables with one another...with respect to the overall degree of difference between expected and observed cell frequencies. By computing standardized residuals, one is able to determine which cells are the major contributors to a significant chi-square value...any cell in a contingency table which has a significant residual makes a significant contribution to the obtained chi-square value for any cell that has a significant residual; one can conclude that the observed frequency of the cell differs significantly from its expected frequency. The sign of the standardized residual indicates whether the observed frequency of the cell is above (+) or below (-) the expected frequency. The sum of the squared residuals for all [row times column] cells will equal the obtained value of the chi-square. (p.526)

Tables 1-3, describe the specific variables and tests used for each research question addressed in the research study.

Table 1: Research question 1

Research Question #1	Variable	Type of data	Statistical test
<p>1 - Does the rate of death for males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:</p> <p>a) for all males ages 20-65 by manner (Natural, Non-natural)?</p> <p>b) for all males ages 20-65 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?</p> <p>c) for citizen males ages 20-60 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?</p> <p>d) for non-citizen males ages 20-60 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?</p>	Gender 1. Male	Nominal	Chi-Square & adjusted Residual
	Age group 1. 20-65	Ordinal	Chi-Square with adjusted residual
	Manner 1. Natural 2. Non-natural	Nominal	Chi-Square with adjusted residual
	Causes of Unintentional deaths	Nominal	Chi-Square with adjusted residual
	1. Accidents & Adverse Effects. 2. Motor Vehicle & traffic Accidents 3. Accidental Poisoning 4. Accidental Falls 5. Others		

Table 2: Research Question 2

Research Question #2	Variable	Type of data	Statistical test
<p>2 - Does the rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:</p> <p>a) within each season of the year (spring, summer, Fall and winter) by manner (Natural, Non-natural)?</p> <p>b) by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?</p> <p>c) within each season of the year (spring, summer, Fall, and winter) by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?</p>	<p>Gender 1. Male</p>	Nominal	Chi-Square with adjusted residual
	<p>Age group 20-65</p>	Ordinal	Chi-Square with adjusted residual
	<p>Citizen status 1. Citizens 2. Non-citizens</p>	Nominal	Chi-Square with adjusted residual
	<p>Manner 1. Natural 2. Non-natural</p>	Nominal	Chi-Square with adjusted residual
	<p>Causes of Unintentional Injury deaths</p> <p>1 Accidents & Adverse Effects 2. Motor Vehicle & Traffic Accidents 3. Accidental Poisoning 4. Accidental Falls 5. Others</p> <p>Season of the year 1. spring (March-May) 2. summer (June-Aug) 3. Fall (Sept -Nov) 4. winter (Dec-Feb)</p>	Nominal	Chi-Square with adjusted residual

Table 3: Research Question 3

Research Question #3	Variable	Type of data	Statistical test
<p>3 - Does the rate of death among citizen and non-citizen males in the age group of 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:</p> <p>a) by manner (Natural, Non-natural)?</p> <p>b) within each season of the year (spring, summer, Fall, and winter) by manner (Natural, Non-natural)?</p> <p>c) by specific cause of Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicles & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?</p> <p>d) within each of the four seasons (spring, summer, Fall, and winter) by specific cause of Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicles & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?</p>	<p>Gender</p> <p>1. Male</p> <p>2. Female</p>	Nominal	Chi-Square & adjusted Residual
	<p>Age group</p> <p>20-65</p>	Ordinal	Chi-Square with adjusted residual
	<p>Citizen status</p> <p>1. Citizen</p> <p>2. Non-citizen</p>	Nominal	Chi-Square with adjusted residual
	<p>Manner</p> <p>1-Natural</p> <p>2-Non- Natural</p>	Nominal	Chi-Square with adjusted residual
	<p>Season of the year</p> <p>1-spring</p> <p>2-summer</p> <p>3-Fall</p> <p>4-winter</p>	Nominal	Chi-Square with adjusted residual
<p>Cause of Unintentional Injury deaths</p> <p>1. Accidents & Adverse Effects.</p> <p>2- Motor Vehicle & traffic Accidents</p> <p>3. Accidental Poisoning</p> <p>4. Accidental Falls</p> <p>5- Other Causes</p>	Nominal	Chi-Square with adjusted residual	

Chapter Summary

This chapter reported the method used to manage the secondary data provided to the researcher by the six UAE medical districts. The statistical procedures used to analyze this non-parametric data about deaths for males ages 20-65 by citizen status was described. A specific description addressing the creation of unintentional injury death rates for males ages 20-65 by citizen status was provided. The following chapter provides a description of the statistical analysis used to address each research question.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF THE DATA

INTRODUCTION

In the United Arab Emirates (UAE), there are six medical districts administered by the Ministry of Health at the national level. These are: Ajman, Dubai, Fujairah, Ra's al-Khaimah, Sharjah, and Umm al-Qaiwain. There are three additional medical districts within UAE that are locally managed by the Health Authority of Abu-Dhabi. These include are Abu-Dhabi, Al-Ain, and the Western Region. For the purpose of this study the researcher limited the investigation of reported fatalities in UAE to those fatalities reported by the six medical districts managed directly by the UAE Ministry of Health. In those six medical districts managed by the UAE Ministry of Health the fatalities were recorded using the same reporting form and were classified into monthly reports using a similar protocol. The three additional medical districts managed by Abu-Dhabi Health Authority utilized different death reporting forms for part of the period under study, and therefore these districts were not included by the researcher in this study.

Population Description

A review of published reports and government documents by the researcher found the population of UAE for 2005 to be 4,106,427. The number of non-citizens living in UAE was found to be substantially greater than the number of citizens. The non-citizens represented 79% of UAE population, with 3,280,932 individuals living in UAE in 2005. Citizens represented 21% of UAE population, with 825,495 individuals living in UAE in 2005 (UAE Ministry of Economy, General Census of Population, 2005). See Table 4 for the UAE population by citizen status and by gender.

A review of literature focused on the rate and type of immigration within the Middle Eastern Region and more specifically in UAE found that the increase in the number of non-citizens was attributed to the continued immigration of non-citizen males who come to UAE to work (Al-Ali, 2004, The Annual Economic and Social Report [UAE], 2007, M. Abdalla, 2002, & Ministry of Economy, UAE). Table 5 displays the population of each of the six UAE medical districts.

Reported Fatalities in the Six Medical Districts Managed by the UAE Ministry of Health

The secondary data provided to the researcher for this study included 14,101 fatalities (reported and recorded by the six medical districts managed directly by UAE Ministry of Health: Ajman, Dubai, Fujairah, Ra al-Khaimah, Sharjah, and Um al Qaiwain) for the years 2006-2008. Dubai Medical District had the highest frequency of reported fatalities: 5,543 (39.3%). The frequency of reported fatalities in Sharjah Medical District was 5,042 (35.8%). The frequency of reported fatalities in Ra's al-Khaimah Medical District was 272 (9.0%). In Ajman Medical District the frequency of reported fatalities was 1,213 (8.6%) and in Umm al-Qaiwain Medical District the frequency of reported fatalities were 392 (2.8%). The frequency of reported deaths in each Medical District managed by the Ministry of Health in UAE for the Years 2006-2008 is displayed in Table 6. The recorded secondary data provided to the researcher did not include the three districts managed under Abu-Dhabi Health Authority.

To gain a further understanding of the characteristics of the death data provided by the six medical districts managed by the UAE Ministry of Health, the researcher created a profile by frequency of death for the following variables: citizen status, gender, age group, year, season of the year, specific cause of death in cases of unintentional injury, and where specific fatality was reported.

Table 4: UAE Population by Citizen Status and by Gender

Non-citizen			Citizen		
Total	Females	Males	Total	Females	Males
3,280,932	892,708	2,388,224	825,495	407,578	417,917

Table 5: Population of Each of the Six UAE Medical Districts

Medical District	Dubai	Sharjah	Ras al-Khaimah	Ajman	Fujairah	Umm al-Qaiwain
Population	1,321,453	793,573	210,063	206,997	125,698	49,159

*According to General Census of Population, 2005, Ministry of Economy, UAE

Table 6: Frequency of Reported Deaths Provided by the Six UAE Medical Districts

District	Frequency	Percent
Ajman	1,213	8.6
Dubai	5,543	39.3
Fujairah	639	4.5
Ras alKhaimah	1,272	9.0
Sharjah	5,042	35.8
Umm alQuwain	392	2.8
Total	14,101	100.0

Frequency of Reported Deaths by Citizen Status

When the frequency of the reported fatalities in the six medical districts (Ajman, Dubai, Fujairah, Ra's al-Khaimah, Sharjah, and Umm al-Qaiwain) in UAE for the years 2006-2008 was categorized by citizen status (citizen, non-citizen) the total frequency of reported fatalities was 14,101, the frequency of reported fatalities for citizens was 4,362 (30.9%), and for non-citizens was 9,700 (68.8%). The frequency of reported deaths by citizen status reported from all the six medical districts managed by the Ministry of health in UAE is displayed in Table 7.

Frequency of Reported Deaths by Gender

A review of published literature and government reports revealed that over 2/3 of the population 2,806,141 living in the UAE in 2005 were reported to be males and less than 1/3 of the population 1,300,286 living in the UAE were reported to be females (Vine, 2008; WHO Country Cooperation Strategy, 2006; UAE Ministry of Economy, general Census of population, 2005). When the reported fatalities for the six medical districts managed by the Ministry of Health in UAE for the years 2006-2008 were categorized by gender, the frequency of reported fatalities for males was 10,427 (73.9%) and for females was 3,673 (26.0%). Of the reported deaths male deaths 2602 (24.95%) were designated as citizen and 7800 (74.81%) were designated as non-citizen. Of the female deaths 1760 (48%) were designated as citizen and 1900 (51.73%) were designated as non-citizen. See Table 8 for frequencies of reported deaths by gender provided by the six UAE medical districts. See Table 9 for frequency of reported deaths by gender and by citizen status provided by the six UAE medical districts.

Table 7: Frequency of Reported Deaths by Citizen Status Provided by the Six UAE Medical Districts

Citizen status	Frequency	Percent
Citizen	4,362	30.9
Non-citizen	9,700	68.8
Total	14,101	100.0

Table 8: Frequencies of Reported Deaths by Gender Provided by the Six UAE Medical Districts

Gender	Frequency	Percent
Female	3,673	26.0
Male	10,427	73.9

Table 9: Frequency of Reported Deaths by Gender and by Citizen Status Provided by the Six UAE Medical Districts

	Male Citizen	Male Noncitizen	Total Males	Female Citizen	Female NonCitizen	Total Females
Frequency	2,602*	7,800	10,427	1,760*	1,900	3,673
Percent	24.95%	74.81%	73.9%	48%	51.73%	26%

*Two citizen deaths were provided to the researcher with no gender code.

Frequency of Reported Deaths by Age Group

The frequency for the total reported fatalities for all causes of deaths was 14,101. The frequency for the reported fatalities for the age group 0-4 was 1,019 (7.2%). The frequency for reported fatalities for the age group 5-14 was 252 (1.8%). The frequency for reported fatalities for the age group 15-19 was 316 (2.2%). The frequency for reported fatalities for the age group 20-29 was 1,967 (13.9%). The frequency for reported fatalities for the age group 30-44 was 3,149 (22.3%). The frequency for reported fatalities for the age group 45-54 was 1,945 (13.8%). The frequency for reported fatalities for the age group 55-64 was 1,673 (11.9%). The frequency for reported fatalities for the age group 65 and up was 3,326 (3.6 %), and the frequency for reported fatalities for persons of unknown age was 454 (3.2%). The frequency of reported deaths categorized by age group for the six medical districts managed by the UAE Ministry of Health is displayed in Table 10.

Frequency of Reported Deaths by each Year Under Study

When the frequency of reported fatalities for the years 2006-2008 was categorized by year, the total of reported deaths for the years 2006-2008 was 14,101. The frequency of reported fatalities for the year 2006 was 4,512 (32.0%). The frequency of reported fatalities for the year 2007 was 5,160 (36.6%) and the frequency of reported fatalities for the year 2008 was 4,429 (31.4%). The frequency of reported fatalities for the years 2006-2008 is displayed in Table 11.

Reported Fatalities from the six UAE Medical Districts by seasons of the year

The frequencies of reported fatalities in the six medical districts managed by the UAE Ministry of Health were compared by season of the year for the three years 2006-2008. The frequency of reported fatalities for spring was 3,620 (25.7%). The frequency of reported fatalities

for summer was 3,498 (24.8%). The frequency of reported fatalities for fall was 3143 (22.3%) and the frequency of reported fatalities for winter was 3,840 (27.2%). The frequency of reported fatalities by seasons of the year is illustrated in Table 12.

Frequency of Reported Deaths by Manner

Once the uniform surveillance database file was created by the researcher, each death record was numerically coded by manner and cause category. The manner code “Natural,” was assigned by the researcher to all 7,106 (50.4 %) deaths originally categorized as death resulting from one of the following categories: chronic or communicable disease, congenital anomalies, Sudden Infant Death Syndrome, and other illnesses or causes. For the reported 2,510 (17.8) deaths coded as caused by unintentional injury, homicide, or suicide, a manner code of “Non-natural” was assigned by the researcher. Fatalities were categorized by manner as Natural or Non-natural except for the 1,471 (10.4%) coded as an injury and the 3,014 (21.4%) reported fatalities provided by the medical districts with no cause identified. Table 13 illustrates the frequency of deaths categorized by manner and cause.

Following a review of the death data by frequency and related review of literature, the researcher removed all reported fatalities by manner of death coded as injury 1,471 (10.4%) from the database prior to further analysis by manner. This was done because it was revealed through previous published reports that some deaths previously coded as accidental, homicide, or suicide had also been found to receive a second code by manner of injury. This double coding by manner if it left in the data base would result in double counting of death in these categories if not removed (Barss & Grivna, 2009). See Table 13 for frequencies of reported deaths in the six UAE medical districts by manner and cause. Table 14 displays the frequency of reported deaths in the six UAE medical districts with no specific cause of death identified.

Table 10: Frequency of Reported Deaths by Original Age Group Provided by the Six UAE Medical Districts

Age group	Number of Death	Percent
(0-4)	1,019	7.2
(5-14)	252	1.8
(15-19)	316	2.2
420-29)	1,967	13.9
(30-44)	3,149	22.3
(45-54)	1,945	13.8
(55-65)	1,673	11.9
(Over 65)	3,326	23.6
No age of Death	454	3.2
Total	14,101	100.0

Table 11: Frequency of Reported Deaths by Each Year under Study (2006 – 2008) in the Six UAE Medical Districts

Year	Frequency	Percent
2006	4,512	32.0
2007	5,160	36.6
2008	4,429	31.4
Total	14,101	100.0

Table 12: Frequency of Reported Deaths by Season in the Six UAE Medical Districts 2006-2008

Season	Frequency	Percent
Spring	3,620	25.7
Summer	3,498	24.8
Fall	3,143	22.3
Winter	3,840	27.2
Total	14,101	100.0

Table 13: Frequency of Reported Deaths in the Six UAE Medical Districts by Manner and Cause

Manner/Cause	Number of death	Percent
Natural	7, 106	50.4 %
Non-natural	2,510	17.8%
Injury Code	1,471	10.4%
Unknown	3,014	21.4%
Total	14,101	100%

Table 14: Frequency of Reported Deaths in the Six UAE Medical Districts with No Specific Cause of Death Identified

District	Known causes	Unknown causes	Total	Percent of deaths that have unknown causes
Ajman	779	434	1,213	36%
Dubai	3,312	2,231	5,543	40%
Fujairah	543	96	639	15%
Ra's al-Khaimah	1,229	43	1,272	3%
Sharjah	4,831	211	5,045	0.4%
Umm al-Qaiwain	392	0	392	0
Total	11,086	3,015	14,101	21%

Table 15: Frequency of Reported Deaths by Various Cause Categories, As Provided By the Six UAE Medical Districts

Deaths by category	Number	Percent
Natural	7,104	50.4
Homicide	185	1
Suicide	48	0.34
Unintentional Injury	3,741	27
Unknown	3,023	21.4
Total	14,101	100.0

The number of fatalities coded as Natural deaths was 7,106 (56.3%), and the number of fatalities coded as Non-natural deaths 2,510 (17.8%). Using the manner categories of Natural and Non-natural was necessary for the analysis because the frequencies reported for the causes of death coded as homicide (48, 0.34%) and suicide (185, 1.0%) were too small to allow them to be analyzed separately from the 3,741 unintentional injury deaths. However, the category of unintentional injury deaths was large enough to be considered as a separate cause of death analysis. See Table 15 for frequency of reported deaths by various cause categories, as provided by the six UAE medical districts.

Unintentional Injury Deaths

The monthly reports originally coded by each of the medical districts and provided to the researcher used the following categories to code the specific cause of death for Unintentional Injury deaths: Accidents & Adverse Effects, Motor Vehicle and Traffic Accidents, Accidental Poisoning, Fractures, Drowning, Burns, Accidental Falls, Misadventure during Medical Care, Accidents Due to Fire and Flames, Accidents & Adverse Effects, Effects of Foreign Body Entering Orifice, Poisoning and Toxic Effects, and Not Specified. The total frequency of deaths caused by Unintentional Injury was 3,741, or 26.3% of total deaths reported for 2006-2008.

After reviewing the frequencies of unintentional death, the researcher combined these eight categories into five categories for the purpose of statistical analysis. These five categories include: Accidents and Adverse Effect, Motor Vehicle & Traffic Accidents, Accidental Falls, Accidental Poisoning, and Other Causes of death by unintentional injury. After determining the four major causes of unintentional injury deaths the researcher merged the remaining cause categories, each of which accounted for relatively few deaths, into the category of Other Causes. The category Other Causes therefore includes: Fractures, Burns, Misadventure during Medical

Care, Accidents Due to Fire and Flames, Drowning, Effects of Foreign Body Entering Orifice, Poisoning and Toxic Effects, and Other Causes.

The frequency of deaths caused by Accidental and Adverse Effects was 463 (3.3%). The frequency of Motor Vehicle and Traffic Accidents was 1,880 (13.3%). The frequency of Accidental Poisoning was 720 (5.1%). The frequency of Accidental Falls was 347 (2.5%) and the frequency of Other Causes 331 (2.3%). The total frequency for all deaths from unintentional injury was 3,741 (27.0%).

Table 16 illustrates the frequency of reported unintentional injury deaths for the six UAE medical districts. Table 17 displays the percentage of Unintentional Injury Deaths by cause in each of the six UAE medical districts.

Table 16: Frequency of Unintentional Injury Deaths for all Six UAE Medical Districts 2006-2008

Unintentional Injury	Frequency	Percentage of total fatalities
Accidents & Adverse Effects	463	3.3
Motor Vehicle & Traffic Accidents	1,880	13.3
Accidental Poisoning	720	5.1
Accidental Falls	347	2.5
Other Causes	331	2.3
Total	3,741	27.0

Table 17: Percentage of Unintentional Injury Deaths by Specific Cause in Each of the Six UAE Medical Districts

Unintentional Injury Cause (frequency)	Ajman	Dubai	Fujairah	Ras al-Khaimah	Sharjah	Umm al-Qaiwain	Total
Accidents & Adverse Effects	(36)	(114)	(15)	(22)	(271)	(5)	(463)
% within district	15.1%	18.4%	9.4%	7.5%	12.0%	3.0%	12.4%
% of total	1.0%	3.0%	0.4%	.6%	7.2%	0.1%	12.4%
Motor Vehicle & Traffic Accidents	(118)	(203)	(118)	(191)	(1,177)	(73)	(1,880)
% within district	49.6%	32.7%	74.2%	65.2%	52.0%	44.2%	50.3%
% of total	3.2%	5.4%	3.2%	5.1%	31.5%	2.0%	50.3%
Accidental Poisoning	(1)	(172)	(0)	(29)	(470)	(48)	(720)
% within district	0.4%	27.7%	0.0%	9.9%	20.8%	29.1%	19.2%
% of total	0.0%	4.6%	0.0%	0.8%	12.6%	1.3%	19.2%
Accidental Falls	(42)	(88)	(6)	(16)	(188)	(7)	(347)
% within district	17.6%	14.2%	3.8%	5.5%	8.3%	4.2%	9.3%
% of total	1.1%	2.4%	0.2%	0.4%	5.0%	0.2%	9.3%
Other Causes	(41)	(44)	(20)	(35)	(159)	(32)	(331)
% within district	17.2%	7.1%	12.6%	11.9 %	7.0%	19.4%	8.8%
% of total	1.1%	1.2%	0.5%	0.9%	4.3%	9%	8.8%
Total	(238)	(621)	(159)	(293)	(2,265)	(165)	(3,741)
% within district	100%	100%	100%	100%	100%	100%	100%
% of total	6.4%	16.6%	4.3%	7.8%	60.5%	4.4%	100%

Analysis of Unintentional Deaths by Frequency among all Male Citizens in the Six Medical Districts

An analysis was conducted by the researcher using a Chi-Square test and adjusted residual to determine if the reported death by frequency for all male citizens differed significantly in the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 when analyzed by Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle and Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes) using a $p \leq .05$. The result of the Chi-Square analysis found the frequency for fatalities among all male citizens in the six medical districts for the years 2006-2008 to differ significantly by cause of Unintentional Injury death. The analysis resulted in Chi-Square value of 461.291 and a *p. value* of .000.

Accidents & Adverse Effects

The adjusted residual for Unintentional Injury death caused by Accidental & Adverse Effects among all male citizens in the period 2006-2008 was calculated for each district. The reported frequency was observed to be significantly higher than statistically expected in the following medical districts: Ajman (2.2), Dubai (5.5), and Sharjah (2.6). The adjusted residual for Unintentional Injury death caused by Accidental & Adverse Effects among this same group further showed the observed frequency to be significantly lower than statistically expected in the medical district of Umm al-Qaiwain (-5.4), and Fujairah (-4.2). The observed frequency of deaths caused by Accidents & Adverse Effects for all male citizens in the medical districts of Ra's al-Khaimah (-1.5) was found not to differ significantly from the statistically expected

frequency. (See figure 1 for an illustration of the percentages of deaths caused by Accidents & Adverse Effects among all male citizens in each of the six UAE medical districts.)

Motor Vehicle & Traffic Accidents

The adjusted residual for Unintentional Injury death caused by Motor Vehicle and Traffic Accidents among all male citizens in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed frequency that was significantly higher than statistically expected in the medical districts of Ajman (5.7), and Fujairah (11.6), and Ra's al Khaimah (6.2). The observed frequency was significantly lower than statistically expected in the medical districts of Dubai (-6.7), and Sharjah (-10.6). The observed frequency in the medical district of and Umm al-Qaiwain (1.0) was found not to differ significantly from the statistically expected frequency. (See figure 2 for an illustration of the percentages of deaths caused by Motor Vehicle and Traffic Accidents among all male citizens in each of the six UAE medical districts.)

Accidental Poisoning

The adjusted residual for Unintentional Injury death caused by Accidental Poisoning among all male citizens in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed frequency that was significantly higher than statistically expected in the medical districts of Dubai (8.5), and Sharjah (2.6), and Umm al-Qaiwain (5.1). The observed frequency was significantly lower than statistically expected in the medical districts of Ajman (-6.5), Fujairah (-8.6), and Ra's al Khaimah (-4.7). (See figure 3 for an illustration of the percentages of deaths caused by Accidental Poisoning among all male citizens in each of the six UAE medical districts.)

Accidental Falls

The adjusted residual for Unintentional Injury death caused by Accidental Fall among all male citizens in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed frequency that was significantly higher than statistically expected in the medical districts of Sharjah (4.2). The observed frequency was significantly lower than statistically expected in the medical district of Ajman (-2.9). The observed frequency was found not to differ significantly from the statistically expected frequency in the medical districts of Dubai (.9), Fujairah (-1.1), Ra's al-Khaimah (-2.0), and Umm al-Qaiwain (-1.9). (See figure 4 for an illustration of the percentages of deaths caused by Accidental Falls among all male citizens in each of the six UAE medical districts.)

Other Causes

The adjusted residual for Unintentional Injury deaths caused by Other Causes among all male citizens in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed frequency that was significantly higher than statistically expected in the medical district of Sharjah (7.9). The observed frequency was significantly lower than statistically expected in the medical district of Dubai (-5.3), Fujairah (-2.8), and Umm al-Qaiwain (-2.3). The observed frequency in the medical districts of Ajman (-.3), and Ra's al-Khaimah (-1.2) were found not to differ significantly from the statistically expected frequency. Table 18 displays the frequency of unintentional injury by specific cause of deaths among all male citizens in six medical districts for the years 2006-2008. (See figure 5 for an illustration of the percentages of deaths and table 18 for the frequency of unintentional injury by specific cause of deaths among all male citizens in six medical districts for the years 2006-2008)

Table 18: The Frequency of Unintentional Injury by Specific Cause among ALL Male Citizens in the Six UAE Medical Districts in the Years 2006-2008

Unintentional Injury Deaths	Citizen Males	Ajman	Dubai	Fujairah	Ras AlKhaimah	Sharjah	Um AlQuwain	Total
Accidents & Adverse Effects	Frequency	(18)	(45)	(2)	(16)	(90)	(00)	(171)
	Expected	11.2	21.8	18.6	22.3	73.9	23.1	
	Adjusted	2.2**	5.5**	-4.2	-1.5	2.6**	-5.4**	
	Residual	10.5%	26.3%	1.2%	9.4%	52.6%	0.0%	100%
	%within Cause %within District	11.8%	15.2%	.8%	5.3%	8.9%	0.0%	7.3%
Motor Vehicle & Traffic Accidents	Frequency	(117)	(108)	(225)	(216)	(423)	(180)	
	Expected	83.3	161.7	138.3	165.5	548.8	171.5	(1,269)
	Adjusted	5.7**	-6.7**	11.6**	6.2**	-10.6	1.0	
	Residual	9.2%	8.5%	17.7%	17.0%	33.3%	14.2%	100%
	%within Cause %within District	76.5%	36.4%	88.6%	71.1%	42.0%	57.1%	54.4%
Accidental Poisoning	Frequency	(0)	(117)	(0)	(32)	(234)	(99)	(482)
	Expected	31.6	61.4	52.5	62.9	208.4	65.1	
	Adjusted	-6.5**	8.5**	-8.6**	-4.7**	2.6**	5.1**	
	Residual	.0.0%	24.3%	0.0%	6.6%	48.5%	20.5%	100%
	%within Cause %within District	0.0%	39.4%	0.0%	31.4%	23.2%	31.4%	20.7%
Accidental Falls	Frequency	(0)	(18)	(9)	(8)	(72)	(9)	(116)
	Expected	7.6	14.8	12.6	15.1	50.2	15.7	
	Adjusted	-2.9**	.9	-1.1	-2.0	4.2**	-1.9	
	Residual	0.0%	15.5%	7.8%	6.9%	62.1%	7.8%	100%
	%within Cause %within District	0.0%	6.1%	3.5%	2.6%	7.1%	2.9%	5.0%
Other Causes	Frequency	(18)	(9)	(18)	(32)	(189)	(27)	(293)
	Expected	19.2	37.3	31.9	38.2	126.7	39.6	
	Adjusted	-.3	-5.3**	-2.8**	-.1.2	7.9**	-2.3**	
	Residual	6.1%	3.1%	6.1%	10.9%	64.5%	9.2%	100%
	%within Cause %within District	11.8%	3.0%	7.1%	10.5%	18.8%	8.6%	12.6%
Total	Frequency	(153)	(297)	(254)	(304)	(1,008)	(315)	(2331)
	Expected	153.0	297.0	254.0	304.0	1,008.0	315.0	100%
	%within Cause	6.6%	12.7%	10.9%	13.0%	43.4%	13.5%	100%
	%within District	100%	100%	100%	100%	100%	100%	

a. Chi-Square = 461.291, df=4, sig=.000*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

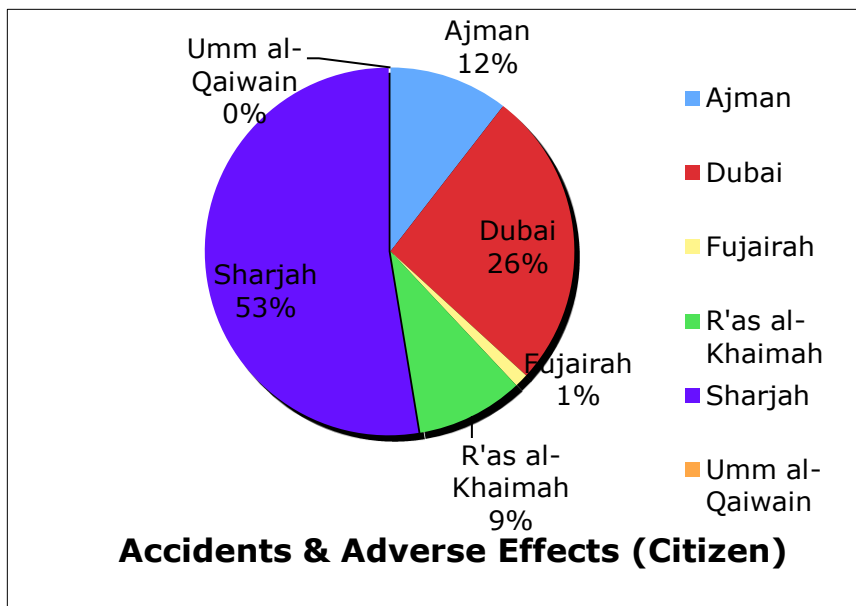


Figure 1. The Percentages of Deaths Caused by Accidents & Adverse Effects among All Male Citizens in Each of the Six UAE Medical Districts

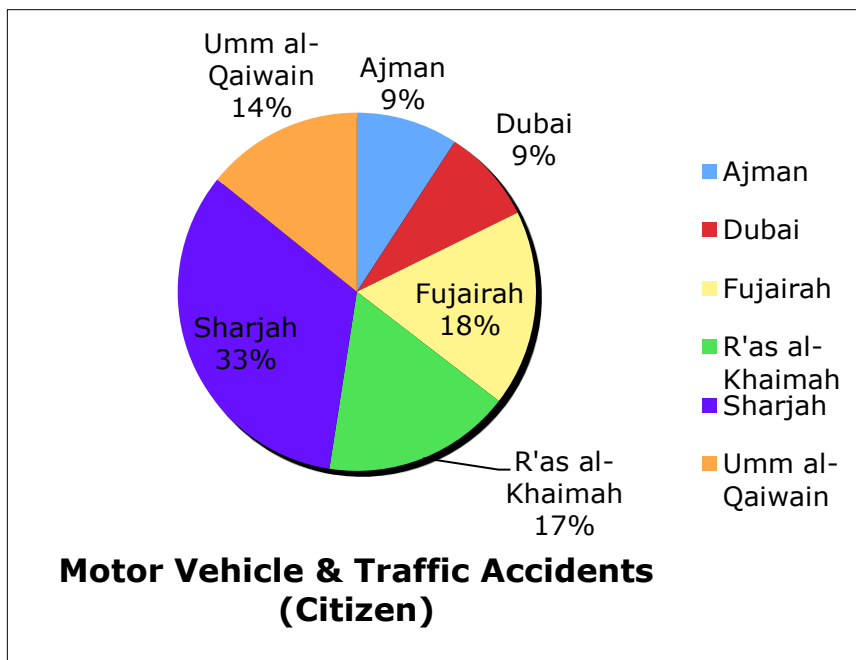


Figure 2. The Percentages of Deaths Caused by Motor Vehicle & Traffic Accidents among All Male Citizens in Each of the Six UAE Medical Districts

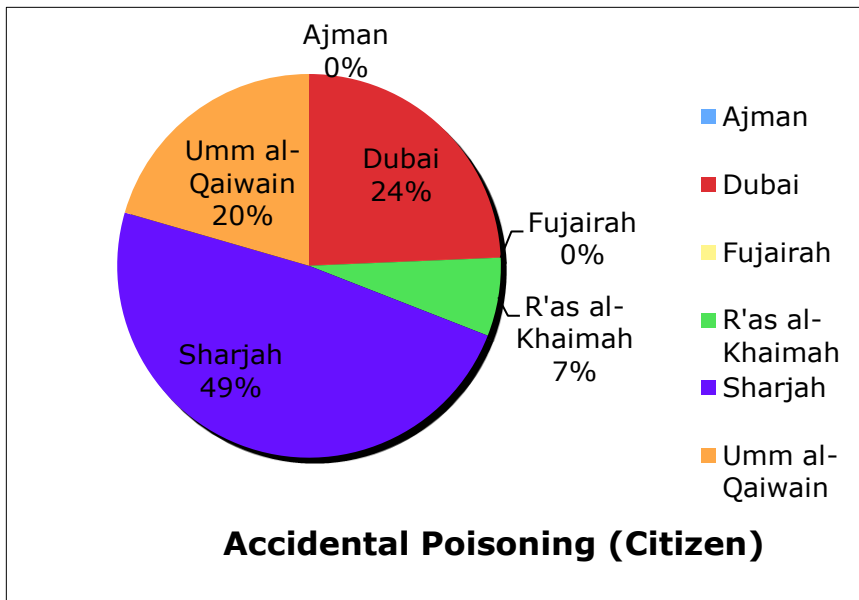


Figure 3. The Percentages of Deaths Caused by Accidental Poisoning among All Male Citizens in Each of the Six UAE Medical Districts

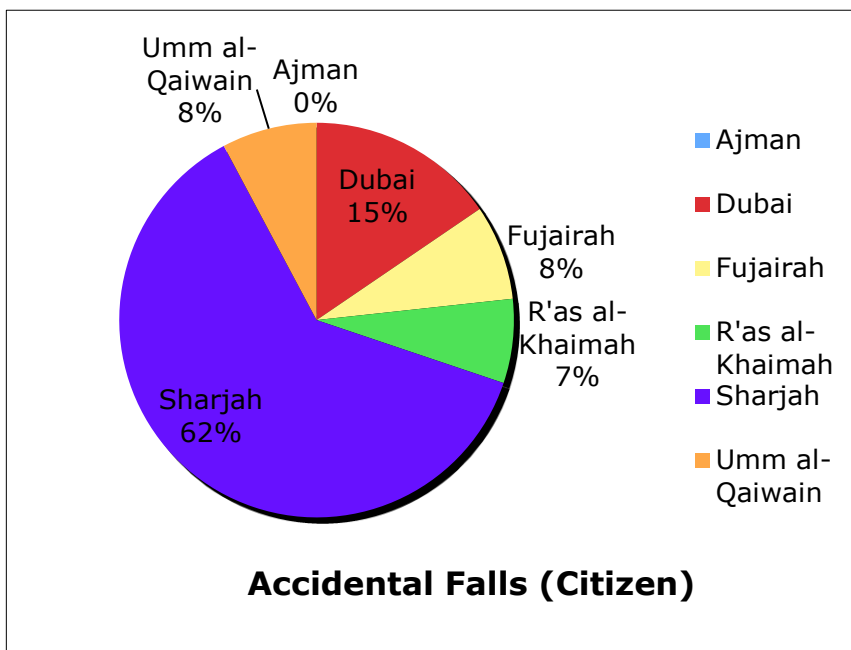


Figure 4. The Percentages of Deaths Caused by Accidental Falls among All Male Citizens in Each of the Six UAE Medical Districts

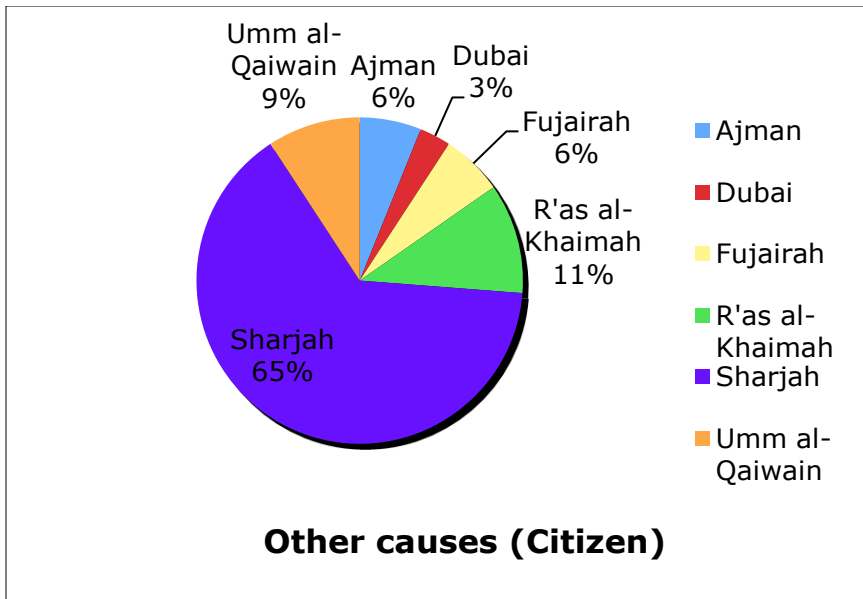


Figure 5. The Percentages of Deaths by Other Causes among All Male Citizens in Each of the Six UAE Medical Districts

Analysis of Unintentional Deaths by Frequency among all Male Non-citizens in the Six Medical Districts

An analysis was conducted by the researcher using a Chi-Square test and adjusted residual to determine if the reported death by frequency for all male non-citizens differed significantly in the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 when analyzed by Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle and Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes) using a $p \leq .05$. The result of the Chi-Square analysis found the frequency for fatalities among all male Non-citizens in the six medical districts for the years 2006-2008 to differ significantly by cause of Unintentional Injury death. The analysis resulted in Chi-Square value of 770.964 and a *p. value* of .000.

Accidents & Adverse Effects

The adjusted residual for Unintentional Injury death caused by Accidental & Adverse Effects among all male Non-citizens in the period 2006-2008 was calculated for each district. The reported frequency was observed to be significantly higher than statistically expected in the following medical districts: Dubai (5.8), and Sharjah (5.4). The adjusted residual for the accidental death cause Accidental & Adverse Effects among this same group further showed the observed frequency to be significantly lower than statistically expected in the medical district of Ra's al-Khaimah (-2.3), and Umm al-Qaiwain (-10.3). The observed frequency of deaths caused by Accidents & Adverse Effects for all male Non-citizens in the medical districts of Ajman (-1.4), and Fujairah (-1.8) was found not to differ significantly from the statistically expected frequency. (See figure 6 for an illustration of the percentages of deaths caused by Accidents & Adverse Effects among all male Non-citizens in each of the six UAE medical districts.)

Motor Vehicle & Traffic Accidents

The adjusted residual for Unintentional Injury death caused by Motor Vehicle and Traffic Accidents among all male Non-citizens in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed frequency that was significantly higher than statistically expected in the medical districts of Ajman (3.8), Fujairah (9.5), Ra's al Khaimah (6.8), and Umm al-Qaiwain (3.1). The observed frequency was significantly lower than statistically expected in the medical districts of Dubai (-7.2), and Sharjah (-7.1). (See figure 7 for an illustration of the percentages of deaths caused by Motor Vehicle and Traffic Accidents among all male Non-citizens in each of the six UAE medical districts.)

Accidental Poisoning

The adjusted residual for the Unintentional Injury death caused by Accidental Poisoning among all male Non-citizens in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed frequency that was significantly higher than statistically expected in the medical districts of Dubai (5.7), and Sharjah (5.2), and Umm al-Qaiwain (9.6). The observed frequency was significantly lower than statistically expected in the medical districts of Ajman (-11.5), Fujairah (-9.1), and Ra's al Khaimah (-6.2). (See figure 8 for an illustration of the percentages of deaths caused by Accidental Poisoning among all male Non-citizens in each of the six UAE medical districts.)

Accidental Falls

The adjusted residual for Unintentional Injury death caused by Accidental Fall among all male Non-citizens in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed frequency that was significantly higher than statistically

expected in the medical districts of Ajman (4.6), and Dubai (7.4). The observed frequency was significantly lower than statistically expected in the medical district of Fujairah (-4.6), and Sharjah (-2.2), and Umm al-Qaiwain (-7.8). The observed frequency was found not to differ significantly from the statistically expected frequency in the medical districts of Ra's al-Khaimah (-.4). (See figure 9 for an illustration of the percentages of deaths caused by Accidental Falls among all male Non-citizens in each of the six UAE medical districts.)

Other Causes

The adjusted residual for the Unintentional Injury death cause Other Causes among all male Non-citizens in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed frequency that was significantly higher than statistically expected in the medical district of Ajman (2.6), Fujairah (2.8), and Umm al-Qaiwain (5.7). The observed frequency was significantly lower than statistically expected in the medical district of Dubai (-9.3). The observed frequency in the medical districts of Ra's al-Khaimah (.3), and Sharjah (1.3) were found not to differ significantly from the statistically expected frequency. Table 19 displays the frequency of unintentional injury by specific cause of deaths among all male Non-citizens in six medical districts for the years 2006-2008. (See figure 10 for an illustration of the percentages of deaths caused by Other Causes among all male Non-citizens in each of the six UAE medical districts)

Table 19: The Frequency of Unintentional Injury Deaths by Specific Cause among ALL Non-citizen Males in the Six UAE Medical Districts

Unintentional Injury Deaths	NonCitizen Males	Ajman	Dubai	Fujairah	Ras alKhaimah	Sharjah	Umm alQuwain	Total
Accidents & Adverse Effects	Frequency	(153)	(423)	(82)	(96)	(576)	(36)	(1,366)
	Expected	167.9	339.4	95.6	117.8	505.5	139.6	
	Adjusted Residual	-1.4	5.8**	-1.8	-2.3**	4.4**	-10.3**	
	%within Cause	11.2%	31.0%	6.0%	7.0%	42.2%	2.6%	100%
	%within District	17.9%	24.5%	16.8%	16.0%	22.4%	5.1%	19.6%
Motor Vehicle & Traffic Accidents	Frequency	(297)	(387)	(234)	(248)	(621)	(243)	(2,030)
	Expected	249.6	504.4	142.1	175.1	751.3	207.5	
	Adjusted Residual	3.8**	-7.2**	9.5**	6.8**	-7.1	3.1**	
	%within Cause	14.6%	19.1%	11.5%	12.2%	30.6%	12.0%	100%
	%within District	34.7%	22.4%	48.0%	41.3%	24.1%	34.2%	29.2%
Accidental Poisoning	Frequency	(9)	(306)	(0)	(32)	(423)	(180)	(950)
	Expected	116.8	236.0	66.5	82.0	351.6	97.1	
	Adjusted Residual	-11.5**	5.7**	-9.1**	-6.2	5.2**	9.6**	
	%within Cause	.9%	32.2%	0.0%	3.4%	44.5%	18.9%	100%
	%within District	1.1%	17.7%	0.0%	5.3%	16.4%	25.3%	13.7%
Accidental Falls	Frequency	(189)	(387)	(45)	(96)	(396)	(45)	(1,158)
	Expected	142.4	287.7	81.1	99.9	428.6	118.4	
	Adjusted Residual	4.6**	7.4**	-4.6**	-.4	-2.2**	-7.8**	
	%within Cause	16.3%	33.4%	3.9%	8.3%	34.2%	3.9%	100%
	%within District	22.1%	22.4%	9.2%	16.0%	15.4%	6.3%	16.6%
Other Causes	Frequency	(207)	(225)	(126)	(128)	(558)	(207)	(1,451)
	Expected	178.4	360.5	101.6	125.2	537.0	148.3	
	Adjusted Residual	2.6**	-9.3*	2.8**	.3	1.3	5.7**	
	%within Cause	14.3%	15.5%	8.7%	8.8%	38.5%	14.3%	100%
	%within District	24.2%	13.0%	25.9%	21.3%	21.7%	29.1%	20.9%
Total	Frequency	(855)	(1728)	(487)	(600)	(2,574)	(711)	(6,955)
	Expected	855.0	172.0	487.0	600.0	2,574.0	711	100%
	%within Cause	12.3%	24.8%	7.0%	8.6%	37.0%	10.2%	100%
	%within District	100%	100%	100%	100%	100%	100%	

a. Chi-Square = 770.964, df=4, sig=.000*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

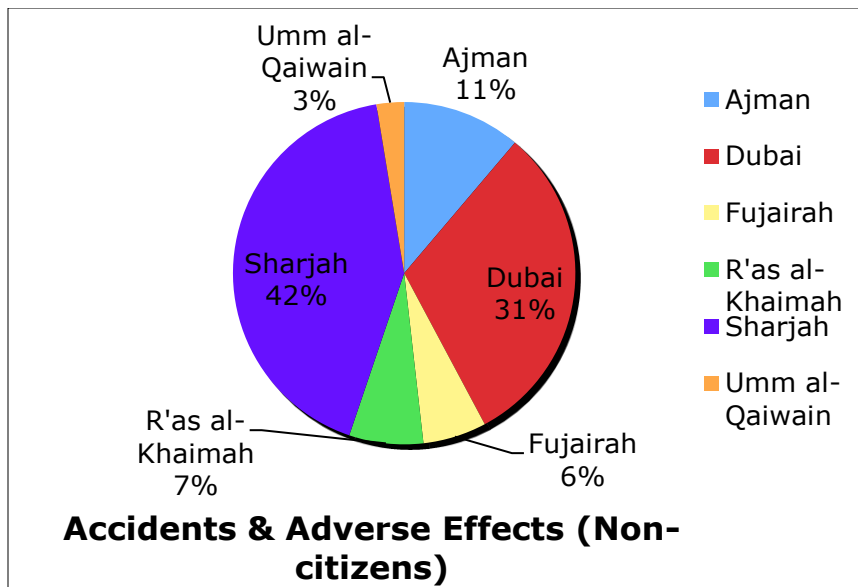


Figure 6. The Percentages of Deaths Caused by Accidents & Adverse Effects among All Male Non-Citizens in each of the Six UAE Medical Districts

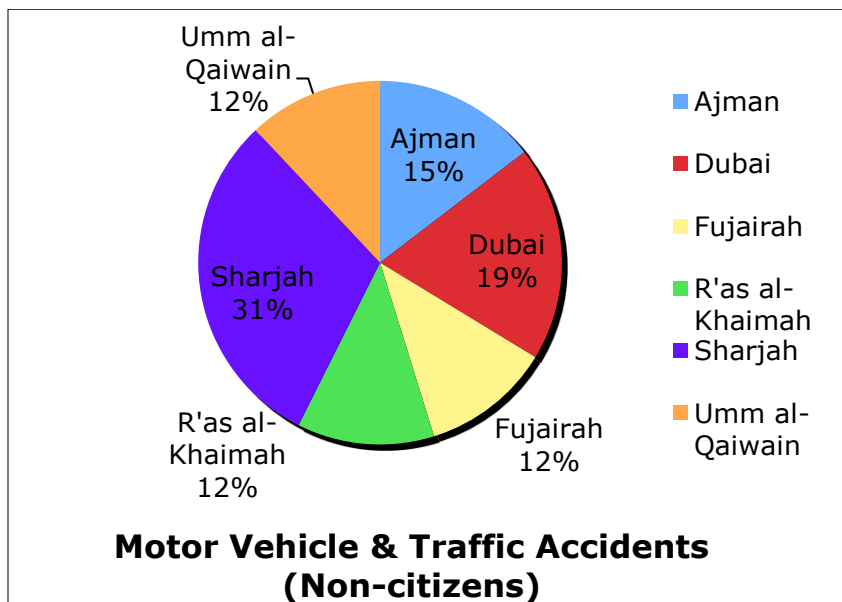


Figure 7. The Percentages of Deaths Caused by Accidents & Adverse Effects among All Male Non-Citizens in each of the Six UAE Medical Districts

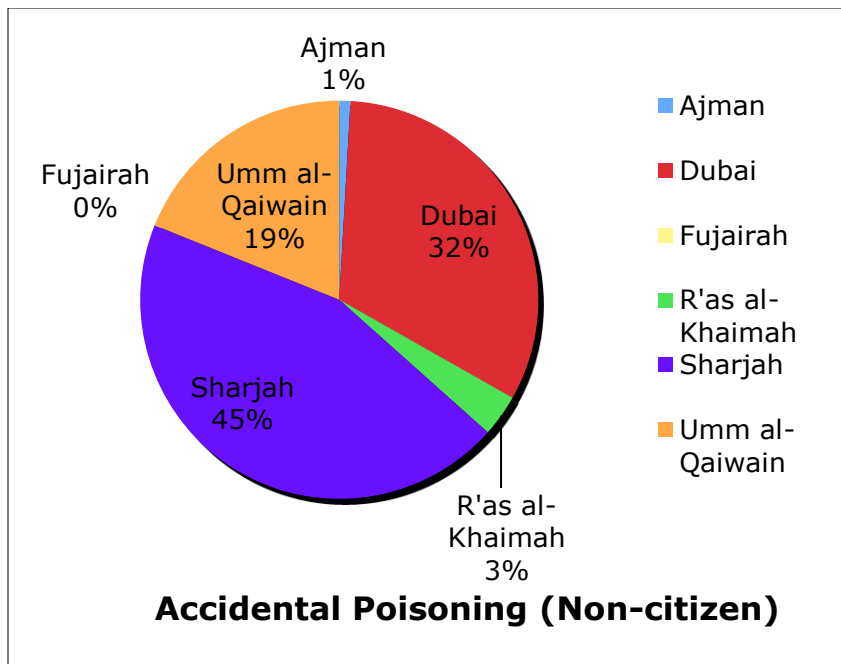


Figure 8. The Percentages of Deaths Caused by Accidental Poisoning among All Male Non-Citizens in Each of the Six UAE Medical Districts

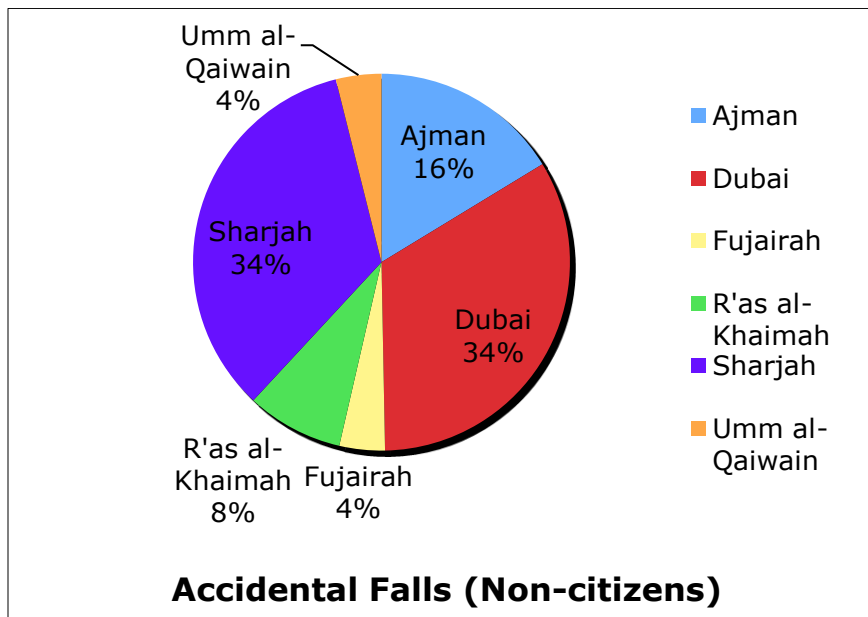


Figure 9. The Percentages of Deaths Caused by Accidental Falls among All Male Non-Citizens in Each of the Six UAE Medical Districts

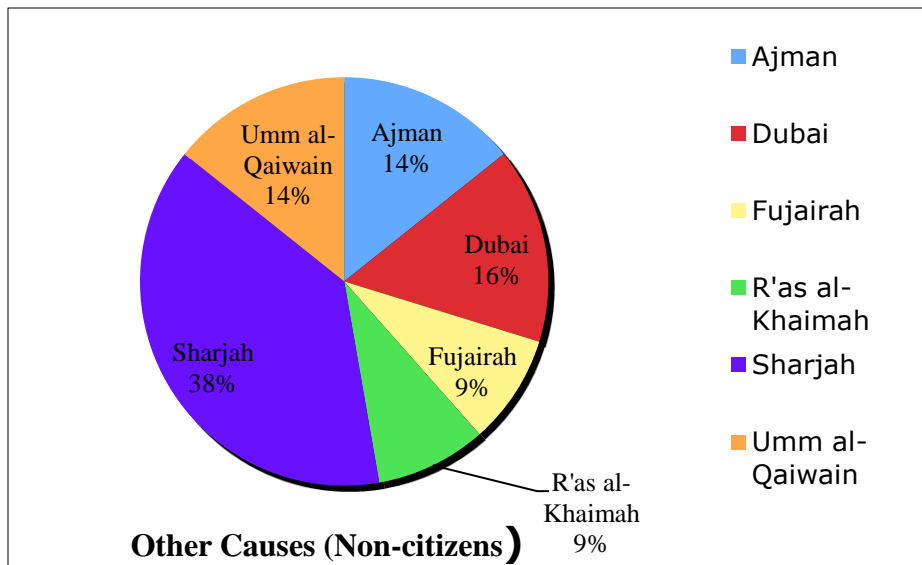


Figure 10. The Percentages of Other Causes among All Male Non-Citizens in Each of the Six UAE Medical Districts

Analysis of Unintentional Deaths by Frequency among all Males in the Six Medical Districts

An analysis was conducted by the researcher using a Chi-Square test and adjusted residual to determine if the reported death by frequency for all males differed significantly in the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 when analyzed by Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle and Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes) using a $p \leq .05$. The result of the Chi-Square analysis found the frequency for fatalities among all male Non-citizens in the six medical districts for the years 2006-2008 to differ significantly by cause of Unintentional Injury death. The analysis resulted in Chi-Square value of 1209.189 and a *p. value* of .000.

Accidents & Adverse Effects

The adjusted residual for Unintentional Injury death caused by Accidental & Adverse Effects among all males in the period 2006-2008 was calculated for each district. The reported frequency was observed to be significantly higher than statistically expected in the following medical districts: Dubai (9.4), and Sharjah (4.2). The adjusted residual for the accidental death cause Accidental & Adverse Effects among this same group further showed the observed frequency to be significantly lower than statistically expected in the medical district of Fujairah (-4.0), Ra's al-Khaimah (-3.5), and Umm al-Qaiwain (-11.9). The observed frequency of deaths caused by Accidents & Adverse Effects for all males in the medical districts of Ajman (.4) was found not to differ significantly from the statistically expected frequency. (See figure C-1 for an illustration of the percentages of deaths caused by Accidents & Adverse Effects among all males in each of the six UAE medical districts.)

Motor Vehicle & Traffic Accidents

The adjusted residual for Unintentional Injury death caused by Motor Vehicle & Traffic Accidents among all males in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed frequency that was significantly higher than statistically expected in the medical districts of Ajman (3.9), Fujairah (15.7), Ra's al Khaimah (10.4), and Umm al-Qaiwain (4.0). The observed frequency was significantly lower than statistically expected in the medical districts of Dubai (-11.8), and Sharjah (-10.2). (See figure C-2 for an illustration of the percentages of deaths caused by Motor Vehicle & Traffic Accidents among all males in each of the six UAE medical districts.)

Accidental Poisoning

The adjusted residual for the Unintentional Injury death caused by Accidental Poisoning among all males in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed frequency that was significantly higher than statistically expected in the medical districts of Dubai (7.7), and Sharjah (6.2), and Umm al-Qaiwain (11.1). The observed frequency was significantly lower than statistically expected in the medical districts of Ajman (-13.5), Fujairah (-12.1), and Ra's al Khaimah (-7.3). (See figure C-3 for an illustration of the percentages of deaths caused by Accidental Poisoning among all males in each of the six UAE medical districts.)

Accidental Falls

The adjusted residual for Unintentional Injury death caused by Accidental Falls among all males in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed frequency that was significantly higher than statistically expected in the medical districts of Ajman (4.9), and Dubai (9.3). The observed frequency was significantly lower than statistically expected in the medical district of Fujairah (-5.3), Ra's al-Khaimah (-2.0), Sharjah (-1.5), and Umm al-Qaiwain (-8.3). (See figure C-4 for an illustration of the percentages of deaths caused by Accidental Falls among all male Non-citizens in each of the six UAE medical districts.)

Other Causes

The adjusted residual for the Unintentional Injury death cause Other Causes among all males in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed frequency that was significantly higher than statistically expected in the medical district of Ajman (3.0), Sharjah (4.1), and Umm al-Qaiwain (3.5). The observed frequency was significantly lower than statistically expected in the medical district of Dubai (-9.4). The observed frequency in the medical districts of Fujairah (.5), Ra's al-Khaimah (-.9) were found not to differ significantly from the statistically expected frequency. (See figure C-5 for an illustration of the percentages of deaths caused by Other Causes among all males in each of the six UAE medical districts.) Table 20 displays the frequency of unintentional injury by specific cause of deaths among all males in six medical districts for the years 2006-2008.

Table 20: The Frequency of Unintentional Injury Deaths by Specific Cause among All Males in the Six UAE Medical Districts

Unintentional Injury Deaths	Citizen Males	Ajman	Dubai	Fujairah	Ras alKhaimah	Sharjah	Umm alQuwain	Total
Accidents & Adverse Effects	Frequency	(171)	(468)	(84)	(112)	(666)	(36)	(1537)
	Expected count	166.8	335.2	122.6	149.6	592.8	169	
	Adjusted Residual	.4	9.0**	-4.)**	-3.5**	4.2**	-11.9**	
	%within Cause	11.1%	30.4%	5.5%	7.3%	43.3%	2.3%	100%
	%within District	17.0%	23.1%	11.3%	12.4%	18.6%	3.5%	16.6%
Motor Vehicle & Traffic Accidents	Frequency	(414)	(495)	(459)	(464)	(1,044)	(423)	(3299)
	Expected count	358.1	719.4	263.3	321.2	1,272.6	364.5	
	Adjusted Residual	3.9**	-11.8**	15.7**	10.4**	-10.2**	4.0	
	%within Cause	12.5%	15.0%	13.9%	14.1%	31.6%	12.8%	100%
	%within District	41.1%	24.4%	61.9%	51.3%	29.1%	41.2%	35.5%
Accidental Poisoning	Frequency	(9)	(423)	(0)	(64)	(657)	(279)	(1,432)
	Expected count	155.4	312.3	114.3	139.4	552.4	158.2	
	Adjusted Residual	-13.5**	7.7**	-12.1**	-7.3**	6.2**	11.1**	
	%within Cause	.6%	29.5%	0.0%	4.5%	45.9%	19.5%	100%
	%within District	.9%	20.9%	0.0%	7.1%	18.3%	27.2%	15.4%
Accidental Falls	Frequency	(189)	(405)	(54)	(104)	(468)	(54)	(1,274)
	Expected count	138.3	277.8	101.7	124.04	491.4	140.8	
	Adjusted Residual	4.9**	9.3**	-5.3	-2.0	-1.5	-8.3	
	%within Cause	14.8%	31.8%	4.2%	8.2%	36.7%	4.2%	100%
	%within District	18.8%	20.0%	7.3%	11.5%	13.1%	5.3%	13.7%
Other Causes	Frequency	(225)	(234)	(144)	(160)	(747)	(234)	(1,744)
	Expected count	189.3	380.3	139.2	169.8	672.7	192.7	
	Adjusted Residual	3.0	-9.4**	.5	-.9	4.1**	3.5**	
	%within Cause	12.9%	13.4%	8.3%	9.2%	42.8%	13.4%	100%
	%within District	22.3%	11.6%	19.4%	17.7%	20.9%	22.8%	18.8%
Total	Frequency	(1,008)	(2,025)	(741)	(904)	(3,582)	(1,026)	(9,286)
	Expected count	1008.0	2025.0	741.0	904.0	3,582.0	1026.0	100%
	%within Cause	10.9%	21.8%	8.0%	9.7%	38.6%	11.0%	100%
	%within District	100%	100%	100%	100%	100%	100%	

a. Chi-Square = 1209.189, df=4, sig=.000*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

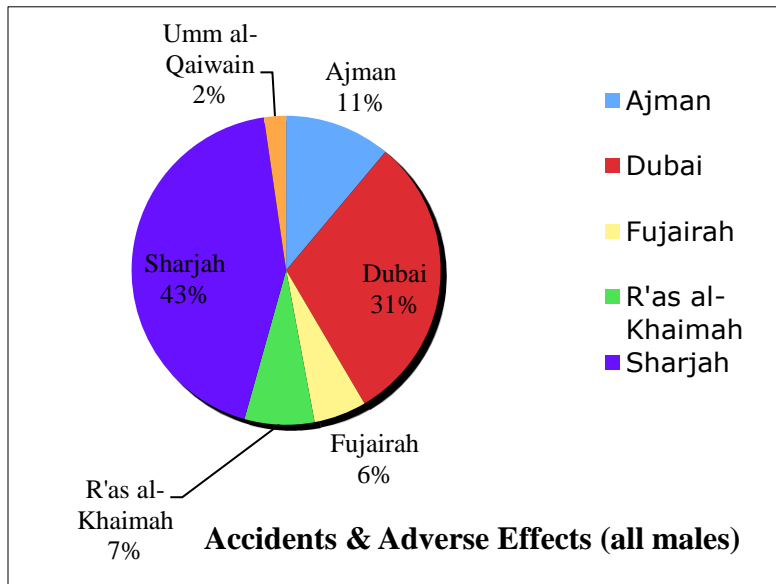


Figure 11. The Percentages of Deaths Caused by Accidents & Adverse Effects among All Male In Each Of The Six UAE Medical Districts

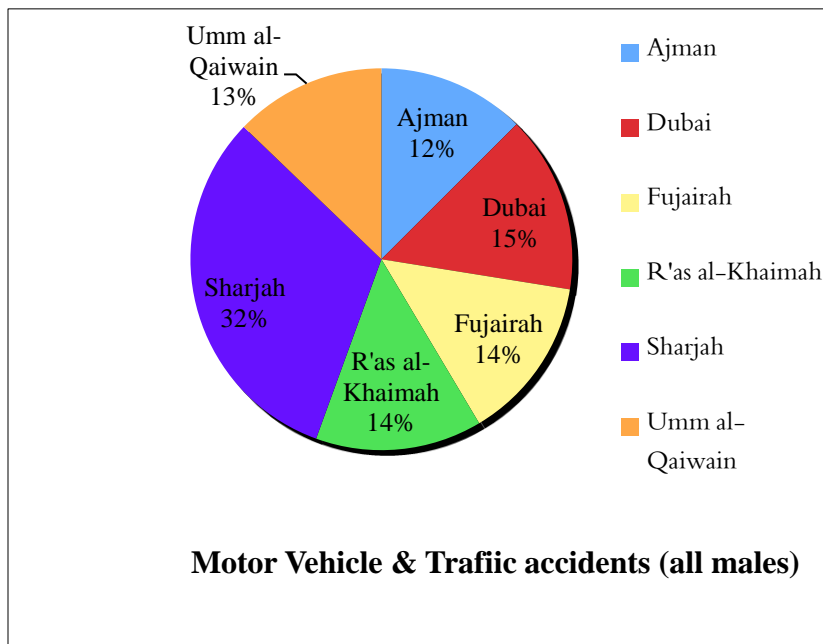


Figure 12. The Percentages of Deaths Caused by Motor Vehicle & Traffic Accidents among All Male In Each Of The Six UAE Medical District

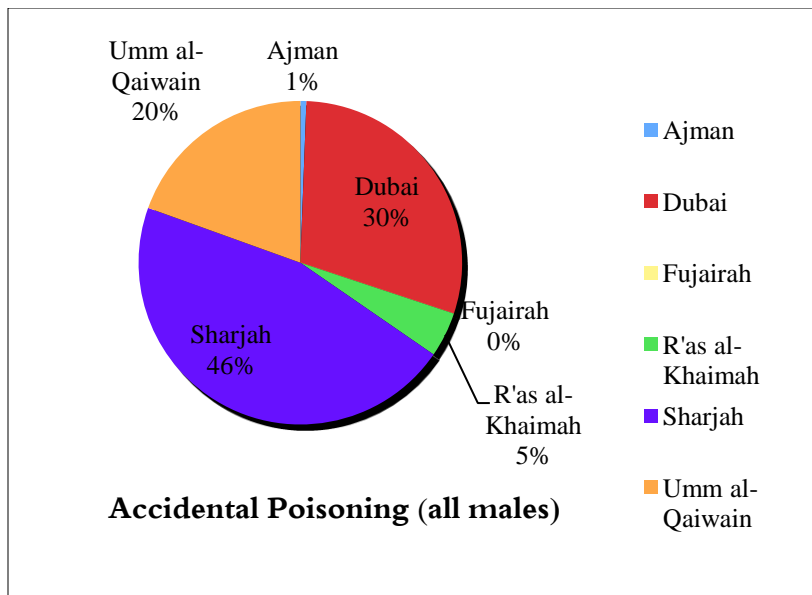


Figure 13. The Percentages of Deaths Caused by Accidental Poisoning among All Male in Each Of The Six UAE Medical District

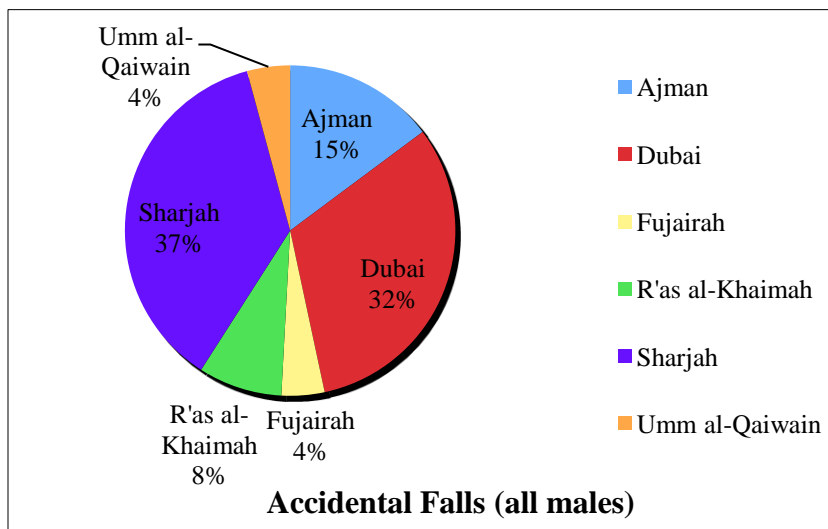


Figure 14. The Percentages of Deaths Caused by Accidental Falls among All Male in Each of the Six UAE Medical District

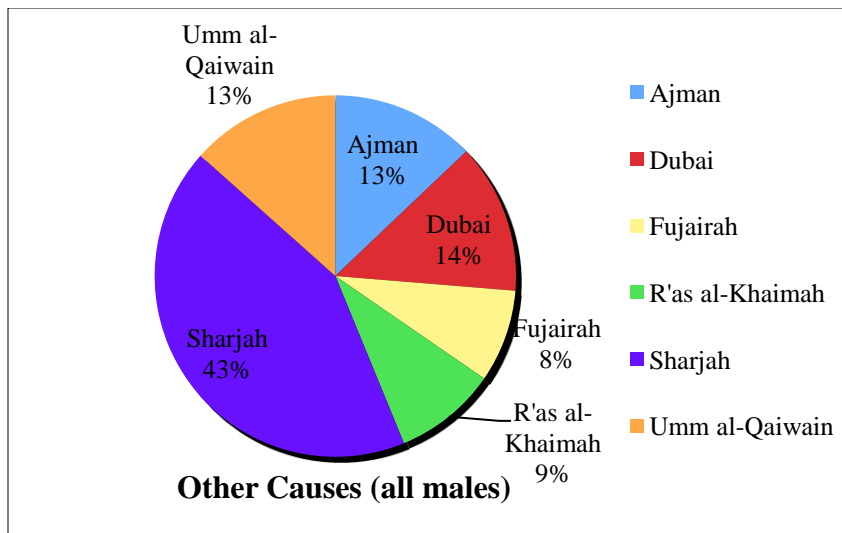


Figure 15. The Percentages of Deaths Caused by Other Causes among All Male in Each of the Six UAE Medical District

Analysis of Unintentional Injury Deaths by Rate

The number of non-citizen males reported living in UAE was 2,388,224 in 2005. The majority of the non-citizen males were in the age group 20-65 (UAE Ministry of Economy, General census of Population 2005; Abu-Table, Musaiger & Abedlmeneim, 1995). When analyzed by frequency non-citizen males were reported in 2006 to die more frequently from accidents than male citizens of UAE (Ministry of Health Annual report, 2006; WHO country Cooperation Strategy, 2006). Therefore, the researcher elected to limit the study population to the reported death for citizen and non-citizen males in the age group (20-65). The study was also limited by the researcher to the six medical districts managed by the UAE Ministry of Health. To initiate this analysis, a second electronic surveillance database was created by the researcher, focused only on males ages 20-65 in the six medical districts managed by the UAE Ministry of Health. The reported death data for males ages 20-65 categorized by citizen status and manner of

death was coded by the researcher with codes indicating cause of unintentional injury and date of death.

No citizen or non-citizen females (3,673) were included in the new database used for analysis. Males under the age of 20 (332,225) or over the age of 65 (12,595) were also not included in the database used for analysis.

For the purpose of this study the researcher chose to analyze the reported causes of death by rate rather than frequency. Using death rates allowed the researcher to compare reported deaths in two or more groups more accurately even when the reported numbers of deaths in each group varied substantially.

A record of the male population living in the six medical districts managed by the UAE Ministry of Health (1,776,350) was first obtained to create a rate of death. The 2005 population census was selected and used by the researcher to create a rate because the 2005 census was the most recent published population data. The researcher was able to obtain the 2005 census for each of the six medical districts managed by the UAE Ministry of Health classified by age group, gender, and citizenship status. Once the rate was established for all reported male deaths in the age group of 20-65 this database was used to address the following research questions:

Research Question 1

1 - Does the rate of death for males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) for all males ages 20-65 by manner (Natural, Non-natural)?

b) for all males ages 20-65 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

c) for citizen males ages 20-60 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

d) for non-citizen males ages 20-60 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

Research Question 2

2 - Does the rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) within each season of the year (spring, summer, Fall and winter) by manner (Natural, Non-natural)?

b) by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

c) within each season of the year (spring, summer, Fall, and winter) by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

Research Question 3

3 - Does the rate of death among citizen and non-citizen males in the age group of 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) by manner (Natural, Non-natural)?

b) within each season of the year (spring, summer, Fall, and winter) by manner (Natural, Non-natural)?

c) by specific cause of Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicles & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

d) within each of the four seasons (spring, summer, Fall, and winter) by specific cause of Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicles & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

Statistical procedures

A Chi-Square test and adjusted residual statistical test were used by the researcher to analyze the fatality database file. These statistical procedures are appropriate to use for this research study because the secondary data provided for this study is nominal or ordinal in nature and therefore considered non-parametric because the data is not normally distributed.

Research Question 1 Analysis

Research Question 1a

1 - Does the rate of death for males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) for all males ages 20-65 by manner (Natural, Non-natural)

An analysis was conducted by the researcher using a Chi-Square test and adjusted residual to determine if the reported death rate for all males ages 20-65 differed significantly among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 by manner (Natural, Non-natural) using a p value ≤ 0.05 . The Chi-Square analysis found the rate of death coded by manner (Natural and Non-natural) differed significantly for males ages 20-65 among the six medical districts managed by the UAE Ministry of Health (Ajman, Dubai, Fujairah, Ra's al-Khaimahh, Sharjah, Umm al-Qaiwain) for the years 2006-2008. The analysis resulted in Chi-Square value of 188.95 and a p value of .000.

The adjusted residual (5.5) for Ajman Medical District determined the observed rate for deaths coded as Non-natural in manner to be significantly higher than statistically expected. The adjusted residual (-5.5) in Ajman Medical district for the rate of deaths coded as Natural in manner determined the observed rate to be significantly lower than statistically expected. In Dubai Medical District, for the rate of deaths coded as Non-natural, the adjusted residual (-11.4) determined the observed rate to be significantly lower than statistically expected. In Dubai Medical District the adjusted residual (11.4) for the rate of deaths coded as Natural determined

the observed rate to be significantly higher than statistically expected. In Fujairah Medical District the adjusted residual for the rate of deaths coded as Non-natural (4.0) determined the observed rate to be significantly higher than statistically expected. In Fujairah Medical District, the adjusted residual for the rate of deaths coded as Natural (-4.0) determined the observed rate to be significantly lower than statistically expected. In Ra's al-Khaimah Medical District the adjusted residual (-4.5) for the rate of deaths coded as Non-natural determined the observed rate to be significantly lower than statistically expected. The adjusted residual (4.5) for the rate of deaths coded as Natural in Ra's al-Khaimah Medical District determined the observed rate to be significantly higher than statistically expected. In Sharjah Medical District the adjusted residual (4.1) for the rate of Non-natural deaths determined the observed rate to be significantly higher than statistically expected. In Sharjah Medical District the adjusted residual (-4.1) for the rate of Natural deaths determined the observed rate to be significantly lower than statistically expected for males ages 20-65 for the years 2006-2008. In Umm al-Qaiwain Medical District the adjusted residuals for the rate of deaths coded as Non-natural and Natural, respectively .7 and -.7, determined the observed rates not to differ significantly from the statistically expected rate. See table 21 for the results of the adjusted residual tests generated among the medical districts managed directly by the UAE Ministry of Health by manner (Natural, Non-natural) for males ages 20-65.

Research Question 1b

1 - Does the rate of death for males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

b) for all males ages 20-65 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

An analysis was conducted by the researcher using a Chi-Square test and adjusted residual to determine if the reported death rate for all males ages 20-65 differed significantly among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 when analyzed by specific cause of Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes) using a $p \leq .05$. The result of the Chi-Square analysis found the rate of death among males ages 20-65 in the six medical districts for the years 2006-2008 to differ significantly by specific cause of Unintentional Injury death. The analysis resulted in Chi-Square value of 328.574 and a p value of .000.

Accidents & Adverse Effects

The adjusted residual for the rate of Unintentional Injury death caused by Accidents & Adverse Effects among males 20-65 in the period 2006-2008 was calculated for each district. The reported rate was observed to be significantly higher than statistically expected in the following medical districts: Ajman (4.9), Dubai (2.4), and Sharjah (2.8). The adjusted residual for the rate of Unintentional Injury death caused by Accidents & Adverse Effects among this same group further showed the observed rate to be significantly lower than statistically expected in the medical district of Umm al-Qaiwain (-7.2). The observed rate of deaths caused by Accidents & Adverse Effects for males ages 20-65 in the medical districts of Fujairah (1.8) and Ra's al-Khaimah (-.7) was found not to differ significantly from the statistically expected rate.

Motor Vehicle & Traffic Accidents

The adjusted residual for the rate of Unintentional Injury death caused by Motor Vehicle & Traffic Accidents among males 20-65 in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed rate that was significantly higher than statistically expected in the medical districts of Fujairah (6.6) and Ra's al-Khaimah (3.2). The observed rate was significantly lower than statistically expected in the medical districts of Dubai (-4.4), Sharjah (-2.5), and Umm al-Qaiwain (-2.2). The observed rate in the medical district of Ajman (-.2) was found not to differ significantly from the statistically expected rate.

Accidental Poisoning

The adjusted residual for the rate of Unintentional Injury deaths caused by Accidental Poisoning among males 20-65 in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed rate that was significantly higher than statistically expected in the medical districts of Dubai (4.0), Sharjah (2.5), and Umm al-Qaiwain (9.4). The observed rate was significantly lower than statistically expected in the medical districts of Ajman (- 8.3), Fujairah (-8.3), and Ra's al-Khaimahh (-3.8).

Accidental Falls

The adjusted residual for the rate of Unintentional Injury deaths caused by Accidental Falls among males 20-65 in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed rate that was significantly higher than statistically expected in the medical districts of Ajman (5.6) and Dubai (2.1). The observed rate was significantly lower than statistically expected in the medical district of Umm al-Qaiwain (-5.3).

The observed rate was found not to differ significantly from the statistically expected rate in the medical districts of Fujairah (-.7), Ra's al-Khaimah (.5), and Sharjah (1.1).

Other Causes

The adjusted residual for the rate of Unintentional Injury deaths caused by Other Causes among males 20-65 in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed rate that was significantly higher than statistically expected in the medical district of Ajman (2.6). The observed rate was significantly lower than statistically expected in the medical district of Sharjah (-2.3). The observed rates in the medical districts of Dubai (-1.8), Fujairah (-.8), Ra's al-Khaimah (.0), and Umm al-Qaiwain (1.7) were found not to differ significantly from the statistically expected rate. See Table 22 for the rate of unintentional injury death for all males in the age group 20-65 years among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008.

Table 21: The Chi-Square Test Using the Rate of Death for Males Ages 20-65 by Manner of Death among the Six UAE Medical Districts for the Years 2006 - 2008

District	Ajman	Dubai	Fujairah	Ra's al-Khaimah	Sharjah	Umm al-Qaiwain
Manner						
Natural	-5.5**	11.4**	-4.0**	4.5**	-4.1**	-0.7
Non-natural	5.5**	-11.4**	4.0**	-4.5**	4.1**	0.7

Chi-Square 188.950 $p = \leq .05$ *

a. * Chi-Square differs significantly

b. ** an adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and 2 were not significant.

Table 22: The Rate of Unintentional Injury Death for All Males in the Age Group 20-65 years among the Six Medical Districts Managed by the UAE Ministry of Health for the years 2006-2008

			District						Total	
			Ajman	Dubai	Fujairah	Ras al Khaimah	Sharjah	Umm al-Quwian		
Cause of Unintentional Injury	Accident & Adverse Effect	Observed Count	37	13	25	18	56	19	168	
		Expected Count	18.0	7.0	18.0	21.0	41.0	62.4	168.0	
		Adjusted Residual	4.9**	2.4**	1.8	-.7	2.8**	-7.2**		
	Motor Vehicle & Traffic Accidents	Observed Count	145	36	196	197	309	483	1366	
		Expected Count	146.8	57.1	146.8	171.4	334.8	509.0	1366.0	
		Adjusted Residual	-.2	-4.4**	6.6**	3.2**	-2.5**	-2.2**		
	Accidental Poisoning	Observed Count	0	35	0	34	134	260	463	
		Expected Count	49.8	19.4	49.8	58.1	113.5	172.5	463.0	
		Adjusted Residual	-8.3**	4.0**	-8.3**	-3.8**	2.5**	9.4**		
	Accidental Falls	Observed Count	36	11	13	20	41	24	145	
		Expected Count	15.6	6.1	15.6	18.2	35.5	54.1	145.0	
		Adjusted Residual	5.6**	2.1**	-.7	.5	1.1	-5.3**		
	Other	Observed Count	39	5	23	31	46	105	249	
		Expected Count	26.8	10.4	26.8	31.2	61.0	92.8	249.0	
		Adjusted Residual	2.6**	-1.8	-.8	.0	-2.3**	1.7		
	Total		Observed Count	257	100	257	300	586	891	2391

a. Chi-square=328.574, df=20, sig=.000*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Research Question 1c

1 - Does the rate of death for males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

c) for citizen males ages 20-65 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

An analysis was conducted by the researcher using a Chi-Square test and adjusted residual to determine if the reported death rate for male citizens ages 20-65 differed significantly among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 when analyzed by cause of Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes) using a $p \leq .05$. The result of the Chi-Square analysis found the rate of deaths among male citizens ages 20-65 in the six medical districts for the years 2006-2008 to differ significantly by cause of Unintentional Injury death. The analysis resulted in Chi-Square value of 204.332 and a p . value of .000.

Accidents & Adverse Effects

The adjusted residual for the rate of Unintentional Injury deaths caused by Accidents & Adverse Effects among males 20-65 in the period 2006-2008 was calculated for each district. The reported rate was observed to be significantly higher than statistically expected in the following medical districts: Ajman (3.9), Dubai (2.4), and Sharjah (2.5). The adjusted residual for the rate of deaths caused by Accidents & Adverse Effects showed the observed rate to be

significantly lower than statistically expected in the medical district of Umm al-Qaiwain (-3.9). The observed rate of deaths caused by Accidents & Adverse Effects for male citizens ages 20-65 in the medical districts of Fujairah (-1.3) and Ra's al-Khaimah (-1.3) was found not to differ significantly from the statistically expected rate.

Motor Vehicle & Traffic Accidents

The adjusted residual for the rate of Unintentional Injury deaths caused by Motor Vehicle & Traffic Accidents among male citizens ages 20-65 in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed rate that was significantly higher than statistically expected in the medical districts of Ajman (2.3) and Fujairah (4.8). The observed rate was significantly lower than statistically expected in the medical districts of Dubai (-4.0) and Sharjah (-5.5). The observed rates in the medical districts of Ra's al-Khaimah (1.9) and Umm al-Qaiwain (1.1) were found not to differ significantly from the statistically expected rate.

Accidental Poisoning

The adjusted residual for the rate of Unintentional Injury deaths caused by Accidental Poisoning among male citizens ages 20-65 in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed rate that was significantly higher than statistically expected in the medical districts of Dubai (3.0) and Umm al-Qaiwain (4.7). The observed rate was significantly lower than statistically expected in the medical districts of Ajman (-5.4) and Fujairah (-5.4). The observed rates in the medical districts of Ra's al Khaimah (-1.7), and Sharjah (1.4) were found not to differ significantly from the statistically expected rate.

Accidental Falls

The adjusted residual for the rate of Unintentional Injury deaths caused by Accidental Falls among male citizens ages 20-65 in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed rate that was significantly higher than statistically expected in the medical districts of Dubai (2.3) and Sharjah (2.3). The observed rate was significantly lower than statistically expected in the medical districts of Fujairah (2.0) and Umm al-Qaiwain (-4.0). The observed rate was found not to differ significantly from the statistically expected rate in the medical districts of Ajman (-1.3) and Ra's al-Khaimah (1.2).

Other Causes

The adjusted residual for the rate of Unintentional Injury deaths caused by Other Causes among male citizens ages 20-65 in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed rate that was significantly higher than statistically expected in the medical districts of Ajman (4.0) and Sharjah (6.1). The observed rate was significantly lower than statistically expected in the medical district of Umm al-Qaiwain (-6.7). The observed rates in the medical districts of Dubai (-.3), Fujairah (-.2), and Ra's al-Khaimah (-.7) were found not to differ significantly from the statistically expected rate. See Table 23 for the rate of unintentional injury deaths by specific cause for male citizens in the age group 20-65 years among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008.

Research Question 1d

1 - Does the rate of death for male non-citizens in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

d) for male non-citizens ages 20-65 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

An analysis was conducted by the researcher using a Chi-Square test and adjusted residual to determine if the reported death rate for male non-citizens ages 20-65 differed significantly among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 when analyzed by Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes) using a $p \leq .05$. The result of the Chi-Square analysis found the rate of deaths among male non-citizens ages 20-65 in the six medical districts for the years 2006-2008 to differ significantly by cause of Unintentional Injury death. The analysis resulted in Chi-Square value of 265.298 and a p . value of .000.

Accidents & Adverse Effects

The adjusted residual for the rate of Unintentional Injury deaths caused by Accidents & Adverse Effects among males 20-65 in the period 2006-2008 was calculated for each district. The reported rate was observed to be significantly higher than statistically expected in the medical district of Ajman (3.4). The adjusted residual for the rate of Unintentional Injury deaths caused by Accidents & Adverse Effects showed the observed rate to be significantly lower than

statistically expected in the medical districts of Dubai (2.0), Umm al-Qaiwain (-5.3). The observed rates of deaths caused by Accidents & Adverse Effects for male citizens ages 20-65 in the medical districts of Fujairah (1.9), Ra's al-Khaimah (-1.1), and Sharjah (1.7) were found not to differ significantly from the statistically expected rate.

Motor Vehicle & Traffic Accidents

The adjusted residual for the rate of Unintentional Injury deaths caused by Motor Vehicle & Traffic Accidents among male citizens ages 20-65 in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed rate that was significantly higher than statistically expected in the medical districts of Fujairah (5.4) and Ra's al-Khaimah (3.4). The observed rate was significantly lower than statistically expected in the medical districts of Dubai (-2.9) and Umm al-Qaiwain (-5.4). The observed rates in the medical districts of Ajman (-1.3) and Sharjah (1.3) were found not to differ significantly from the statistically expected rate.

Accidental Poisoning

The adjusted residual for the rate of deaths caused by Accidental Poisoning among male citizens ages 20-65 in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed rate that was significantly higher than statistically expected in the medical districts of Dubai (2.3), Sharjah (2.4), and Umm al-Qaiwain (7.7). The observed rate was significantly lower than statistically expected in the medical districts of Ajman (-6.2), Fujairah (-6.2), and Ra's al Khaimah (-2.9).

Accidental Falls

The adjusted residual for the rate of Unintentional Injury deaths caused by Accidental Falls among male citizens ages 20-65 in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed rate that was significantly higher than statistically expected in the medical district of Ajman (6.0). The observed rate was significantly lower than statistically expected in the medical district of Umm al-Qaiwain (-3.1). The observed rates in the medical districts of Dubai (1.6), Fujairah (-2.0), Ra's al-Khaimah (-.5), and Sharjah (.1) were found not to differ significantly from the statistically expected rate

Other Causes

The adjusted residual for the rate of Unintentional Injury deaths caused by Other Causes among male citizens ages 20-65 in the period 2006-2008 was calculated for each medical district. The adjusted residual resulted in an observed rate that was significantly higher than statistically expected in the medical district of Umm al-Qaiwain (6.9). The observed rate was significantly lower than statistically expected in the medical district of Sharjah (-5.9). The observed rates in the medical districts of Ajman (.6), Dubai (-1.4), Fujairah (-1.2), and Ra's al-Khaimah (-.4) were found not to differ significantly from the statistically expected rate. See Table 24 for the rate of unintentional injury death by specific cause for male non-citizens in the age group 20-65 years among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008.

Research Question 2 Analysis

Research Question 2a

2 - Does the rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) within each season of the year (spring, summer, Fall and winter) by manner (Natural, Non-natural)?

A Chi-Square analysis was conducted to determine if the rate of deaths reported as fatalities among males ages 20-65 in the six medical districts managed by the UAE Ministry of Health in the period 2006-2008 differed significantly by citizen status when analyzed by manner and by season of the year. The analysis resulted in a Chi-Square value for spring season of 35.016 and a *p*. value .000 see Table 25 for the death rate of males ages 20 – 65 in the spring season by citizen status and manner in the six UAE medical districts. The analysis resulted in Chi-Square value for summer season of 44.066 and a *p*. value .000 see Table 26 for the death rate of males ages 20 – 65 in the summer season by citizen status and manner in the six UAE medical districts. The analysis resulted in Chi-Square value for fall season of 117.165 and a *p*. value .000 see Table 27 for the death rate of males ages 20 – 65 in the fall season by citizen status and manner in the six UAE medical districts. The analysis resulted in Chi-Square value for winter season of 19.582 and a *p*. value .000 see Table 28 for the death rate of males ages 20 – 65 in the winter season by citizen status and manner in the six UAE medical districts. When an adjusted residual was determined for each season of the year, citizens were found to have more reported Natural deaths than statistically expected in each of the four seasons and fewer reported Non-natural deaths than statistically expected in each of the four seasons. Non-citizens were found to have more reported Non-natural deaths than statistically expected in each of the four seasons, and fewer reported Natural deaths than statistically expected in each of the four seasons.

Table 23: The Rate of Unintentional Injury Deaths by Specific Cause for Male Citizens in the Age Group 20-65 years among the Six Medical Districts Managed by the UAE Ministry of Health for the years 2006-2008

Cause of Unintentional Injury Death			District						Total
			Ajman	Dubai	Fuj	RAK	Sharjah	Umm al Q.	
Accident & Adverse Effect	Observed Count	6	3	0	0	8	0	17	
	Expected Count	1.5	.8	1.5	1.5	3.8	7.9	17.0	
	Adjusted Residual	3.9**	2.9**	-1.3	-1.3	2.5**	-3.9**		
Motor Vehicle & Traffic Accidents	Observed Count	65	19	77	65	108	302	636	
	Expected Count	55.7	31.5	57.0	57.0	140.9	293.8	636.0	
	Adjusted Residual	2.3	-4.0**	4.8**	1.9	-5.5**	1.1		
Accidental Poisoning	Observed Count	0	20	0	14	58	136	228	
	Expected Count	20.0	11.3	20.4	20.4	50.5	105.5	228.0	
	Adjusted Residual	-5.4**	3.0**	-5.4**	-1.7	1.4	4.7**		
Accidental Falls	Observed Count	0	3	4	3	8	0	18	
	Expected Count	1.6	.9	1.6	1.6	4.0	8.3	18.0	
	Adjusted Residual	-1.3	2.3**	2.0	1.2	2.3**	-4.0**		
Other	Observed Count	12	2	4	3	28	0	49	
	Expected Count	4.3	2.4	4.4	4.4	10.9	22.6	49.0	
	Adjusted Residual	4.0**	-.3	-.2	-.7	6.1**	-6.7**		
Total		Observed Count	83	47	85	85	210	438	948

a. Chi-square=204.332, df=20, sig=.000*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table 24: The Rate of Unintentional Injury Death by Specific Cause for Male Non-citizens in the Age Group 20-65 years among the Six Medical Districts Managed by the UAE Ministry of Health for the years 2006-2008

Unintentional Injury Cause of Death		District						Total
		Ajman	Dubai	Fuj	RAK	Sharjah	Umm al Q.	
Accidents & Adverse Effects	Observed Count	31	10	25	18	48	19	151
	Expected Count	18.2	5.6	18.0	22.6	39.2	47.7	151.0
	Adjusted Residual	3.4**	2.0	1.9	-1.1	1.7	-5.3**	
Motor Vehicle & Traffic Accidents	Observed Count	80	17	120	132	200	181	730
	Expected Count	88.0	27.3	87.0	109.2	189.9	229.0	730.0
	Adjusted Residual	-1.3	-2.9**	5.4**	3.4**	1.3	-5.4**	
Accidental Poisoning	Observed Count	0	15	0	21	76	124	236
	Expected Count	28.4	8.8	28.1	35.3	61.3	74.0	236.0
	Adjusted Residual	-6.2**	2.3**	-6.2**	-2.9**	2.4**	7.7**	
Accidental Falls	Observed Count	36	8	8	17	33	24	126
	Expected Count	15.2	4.7	15.0	18.8	32.7	39.5	126.0
	Adjusted Residual	6.0**	1.6	-2.0	-.5	.1	-3.1**	
Other Causes	Observed Count	27	4	19	28	18	105	201
	Expected Count	24.2	7.5	23.9	3.1	52.2	63.1	201.0
	Adjusted Residual	.6	-1.6	-1.2	-.4	-5.9**	-6.9**	
Total	Observed Count	174	54	172	216	375	453	1444

a. Chi-square=265.298, df=20, sig=.000*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Table 25: The Death Rate of Males Ages 20-65 in the Spring Season among All Six UAE Medical Districts Analyzed by Citizen Status and Manner from the Six UAE Medical Districts

Manner	Citizen Status	
	Citizen	Non-citizen
Natural	5.9**	-5.9**
Non-natural	-5.9**	5.9**

Chi-Square 35.016 p =.000*

a. *Chi-Square differs significantly

b. ** an adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and 2 were not significant.

Table 26: The Death Rate of Males Ages 20-65 in the Summer Season among All Six UAE Medical Districts Analyzed by Citizen Status and Manner from the Six UAE Medical Districts

Manner	Citizen Status	
	Citizen	Non-citizen
Natural	6.6**	-6.6**
Non-natural	-6.6**	6.6**

a. Chi-Square 44.066 p =.000*

*Chi-Square differs significantly

b. ** an adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and 2 were not significant.

Table 27: The Death Rate of Males Ages 20-65 in the Fall Season among All Six UAE Medical Districts Analyzed by Citizen Status and Manner from the Six UAE Medical Districts

Manner	Citizen Status	
	Citizen	Non-citizen
Natural	10.8**	-10.8**
Non-natural	-10.8**	10.8**

a. Chi-Square 117.164=.000*

*Chi-Square differs significantly

b. ** an adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and 2 were not significant.

Table 28: The Death Rate of Males Ages 20-65 in the Winter Season among All Six UAE Medical Districts Analyzed by Citizen Status and Manner from the Six UAE Medical Districts

Manner	Citizen Status	
	Citizen	Non-citizen
Natural	4.4**	-4.4**
Non-natural	-4.4**	4.4**

a. Chi-Square 19.582 p =.000*.

*Chi-Square differs significantly

b. ** an adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and 2 were not significant.

Research Question 2b

2 - Does the rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

b) by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

A Pearson Chi-Square analysis using $p = \leq .05$ was done on the rate per cause and citizen status of Unintentional Injury deaths for males ages 20-65 in all six medical district managed by the UAE Ministry of Health in the period 2006-2008. The rates for citizen and non-citizen males ages 20-65 differ significantly. The analysis resulted in a Chi-Square value of 187.938 and p -value of .000. Following the Chi-Square test an adjusted residual was also determined for the rate of Unintentional Injury deaths by each cause in the specified group. The adjusted residual (8.0) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-8.0) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for citizens to be significantly lower than statistically expected. The adjusted residual (7.9) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (-7.9) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (4.7) for the rate of deaths caused by Accidental Poisoning determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (-4.7) for the rate of deaths caused by Accidental Poisoning determined the observed rate for non-citizens to be significantly

lower than statistically expected. The adjusted residual (6.7) for the rate of deaths caused by Accidental Falls determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-6.7) for the rate of deaths caused by Accidental Falls determined the observed rate for citizens to be significantly lower than statistically expected. The adjusted residual (6.8) for the rate of deaths caused Other Causes determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-6.8) for the rate of Unintentional Injury deaths caused by Other Causes determined the observed rate for citizens to be significantly lower than statistically expected. See Table 29 for the Chi-Square analysis for the rate of unintentional injury deaths by specific cause and by citizen status for males ages 20-65 in the six UAE medical districts.

Research Question 2c

2 - Does the rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

- c) within each season of the year (spring, summer, Fall, and winter) by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

The Rate of Unintentional Injury Death for Males Ages 20-65 among All Six UAE Medical Districts during the Spring Season

The Pearson Chi-Square analysis of the rates of Unintentional Injury deaths in the six medical districts managed by the UAE Ministry of Health during the spring season for males 20-65 in the period 2006-2008 was performed using a $p = \leq .05$. The analysis resulted in a Chi-

Square value of 59.037 and p -value of 0.00. Following the Chi-Square test an adjusted residual was also determined for the rate of Unintentional Injury death by each cause and by citizen status. For the Accidents & Adverse Effects cause of Unintentional Injury death the adjusted residual (5.6) determined the observed rate for non-citizens in all districts in the spring season to be significantly higher than statistically expected. For the Accidents & Adverse Effects cause of Unintentional Injury death the adjusted residual (-5.6) determined the observed rate for citizens in all districts in the spring season to be significantly lower than statistically expected. The adjusted residual (4.9) for the Motor Vehicle and Traffic Accidents cause of Unintentional Injury death determined the observed rate for citizens in all medical districts in the spring season to be significantly higher than statistically expected. The adjusted residual (-4.9) for the Motor Vehicle & Traffic Accidents cause of Unintentional Injury death determined the observed rate for non-citizens in all districts in the spring season to be significantly lower than statistically expected. The adjusted residuals (1.7, -1.7) for the Accidental Poisoning cause of Unintentional Injury death for citizens and non-citizens in the six medical districts in the spring season determined no significant difference between observed and statistically expected rates of Unintentional Injury death. The adjusted residual (3.1) for the Accidental Falls cause of Unintentional Injury death determined the observed rate for non-citizens in all medical districts in the spring season to be significantly higher than statistically expected. The adjusted residual (-3.1) for the rate of Accidental Fall deaths determined the observed rate for citizens in all medical districts in the spring season to be significantly lower than statistically expected. For the Other Causes of Unintentional Injury death, the adjusted residual (3.1) determined the observed rate for non-citizens in all medical districts in the spring season to be significantly higher than statistically expected. The adjusted residual (-3.1) for Other Causes of Unintentional Injury death, determined the observed rate for citizens in all medical districts in the spring season to be

significantly lower than statistically expected. See Table 30 for the Chi-Square analysis for rate of unintentional injury deaths by specific cause and by citizen status for males ages 20-65 in the spring season in the six UAE medical districts.

The Rate of Unintentional Injury Death for Males Ages 20-65 among All Six UAE Medical Districts during the Summer Season

The Pearson Chi-Square analysis of the rates of Unintentional Injury deaths in the six medical districts managed by the UAE Ministry of Health during the summer season for males 20-65 in the period 2006-2008 was performed using a $p = \leq .05$. The analysis resulted in a Chi-Square value of 17.231 and p -value of 0.02. Following the Chi-Square test an adjusted residual was also determined for the rate of each Unintentional Injury death per cause and citizen status. For the Accidents & Adverse Effects Unintentional Injury death, the adjusted residual (2.6) determined the observed rate for non-citizens in all medical districts in the summer season to be significantly higher than statistically expected. For the Accidents & Adverse Effects cause of Unintentional Injury deaths, the adjusted residual (-2.6) determined the observed rate for citizens in all medical districts in the summer season to be significantly lower than statistically expected. The adjusted residuals (-.3, .3) for the Motor Vehicle & Traffic Accidents cause of Unintentional Injury death for both citizens and non-citizens determined no significant difference between observed and statistically expected rates. The adjusted residual (3.5) for the Accidental Poisoning cause of Unintentional Injury death determined the observed rate for citizens in all medical districts in the summer season to be significantly higher than statistically expected.

For the Accidental Poisoning cause of Unintentional Injury death the adjusted residual (-3.5) determined the observed rate for non-citizens in all medical districts in the summer season to be significantly lower than statistically expected. For the Accidental Falls cause of Unintentional Injury death the adjusted residual (-1.0, 1.0) determined no significant difference between observed and statistically expected rates. The adjusted residuals (-.4, .4) for the Other Causes of Unintentional Injury death determined no significant difference between observed and statistically expected rates for either citizens or non-citizens in the six medical districts in the summer season. See Table 31 for the Chi-Square analysis for rate of unintentional injury deaths by specific cause and by citizen status for males ages 20-65 in the summer season in the six UAE medical districts.

Table 29: The Chi-Square Analysis by Cause of Unintentional Injury Rate of Deaths and by Citizen Status for Males Ages 20-65 in the Six UAE Medical Districts

Unintentional Injury Cause		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	18	151	169
	Expected Rate	67.1	101.9	169.0
	Adjusted Residual	-8.0**	8.0**	
Motor Vehicle & Traffic Accidents	Observed Rate	636	730	1366
	Expected rate	542.7	823.3	1366.0
	Adjusted Residual	7.9**	-7.9**	
Accidental Poisoning	Observed Rate	228	235	463
	Expected Rate	184.0	279.0	463.0
	Adjusted Residual	4.7**	-4.7**	
Accidental Falls	Observed Rate	19	125	144
	Expected Rate	57.2	86.8	144.0
	Adjusted Residual	-6.7**	6.7**	
Other	Observed Rate	49	200	249
	Expected Rate	98.9	150.1	249.0
	Adjusted Residual	-6.8**	6.8**	
Total Rate		950	1441	2391

a. Chi-Square =187.938, df=4, sig=.000*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Table 30: The Chi-Square Analysis by Cause of Unintentional Injury Rate of Death in the Spring Season by Citizen Status for Males Ages 20-65 in the Six UAE Medical Districts for the Years of 2006-2008

Unintentional Injury Cause		Rate by Citizen status			
		Citizen	Non-citizen	Total	
Accidents & Adverse Effects	Observed Rate	0	36	36	
	Expected Rate	16.2	19.8	36.0	
	Adjusted Residual	-5.6**	5.6**		
Motor Vehicle & Traffic Accidents	Observed Rate	171	148	319	
	Expected Rate	143.5	175.5	319.0	
	Adjusted Residual	4.9**	-4.9**		
Accidental Poisoning	Observed Rate	47	41	88	
	Expected Rate	39.6	48.4	88.0	
	Adjusted Residual	1.7	-1.7		
Accidental Falls	Observed Rate	5	24	29	
	Expected Rate	24.7	16.0	29.0	
	Adjusted Residual	-3.1**	3.1**		
Other Causes	Observed Rate	14	41	55.0	
	Expected Rate	24.7	30.3	55.0	
	Adjusted Residual	-3.1**	3.1**		
Total		Observed Rate	237	290	527

a. Chi-Square =47.491, df=4, sig=.000*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table 31: The Chi-Square Analysis by Cause of Unintentional Injury Rate of Death in the Summer Season by Citizen Status for Males Ages 20-65 in the Six UAE Medical Districts for the Years of 2006-2008

Unintentional Injury Cause		Rate by Citizen Status		
		Citizen	Non-citizen	Total
Accidents & Adverse Effect	Observed Rate	13	48	61
	Expected Rate	22.4	38.6	61.0
	Adjusted residual	-2.6**	2.6**	
Motor Vehicle & Traffic Accidents	Observed Rate	102	181	283
	Expected Rate	103.7	179.3	283.0
	Adjusted residual	-.3	.3	
Accidental Poisoning	Observed Rate	54	51	105
	Expected Rate	38.5	66.5	105.0
	Adjusted residual	3.5**	-3.5**	
Accidental Falls	Observed Rate	12	29	41
	Expected Rate	15.0	26.0	41.0
	Adjusted residual	-1.0	1.0	
Other	Observed Rate	18	35	53
	Expected Rate	19.4	33.6	53.0
	Adjusted residual	-.4	.4	
Total	Observed Rate	199	344	543

a. Chi-Square =17.231, df=4, sig=.002*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

The Rate of Unintentional Injury Death for Males Ages 20-65 among All Six UAE Medical Districts during the Fall Season

The Pearson Chi-Square analysis of the rates of Unintentional Injury fatalities in the six medical districts managed by the UAE Ministry of Health during the Fall season for males 20-65 in the period 2006-2008 was performed using a $p = \leq 0.05$. The analysis resulted in a Chi-Square value of 47.491 and p -value of .000. Following the Chi-Square test an adjusted residual was also determined for the rate of Unintentional Injury death by cause and citizen. For the Accidents & Adverse Effects cause of Unintentional Injury death the adjusted residual (3.8) determined the observed rate for non-citizens in all medical districts in the fall season to be significantly higher than statistically expected. For the Accidents & Adverse Effects accidental cause of death the adjusted residual (-3.8) determined the observed rate for citizens in all medical districts in the Fall season to be significantly lower than statistically expected. The adjusted residual (5.2) for the Motor Vehicle & Traffic Accidents cause of Unintentional Injury death determined the observed rate for citizens in all medical districts in the fall season to be significantly higher than statistically expected. The adjusted residual (-5.2) for the Motor Vehicle & Traffic Accidents cause of Unintentional Injury death determined the observed rate for non-citizens in all medical districts in the fall season to be significantly lower than statistically expected. The adjusted residuals (1.0, -1.0) for the Accidental Poisoning cause of Unintentional Injury death for both citizens and non-citizens in all medical districts in the fall season determined no significant difference between observed and statistically expected rates. For the Accidental Falls cause of Unintentional Injury death the adjusted residual (3.5) determined the observed rate for non-citizens in all medical districts in the fall season to be significantly higher than statistically expected. The adjusted residual (-3.5) for the Accidental Falls cause of Unintentional Injury

death determined the observed rate for citizens in all medical districts in the fall season to be significantly lower than statistically expected. For the Other Causes of Unintentional Injury death the adjusted residual (3.4) determined the observed rate for non-citizens in all medical districts in the fall season to be significantly higher than statistically expected. The adjusted residual (-3.4) for the Other Causes of Unintentional Injury death determined the observed rate for citizens in all medical districts in the fall season to be significantly lower than statistically expected. See Table 32 for the Chi-Square analysis for rate of unintentional injury deaths by specific cause and by citizen status for males ages 20-65 in the fall season in the six UAE medical districts.

The Rate of Unintentional Injury Death for Males Ages 20-65 among All Six UAE Medical Districts during the Winter Season

The Pearson Chi-Square analysis of the rates of death by each Unintentional Injury cause in the six medical districts managed by the UAE Ministry of Health during the fall season for males 20-65 in the period 2006-2008 was performed using a $p = \leq .05$. The analysis resulted in a Chi-Square value of 95.764 and p -value of .000. Following the Chi-Square test an adjusted residual was also determined for the rate of Unintentional Injury death by each cause and citizen status. For the Accidents & Adverse Effects cause of Unintentional Injury death the adjusted residual (4.4) determined the observed rate for non-citizens in all districts in the winter season to be significantly higher than statistically expected. For the Accidents & Adverse Effects cause of Unintentional Injury death the adjusted residual (-4.4) determined the observed rate for citizens in all districts in the winter season to be significantly lower than statistically expected. The adjusted residual (-5.2) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for non-citizens in all districts in the winter season to be

significantly lower than statistically expected. The adjusted residual (5.2) for the for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for citizens in all districts in the winter season to be significantly higher than statistically expected. The adjusted residual (-2.6) for the rate of deaths caused by Accidental Poisoning determined the observed rate for non-citizens in all districts in the winter season to be significantly lower than statistically expected. The adjusted residual (2.6) for the rate of deaths caused by Accidental Poisoning determined the observed rate for citizens in all districts in the winter season to be significantly higher than statistically expected. The adjusted residual (5.6) for the rate of deaths caused by Accidental Falls determined the observed rate for non-citizens in all districts in the winter season to be significantly higher than statistically expected. The adjusted residual (-5.6) for the rate of deaths caused by Accidental Falls determined the observed rate for citizens in all districts in the winter season to be significantly lower than statistically expected. The adjusted residual (5.8) for the rate of Unintentional Injury deaths caused by Other Causes determined the observed rate for non-citizens in all districts in the winter season to be significantly higher than statistically expected. The adjusted residual (-5.8) for the rate of Unintentional Injury deaths caused by Other Causes determined the observed rate for citizens in all districts in the winter season to be significantly lower than statistically expected. See Table 33 for the Chi-Square analysis for rate of unintentional injury deaths by specific cause and by citizen status for males ages 20-65 in the winter season in the six UAE medical districts.

Table 32: The Chi-Square Analysis by Cause of Unintentional Injury Rate of Death in the Fall Season by Citizen Status for Males Ages 20-65 in the Six UAE Medical Districts for the Years of 2006-2008

Unintentional Injury Cause		Rate by Citizen status		
		Citizen	Non-citizen	Total
Accidents & Adverse Effects	Observed Rate	0	34	34
	Expected Rate	9.8	24.2	34.0
	adjusted residual	-3.8**	3.8**	
Motor Vehicle & Traffic Accidents	Observed Rate	126	213	339
	Expected Rate	97.3	241.7	339.0
	adjusted residual	5.2**	-5.2**	
Accidental Poisoning	Observed Rate	34	70	104
	Expected Rate	29.9	74.1	104.0
	adjusted residual	1.0	-1.0	
Accidental Falls	Observed Rate	2	39	41
	Expected Rate	11.8	29.2	41.0
	adjusted residual	-3.5**	3.5**	
Other Causes	Observed Rate	12	76	88
	Expected Rate	25.3	62.7	88.0
	adjusted residual	-3.4**	3.4**	
Total	Observed Rate	174	432	606

a-Chi-Square =47.491, df=4, sig=.000*

**Chi-Square differs significantly

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table 33: The Chi-Square Analysis by Cause of Unintentional Injury Rate of Death in the Winter Season by Citizen Status for Males Ages 20-65 in the Six UAE Medical Districts for the Years 2006-2008

Unintentional Injury Cause		Rate by Citizen Status			
		Citizen	Non-citizen	Total	
Accidents & Adverse Effect	Observed Rate	5	33	38	
	Expected Rate	18.1	19.9	38.0	
	Adjusted Residual	-4.4**	4.4**		
Motor Vehicle & Traffic Accidents	Observed Rate	237	188	425	
	Expected Rate	202.7	222.3	425.0	
	Adjusted Residual	5.2**	-5.2**		
Accidental Poisoning	Observed Rate	94	72	166	
	Expected Rate	79.2	86.8	166.0	
	Adjusted Residual	2.6**	-2.6**		
Accidental Falls	Observed Rate	0	33	33	
	Expected Rate	15.7	17.3	33.0	
	Adjusted Residual	-5.6**	5.6**		
Other	Observed Rate	5	48	53	
	Expected Rate	25.3	27.7	53.0	
	Adjusted Residual	-5.8**	5.8**		
Total		Observed Rate	341	374	715

a-Chi-Square =95.764, df=4, sig=.000*

* Chi-Square differs significantly

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Research Question 3 Analysis

Research question 3a

3 - Does the rate of death among citizen and non-citizen males in the age group of 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) by manner (Natural, Non-natural)?

A Chi-Square analysis was conducted to determine the rates of deaths reported as fatalities among males ages 20-65 for the six medical districts managed by the UAE Ministry of Health in the period 2006-2008 differ significantly when analyzed by manner. The Chi-Square analysis using $p \leq .05$ found that reported death rates differ significantly between citizens and non-citizens in the 20-65 year-old male group within the six medical districts in the study when analyzed by manner (Natural, Non-natural). For Ajman Medical District, the analysis resulted in a Chi-Square value of 13.609 and a p . value .000. For Dubai Medical District, the analysis resulted in a Chi-Square value of 14.225 and a p . value .000. For Fujairah Medical District, the analysis resulted in a Chi-Square value of 61.145 and a p . value .000. For Ra's al-Khaimah Medical District, the analysis resulted in a Chi-Square value for of 47.152 and a p . value .000. For Sharjah Medical District, the analysis resulted in a Chi-Square value of 39.593 and a p . value .000. For Umm al-Qaiwain Medical District, the analysis resulted in Chi-Square value of 7.62 and a p . value .006. The adjusted residual (3.7) for the rate of Natural deaths determined the observed rate for citizen males 20-65 to be significantly higher than statistically expected in Ajman Medical District. The adjusted residual (-3.7) for the rate of Natural deaths in Ajman

Medical District determined the observed rate for non-citizen males to be significantly lower than statistically expected. The adjusted residual (3.7) for the rate of Non-natural deaths determined the observed rate for non-citizens to be significantly higher than statistically expected in Ajman Medical District. The adjusted residual (-3.7) for the rate of Non-natural deaths determined the observed rate for citizens to be significantly lower than statistically expected in Ajman Medical District. See Table 34 for a summary of chi-square analysis, for the rate of deaths in Ajman medical district by manner and citizen status for males ages 20-65.

In Dubai Medical District the adjusted residual (3.8) for the rate of Natural deaths determined the observed rate for citizens to be significantly higher than statistically expected. In Dubai Medical District the adjusted residual (-3.8) for the rate of Natural deaths determined the observed rate for non-citizens to be significantly lower than statistically expected. In Dubai Medical District the adjusted residual (3.8) for Non-natural deaths determined the observed rate for non-citizens to be significantly higher than statistically expected. In Dubai Medical District the adjusted residual (-3.8) for the rate of Non-natural deaths determined the observed rate for citizens to be significantly lower than statistically expected. See Table 35 for a summary of chi-square analysis for the rate of deaths in Dubai medical district by manner and citizen status for males ages 20-65.

In Fujairah Medical District the adjusted residual (7.8) for the rate of Natural deaths determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (-7.8) for the rate of Natural deaths in Fujairah Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (7.8) for the rate of Non-natural deaths in Fujairah Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected. In

Fujairah Medical District the adjusted residual (-7.8) for the rate of Non-natural deaths determined the observed rate for citizens to be significantly lower than statistically expected. See Table 36 for a summary of chi-square analysis for the rate of deaths in Fujairah medical district by manner and citizen status for males ages 20-65.

In Ra's al-Khaimah Medical District the adjusted residual (6.9) for the rate of Natural deaths determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (-6.9) for the rate of Natural deaths in Ra's al-Khaimah Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (6.9) for the rate of Non-natural deaths in Ra's al-Khaimah Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected for males 20-65. In Ra's al-Khaimah Medical District the adjusted residual (-6.9) for the rate of Non-natural deaths determined the observed rate for citizens to be significantly lower than statistically expected. See Table 37 for a summary of chi-square analysis for the rate of deaths in Ra's al-Khaimah medical district by manner and citizen status for males ages 20-65.

In Sharjah Medical District the adjusted residual (6.3) for the rate of Natural deaths determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (-6.3) for the rate of Natural deaths in Sharjah Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (6.3) for the rate of Non-natural deaths in Sharjah Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected . In Sharjah Medical District the adjusted residual (-6.3) for the rate of Non-natural deaths determined the observed rate for citizens to be significantly lower than statistically expected. See

Table 38 for a summary of chi-square analysis for the rate of deaths in Sharjah medical district by manner and citizen status for males ages 20-65.

In Umm al-Qaiwain Medical District the adjusted residual (2.8) for the rate of Natural deaths determined the observed rate for citizens to be significantly higher than statistically expected. In Umm al-Qaiwain Medical District the adjusted residual (-2.8) for the rate of Natural deaths determined the observed rate for non-citizens to be significantly lower than statistically expected. In Umm al-Qaiwain Medical District the adjusted residual (2.8) for Non-natural deaths determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-2.8) for the rate of Non-natural deaths in Umm al-Qaiwain Medical District determined the observed rate for citizens to be significantly lower than statistically expected. See Table 39 for a summary of chi-square analysis for the rate of deaths in Umm al-Qaiwain medical district by manner and citizen status for males ages 20-65.

Table 34: Summary of Chi-Square Analysis for the Rate of Deaths in Ajman Medical District by Manner and Citizen Status for Males Ages 20-65

Ajman Medical District	Citizen	Non-Citizen
Natural	3.7**	-3.7**
Non-natural	-3.7**	3.7**

a. Chi-Square = 13.609, sig=.000*

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

* Chi-Square differs significantly

Table 35: Summary of Chi-Square Analysis for the Rate of Deaths in Dubai Medical District by Manner and Citizen Status for Males Ages 20-65

Dubai Medical District	Citizen	Non-Citizen
Natural	3.8**	-3.8**
Non-natural	-3.8**	3.8**

a. Chi-Square = 13.609, sig=.000*

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

* Chi-Square differs significantly

Table 36: Summary of Chi-Square Analysis for the Rate of Deaths in Fujairah Medical District by Manner and Citizen Status for Males Ages 20-65

Fujairah Medical District	Citizen	Non-Citizen
Natural	3.8**	-3.8**
Non-natural	-3.8**	3.8**

a. Chi-Square = 13.609, sig=.000*

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

* Chi-Square differs significantly

Table 37: Summary of Chi-Square Analysis for the Rate of Deaths in Ra's al-Khaimah Medical District by Manner and Citizen Status for Males Ages 20-65

Ra's al-Khaimah Medical District	Citizen	Non-Citizen
Natural	6.9**	-6.9**
Non-natural	-6.9**	6.9**

a. Chi-Square = 13.609, sig=.000*

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

* Chi-Square differs significantly

Table 38: Summary of Chi-Square Analysis for the Rate of Deaths in Sharjah Medical District by Manner and Citizen Status for Males Ages 20-65

Sharjah Medical District	Citizen	Non-Citizen
Natural	6.3**	-6.3**
Non-natural	-6.3**	6.3**

a. Chi-Square = 13.609, sig=.000*

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

* Chi-Square differs significantly

Table 39: Summary of Chi-Square Analysis for the Rate of Deaths in Umm al-Qaiwain Medical District by Manner and Citizen Status for Males Ages 20-65

Umm al-Qaiwain Medical District	Citizen	Non-Citizen
Natural	2.8**	-2.8**
Non-natural	-2.8**	2.8**

a. Chi-Square = 13.609, sig=.000*

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

* Chi-Square differs significantly

Research question 3b

3 - Does the rate of death among citizen and non-citizen males in the age group of 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) by manner (Natural, Non-natural)?

b) within each season of the year (spring, summer, Fall, and winter) by manner (Natural, Non-natural)?

Chi-Square Analysis of Rates of Death by Manner for Citizen and Non-citizen Males Ages 20-65 in Ajman Medical District in the Summer and Fall Seasons

The results of the Chi-Square tests for the rate of death for citizen and non-citizen males ages 20-65 in Ajman Medical district using $p = \leq .05$ found significant differences in the following seasons: summer, fall. A Chi-Square value of 10.179 and a p value = .001 was found for the summer season in Ajman Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 was analyzed. The adjusted residual (3.2) for the rate of Natural deaths in the summer season in Ajman Medical District determined the observed death rate for citizens to be significantly higher than statistically expected. The adjusted residual (-3.2) for the rate of Natural deaths in the summer season in Ajman Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (3.2) for the rate of Non-natural deaths in the summer season in Ajman Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-3.2) for the rate of Non-natural deaths in the summer season in Ajman Medical District determined the observed rate for

citizens to be significantly lower than statistically expected. A Chi-Square value of 8.814 and a p . value = .003 was found for the fall season in Ajman Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 was analyzed. The adjusted residual (3.0) for the rate of Natural deaths in the fall season in Ajman Medical District determined the observed death rate for citizens to be significantly higher than statistically expected. The adjusted residual (-3.0) for the rate of Natural deaths in the Fall season in Ajman Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (3.0) for the rate of Non-natural deaths in the fall season in Ajman Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-3.0) for the rate of Non-natural deaths in the fall season in Ajman Medical District determined the observed rate for citizens to be significantly lower than statistically expected.

Chi-Square Analysis of Rates of Death by Manner for Citizen and Non-citizen Males Ages 20-65 in Ajman Medical District in the Spring and Winter Seasons

The results of Chi-Square tests on the rates of death for citizen and non-citizen males ages 20-65 in Ajman Medical district determined no significant difference in the following seasons: spring, winter. A Chi-Square value of 1.809 and a p . value = .179 was found for the spring season in Ajman Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed. The adjusted residuals (1.3, -1.3) for the rates of deaths coded as Natural in manner in Ajman Medical District showed no significant difference between observed and expected rates for either citizen or non-citizen males ages 20-65 for the years 2006-2008 in the spring season. A Chi-Square value of (.068) and a p . value = .794 was found for the winter season in Ajman Medical District when the

rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed. The adjusted residuals for the rate of Natural deaths in Ajman Medical District showed no significant difference between observed and expected rates for either citizen or non-citizen males ages 20-65 for the years 2006-2008 in the spring and winter seasons.

See Table 40 for summary of Chi-Square analysis for the rate of deaths by manner for citizen and non-citizen males ages 20-65 in Ajman Medical District during spring, summer, fall, and winter seasons. See Table 40 for a summary of chi-square analysis for the rate of deaths by manner for citizen and non-citizen males ages 20-65 in Ajman medical district during spring, summer, fall, and winter seasons.

Chi-Square Analysis of Rates of Death by Manner for Citizen and Non-citizen Males Ages 20-65 in Dubai Medical District in the Spring and Fall Seasons

The results of Chi-Square tests for the rate of death for citizen and non-citizen males ages 20-65 in Dubai Medical district found significant differences in the following seasons: spring, fall. A Chi-Square value of 13.294 and $p = \leq .000$ was found for the spring season in Dubai Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 was analyzed. The adjusted residual (3.6) for the rate of Natural deaths in the spring season in Dubai Medical District determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (- 3.6) for the rate of Natural deaths in the spring season in Dubai Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected rate. The adjusted residual (3.6) for the rate of Non-natural deaths in the spring season in Dubai Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-3.6) for the rate of Non-natural deaths in the spring season in

Dubai Medical District determined the observed rate for citizens to be significantly lower than statistically expected. A Chi-Square value of 5.639 and p . value = .018 was found for the fall season in Dubai Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 was analyzed. The adjusted residual (2.4) for the rate of Natural deaths in the fall season in Dubai Medical District determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (-2.4) for the rate of Natural deaths in the fall season in Dubai Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (2.4) for the rate of Non-natural deaths in the fall season in Dubai Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-2.4) for the rate of Non-natural deaths in the fall season in Dubai Medical District determined the observed rate for citizens rate to be significantly lower than statistically expected.

Chi-Square Analysis of Rates of Death by Manner for Citizen and Non-citizen Males Ages 20-65 in Dubai Medical District in the Summer and Winter Seasons

The results of Chi-Square tests for the rates of Natural and Non-natural deaths for citizen and non-citizen males ages 20-65 in Dubai Medical District determined no significant difference in the following seasons: summer, winter. A Chi-Square value of 2.861 and p . value = .091 was found for the summer season in Dubai Medical District when the rate of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 was analyzed. The adjusted residuals (1.7, -1.7) for the rates of deaths coded as Natural in manner in Dubai Medical District in the summer season determined them not to differ significantly from the statistically expected rate. The adjusted residuals (1.7, -1.7) for the rates of deaths coded as Non-natural in

manner in Dubai Medical District in the summer season determined them not to differ significantly from the statistically expected rate. A Chi-Square value of .664 and p . value = .415 was found for the winter season in Dubai Medical District when the rates of death coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed. The adjusted residuals (.8, -.8) for the rates of deaths coded as Natural in manner in Dubai Medical District in the winter season determined them not to differ significantly from the statistically expected rate. The adjusted residuals (.8, -.8) for the rates of deaths coded as Non-natural in manner in Dubai Medical District in the winter season determined them not to differ significantly from the statistically expected rate. See Table 41 for summary of Chi-Square analysis for the rate of deaths by manner for citizen and non-citizen males ages 20-65 in Dubai Medical District during spring, summer, fall, and winter seasons. See Table 41 for a summary of chi-square analysis for the rate of deaths by manner for citizen and non-citizen males ages 20-65 in Dubai medical district during spring, summer, fall, and winter seasons.

Chi-Square Analysis of Rates of Death by Manner for Citizen and Non-citizen Males Ages 20-65 in Fujairah Medical District in the Spring, Summer, Fall, and Winter Seasons

The results of Chi-Square tests for the rate of death for citizen and non-citizen males ages 20-65 in Fujairah Medical district using a $p = \leq .05$ found significant differences in all four seasons: Spring, Summer, Fall, Winter. A Chi-Square value of 29.180 and p . value = .000 was found for the spring season in Fujairah Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed. The adjusted residual (5.4) for the rate of Natural deaths in Fujairah Medical District in the spring season determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (-5.4) for the rate of Natural deaths in the spring

season in Fujairah Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (5.4) for the rate of Non-natural deaths in the spring season in Fujairah Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-5.4) for the rate of Non-natural deaths in the spring season in Fujairah Medical District determined the observed rate for citizens to be significantly lower than statistically expected. A Chi-Square value of 6.264 and p . value = .012 was found for the summer season in Fujairah Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed. The adjusted residual (2.5) for the rate of Natural deaths in the summer season in Fujairah Medical District determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (-2.5) for the rate of Natural deaths in the summer season in Dubai Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (2.5) for the rate of Non-natural deaths coded as Non-natural in manner in the summer season in Fujairah Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-2.5) for the rate of Non-natural deaths in the summer season in Fujairah Medical District determined the observed rate for citizens to be significantly lower than statistically expected. A Chi-Square value of 32.980 and p . value = .000 was found for the fall season in Fujairah Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed. The adjusted residual (5.7) for the rate of Natural in the fall season in Fujairah Medical District determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (-5.7) for the rate of Natural deaths in the fall season in Dubai Medical District determined the observed rate for non-citizens to be significantly lower than statistically

expected. The adjusted residual (5.7) for the rate of Non-natural deaths in the fall season in Fujairah Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-5.7) for the rate of Non-natural deaths in the fall season in Fujairah Medical District determined the observed rate for citizens to be significantly lower than statistically expected. A Chi-Square value of 5.598 and a *p*. value =.018 was found for the winter season in Fujairah Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed. The adjusted residual (2.4) for the rate of Natural deaths in the winter season in Fujairah Medical District determined the observed death rate for citizens to be significantly higher than statistically expected. The adjusted residual (-2.4) for the rate of Natural deaths in the winter season in Dubai Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (2.4) for the rate of Non-natural deaths in the winter season in Fujairah Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-2.4) for the rate of Non-natural deaths in the winter season in Fujairah Medical District determined the observed rate for citizens to be significantly lower than statistically expected. See Table 42 for summary of Chi-Square analysis for the rate of deaths by manner for males ages 20-65 in Fujairah Medical District during spring, summer, fall, and winter seasons. See Table 42 for a summary of chi-square analysis for the rate of deaths by manner for males ages 20-65 in Fujairah medical district during spring, summer, fall, and winter seasons.

Chi-Square Analysis of Rates of Death by Manner for Citizen and Non-citizen Males Ages 20-65 in Ra's al-Khaimah Medical District in the Spring, Fall, and Winter

The results of Chi-Square tests for the rate of death for citizen and non-citizen males ages 20-65 in Ra's al-Khaimah Medical District using a $p \leq .05$ found significant differences in the following seasons: spring, fall, winter. A Chi-Square value of 7.399 and p value = .007 was found for the spring season in Ra's al-Khaimah Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed. The adjusted residual (2.7) for the rate of Natural deaths in the spring season in Ra's al-Khaimah Medical District determined the observed death rate for citizens to be significantly higher than statistically expected. The adjusted residual (-2.7) for the rate of Natural deaths in the spring season in Ra's al-Khaimah Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (2.7) for the rate of Non-natural deaths in the spring season in Ra's al-Khaimah Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected rate. The adjusted residual (-2.7) for the rate of Non-natural deaths in the spring season in Ra's al-Khaimah Medical District determined the observed rate to be significantly lower than statistically expected. A Chi-Square value of 35.376 and p value = .000 was found for the fall season in Ra's al-Khaimah Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed. The adjusted residual (5.9) for the rate of Natural deaths in the fall season in Ra's al-Khaimah Medical District determined the observed death rate for citizens to be significantly higher than statistically expected. The adjusted residual (-5.9) for the rate of Natural deaths in the fall season in Ra's al-Khaimah Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (5.9) for the rate of Non-natural deaths in the

fall season in Ra's al-Khaimah Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-5.9) for the rate of Non-natural deaths in the fall season in Ra's al-Khaimah Medical District determined the observed rate for citizens to be significantly lower than statistically expected. A Chi-Square value of 15.242 and p . value = .000 was found for the winter season in Ra's al-Khaimah Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed. The adjusted residual (3.9) for the rate of Natural deaths in the winter season in Ra's al-Khaimah Medical District determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (- 3.9) for the rate of Natural deaths in the winter season in Ra's al-Khaimah Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (3.9) for the rate of Non-natural deaths in the winter season in Ra's al-Khaimah Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-3.9) for the rate of Non-natural deaths in the winter season in Ra's al-Khaimah Medical District determined the observed rate for citizens to be significantly lower than statistically expected.

Chi-Square Analysis of Rates of Death by Manner for Citizen and Non-citizen Males Ages 20-65 in Ra's al-Khaimah Medical District in the Summer Season

A Chi-Square value of (3.455) and p . value = .063 was found for the summer season in Ra's al-Khaimah Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed. The adjusted residuals (1.9, -1.9) for rates of Natural deaths in Ra's al-Khaimah Medical District in the summer season determined them not to differ significantly from the statistically expected rate. The adjusted

residuals (1.9, -1 .9) for the rates of deaths coded as Non-natural in manner in Ra's al-Khaimah Medical District in the summer season determined them not to differ significantly from the statistically expected rate. See Table 43 for summary of Chi-Square analysis for the rate of deaths by manner for males ages 20-65 in Ra's al-Khaimah Medical District during spring, summer, fall, and winter seasons. See Table 43 for a summary of chi-square analysis for the rate of deaths by manner for males ages 20-65 in Ra's al-Khaimah medical district during spring, summer, fall, and winter seasons.

Chi-Square Analysis of Rates of Death by Manner for Citizen and Non-citizen Males Ages 20-65 in Sharjah Medical District in the Spring, Summer, Fall, and Winter Seasons

The results of Chi-Square tests for the rate of death for citizen and non-citizen males ages 20-65 in Sharjah Medical district using $p \leq .05$ found significant differences in all four seasons: spring, summer, fall and winter. A Chi-Square value of 11.412 and p value = .001 was found for the spring season in Sharjah Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed. The adjusted residual (3.4) for the rate of Natural deaths in the spring season in Sharjah Medical District determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (-3.4) for the rate of Natural deaths in the spring season in Sharjah Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (3.4) for the rate of Non-natural deaths in the spring season in Sharjah Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-3.4) for the rate of Non-natural deaths in the spring season in Sharjah Medical District determined the observed rate for citizens to be significantly lower than statistically expected. A Chi-Square value of 6.565 and p value = .010

was found for the summer season in Sharjah Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed. The adjusted residual (2.6) for the rate of Natural deaths in the summer season in Sharjah Medical District determined the observed death rate for citizens to be significantly higher than statistically expected. The adjusted residual (-2.6) for the rate of Natural deaths in the summer season in Sharjah Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (2.6) for the rate of Non-natural deaths in the summer season in Sharjah Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-2.6) for the rate of Non-natural deaths in the summer season in Sharjah Medical District determined the observed rate for citizens to be significantly lower than statistically expected. A Chi-Square value of 8.285 and *p*. value = .004 was found for the fall season in Sharjah Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed. The adjusted residual (2.9) for the rate of Natural deaths in the Fall season in Sharjah Medical District determined the observed death rate for citizens to be significantly higher than statistically expected. The adjusted residual (-2.9) for the rate of Natural deaths in the fall season in Sharjah Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (2.9) for the rate of Non-natural deaths in the fall season in Sharjah Medical District determined the observed rate for non-citizen to be significantly higher than statistically expected. The adjusted residual (-2.9) for the rate of Non-natural deaths in the Fall season in Sharjah Medical District determined the observed rate for citizens to be significantly lower than statistically expected. A Chi-Square value of 14.256 and *p*. value = .000 was found for the winter season in Sharjah Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen

males ages 20-65 were analyzed. The adjusted residual (3.8) for the rate of Natural deaths in the winter season in Sharjah Medical District determined the observed death rate for citizens to be significantly higher than statistically expected. The adjusted residual (-3.8) for the rate of Natural deaths the winter season in Sharjah Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (3.8) for the rate of Non-natural deaths in the winter season in Sharjah Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-3.8) for the rate of Non-natural deaths in the winter season in Sharjah Medical District determined the observed rate for citizens to be significantly lower than statistically expected. See Table 44 for summary of Chi-Square analysis for the rate of deaths by manner for citizen and non-citizen males ages 20-65 in Sharjah Medical District during spring, summer, fall, and winter seasons. See Table 44 for a summary of chi-square analysis for the rate of deaths by manner for citizen and non-citizen males ages 20-65 in Sharjah medical district during spring, summer, fall, and winter seasons.

Chi-Square Analysis of Rates of Death by Manner for Citizen and Non-citizen Males Ages 20-65 in Umm al-Qaiwain Medical District in the Spring, Summer, and Fall Seasons

The results of Chi-Square tests for the rate of death for citizen and non-citizen males ages 20-65 in Umm al-Qaiwain Medical district using a $p \leq .05$ found significant differences in the following seasons: spring, summer and fall. A Chi-Square value of 3.837 and p . value = .050 was found for the spring season in Umm al-Qaiwain Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed. The adjusted residual (2.0) for the rate of Natural deaths in the summer spring in Umm al-Qaiwain Medical District determined the observed death rate for non-citizens to be

significantly higher than statistically expected. The adjusted residual (- 2.0) for the rate of Natural deaths in the spring season in Umm al-Qaiwain Medical District determined the observed rate for citizens to be significantly lower than statistically expected. The adjusted residual (2.0) for the rate of Non-natural deaths in the spring season in Umm al-Qaiwain Medical District determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (-2.0) for the rate of Non-natural deaths in the spring season in Umm al-Qaiwain Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. A Chi-Square value of 9.180 and p . value = .002 was found for the summer season in Umm al-Qaiwain Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed. The adjusted residual (3.0) for the rate of Natural deaths in the summer season in Umm al-Qaiwain Medical District determined the observed death rate for citizens to be significantly higher than statistically expected. The adjusted residual (- 3.0) for the rate of Natural deaths in the summer season in Umm al-Qaiwain Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (3.0) for the rate of Non-natural deaths in the summer season in Umm al-Qaiwain Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-3.0) for the rate of Non-natural deaths in summer season in Umm al-Qaiwain Medical District determined the observed rate for citizens to be significantly lower than statistically expected. A Chi-Square value of 31.003 and p . value = .000 was found for the fall season in Umm al-Qaiwain Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 were analyzed.

The adjusted residual (5.6) for the rate of Natural deaths in the fall season in Umm al-Qaiwain Medical District determined the observed death rate for citizens to be significantly higher than statistically expected. The adjusted residual (-5.6) for the rate of Natural deaths in the fall season in Umm al-Qaiwain Medical District determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (5.6) for the rate of Non-natural deaths in the fall season in Umm al-Qaiwain Medical District determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-5.6) for the rate of Non-natural deaths in the fall season in Umm al-Qaiwain Medical District determined the observed rate for citizens to be significantly lower than statistically expected.

Chi-Square Analysis of Rates of Death by Manner for Citizen and Non-citizen Males Ages 20-65 in Umm al-Qaiwain Medical District in the Winter Season

A Chi-Square value of 1.146 and p . value = .284 was found for the winter season in Umm al-Qaiwain Medical District when the rates of deaths coded as Natural and Non-natural in manner for citizen and non-citizen males ages 20-65 was analyzed. The adjusted residuals (-1 .1, 1.1) for the rates of deaths coded as Natural in manner in Umm al-Qaiwain Medical District in the winter season determined them not to differ significantly from the statistically expected rate. The adjusted residuals (1.1, -1 .1) for the rates of deaths coded as Non-natural in manner in Umm al-Qaiwain Medical District in the winter season determined them not to differ significantly from the statistically expected rate. See Table 45 for summary of Chi-Square analysis for the rate of deaths by manner for citizen and non-citizen males ages 20-65 in Umm al-Qaiwain Medical District during spring, summer, fall, and winter seasons. See Table 45 for a summary of chi-square analysis for the rate of deaths by manner for citizen and non-citizen males ages 20-65 in Umm al-Qaiwain medical district during spring, summer, fall, and winter seasons.

Table 40: Summary of Chi-Square Analysis for the Rate of Deaths by Manner for Citizen and Non-citizen Males Ages 20-65 in Ajman Medical District during Spring, Summer, Fall, and Winter Seasons

Season	Spring		Summer		Fall		Winter	
Chi-Square	1.809		10.179		8.814		.068	
P value	.179		.001*		.003*		.794	
Citizen status	Citizen	Non-citizen	Citizen	Non-citizen	Citizen	Non-citizen	Citizen	Non-citizen
Adjusted residual Natural	0	0	+	-	+	-	0	0
Adjusted residual Non-natural	0	0	-	+	-	+	0	0

+= Significantly more observed than expected
 -= significantly less observed than expected
 0= no significant difference
 NA= No reported deaths observed and expected
 *=Chi-Square differs significantly

Table 41: Summary of Chi-Square Analysis for the Rate of Deaths by Manner for Citizen and Non-citizen Males Ages 20-65 in Dubai Medical District during Spring, Summer, Fall, and Winter Seasons

Season	Spring		Summer		Fall		Winter	
P value	.000*		.091		.018*		.415	
Citizen status	Citizen	Non-citizen	Citizen	Non-citizen	Citizen	Non-citizen	Citizen	Non-citizen
Adjusted residual Natural	+	-	0	0	+	-	0	0
Adjusted residual Non-natural	-	+	0	0	-	+	0	0

+= Significantly more observed than expected
 -= significantly less observed than expected
 0= no significant difference
 NA= No reported deaths observed and expected
 *=Chi-Square differs significantly

Table 42: Summary of Chi-Square Analysis for the Rate of Deaths by Manner for Males Ages 20-65 in Fujairah Medical District during Spring, Summer, Fall, and Winter Seasons

Season	Spring		Summer		Fall		Winter	
Chi-Square	29.180		6.264		32.980		5.598	
P value	.000		.012		.000		.018	
Citizen status	Citizen	Non-citizen	Citizen	Non-citizen	Citizen	Non-citizen	Citizen	Non-citizen
Adjusted residual Natural	+	-	+	-	+	-	+	-
Adjusted residual Non-natural	-	+	-	+	-	+	-	+

+= Significantly more observed than expected
 -= significantly less observed than expected
 0= no significant difference
 NA= No reported deaths observed and expected
 *=Chi-Square differs significantly

Table 43: Summary of Chi-Square Analysis for the Rate of Deaths by Manner for Males Ages 20-65 in Ra's al-Khaimah Medical District during Spring, Summer, Fall, and Winter Seasons

Season	Spring		Summer		Fall		Winter	
Chi Square	7.399		3.455		35.376		15.242	
P value	.007		.063		.000		.000	
Citizen status	Citizen	Non-citizen	Citizen	Non-citizen	Citizen	Non-citizen	Citizen	Non-citizen
Adjusted residual Natural	+	-	0	0	+	-	+	-
Adjusted residual Non-natural	-	+	0	0	-	+	-	+

+= Significantly more observed than expected
 -= significantly less observed than expected
 0= no significant difference
 NA= No reported deaths observed and expected
 *=Chi-Square differs significantly

Table 44: Summary of Chi-Square Analysis for the Rate of Deaths by Manner for Citizen and Non-citizen Males Ages 20-65 in Sharjah Medical District during Spring, Summer, Fall, and Winter Seasons

Season	Spring		Summer		Fall		Winter	
Chi-Square	11.412		6.565		8.285		14.256	
P value	.001		.010		.004		.000	
Citizen status	Citizen	Non-citizen	Citizen	Non-citizen	Citizen	Non-citizen	Citizen	Non-citizen
Adjusted residual Natural	+	-	+	-	+	-	+	-
Adjusted residual Non-natural	-	+	-	+	-	+	-	+

+= Significantly more observed than expected
 -= significantly less observed than expected
 0= no significant difference
 NA= No reported deaths observed and expected
 *=Chi-Square differs significantly

Table 45: Summary of Chi-Square Analysis for the Rate of Deaths by Manner for Citizen and Non-citizen Males Ages 20-65 in Umm al-Qaiwain Medical District during Spring, Summer, Fall, and Winter Seasons

Season	Spring		Summer		Fall		Winter	
Chi-Square	3.837		9.180		31.003		1.146	
P value	.050		.002		.000		.284	
Citizen status	Citizen	Non-citizen	Citizen	Non-citizen	Citizen	Non-citizen	Citizen	Non-citizen
Adjusted residual Natural	-	+	+	-	+	-	0	0
Adjusted residual Non-natural	+	-	-	+	-	+	0	0

+= Significantly more observed than expected
 -= significantly less observed than expected
 0= no significant difference
 NA= No reported deaths observed and expected
 *=Chi-Square differs significantly

The individual Chi-Square analysis for each of the six UAE medical districts' rate of death for males ages 20-65 by citizen status, manner (Natural & Non-natural), and season is provided in Appendix B.

Research Question 3c

3 - Does the rate of death among citizen and non-citizen males in the age group of 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

c) by specific cause of Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicles & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rates of Unintentional Injury fatalities, analyzed by cause and citizen status, among males ages 20-65 in the six medical districts managed by the UAE Ministry of Health during the period 2006-2008.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause for Males Ages 20-65 in Ajman Medical District for the years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate of Unintentional Injury deaths in the medical district of Ajman for citizen and non-citizen males ages 20-65. For Ajman Medical District, the analysis resulted in a Chi-Square value of 32.004 and a p -value of .000. Following the Chi-Square test an adjusted residual was also determined for the rate of Unintentional Injury death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the medical district of Ajman. The results show that the observed

rates for some causes differ significantly from the expected rate. The adjusted residual (2.3) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-2.3) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for citizens to be significantly lower than statistically expected. The adjusted residual (4.9) for the rate of deaths caused by Motor Vehicle & Traffic Accidents found the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (-4.9) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (4.5) for the rate of deaths caused by Accidental Falls determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-4.5) for the rate of deaths caused by Accidental Falls determined the observed rate for citizens to be significantly lower than statistically expected. The adjusted residuals (-.2, .2) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 46 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in Ajman Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause for Males Ages 20-65 in Dubai Medical District for the years 2006-2008

The Pearson Chi-Square analysis using a $p. = \leq .05$ was utilized to determine the rate of Unintentional Injury deaths in the medical district of Dubai for citizen and non-citizen males ages 20-65. The analysis resulted in a Chi-Square value of 7.083 and a p -value of .132. Following the Chi-Square test an adjusted residual was also determined for the rate of

Unintentional Injury death by each specific cause for both citizen and non-citizen males age 20-65 whose death was reported in the medical district of Dubai. The results showed the observed rates not to differ from the expected rate. The adjusted residuals (-1.8, 1.8) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (.9, -.9) for the rate of deaths caused by Motor Vehicle & Traffic Accidents, determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (1.6, -1.6) for the rate of deaths caused by Accidental Poisoning determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.4, 1.4) for the rate of deaths caused by Accidental Falls, determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-.7, .7) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 47 for Chi-Square analysis of rate of unintentional injury death by specific cause and citizen status for males ages 20-65 in Dubai Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause for Males Ages 20-65 in Fujairah Medical District for the years 2006-2008

The Pearson Chi-Square analysis using a $p. = \leq .05$ was utilized to determine the rate of Unintentional Injury deaths in the medical district of Fujairah for citizen and non-citizen males ages 20-65. The analysis resulted in a Chi-Square value of 18.128 and p -value of .000. Following the Chi-Square test an adjusted residual was also determined for the rate of Unintentional Injury death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the medical district of Fujairah. The results show that the observed rates for some causes differ

significantly from the expected rate. The adjusted residual (3.7) for the rate of deaths caused by Accidents & Adverse Effects accidental cause of death determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-3.7) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for citizens to be significantly lower than statistically expected. The adjusted residual (3.7) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (- 3.7) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residual (.0) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.7, 1.7) for the rate of deaths caused by Other Causes of Unintentional Injury death determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 48 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in Fujairah Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause for Males Ages 20-65 in Ra's al-Khaimah Medical District for the years 2006-2008

The Pearson Chi-Square analysis using a $p. = \leq .05$ was utilized to determine the rate of Unintentional Injury deaths in the medical district of Ra's al-Khaimah for citizen and non-citizen males ages 20-65. The analysis resulted in a Chi-Square value of 18.671 and p -value of .001. Following the Chi-Square test, an adjusted residual was also determined for the rate of Unintentional Injury death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the medical district of Ra's al-Khaimah. The results show that the observed

rates for some causes differ significantly from the expected rate. The adjusted residual (2.7) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-2.7) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for citizens to be significantly lower than statistically expected. The adjusted residual (2.5) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (-2.5) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residuals (1.6, -1.6) for the rate of deaths caused by Accidental Poisoning determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.4, 1.4) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residual (2.4) for the rate of death caused by Other Causes of Unintentional Injury determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-2.4) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for citizens to be significantly lower than statistically expected. See Table 49 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in Ra's al-Khaimah Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause for Males Ages 20-65 in Sharjah Medical District for the years 2006-2008

The Pearson Chi-Square analysis using a $p. = \leq .05$ was utilized to determine the rate of Unintentional Injury deaths in the medical district of Sharjah for citizen and non-citizen males

ages 20-65. The analysis resulted in a Chi-Square value of 31.886 and p -value of .000. Following the Chi-Square test an adjusted residual was also determined for the rate of Unintentional Injury death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the medical district of Sharjah. The results show that the observed rates for some causes differ significantly from the expected rate. The adjusted residual (3.5) for the rate of deaths caused by Accidents & Adverse Effects cause of death, determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-3.5) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for citizens to be significantly lower than statistically expected. The adjusted residuals (-.4, .4) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (2.0, -2.0) for the rate of deaths caused by Accidental Poisoning determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residual (2.3) for the rate of deaths caused by Accidental Falls determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-2.3) for the rate of deaths caused by Accidental Falls cause of death determined the observed rate for citizens to be significantly lower than statistically expected. The adjusted residual (3.7) for rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (-3.7) for rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for citizens to be significantly lower than statistically expected. See Table 50 for Chi-Square analysis of the rate of unintentional injury deaths by specific cause and citizen status for males 20-65 in Sharjah Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause for Males Ages 20-65 in Umm al-Qaiwain Medical District for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate of Unintentional Injury deaths in the medical district of Umm al-Qaiwain for citizen and non-citizen males ages 20-65. The analysis resulted in a Chi-Square value of 178.665 and p -value of .000. Following the Chi-Square test an adjusted residual was also determined for the rate of Unintentional Injury death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the medical district of Umm al-Qaiwain. The results show that the observed rates for some causes differ significantly from the expected rate. The adjusted residual (4.3) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-4.3) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for citizens to be significantly lower than statistically expected. The adjusted residual (8.7) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for citizens to be significantly higher than statistically expected. The adjusted residual (-8.7) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for non-citizens to be significantly lower than statistically expected. The adjusted residuals (1.2, -1.2) for the rate of deaths caused by Accidental Poisoning determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residual (4.9)

for the rate of deaths caused by Accidental Falls determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-4.9) for the rate of deaths caused by Accidental Falls determined the observed rate for citizens to be significantly lower than statistically expected. The adjusted residual (10.7) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-10.7) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for citizens to be significantly lower than statistically expected. See Table 51 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in Umm al-Qaiwain Medical District.

Table 46: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in Ajman Medical District

Cause of Unintentional Injury death			Rate by Citizen Status		Total
			Citizen	Non-citizen	
Accidents & Adverse Effects	Observed Rate	6	31	37	
	Expected Rate	11.9	25.1	37.0	
	Adjusted Residual	-2.3**	2.3**		
Motor Vehicle & Traffic Accidents	Observed Rate	65	80	145	
	Expected Rate	46.8	98.2	145.0	
	Adjusted Residual	4.9**	-4.9**		
Accidental Falls	Observed Rate	0	36	36	
	Expected Rate	11.6	24.4	36.0	
	Adjusted Residual	-4.5**	4.5**		
Other Causes	Observed Rate	12	27	39	
	Expected Rate	12.6	26.4	39.0	
	Adjusted Residual	-.2	.2		
Total Rate		83	174	257	

a. Chi-Square =7.083, df=4, sig=.132*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table 47: Chi-Square Analysis of Rate of Unintentional Injury Death by Specific Cause and Citizen Status for Males Ages 20-65 in Dubai Medical District

Cause of Unintentional Injury death			Rate by Citizen Status		Total
			Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	3	10	13	
	Expected Rate	6.0	7.0	13.0	
	Adjusted Residual	-1.8	1.8		
Motor Vehicle & Traffic Accidents	Observed Rate	19	17	36	
	Expected Rate	16.8	19.2	36.0	
	Adjusted Residual	.9	-.9		
Accidental Poisoning	Observed Rate	20	15	35	
	Expected Rate	16.3	18.7	35.0	
	Adjusted Residual	1.6	-1.6		
Accidental Falls	Observed rate	3	8	11	
	Expected Rate	5.1	5.9	11.0	
	Adjusted Residual	-1.4	1.4		
Other Causes	Observed Rate	2	4	6	
	Expected Rate	2.8	3.2	6.0	
	Adjusted Residual	-.7	.7		
Total	Observed Rate	47	54	101	

a- Chi-Square =7.083, df=4, sig=.132 *

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table 48: Chi-Square Analysis of Rate Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in Fujairah Medical District

Cause of Unintentional Injury death			Rate by Citizen Status		Total
			Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	25	25	
	Expected Rate	8.3	16.7	25.0	
	Adjusted Residual	-3.7**	3.7**		
Motor Vehicle & Traffic Accidents	Observed Count	77	120	197	
	Expected Rate	65.2	131.8	197.0	
	Adjusted Residual	3.7**	-3.7**		
Accidental Falls	Observed Rate	4	8	12	
	Expected Rate	4.0	8.0	12.0	
	Adjusted Residual	.0	.0		
Other Causes	Observed Rate	4	19	23	
	Expected Rate	7.6**	15.4**	23.0	
	Adjusted Residual	-1.7	1.7		
Total	Observed Rate	85	172	257	

a- Chi-Square =7.083, df=3, sig=.000 *

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table 49: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in Ra's al-Khaimah Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	18	18
	Expected Rate	5.1	12.9	18.0
	Adjusted Residual	-2.7**	2.7**	
Motor Vehicle & Traffic Accidents	Observed Rate	65	132	197
	Expected Rate	55.6	141.4	197.0
	Adjusted Residual	2.5**	-2.5**	
Accidental Poisoning	Observed Rate	14	21	35
	Expected Rate	9.9	25.1	35.0
	Adjusted Residual	1.6	-1.6	
Accidental Falls	Observed Rate	3	17	20
	Expected Rate	5.6	14.4	20.0
	Adjusted Residual	-1.4	1.4	
Other	Observed Count	3	28	31
	Expected Rate	8.8	22.2	31.0
	Adjusted Residual	-2.4**	2.4**	
Total	Observed Rate	85	216	301

a-Chi-Square =18.671, df=4, sig=.001*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Table 50: Chi-Square Analysis of the Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males 20-65 in Sharjah Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	8	48	56
	Expected Rate	20.1	35.9	56.0
	Adjusted Residual	-3.5**	3.5**	
Motor Vehicle & Traffic Accidents	Observed Rate	108	200	308
	Expected Rate	110.6	197.4	308.0
	Adjusted Residual	-.4	.4	
Accidental Poisoning	Observed Rate	58	76	134
	Expected Rate	48.1	85.9	134.0
	Adjusted Residual	2.0	-2.0	
Accidental Falls	Observed Rate	8	33	41
	Expected Rate	14.7	26.3	41.0
	Adjusted Residual	-2.3**	2.3**	
Other	Observed Rate	28	18	46
	Expected Rate	16.5	29.5	46.0
	Adjusted Residual	3.7**	-3.7**	
Total	Observed Rate	210	375	585

a-Chi-Square =31.886, df=4, sig=.000*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Table 51: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in Umm al-Qaiwain Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	19	19
	Expected Rate	9.3	9.7	19.0
	Adjusted Residual	4.3** ₋	4.3**	
Motor Vehicle & Traffic Accidents	Observed Rate	302	181	483
	Expected Rate	237.4	245.6	483.0
	Adjusted Residual	8.7**	-8.7**	
Accidental Poisoning	Observed Rate	136	124	260
	Expected Rate	127.8	132.2	260.0
	Adjusted Residual	1.2	-1.2	
Accidental Falls	Observed Rate	0	24	24
	Expected Rate	11.8	12.2	24.0
	Adjusted Residual	-4.9**	4.9**	
Other Causes	Observed Rate	0	105	105
	Expected Rate	51.6	53.4	105.0
	Adjusted Residual	-10.7**	10.7**	
Total	Observed Rate	438	453	891

a-Chi-Square =178.665, df=4, sig=.000*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Research question 3d

3 - Does the rate of death among citizen and non-citizen males in the age group of 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

d) within each of the four seasons (spring, summer, fall, and winter) by specific cause of Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicles & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Ajman Medical District in the Spring Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the spring season in

Ajman Medical District using a $p \leq .05$. The analysis resulted in a Chi-Square value of 10.977 and p -value of = .012. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the spring season for Ajman Medical District. The results show that the observed rates for some causes differ significantly from the expected rate. The adjusted residuals (-1.4, 1.4) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residual (3.3) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for citizens to be significantly higher than statistically expected in the spring season in Ajman Medical District. The adjusted residual (-3.3) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for non-citizens to be significantly lower than statistically expected in the spring season in Ajman Medical District. The adjusted residuals (-1.8, 1.8) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.8, 1.8) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 52 for Chi-Square analysis for rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the spring season in Ajman Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Ajman Medical District in the Summer Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the

summer season in Ajman Medical District. The analysis resulted in a Chi-Square value of 5.875 and p -value of 0.118. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose deaths were reported in the summer season for Ajman Medical District. The results show that the observed rates do not differ significantly from the expected. The adjusted residuals (-.2, .2) for the rate of deaths caused by Accidents & Adverse Effects cause of death determined no significant difference between observed and statistically expected rates for either citizens or non-citizens in the summer season in Ajman Medical District. The adjusted residuals (.1, -.1) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.9, 1.9) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (1.8, -1.8) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 53 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the summer season in Ajman Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Ajman Medical District in the Fall Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the fall season in Ajman Medical District. The analysis resulted in a Chi-Square value of 8.381 and a p -value of 0.039. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose deaths

were reported in the fall season for Ajman Medical District. The results show that the observed rates for some causes differ significantly from the expected rate. For the rate of deaths caused by Accidents & Adverse Effects cause of death, the adjusted residuals (-1.6, 1.6) determined no significant difference between observed and statistically expected rates for either citizens or non-citizens in the fall season in Ajman Medical District. The adjusted residuals (1.2, -1.2) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate.. The adjusted residual (2.1) for the rate of deaths caused by Accidental Falls determined the observed rate for non-citizens to be significantly higher than statistically expected in the fall season in Ajman Medical District. The adjusted residual (-2.1) for the rate of deaths caused by Accidental Falls determined the observed rate for citizens to be significantly lower than statistically expected in the fall season in Ajman Medical District. The adjusted residuals (1.5, -1.5) for the rate of deaths caused by Other Causes of Unintentional Injury death determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 54 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the fall season in Ajman Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Ajman Medical District in the Winter Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the winter season in Ajman Medical District. The analysis resulted in a Chi-Square value of 25.000, and p -value of 0.00. Following the Chi-Square test, an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose death

was reported in the winter season in Ajman Medical District. The results show that the observed rates for some causes differ significantly from the expected rate. The adjusted residuals (-1.9, 1.9) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residual (5.0) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for citizens to be significantly higher than statistically expected in the winter season in Ajman Medical District. The adjusted residual (-5.0) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for non-citizens to be significantly lower than statistically expected in the winter season in Ajman Medical District. The adjusted residual (3.1) for the rate of deaths caused by Accidental Falls determined the observed rate for non-citizens to be significantly higher than statistically expected in the winter season in Ajman Medical District. The adjusted residual (- 3.1) for the rate of deaths caused by Accidental Falls determined the observed rate for citizens to be significantly lower than statistically expected in the winter season in Ajman Medical District. The adjusted residual (2.4) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for non-citizens to be significantly higher than statistically expected in the winter season in Ajman Medical District. The adjusted residual (-2.4) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for citizens to be significantly lower than statistically expected in the winter season in Ajman Medical District. See Table 55 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the winter season in Ajman Medical District.

Table 52: Chi-Square Analysis for Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Spring Season in Ajman Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	4	4
	Expected Rate	1.3	2.7	4.0
	Adjusted Residual	-1.4	1.4	
Motor Vehicle & Traffic Accidents	Observed Rate	18	21	39
	Expected Rate	12.8	26.2	39.0
	Adjusted Residual	3.3**	-3.3**	
Accidental Falls	Observed Rate	0	6	6
	Expected Rate	2.0	4.0	6.0
	Adjusted Residual	-1.8	1.8	
Other Causes	Observed Rate	0	6	6
	Expected Rate	2.0	4.0	6.0
	Adjusted Residual	-1.8	1.8	
Total	Observed Rate	18	37	55

a-Chi-Square =10.977, df=3, sig=.012*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table 53: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Summer Season in Ajman Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	6	16	22
	Expected Rate	6.4	15.6	22.0
	Adjusted Residual	-.2	.2	
Motor Vehicle & Traffic Accidents	Observed Rate	6	14	20
	Expected Rate	5.8	14.2	20.0
	Adjusted Residual	.1	-.1	
Accidental Falls	Observed Rate	0	8	8
	Expected Rate	2.3	5.7	8.0
	Adjusted Residual	-1.9	1.9	
Other Causes	Observed Rate	6	6	12
	Expected Rate	3.5	8.5	12.0
	Adjusted Residual	1.8	-1.8	
Total	Observed Rate	18	44	62

a. Chi-Square =5.875, df=3, sig=.118n.s

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table 54: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Fall Season in Ajman Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	6	6
	Expected Rate	1.6	4.4	6.0
	Adjusted Residual	-1.6	1.6	
Motor Vehicle & Traffic Accidents	Observed Rate	12	24	36
	Expected Rate	9.8	26.2	36.0
	Adjusted Residual	1.2	-1.2	
Accidental Falls	Observed Rate	0	10	10
	Expected Rate	2.7	7.3	10.0
	Adjusted Residual	-2.1**	2.1**	
Other Causes	Observed Rate	6	8	14
	Expected	3.8	10.2	14.0
	Adjusted Residual	1.5	-1.5	
Total	Observed Rate	18	48	66

a-Chi-Square =8.381, df=3, sig=.039*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Table 55: Chi-Square Analysis for of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Winter Season in Ajman Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	5	5
	Expected Rate	2.0	3.0	5.0
	Adjusted Rate	-1.9	1.9	
Motor Vehicle & Traffic Accidents	Observed Rate	30	20	50
	Expected Rate	20.0	30.0	50.0
	Adjusted Residual	5.0**	-5.0**	
Accidental Falls	Observed Rate	0	12	12
	Expected Rate	4.8	7.2	12.0
	Adjusted Residual	-3.1**	3.1**	
Other	Observed Rate	0	8	8
	Expected Rate	3.2	4.8	8.0
	Adjusted Residual	-2.4**	2.4**	
Total	Observed Rate	30	45	75

a-Chi-Square =25.000, df=3, sig=.000*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Dubai Medical District in the Spring Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the spring season in Dubai Medical District. The analysis resulted in a Chi-Square value of 4.961 p-value of $=.29$. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the spring season for Dubai Medical District. The results show that the observed rates do not differ significantly from the expected rate. The adjusted residuals (-1.0, 1.0) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.3, 1.3) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (.9, -.9) for the rate of deaths caused by Accidental Poisoning determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (1.6, -1.6) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-.5, .5) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 56 for Chi-Square analysis of rate of unintentional injury death by specific cause and citizen status for males ages 20-65 in the spring season in Dubai Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Dubai Medical District in the Summer Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the summer season in Dubai Medical District. The analysis resulted in a Chi-Square value of 0.991 and a p . value of .91. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the summer season in Dubai Medical District. The results show that the observed rates do not differ significantly from the expected rate. The adjusted residuals (-.8, .8) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (.1, -.1) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (.5, -.5) for the rate of deaths caused by Accidental Poisoning determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-.3, .3) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (.3, -.3) for the rate of deaths caused by Other Causes of Unintentional Injury death determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 57 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the summer season in Dubai Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Dubai Medical District in the Fall Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the fall season in Dubai Medical District. The analysis resulted in a Chi-Square value of 5.045 and a p value of .283. Following the Chi-Square test, an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the fall season in Dubai Medical District. The results show that the observed rates do not differ significantly from the expected rate. The adjusted residuals (-1.2, 1.2) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (.2, -.2) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (1.7, -1.7) for the rate of deaths caused by Accidental Poisoning determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.2, 1.2) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-.8, .8) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 58 for Chi-Square analysis of Rate of Unintentional Injury Deaths by specific cause and citizen status for males ages 20-65 in the fall season in Dubai Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Dubai Medical District in the Winter Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the winter season in Dubai Medical District. The analysis resulted in a Chi-Square value of 5.045 and a p -value of .283. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose deaths were reported in the winter season in Dubai Medical District. The results show that the observed rates do not differ significantly from the expected. The adjusted residuals (-.7, .7) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (1.1, -1.1) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (.7, -.7) for the rate of deaths caused by Accidental Poisoning determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.6, 1.6) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.1, 1.1) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 59 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the winter season in Dubai Medical District.

Table 56: Chi-Square Analysis of Rate of Unintentional Injury Death by Specific Cause and Citizen Status for Males Ages 20-65 in the Spring Season in Dubai Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total	
		Citizen	Non-citizen		
Accidents & Adverse Effect	Observed Rate	0	3	3	
	Expected Rate	0.6	2.4	3.0	
	Adjusted Residual	-1.0	1.0		
Motor Vehicle & Traffic Accidents	Observed Rate	0	5	5	
	Expected Rate	1.1	3.9	5.0	
	Adjusted Residual	-1.3	1.3		
Accidental Poisoning	Observed Rate	2	4	6	
	Expected Rate	1.3	4.7	6.0	
	Adjusted Residual	.9	-.9		
Accidental Falls	Observed Rate	2	2	4	
	Expected Rate	0.8	3.2	4.0	
	Adjusted Residual	1.6	-1.6		
Other	Observed Rate	0	1	1	
	Expected Rate	0.2	0.8	1.0	
	Adjusted Residual	-.5	.5		
Total		Observed Rate	4	15	19

a. Chi-Square =4.961, df=4, sig=.291*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table 57: Chi-Square Analysis for Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Summer Season in Dubai Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total	
		Citizen	Non-citizen		
Accidents & Adverse Effect	Observed Rate	2	3	5	
	Expected Rate	2.9	2.1	5.0	
	Adjusted Residual	-.8	.8		
Motor Vehicle & Traffic Accidents	Observed Rate	7	5	12	
	Expected Rate	6.9	5.1	12.0	
	Adjusted Residual	.1	-.1		
Accidental Poisoning	Observed Rate	7	4	11	
	Expected Rate	6.3	4.7	11.0	
	Adjusted Residual	.5	-.5		
Accidental Falls	Observed Rate	2	2	4	
	Expected Rate	2.3	1.7	4.0	
	Adjusted Residual	-.3	.3		
Other Causes	Observed Rate	2	1	3	
	Expected Rate	1.7	1.3	3.0	
	Adjusted Residual	.3	-.3		
Total		Observed Rate	20	15	35

a. Chi-Square =0.991, df=4, sig=.911*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table 58: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Fall Season in Dubai Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	2	2
	Expected Rate	0.8	1.2	2.0
	Adjusted Residual	-1.2	1.2	
Motor Vehicle & Traffic Accidents	Observed Rate	3	4	7
	Expected Rate	2.8	4.2	7.0
	Adjusted Residual	.2	-.2	
Accidental Poisoning	Observed Rate	5	3	8
	Expected Rate	3.2	4.8	8.0
	Adjusted Residual	1.7	-1.7	
Accidental Falls	Observed Rate	0	2	2
	Expected Rate	0.8	1.2	2.0
	Adjusted Residual	-1.2	1.2	
Other Causes	Observed Rate	0	1	1
	Expected Rate	0.4	0.6	1.0
	Adjusted Residual	-.8	.8	
Total	Observed Rate	8	12	20

a. Chi-Square =5.045, df=4, sig=.283*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Table 59: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Winter Season in Dubai Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	2	3	5
	Expected Rate	2.7	2.3	5.0
	Adjusted Residual	-.7	.7	
Motor Vehicle & Traffic Accidents	Observed Rate	8	4	12
	Expected Rate	6.6	5.4	12.0
	Adjusted Residual	1.1	-1.1	
Accidental Poisoning	Observed Rate	7	4	11
	Expected Rate	6.0	5.0	11.0
	Adjusted Residual	.7	-.7	
Accidental Falls	Observed Rate	0	2	2
	Expected Rate	1.1	0.9	2.0
	Adjusted Residual	-1.6	1.6	
Other Causes	Observed Rate	0	1	1
	Expected Rate	0.5	0.5	1.0
	Adjusted Residual	-1.1	1.1	
Total	Observed Rate	17	14	31

a. Chi-Square =5.109, df=4, sig=.276*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Fujairah Medical District in the Spring Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the spring season in Fujairah Medical District. The analysis resulted in a Chi-Square value of 10.137 and a p -value of .017. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose deaths were reported in the spring season in Fujairah Medical District. The results show that the observed rates for some causes differ significantly from the expected rate. The adjusted residual (2.9) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-2.9) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for citizens to be significantly lower than statistically expected. The adjusted residuals (2.0, -2.0) for the rate of deaths caused by Motor Vehicle & Traffic Accidents cause of death determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate.. The adjusted residuals (1.0, -1.0) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (1.2, -1.2) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 60 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the spring season in Fujairah Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Fujairah Medical District in the Summer Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the summer season in Fujairah Medical District. The analysis resulted in a Chi-Square value of 9.195 and a p-value of .027. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males ages 20-65 whose death was reported in the summer season in Fujairah Medical District. The results show that the observed rates for some causes differ significantly from the expected rate. The adjusted residual (2.1) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for non-citizens to be significantly higher than statistically expected. The adjusted residual (-2.1) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for citizens to be significantly lower than statistically expected. The adjusted residuals (1.5, -1.5) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (1.4, -1.4) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.7, 1.7) for the rate of deaths caused by Other Causes of Unintentional Injury death determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 61 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the summer season in Fujairah Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Fujairah Medical District in the Fall Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the fall season in Fujairah Medical District. The analysis resulted in a Chi-Square value of 2.417 p-value of .0491. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose deaths were reported in the fall season in Fujairah Medical District. The results show that the observed rates do not differ significantly from the expected rate. The adjusted residuals (-.8, .8) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (1.6, -1.6) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-.6, .6) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.0, 1.0) for the rate of deaths caused by Other Causes of Unintentional Injury death determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 62 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the fall season in Fujairah Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Fujairah Medical District in the Winter Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq 05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the winter season in Fujairah Medical District. The analysis resulted in a Chi-Square value of 5.699 and a p value of .058. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the winter season in Fujairah Medical District. The results show that the observed rates for some causes differ significantly from the expected rate. The adjusted residual (2.4) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for citizens to be significantly higher than statistically expected in the winter season in Fujairah Medical District. The adjusted residual (-2.4) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for non-citizens to be significantly lower than statistically expected in the winter season in Fujairah Medical District. The adjusted residuals (-1.3, 1.3) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.9, 1.9) for the rate of deaths caused by Other Causes of Unintentional Injury death determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 63 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the winter season in Fujairah Medical District.

Table 60: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Spring Season in Fujairah Medical District

Cause of Unintentional Injury death			Rate by Citizen Status		Total
			Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	14	14	
	Expected Rate	4.5	9.5	14.0	
	Adjusted Residual	-2.9**	2.9**		
Motor Vehicle & Traffic Accidents	Observed Rate	17	25	42	
	Expected Rate	13.4	28.6	42.0	
	Adjusted Residual	2.0	-2.0		
Accidental Falls	Observed Rate	0	2	2	
	Expected Rate	0.6	1.4	2.0	
	Adjusted Residual	-1.0	1.0		
Other	Observed Rate	4	4	8	
	Expected Rate	2.5	5.5	8.0	
	Adjusted Residual	1.2	-1.2		
Total	Observed Rate	21	45	66	

a. Chi-Square =10.137, df=3, sig=.017*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Table 61: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Summer Season in Fujairah Medical District

Cause of Unintentional Injury death			Rate by Citizen Status		Total
			Citizen	Non-citizen	
Accidents & Adverse Effects	Observed Rate	0	6	6	
	Expected Rate	2.4	3.6	6.0	
	Adjusted Residual	-2.1**	2.1**		
Motor Vehicle & Traffic Accidents	Observed Rate	17	19	36	
	Expected Rate	14.5	21.5	36.0	
	Adjusted Residual	1.5	-1.5		
Accidental Falls	Observed Rate	4	2	6	
	Expected Rate	2.4	3.6	6.0	
	Adjusted Residual	1.4	-1.4		
Other Causes	Observed Rate	0	4	4	
	Expected Rate	1.6	2.4	4.0	
	Adjusted Residual	-1.7	1.7		
Total	Observed Rate	21	31	52	

a. Chi-Square =9.195, df=3, sig=.027*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Table 62: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Fall Season in Fujairah Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	4	4
	Expected Rate	0.6	3.4	4.0
	Adjusted Residual	-.8	.8	
Motor Vehicle & Traffic Accidents	Observed Rate	9	43	52
	Expected Rate	7.3	44.7	52.0
	Adjusted Residual	1.6	-1.6	
Accidental Falls	Observed Rate	0	2	2
	Expected Rate Observed Rate	0.3	1.7	2.0
	Adjusted Residual	-.6	.6	
Other Causes	Observed Rate	0	6	6
	Expected Rate	0.8	5.2	6.0
	Adjusted Residual	-1.0	1.0	
Total	Observed Rate	9	55	64

a. Chi-Square =2.417, df=3, sig=.49*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Table 63: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Winter Season in Fujairah Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Motor Vehicle & Traffic Accidents	Observed Rate	34	33	67
	Expected	31.2	35.8	67.0
	Adjusted Residual	2.4**	-2.4**	
Accidental Falls	Observed	0	2	2
	Expected	0.9	1.1	2.0
	Adjusted Residual	-1.3	1.3	
Other Causes	Observed	0	4	4
	Expected	1.9	2.1	4.0
	Adjusted Residual	-1.9	1.9	
Total	Observed Rate	34	39	73

a. Chi-Square =5.699, df=2, sig=.058n.s.

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Ra's al-Khaimah Medical District in the Spring Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the Spring season in Ra's al-Khaimah Medical District. The analysis resulted in a Chi-Square value of 8.227 p-value of .042. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the spring season in Ra's al-Khaimah Medical District. The results show that the observed rates do not differ significantly from the expected rate. The adjusted residuals (-.6, .6) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate.. The adjusted residual (2.9) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for citizens to be significantly higher than statistically expected for non-citizens in the spring season in Ra's al-Khaimah Medical District. The adjusted rate (-2.9) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for non-citizens to be significantly lower than statistically expected in the spring season in Ra's al-Khaimah Medical District. The adjusted residuals (-1.4, 1.4) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residual (2.1) for the rate of deaths caused by Other Causes of Unintentional Injury death determined the observed rate for non-citizens to be significantly higher than statistically expected in the spring season in Ra's al-Khaimah Medical District. The adjusted residual (-2.1) for the rate of deaths caused by Other Causes of Unintentional Injury death determined the observed rate for citizens to be significantly lower

than statistically expected in the spring season in Ra's al-Khaimah Medical District. See Table 64 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the spring season in Ra's al-Khaimah Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Ra's al-Khaimah Medical District in the Summer Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square using a $p \leq .05$ analysis was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the summer season in Ra's al-Khaimah Medical District. The analysis resulted in a Chi-Square value of 2.292 and a p -value of 0.514. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the summer season for Ra's al-Khaimah Medical District. The results show that the observed rates do not differ significantly from the expected rate. The adjusted residuals (-1.1, 1.1) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (.8, -.8) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (.2, -.2) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.1, 1.1) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 65 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the summer season in Ra's al-Khaimah Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Ra's al-Khaimah Medical District in the Fall Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the fall season in Ra's al-Khaimah Medical District. The analysis resulted in a Chi-Square value of 29.325 and p . value of 0.000. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males ages 20-65 whose death was reported in the fall season for Ra's al-Khaimah Medical District. The results show that the observed rates do not differ significantly from the expected rate. The adjusted residual (-.9, .9) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residual (2.5) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for non-citizens to be significantly higher than statistically expected in the fall season in Ra's al-Khaimah Medical District. The adjusted residual (-2.5) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for citizens to be significantly lower than statistically expected in the fall season in Ra's al-Khaimah Medical District. The adjusted residuals (-.4, .4) for the rate of deaths caused by Accidental Fall determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residual (5.4) for the rate of deaths caused by Other Causes of accidental death determined the observed rate for citizens to be significantly higher than statistically expected in the fall season in Ra's al-Khaimah Medical District. The adjusted residual (-5.4) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for citizens to be significantly lower than

statistically expected in the fall season in Ra's al-Khaimah Medical District. See Table 66 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the fall season in Ra's al-Khaimah Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Ra's al-Khaimah Medical District in the Winter Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the winter season in Ra's al-Khaimah Medical District. The analysis resulted in a Chi-Square value of 15.123 and a p . value of 0.004. Following the Chi-Square test an adjusted residual was also determined for the rate of Unintentional Injury death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the winter season for Ra's al-Khaimah Medical District. The results show that the observed rates for some causes differ significantly from the expected rate. The adjusted residuals (-1.7, 1.7) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residual (2.3) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for citizens to be significantly higher than statistically expected in the winter season in Ra's al-Khaimah Medical District. The adjusted residual (-2.3) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for non-citizens to be significantly lower than statistically expected in the winter season for Ra's al-Khaimah Medical District. The adjusted residuals (.7, -.7) for the rate of deaths caused by Accidental Poisoning cause of death determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.7, 1.7) for the rate of deaths caused by Accidental Falls determined the observed rates for

citizens and non-citizens not to differ significantly from the expected rate. The adjusted residual (2.8) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for non-citizens to be significantly higher than statistically expected in the winter season in Ra's al-Khaimah Medical District. The adjusted residual (-2.8) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for citizens to be significantly lower than statistically expected in the winter season in Ra's al-Khaimah Medical District. See Table 67 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the winter season in Ra's al-Khaimah Medical District.

Table 64: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Spring Season in Ra's al-Khaimah Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Count	0	1	1
	Expected Rate	0.3	0.7	1.0
	Adjusted Residual	-.6	.6	
Motor Vehicle & Traffic Accidents	Observed Rate	14	23	37
	Expected Rate	9.8	27.2	37.0
	Adjusted Residual	2.9**	-2.9**	
Accidental Falls	Observed Rate	0	5	5
	Expected Rate	1.3	3.7	5.0
	Adjusted Residual	-1.4	1.4	
Other Causes	Observed Rate	0	10	10
	Expected Rate	2.6	7.4	10.0
	Adjusted Residual	-2.1	2.1	
Total	Observed Rate	14	39	53

a. Chi-Square =8.227, df=3, sig=.042*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Table 65: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Summer Season in Ra's al-Khaimah Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	2	2
	Expected Rate	0.7	1.3	2.0
	Adjusted Residual	-1.1	1.1	
Motor Vehicle & Traffic Accidents	Observed Rate	19	32	51
	Expected Rate	17.8	33.2	51.0
	Adjusted Residual	.8	-.8	
Accidental Falls	Observed Rate	3	5	8
	Expected Rate	2.8	5.2	8.0
	Adjusted Residual	.2	-.2	
Other Causes	Observed Rate	0	2	2
	Expected Rate	0.7	1.3	2.0
	Adjusted Residual	-1.1	1.1	
Total	Observed Rate	22	41	63

a. Chi-Square =2.292, df=3, sig=.514n.s

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table 66: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Fall Season in Ra's al-Khaimah Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	10	10
	Expected Rate	0.6	9.4	10.0
	Adjusted Residual	-.9	.9	
Motor Vehicle & Traffic Accidents	Observed Rate	0	34	34
	Expected Rate	2.0	32.0	34.0
	Adjusted Residual	-2.5**	2.5**	
Accidental Falls	Observed Rate	0	2	2
	Expected Rate	0.1	1.9	2.0
	Adjusted Residual	-.4	.4	
Other Causes	Observed Rate Count	3	2	5
	Expected Rate	0.3	4.7	5.0
	Adjusted Residual	5.4**	-5.4**	
Total	Observed Rate	3	48	51

a. Chi-Square =29.325, df=3, sig=.000*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table 67: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Winter Season in Ra's al-Khaimah Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	5	5
	Expected Rate	1.8	3.2	5.0
	Adjusted Residual	-1.7	1.7	
Motor Vehicle & Traffic Accidents	Observed Rate	33	43	76
	Expected Rate	26.7	49.3	76.0
	Adjusted Residual	2.3**	-2.3**	
Accidental Poisoning	Observed rate	14	21	35
	Expected Rate	12.3	22.7	35.0
	Adjusted Residual	.7	-.7	
Accidental Falls	Observed Rate	0	5	5
	Expected rate	1.8	3.2	5.0
	Adjusted Residual	-1.7	1.7	
Other Causes	Observed Rate	0	13	13
	Expected Rate	4.6	8.4	13.0
	Adjusted Residual	-2.8**	2.8**	
Total	Observed Rate	47	87	134

a. Chi-Square =15.123, df=4, sig=.004*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Sharjah Medical

District in the Spring Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the spring season in Sharjah Medical District. The analysis resulted in a Chi-Square value of 12.174 and p .value of 0.016. Following the Chi-Square test an adjusted residual was also determined for the rate of Unintentional Injury death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the spring season for Sharjah Medical District. The results show that the observed rates for some causes differ significantly from the expected rate. The adjusted

residual (2.4) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for non-citizens to be significantly higher than statistically expected in the spring season in Sharjah Medical District. The adjusted residual (-2.4) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for citizens to be significantly lower than statistically expected in the spring season in Sharjah Medical District. The adjusted residuals (-.4, .4) for the rate of deaths caused by Motor Vehicle & Traffic Accidents cause of death determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (.8, -.8) for the rate of deaths caused by Accidental Poisoning determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.0, 1.0) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residual (2.4) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for citizens to be significantly higher than statistically expected in the spring season in Sharjah Medical District. The adjusted residual (-2.4) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for non-citizens to be significantly lower than statistically expected in the spring season in Sharjah Medical District. See Table 68 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the spring season in Sharjah Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Sharjah Medical District in the Summer Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the

summer season in Sharjah Medical District. The analysis resulted in a Chi-Square value of 7.542 and p -value of .110. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the summer season for Sharjah Medical District. The results show that the observed rates do not differ significantly from the expected rate. The adjusted residuals (-1.2, 1.2) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.3, 1.3) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (1.4, -1.4) for the rate of deaths caused by Accidental Poisoning determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-.7, .7) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (2.0, -2.0) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 69 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the summer season in Sharjah Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Sharjah Medical District in the Fall Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the fall season in Sharjah Medical District. The analysis resulted in a Chi-Square value of 9.681 and p .

value of .046. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the fall season for Sharjah Medical District. The results show that the observed rates for some causes differ significantly from the expected rate. The adjusted residual (2.6) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for non-citizens to be significantly higher than statistically expected in the fall season in Sharjah Medical District. The adjusted residual (-2.6) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for citizens to be significantly lower than statistically expected in the fall season in Sharjah Medical District. The adjusted residuals (.9, -.9) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (.8, -.8) for the rate of deaths caused by Accidental Poisoning determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-1.1, 1.1) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (1.3, -1.3) for rate of deaths caused by Other Causes of Unintentional Injury determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 70 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the fall season in Sharjah Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Sharjah Medical District in the Winter Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of accidental fatalities of citizen and non-citizen males ages 20-65 in the winter season in

Sharjah Medical District. The analysis resulted in a Chi-Square value of 8.028 and *p.* value of .091. Following the Chi-Square test an adjusted residual was also determined for the rate of Unintentional Injury death by each cause for citizen and non-citizen males age 20-65 whose deaths were reported in the winter season for Sharjah Medical District. The results show that the observed rates do not differ significantly from the expected rate. The adjusted residuals (-1.1, 1.1) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (.1, -.1) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (.8, -.8) for the rate of deaths caused by Accidental Poisoning determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-2.0, 2.0) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (1.7, -1.7) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. See Table 71 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the winter season in Sharjah Medical District.

Table 68: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Spring Season in Sharjah Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	9	9
	Expected Rate	3.4	5.6	9.0
	Adjusted Residual	-2.4**	2.4**	
Motor Vehicle & Traffic Accidents	Observed Rate	32	55	87
	Expected Rate	33.2	53.8	87.0
	Adjusted Residual	-.4	.4	
Accidental Poisoning	Observed Rate	15	19	34
	Expected	13.0	21.0	34.0
	Adjusted Residual	.8	-.8	
Accidental Falls	Observed Rate	3	9	12
	Expected Rate	4.6	7.4	12.0
	Adjusted Residual	-1.0	1.0	
Other Causes	Observed Rate	10	5	15
	Expected Rate	5.7	9.3	15.0
	Adjusted Residual	**2.4	**-.2.4	
Total	Observed Rate	60	97	157

a. Chi-Square =12.174, df=4, sig=.016*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Table 69: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Summer Season in Sharjah Medical District

Cause of Unintentional Injury death		Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	5	15	20
	Expected Rate	7.4	12.6	20.0
	Adjusted Residual	-1.2	1.2	
Motor Vehicle & Traffic Accidents	Observed Rate	23	49	72
	Expected Rate	26.8	45.2	72.0
	Adjusted Residual	-1.3	1.3	
Accidental Poisoning	Observed Rate	17	19	36
	Expected Rate	13.4	22.6	36.0
	Adjusted Residual	1.4	-1.4	
Accidental Falls	Observed Rate	3	8	11
	Expected Rate	4.1	6.9	11.0
	Adjusted Residual	-.7	.7	
Other Causes	Observed Rate	10	7	17
	Expected Rate	6.3	10.7	17.0
	Adjusted Residual	2.0	-2.0	
Total	Observed Rate	58	98	156

a. Chi-Square =7.542, df=4, sig=.110*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Table 70: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Fall Season in Sharjah Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	12	12
	Expected Rate	4.0	8.0	12.0
	Adjusted Residual	-2.6**	2.6**	
Motor Vehicle & Traffic Accidents	Observed Rate	27	46	73
	Expected Rate	24.5	48.5	73.0
	Adjusted Residual	.9	-.9	
Accidental Poisoning	Observed Rate	13	20	33
	Expected Rate	11.1	21.9	33.0
	Adjusted Residual	.8	-.8	
Accidental Falls	Observed Rate	2	9	11
	Expected Rate	3.7	7.3	11.0
	Adjusted Residual	-1.1	1.1	
Other Causes	Observed Rate	3	2	5
	Expected rate	1.7	3.3	5.0
	Adjusted Residual	1.3	-1.3	
Total	Observed Rate	45	89	134

a. Chi-Square =9.681, df=4, sig=.046*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Table 71: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Winter Season in Sharjah Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	3	11	14
	Expected Rate	4.9	9.1	14.0
	Adjusted Residual	-1.1	1.1	
Motor Vehicle & Traffic Accidents	Observed Rate	27	50	77
	Expected Rate	26.8	50.2	77.0
	Adjusted Residual	.1	-.1	
Accidental Poisoning	Observed Rate	13	19	32
	Expected Rate	11.1	20.9	32.0
	Adjusted Residual	.8	-.8	
Accidental Falls	Observed Rate	0	7	7
	Expected Rate	2.4	4.6	7.0
	Adjusted Residual	-2.0	2.0	
Other Causes	Observed	5	3	8
	Expected Rate	2.8	5.2	8.0
	Adjusted Residual	1.7	-1.7	
Total	Observed Rate	48	90	138

a. Chi-Square =8.028, df=4, sig=.091n.s.

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Umm al-Qaiwain Medical District in the Spring Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the spring season in Umm al-Qaiwain Medical District. The analysis resulted in a Chi-Square value of 52.354 and a p . value of 0.000. Following the Chi-Square test an adjusted residual was also determined for the rate of Unintentional Injury death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the spring season for Umm al-Qaiwain Medical District. The results show that the observed rates for some causes differ significantly from the expected rate. The adjusted residual (3.3) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for non-citizens to be significantly higher than statistically expected in the spring season in Umm al-Qaiwain Medical District. The adjusted residual (-3.3) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for citizens to be significantly lower than statistically expected in the spring season in Umm al-Qaiwain. The adjusted residual (5.4) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for citizens to be significantly higher than statistically expected in the spring season in Umm al-Qaiwain Medical District. The adjusted residual (-5.4) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for non-citizens to be significantly lower than statistically expected in the spring season in Umm al-Qaiwain Medical District. The adjusted residual (-1.2, 1.2) for the rate of deaths caused by Accidental Poisoning determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residual (5.7) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for non-citizens to be

significantly higher than statistically expected in the spring season for Umm al-Qaiwain Medical District. The adjusted residual (-5.7) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for citizens to be significantly lower than statistically expected in the spring season in Umm al-Qaiwain Medical District. See Table 72 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the spring season in Umm al-Qaiwain Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Umm al-Qaiwain Medical District in the Summer Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the summer season in Umm al-Qaiwain Medical District. The analysis resulted in a Chi-Square value of 19.819 and a p . value of 0.001. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose deaths were reported in the summer season in Umm al-Qaiwain Medical District. The results show that the observed rates for some causes differ significantly from the expected rate. The adjusted residuals (-1.6, 1.6) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residuals (-.5, .5) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residual (3.3) for the rate of deaths caused by Accidental Poisoning determined the observed rate for citizens to be significantly higher than statistically expected in the spring season in Umm al-Qaiwain Medical District. The adjusted residual (-3.3) for the rate of deaths caused by Accidental Poisoning

determined the observed rate for non-citizens to be significantly lower than statistically expected in the summer season in Umm al-Qaiwain Medical District. The adjusted residuals (-1.6, 1.6) for the rate of deaths caused by Accidental Falls determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residual (2.8) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for non-citizens to be significantly higher than statistically expected in the summer season in Umm al-Qaiwain Medical District. The adjusted residual (-2.8) for rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for citizens to be significantly lower than statistically expected in the summer season in Umm al-Qaiwain Medical District. See Table 73 for Chi-Square analysis of the rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the summer season in Umm al-Qaiwain Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Umm al-Qaiwain Medical District in the Fall Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injury fatalities of citizen and non-citizen males ages 20-65 in the Fall season in Umm al-Qaiwain Medical District using. The analysis resulted in a Chi-Square value of 67.294 and p . value of 0.00. Following the Chi-Square test an adjusted residual was also determined for the rate of accidental death by each cause for citizen and non-citizen males age 20-65 whose death was reported in the fall season in Umm al-Qaiwain Medical District. The results show that the observed rates for some causes differ significantly from the expected rate. The adjusted residual (7.7) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for citizens to be significantly higher than statistically expected in the spring season in Umm al-Qaiwain Medical District. The adjusted residual (-7.7) for the rate of deaths

caused by Motor Vehicle & Traffic Accidents determined the observed rate for non-citizens to be significantly lower than statistically expected in the fall season for Umm al-Qaiwain Medical District. The adjusted residuals (-1.9, 1.9) for the rate of deaths caused by Accidental Poisoning determined the observed rates for citizens and non-citizens not to differ significantly from the expected rate. The adjusted residual (2.7) for the rate of deaths caused by Accidental Falls determined the observed rate for non-citizens to be significantly higher than statistically expected in the fall season in Umm al-Qaiwain Medical District. The adjusted residual (-2.7) for the rate of deaths caused by Accidental Poisoning determined the observed rate for non-citizens to be significantly lower than statistically expected in the fall season for Umm al-Qaiwain Medical District. The adjusted residual (6.0) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for non-citizens to be significantly higher than statistically expected in the fall season for Umm al-Qaiwain Medical District. The adjusted residual (-6.0) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for citizens to be significantly lower than statistically expected in the fall season for Umm al-Qaiwain Medical District. See Table 74 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the fall season in Umm al-Qaiwain Medical District.

Chi-Square Analysis of Rates of Death by Unintentional Injury Cause in Umm al-Qaiwain Medical District in the Winter Season for Males Ages 20-65 for the Years 2006-2008

The Pearson Chi-Square analysis using a $p = \leq .05$ was utilized to determine the rate per cause of Unintentional Injuries fatalities of citizen and non-citizen males ages 20-65 in the winter

season in Umm al-Qaiwain Medical District. The analysis resulted in a Chi-Square value of 64.933 and p-value of 0.00. Following the Chi-Square test an adjusted residual was also determined for the rate of Unintentional Injury death by each cause for citizen and non-citizen males age 20-65 whose deaths were reported in the winter season in Umm al-Qaiwain Medical District. The results show that the observed rates for some causes differ significantly from the expected rate. The adjusted residual (4.1) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for non-citizens to be significantly higher than statistically expected in the winter season in Umm al-Qaiwain Medical District. The adjusted residual (4.1) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for non-citizens to be significantly higher than statistically expected in the winter season in Umm al-Qaiwain Medical District. The adjusted residual (-4.1) for the rate of deaths caused by Accidents & Adverse Effects determined the observed rate for citizens to be significantly lower than statistically expected in the winter season in Umm al-Qaiwain Medical District. The adjusted residual (4-2) for the rate of deaths caused by Motor Vehicle & Traffic Accidents determined the observed rate for citizens to be significantly higher than statistically expected in the winter season in Umm al-Qaiwain Medical District. The adjusted residuals (1.2, -1.2) for the rate of deaths caused by Accidental Poisoning determined no significant difference between observed and statistically expected rates for either citizens or non-citizens in the winter season in Umm al-Qaiwain Medical District. The adjusted residual (2.9) for the rate of deaths caused by Accidental Falls determined the observed rate for non-citizens to be significantly higher than statistically expected in the winter season in Umm al-Qaiwain Medical District. The adjusted residual (-2.9) for the rate of deaths caused by Accidental Poisoning determined the observed rate for citizens to

be significantly lower than statistically expected in the winter season in Umm al-Qaiwain Medical District. The adjusted residual (5.8) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for non-citizens to be significantly higher than statistically expected in the winter season in Umm al-Qaiwain Medical District. The adjusted residual (-5.8) for the rate of deaths caused by Other Causes of Unintentional Injury determined the observed rate for citizens to be significantly lower than statistically expected in the winter season in Umm al-Qaiwain Medical District. See Table 75 for Chi-Square analysis of rate of unintentional injury deaths by specific cause and citizen status for males ages 20-65 in the winter season in Umm al-Qaiwain Medical District.

Table 72: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Spring Season in Umm al-Qaiwain Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	5	5
	Expected Rate	3.4	1.6	5.0
	Adjusted Residual	-3.3**	3.3**	
Motor Vehicle & Traffic Accidents	Observed Rate	91	19	110
	Expected Rate	82.7%	17.3%	100.0%
	Adjusted Residual	5.4**	-5.4**	
Accidental Poisoning	Observed Rate	30	19	49
	Expected Observed Rate	33.3	15.7	49.0
	Adjusted Residual	-1.2	1.2	
Other Causes	Observed Rate	0	14	14
	Expected Rate	9.5	4.5	14.0
	Adjusted Residual	-5.7**	5.7**	
Total	Observed Rate	121	57	178

a. Chi-Square =52.354, df=3, sig=.000*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table 73: Chi-Square Analysis of the Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Summer Season in Umm al-Qaiwain Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	5	5
	Expected Rate	1.7	3.3	5.0
	Adjusted Residual	-1.6	1.6	
Motor Vehicle & Traffic Accidents	Observed Rate	30	62	92
	Expected Rate	31.5	60.5	92.0
	Adjusted Residual	-.5	.5	
Accidental Poisoning	Observed Rate	30	29	59
	Expected Rate	20.2	38.8	59.0
	Adjusted Residual	3.3**	-3.3**	
Accidental Falls	Observed Rate	0	5	5
	Expected Rate	1.7	3.3	5.0
	Adjusted Residual	-1.6	1.6	
Other Causes	Observed Rate	0	14	14
	Expected Rate	4.8	9.2	14.0
	adjusted residual	-2.8**	2.8**	
Total	Observed Rate	60	115	175

a. Chi-Square =19.819, df=4, sig=.001*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Table 74: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Fall Season in Umm al-Qaiwain Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Motor Vehicle & Traffic Accidents	Observed Rate	76	62	138
	Expected Rate	46.2	91.8	138.0
	Adjusted Residual	7.7**	-7.7**	
Accidental Poisoning	Observed Rate	15	48	63
	Expected Rate	21.1	41.9	63.0
	Adjusted Residual	-1.9	1.9	
Accidental Falls	Observed Rate	0	14	14
	Expected Rate	4.7	9.3	14.0
	Adjusted Residual	-2.7**	2.7**	
Other Causes	Observed Rate	0	57	57
	Expected Rate	19.1	37.9	57.0
	Adjusted Residual	-6.0**	6.0**	
Total	Observed Rate	91	181	272

a. Chi-Square =67.294, df=3, sig=.000*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant.

Table 75: Chi-Square Analysis of Rate of Unintentional Injury Deaths by Specific Cause and Citizen Status for Males Ages 20-65 in the Winter Season in Umm al-Qaiwain Medical District

Cause of Unintentional Injury death		Rate by Citizen Status		Total
		Citizen	Non-citizen	
Accidents & Adverse Effect	Observed Rate	0	10	10
	Expected Rate	6.2	3.8	10.0
	Adjusted Residual	-4.1**	4.1**	
Motor Vehicle & Traffic Accidents	Observed Rate	106	38	144
	Expected Rate	89.5	54.5	144.0
	Adjusted Residual	4.2**	-4.2**	
Accidental Poisoning	Observed Rate	60	29	89
	Expected Rate	55.3	33.7	89.0
	Adjusted Residual	1.2	-1.2	
Accidental Falls	Observed Rate	0	5	5
	Expected Rate	3.1	1.9	5.0
	Adjusted Residual	-2.9**	2.9**	
Other Causes	Observed Rate	0	19	19
	Expected Rate	11.8	7.2	19.0
	Adjusted Residual	-5.8**	5.8**	
Total	Observed Rate	166	101	267

a. Chi-Square =64.933, df=4, sig=.000*

* Chi-Square differs significantly

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant.

Those found between -2 and +2 were not significant

The rate of deaths caused by Accidents & Adverse Effects was significantly higher for male non-citizens in all the medical districts except in Dubai Medical District. The death rate caused by Motor Vehicle & Traffic Accidents was significantly higher among citizen males ages 20-65 in four medical districts (Ra's al-Khaimah, Ajman, Fujairah, and Umm al-Qaiwain) and did not differ significantly by citizen status in the other two medical districts (Sharjah and Dubai) for the years 2006-2008. The rate of death caused by Accidental Poisoning was significantly higher among citizen males ages 20-65 in Sharjah Medical District for the years 2000-2008. The rate of deaths caused by Accidental Falls was significantly higher among non-citizen males ages

20-65 in the medical districts of Ajman, Sharjah, and Umm al-Qaiwain for the years 2000-2008. The rate of deaths caused by Other Causes of Unintentional Injury was significantly higher among non-citizen males ages 20-65 in Ra's al-Khaimah and Umm al-Qaiwain Medical Districts for the years 2000-2008. The rate of death caused by Other Causes of Unintentional Injury was significantly higher among citizen males ages 20-65 in Sharjah Medical District for the years 2000-2008. See Table 76 for the illustration of the summary of the rates of Unintentional Injury death by specific causes within each of the six UAE medical districts.

The death rate of Unintentional Injury differed significantly by citizen status in the spring season for the years 2006-2008 in the medical districts of Ra's al-Khaimah, Ajman, Fujairah, Umm al-Qaiwain and Sharjah, that is, all the medical districts except Dubai. The rate of Unintentional Injury deaths differed significantly by citizen status in the summer season for the years 2006-2008 in Fujairah and Umm al-Qaiwain Medical Districts. The rate of Unintentional Injury deaths differed significantly by citizen status in the fall season for the years 2006-2008 in Ra's al-Khaimah, Ajman, Umm al-Qaiwain and Sharjah. The rate of Unintentional Injury deaths differed significantly by citizen status in the winter season for the years 2006-2008 in Ra's al-Khaimah, Ajman, Umm al-Qaiwain, Fujairah and Sharjah. Table 77 displays the summary of the Chi-Square results for the rate of death for Unintentional Injury deaths within the six UAE medical districts.

Table 76: Summary Chart of Unintentional Injury Death Rates Listing Results for Higher Observed Rates than Statically Expected by citizen status

Six Districts by Citizen Status	Ra's al-Khaimah	Ajman	Fujairah	Umm al-Qaiwain	Sharjah	Dubai
Unintentional Injury Causes	Observed Rate Sig. Higher	Observed Rate Sig. Higher	Observed Rate Sig. Higher	Observed Rate Sig. Higher	Observed Rate Sig. Higher	Observed Rate Sig. Higher
Accident & Adverse Effect	Non-citizen	Non-citizen	Non-citizen	Non-citizen	Non-citizen	No Difference
Motor Vehicle & Traffic Accident	Citizen	Citizen	Citizen	Citizen	No Difference	No Difference
Accidental Poisoning	No Difference	NA	NA	No Difference	Citizen	No Difference
Accidental Falls	No Difference	Non-citizen	No Difference	Non-citizen	Non-citizen	No Difference
Other Causes	Non-citizen	No Difference	No Difference	Non-citizen	Citizen	No Difference

Table 77: Summary of Unintentional Injury Death Rates by Citizen Status within the Six Medical District showing the results of Chi-Square

Six Districts by Citizen Status	Ra's al-kheimah	Ajman	Fujairah	Umm al-Qaiwain	Sharjah	Dubai
Season	Chi-Square	Chi-Square	Chi-square	Chi-Square	Chi-Square	Chi-Square
Spring	Significant	Significant	Significant	Significant	Significant	Not-Significant
Summer	Not Significant	Not Significant	Significant	Significant	Not Significant	Not-Significant
Fall	Significant	Significant	Not-Significant	Significant	Significant	Not-Significant
Winter	Significant	Significant	Significant	Significant	Significant	Not-Significant

Summary of Analysis

In summary, when the rates of Unintentional Injury deaths for males ages 20-65 were analyzed together from all the six medical districts Managed by the UAE Ministry of Health for the years 2006-2008, the Chi-Square tests using a $p = \leq .05$ found the rate of death due to unintentional injury differ significantly between citizens and non-citizens.

The adjusted residual for all Unintentional Injury deaths for the six medical districts managed by the UAE Ministry of Health were found non-citizens to have significantly higher rate of observed deaths in all the following categories: Accident & Adverse Effects, Accidental Falls, and Other Causes. Non-citizens did not have significantly higher rates of death than citizen in the categories of Motor Vehicle & Traffic Accidents or Accidental poisoning.

In this category of Unintentional Injury the adjusted residual found citizens had a significantly higher rate of observed deaths than non-citizens caused by Motor Vehicle & Traffic Accidents and Accidental Poisoning.

The Chi-Square test using a $p = \leq .05$ for the rate of Unintentional Injury deaths for males in the age group 20-65 in Dubai the largest medical district by population when analyzed by citizen status found the rate of death from each of the causes of Unintentional Injury not to differ significantly from those expected between citizens and non-citizens.

The Chi-Square test using a $p = \leq .05$ for the rate of death among causes of Unintentional Injury for males in the age group 20-65 in Sharjah Medical District, the second largest district by population, was found to differ significantly when analyzed by citizen status.

Chapter Summary

Chapter IV provides a description of the results of analysis of the reported fatality data reported by the six UAE medical districts for the years 2006-2008. The profile of all fatalities reported by the six UAE medical districts using frequency for the manner and causes of unintentional injury deaths was analyzed by gender and citizen status. An analysis of death rates for males ages 20-65 by citizen status in the six UAE medical districts was conducted by manner, cause of unintentional injury and seasons of the year for the years 2006-2008. Chapter V provides findings, conclusions and recommendations.

CHAPTER V

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

INTRODUCTION

The purpose of this chapter is to summarize the findings, conclusions, and recommendations resulting from the research investigation.

Findings

A descriptive profile of the fatalities in the six medical districts managed by UAE Ministry of Health analyzed by citizen status, gender, age group, manner, and cause of Unintentional Injury death was created by the researcher. The data was analyzed using the frequency descriptive statistic. The descriptive profile findings were as follow:

Fatalities in All Six UAE Medical Districts

- a. The total fatalities in all medical districts managed by UAE Ministry of Health for the years 2006-2008 were reported to be 14,010.
- b. In Ajman medical district the total fatalities for the years 2006-2008 were reported to be 1,213 (8.6%).
- c. In Dubai medical district the total fatalities for the years 2006-2008 were reported to be 5,543 (39.3%).
- d. In Fujairah medical district total fatalities for the years 2006-2008 were reported to be 639 (4.5%).
- e. In Ra's al-Khaimah medical district total fatalities for the years 2006-2008 were reported to be 1,272 (9.0%).

- f. In Sharjah medical district total fatalities for the years 2006-2008 were reported to be 5,042 (35.8%).
- g. In Umm al-Qaiwain medical district total fatalities for the years 2006-2008 were reported to be 392 (2.8%).

Fatalities by Citizen Status, by gender, and by age groups

- a. Of the total fatalities 4,362 (30.9%) were reported to be citizens.
- b. Of the total fatalities 9,700 (68.8%) were reported to be non-citizens.

Fatalities by Gender

- a. Of the total fatalities 10,427 (73.9%) were reported to be citizen and non-citizen males.
- b. Of the total fatalities 3,673 (26.0%) were reported to be citizen and non-citizen females.
- c. Of the total male fatalities 2,602(24.95) were reported to be male citizens
- d. Of the total male fatalities 7,800 (74.81) were reported to be male non-citizens
- e. Of the total female fatalities 1,760 (48%) were reported to be female citizens
- f. Of the total female fatalities 1,900(51.73) were reported to be female non-citizens

Fatalities by Age Group

- a. The total fatalities were reported in the age group 0-4 were 1,019 (7.2%).
- b. The total fatalities were reported in the age group 5-14 were 252 (1.8%).
- c. The total fatalities were reported in the age group 15-19 were 316 (2.2%).
- d. The total fatalities were reported in the age group 20-29 were 1,967 (13.9%).
- e. The total fatalities were reported in the age group 30-44 were 3,149 (22.3%).
- f. The total fatalities were reported in the age group 45-54 were 1,945 (13.8%).

- g. The total fatalities were reported in the age group 55-64 were 1,673 (11.9%).
- h. The total fatalities were reported in the age group 65+ were 3,326 (23.6%).
- i. The reported fatalities for the unknown ages were 454 (3.2%).

Fatalities Reported from All Six Medical Districts Per Year (2006-2008), Per Month, and Per Season of the Year

- a. The total fatalities reported for the year 2006 were 4,512 (32.0%)
- b. The total fatalities reported for the year 2007 were 5,160 (36.6%)
- c. The total fatalities reported for the year 2008 were 4,429 (31.0%)

The fatalities for each month of the years 2006-2008 reported by the six medical districts managed by UAE Ministry of Health include:

- a. The reported fatalities for the month of January were 1,457 (10.3%)
- b. The reported fatalities for the month of February were 1,228 (8.7%)
- c. The reported fatalities for the month of March were 1,326 (9.4%)
- d. The reported fatalities for the month of April were 1,165 (8.3%)
- e. The reported fatalities for the month of May were 1,129 (8.0%)
- f. The reported fatalities for the month of June were 1,175 (8.3%)
- g. The reported fatalities for the month of July were 1,215 (8.6%)
- h. The reported fatalities for the month of August were 1,108 (7.9%)
- i. The reported fatalities for the month of September were 1,043 (7.4%)
- j. The reported fatalities for the month of October were 1,096 (7.8%)
- k. The reported fatalities for the month of November were 1,004 (7.1%)
- l. The reported fatalities for the month of December were 1,155 (8.2%)

The total fatalities for each season for the three years under study

- a. The total fatalities reported for the spring season were 3,620 (25.7%)
- b. The total fatalities reported for the summer season was 3,498 (24.8%)
- c. The total fatalities reported for the Fall season were 3,143 (22.3%)
- d. The total fatalities reported for the winter season were 3840 (27.2%)

Fatalities from All Causes Reported by the Six Medical Districts Managed by the UAE Ministry of Health

- a. The total fatalities coded as Natural in manner were reported to be 7,106 (50.4%).
- b. The total fatalities coded as Non-natural in manner were reported to be 2,510 (17.8%).
- c. The total fatalities coded as injury were 1,471 (10.4%).
- d. The total fatalities coded as cause unknown were 3, 014 (21.4%)

Fatalities reported by categories of death provided by the six medical districts

- a. The total fatalities from Natural causes of death were reported to be 7,104 (50.4%)
- b. The total fatalities from homicide were reported to be 48 (0.34%)
- c. The total fatalities from suicide were reported to be 185 (1.0%)

Fatalities for males ages 20-65 reported by the six Medical Districts managed by the UAE Ministry of Health for the years 2006-2008

- a. The total reported fatalities caused by Unintentional Injury were reported to be 3,741 (27.0%)

- b. The total reported fatalities caused by Unintentional Injury & Adverse Effects were 463 (3.3%).
- c. The total reported fatalities caused by Motor Vehicle & Traffic Accidents were 1,880 (13.3%).
- d. The total reported fatalities caused by Accidental Poisoning were 720 (5.1%).
- e. The total reported fatalities caused by Accidental Falls were 347 (2.5%).
- f. The total reported fatalities caused by Other Causes 331(2.3%)

Fatalities reported for Unintentional Injury by each medical district managed by the UAE

Ministry of Health

- 1. The total fatalities reported for Accidents & Adverse Effects in:
 - a. Ajman Medical District were 36 (1.05%)
 - b. Dubai Medical District were 114 (3.0%)
 - c. Fujairah Medical District were 15 (0.4%)
 - d. Ra's al-Khaimah Medical District were 22 (0.6%)
 - e. Sharjah Medical District were 271 (7.2%)
 - f. Umm al-Qaiwain Medical District 5 (0.1%)
- 2. The total fatalities reported for Motor Vehicle & Traffic Accidents in:
 - a. Ajman Medical District were 118 (3.2%)
 - b. Dubai Medical District were 203 (5.4%)
 - c. Fujairah Medical District were 118 (3.2%)
 - d. Ra's al-Khaimah Medical District were 191 (5.1%)
 - e. Sharjah Medical District were 1,177 (31.5%)
 - f. Umm al-Qaiwain Medical District were 73 (0.0%)

3. The total fatalities reported for Accidental Poisoning in:
 - a. Ajman Medical District were 1 (0.0%)
 - b. Dubai Medical District were 172 (4.6%)
 - c. Fujairah Medical District were 0 (0.0%)
 - d. Ra's al-Khaimah Medical District were 29 (.8%)
 - e. Sharjah Medical District were 470 (12.6%)
 - f. Umm al-Qaiwain Medical District were 48 (1.3%)

4. The total fatalities reported for Accidental Falls in:
 - a. Ajman Medical District were 42 (1.1%)
 - b. Dubai Medical District were 88 (2.4%)
 - c. Fujairah Medical District were 6 (2.%)
 - d. Ra's al-Khaimah Medical District were 16 (5.5%)
 - e. Sharjah Medical District were 188 (5.0%)
 - f. Umm al-Qaiwain Medical District were 7 (0.2%)

5. The total fatalities reported for Other Causes in:
 - a. Ajman Medical District were 41 (1.1%)
 - b. Dubai Medical District were 44 (1.2%)
 - c. Fujairah Medical District were 20 (0.5%)
 - d. Ra's al-Khaimah Medical District were 35 (0.9%)
 - e. Sharjah Medical District were 159 (4.3%)
 - f. Umm al-Qaiwain Medical District were 32 (9.0%)

Unintentional Injury Reported Deaths by the six UAE Medical Districts

1. The total reported fatalities for Unintentional Injury in Ajman Medical district were 238 (6.4%)
2. The total reported fatalities for Unintentional Injury in Dubai Medical District were 621 (16.6%)
3. The total reported fatalities for Unintentional Injury in Fujairah Medical District were 159 (4.3%)
4. The total reported fatalities for Unintentional Injury in Ra's al-Khaimah Medical District were 293 (7.8%)
5. The total reported fatalities for Unintentional Injury in Sharjah Medical District were 2265 (60.5%)
6. The total reported fatalities for Unintentional Injury in Umm al-Qaiwain Medical District were 165 (4.4%).

Frequency of Unintentional Injury by specific cause of death for all male citizens within each of the six UAE medical districts for the years 2006-2008

1. The frequency of death caused by Accidents & Adverse Effects was found to be significantly higher among all male citizens in the medical districts of Ajman, Dubai, and Sharjah for the years 2006-2008.
2. The frequency of death caused by the Motor Vehicle & Traffic Accidents was found to be significantly higher among all male citizens in the medical districts of Ajman, Fujairah, and Ra's al-Khaimah for the years 2006-2008.

3. The frequency of death caused by Accidental Poisoning was found to be significantly higher among all male citizens in the medical districts of Dubai, Sharjah and Umm al-Qaiwain for the years 2006-2008.
4. The frequency of death caused by Accidental Falls was found to be significantly higher among all male citizens in the medical districts of Sharjah for the years 2006-2008.
5. The frequency of death caused by Other Causes of Unintentional Injury was found to be significantly higher among all male citizens in the medical districts of Sharjah for the years 2006-2008.

Frequency of Unintentional Injury by specific cause of death for all male non-citizens within each of the six UAE medical districts for the years 2006-2008

1. The frequency of death caused by Accidents & Adverse Effects was found to be significantly higher among all male non-citizens in the medical districts of Dubai, and Sharjah for the years 2006-2008.
2. The frequency of death caused by the Motor Vehicle & Traffic Accidents was found to be significantly higher among all male non-citizens in the medical districts of Ajman, Fujairah, Ra's al-khaimah and Umm-al Qaiwain for the years 2006-2008.
3. The frequency of death caused by Accidental Poisoning was found to be significantly higher among all male non-citizens in the medical districts of Dubai, Sharjah and Umm al-Qaiwain for the years 2006-2008.

4. The frequency of death caused by Accidental Falls was found to be significantly higher among all male non-citizens in the medical districts of Ajman and Dubai for the years 2006-2008.
5. The frequency of death caused by Other Causes of Unintentional Injury was found to be significantly higher among all male non-citizens in the medical districts of Ajman, Fujairah and Umm al- Qaiwain for the years 2006-2008.

Frequency of Unintentional Injury by specific cause of death for all males within each of the six UAE medical districts for the years 2006-2008

1. The frequency of death caused by Accidents & Adverse Effects was found to be significantly higher among all males in the medical districts of Dubai, and Sharjah for the years 2006-2008.
2. The frequency of death caused by the Motor Vehicle & Traffic Accidents was found to be significantly higher among all males in the medical districts of Ajman, Fujairah, Ra's al-khaimah and Umm-al Qaiwain for the years 2006-2008.
3. The frequency of death caused by Accidental Poisoning was found to be significantly higher among all males non-citizens in the medical districts of Dubai, Sharjah and Umm al-Qaiwain for the years 2006-2008.
4. The frequency of death caused by Accidental Falls was found to be significantly higher among all males in the medical districts of Ajman and Dubai for the years 2006-2008.

5. The frequency of death caused by Other Causes of Unintentional Injury was found to be significantly higher among all males in the medical districts of Ajman, Sharjah and Umm al- Qaiwain for the years 2006-2008.

Research Question 1 Findings

Research question 1a

RQ1- Does the rate of death for males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) for all males ages 20-65 by manner (Natural, Non-natural)?

1. The rate of fatalities for males ages 20-65 differ significantly by manner (Natural/Non-natural) among the six UAE Medical Districts, $p = \leq .05$.
2. The observed rate of Non-natural deaths for males ages 20-65 from Ajman Medical District was significantly higher than expected when the adjusted residual was determined.
3. The observed rate of Natural deaths for males ages 20-65 from Ajman Medical District was significantly lower than expected when the adjusted residual was determined.
4. The observed rate of Natural deaths for males ages 20-65 from Dubai Medical District was significantly higher than expected when the adjusted residual was determined.

5. The observed rate of Non-natural deaths for males ages 20-65 from Dubai Medical District was significantly lower than expected when the adjusted residual was determined.
6. The observed rate of Non-natural deaths for males ages 20-65 from Fujairah Medical District was significantly higher than expected when the adjusted residual was determined.
7. The observed rate of Natural deaths for males ages 20-65 from Fujairah Medical District was significantly lower than expected when the adjusted residual was determined.
8. The observed rate of Natural deaths for males ages 20-65 from Ra's al-Khaimah Medical District was significantly higher than expected when the adjusted residual was determined.
9. The observed rate of Non-natural deaths for males ages 20-65 from Ra's al-Khaimah Medical District was significantly lower than expected when the adjusted residual was determined
10. The observed rate of Non-natural deaths for males ages 20-65 from Sharjah Medical District was significantly higher than expected when the adjusted residual was determined.
11. The observed rate of Natural deaths for males ages 20-65 from Sharjah Medical District was significantly lower than expected when the adjusted residual was determined.

12. The observed rates of death from both Natural and Non-natural causes reported from the Medical District of Umm al-Qaiwain were found not to differ significantly from the statistically expected rate when the adjusted residual was determined.

Research Question 1b

RQ1 - Does the rate of death for males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

b) for all males ages 20-65 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

The rate of fatalities for males ages 20-65 differs significantly by cause of Unintentional Injury death among the six UAE Medical Districts, $p = \leq .05$. The observed rate of death from Accidents & Adverse Effects for males ages 20-65 from Ajman Medical District was significantly higher than expected when the adjusted residual was determined.

1. The observed rate of death from Accidents & Adverse Effects for males ages 20-65 from Dubai Medical District was significantly higher than expected when the adjusted residual was determined.
2. The observed rate of death from Accidents & Adverse Effects for males ages 20-65 from Sharjah Medical District was significantly higher than expected when the adjusted residual was determined.

3. The observed rate of death from Accidents & Adverse Effects for males ages 20-65 from Umm al-Qaiwain Medical District was significantly lower than expected when the adjusted residual was determined.
4. The observed rate of death from Accidents & Adverse Effects for males ages 20-65 from Fujairah Medical District was found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
5. The observed rate of death from Accidents & Adverse Effects for males ages 20-65 from Ra's al-Khaimah Medical District was found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
6. The observed rate of death from Motor Vehicle & Traffic Accidents for males ages 20-65 from Fujairah Medical District was significantly higher than expected when the adjusted residual was determined.
7. The observed rate of death from Motor Vehicle & Traffic Accidents for males ages 20-65 from Ra's al-Khaimah Medical District was significantly higher than expected when the adjusted residual was determined.
8. The observed rate of death from Motor Vehicle & Traffic Accidents for males ages 20-65 from Dubai Medical District was significantly lower than expected when the adjusted residual was determined.
9. The observed rate of death from Motor Vehicle & Traffic Accidents for males ages 20-65 from Sharjah Medical District was significantly lower than expected when the adjusted residual was determined.

10. The observed rate of death from Motor Vehicle & Traffic Accidents for males ages 20-65 from Umm al-Qaiwain Medical District was significantly lower than expected when the adjusted residual was determined.
11. The observed rate of death from Motor Vehicle & Traffic Accidents for males ages 20-65 from Ajman Medical District was found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
12. The observed rate of death from Accidental Poisoning for males ages 20-65 from Dubai Medical District was significantly higher than expected when the adjusted residual was determined.
13. The observed rate of death from Accidental Poisoning for males ages 20-65 from Sharjah Medical District was significantly higher than expected when the adjusted residual was determined.
14. The observed rate of death from Accidental Poisoning for males ages 20-65 from Umm al-Qaiwain Medical District was significantly higher than expected when the adjusted residual was determined.
15. The observed rate of death from Accidental Poisoning for males ages 20-65 from Ajman Medical District was significantly lower than expected when the adjusted residual was determined.
16. The observed rate of death from Accidental Poisoning for males ages 20-65 from Fujairah Medical District was significantly lower than expected when the adjusted residual was determined.

17. The observed rate of death from Accidental Poisoning for males ages 20-65 from Ra's al-Khaimah Medical District was significantly lower than expected when the adjusted residual was determined.
18. The observed rate of death from Accidental Falls for males ages 20-65 from Ajman Medical District was significantly higher than expected when the adjusted residual was determined.
19. The observed rate of death from Accidental Falls for males ages 20-65 from Dubai Medical District was significantly higher than expected when the adjusted residual was determined.
20. The observed rate of death from Accidental Falls for males ages 20-65 from Umm al-Qaiwain Medical District was significantly lower than expected when the adjusted residual was determined.
21. The observed rate of death from Accidental Falls for males ages 20-65 from Fujairah Medical District was found not to differ significantly when the adjusted residual was determined.
22. The observed rate of death from Accidental Falls for males ages 20-65 from Ra's al-Khaimah Medical District was found not to differ significantly when the adjusted residual was determined.
23. The observed rate of death from Accidental Falls for males ages 20-65 from Sharjah Medical District was found not to differ significantly when the adjusted residual was determined.
24. The observed rate of death from Other Causes of death in the Unintentional Injury category for males ages 20-65 from Ajman Medical District was significantly higher than expected when the adjusted residual was determined.

25. The observed rate of death from Other Causes of death in the Unintentional Injury category for males ages 20-65 from Sharjah Medical District was significantly lower than expected when the adjusted residual was determined.
26. The observed rate of death from Other Causes of death in the Unintentional Injury category for males ages 20-65 from Dubai Medical District was found not to differ significantly when the adjusted residual was determined.
27. The observed rate of death from Other Causes of death in the Unintentional Injury category for males ages 20-65 from Fujairah Medical District was found not to differ significantly when the adjusted residual was determined.
28. The observed rate of death from Other Causes of death in the Unintentional Injury category for males ages 20-65 from Ra's al-Khaimah Medical District was found not to differ significantly when the adjusted residual was determined.
29. The observed rate of death from Other Causes of death in the Unintentional Injury category for males ages 20-65 from Umm al-Qaiwain Medical District was found not to differ significantly when the adjusted residual was determined.

Research Question 1c

RQ1 - Does the rate of death for males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

c) for citizen males ages 20-65 by specific Unintentional Injury cause of death (Accidents & Adverse Effects. Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

The rate of fatalities for citizen males ages 20-65 differ significantly by specific cause of Unintentional Injury death among the six UAE medical districts, using $p = \leq .05$.

1. The observed rate of death for citizen males ages 20-65 from Accidents & Adverse Effects in the medical districts of Ajman, Dubai, and Sharjah was significantly higher than expected when the adjusted residual was determined
2. The observed rate of death for citizen males ages 20-65 from Accidents & Adverse Effects in the medical districts of Umm al- Qaiwain was significantly lower than expected when the adjusted residual was determined.
3. The observed rate of death for citizen males ages 20-65 from Accidents & Adverse Effects in the medical districts of Fujairah and Ra's al-Khaimah was found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
4. The observed rate of death for citizen males ages 20-65 from Motor Vehicle & Traffic Accidents in the medical districts of Ajman and Fujairah was significantly higher than expected when the adjusted residual was determined
5. The observed rate of death for citizen males ages 20-65 from Motor Vehicle & Traffic Accidents in the medical districts of Dubai and Sharjah was significantly lower than expected when the adjusted residual was determined.

6. The observed rate of death for citizen males ages 20-65 from Motor Vehicle & Traffic Accidents in the medical districts of Ra's al-Khaimah and Umm al-Qaiwain was found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
7. The observed rate of death for citizen males ages 20-65 from Accidental Poisoning in the medical districts of Dubai and Umm al-Qaiwain was significantly higher than expected when the adjusted residual was determined.
8. The observed rate of death for citizen males ages 20-65 from Accidental Poisoning in the medical districts of Ajman and Fujairah, was significantly lower than expected when the adjusted residual was determined.
9. The observed rate of death for citizen males ages 20-65 from Accidental Poisoning in the medical districts of Ra's al-Khaimah and Sharjah was found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
10. The observed rate of death for citizen males ages 20-65 from Accidental Falls in the medical districts of Dubai and Sharjah was significantly higher than expected when the adjusted residual was determined.
11. The observed rate of death for citizen males ages 20-65 from Accidental Falls in the medical district of Umm al-Qaiwain was significantly lower than expected when the adjusted residual was determined.

12. The observed rate of death for citizen males ages 20-65 from Accidental Falls in the medical districts of Ajman, Fujairah and Ra's al-Khaimah was found not to differ significantly from the statistically expected rate when the adjusted residual was determined.

13. The observed rate of death for citizen males ages 20-65 from Other Causes in the medical districts of Ajman and Sharjah was significantly higher than expected when the adjusted residual was determined.

14. The observed rate of death for citizen males ages 20-65 from Other Causes of Unintentional Injury in the medical districts of Umm al-Qaiwain was significantly lower than expected when the adjusted residual was determined.

15. The observed rate of death for citizen males ages 20-65 from Other Causes of Unintentional Injury in the medical districts of Dubai, Fujairah and Ra's al-Khaimah was found not to differ significantly from the statistically expected rate when the adjusted residual was determined.

Research Question 1d

RQ1 - Does the rate of death for males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

d) for non-citizen males ages 20-65 by specific Unintentional Injury cause of death (Accidents & Adverse Effects. Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

The rate of fatalities for non-citizen males ages 20-65 differ significantly by specific cause of Unintentional Injury death among the six UAE medical districts, using $p = \leq .05$.

1. The observed rate of death for non-citizen males ages 20-65 from Accidents & Adverse Effects in the medical district of Ajman was significantly higher than expected when the adjusted residual was determined.
2. The observed rate of death for non-citizen males ages 20-65 from Accidents & Adverse Effects in the medical district of Umm al- Qaiwain was significantly lower than expected when the adjusted residual was determined.
3. The observed rate of death for non-citizen males ages 20-65 from Accidents & Adverse Effects in the medical districts of Dubai, Fujairah, Ra's al-Khaimah and Sharjah was found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
4. The observed rate of death for non-citizen males ages 20-65 from Motor Vehicle & Traffic Accidents in the medical districts of Fujairah and Ra's al-Khaimah was significantly higher than expected when the adjusted residual was determined
5. The observed rate of death for non-citizen males ages 20-65 from Motor Vehicle & Traffic Accidents in the medical districts of Dubai and Umm al-Qaiwain was significantly lower than expected when the adjusted residual was determined
6. The observed rate of death for non-citizen males ages 20-65 from Motor Vehicle & Traffic Accidents in the medical districts of Ajman and Sharjah was found not to differ significantly from the statistically expected rate when the adjusted residual was determined.

7. The observed rate of death for non-citizen males ages 20-65 from Accidental Poisoning in the medical districts of Dubai, Sharjah and Umm al- Qaiwain was significantly higher than expected when the adjusted residual was determined.
8. The observed rate of death for non-citizen males ages 20-65 from Accidental Poisoning in the medical districts of Ajman, Fujairah and Ra's al-Khaimah was significantly lower than expected when the adjusted residual was determined.
10. The observed rate of death for non-citizen males ages 20-65 from Accidental Falls in the medical district of Ajman was significantly higher than expected when the adjusted residual was determined.
11. The observed rate of death for non-citizen males ages 20-65 from Accidental Falls in the medical districts of Umm al-Qaiwain was significantly lower than expected when the adjusted residual was determined.
12. The observed rate of death for non-citizen males ages 20-65 from Accidental Falls in the medical districts of Dubai, Fujairah, Ra's al-Khaimah and Sharjah was found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
13. The observed rate of death for non-citizen males ages 20-65 from Other Causes of Unintentional Injury in the medical districts of Umm al-Qaiwain was significantly higher than expected when the adjusted residual was determined.
14. The observed rate of death for non-citizen males ages 20-65 from Other Causes of Unintentional Injury in the medical district of Sharjah was significantly lower than expected when the adjusted residual was determined.

15. The observed rate of death for non-citizen males ages 20-65 from Other Causes of Unintentional Injury in the medical districts of Ajman, Dubai, Fujairah and Ra's al-Khaimah was found not to differ significantly from the statistically expected rate when the adjusted residual was determined.

Research Question 2 Findings

Research Question 2a

RQ2 - Does the rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) within each season of the year (spring, summer, fall and winter) by manner (Natural, Non-natural)?

1. The rate of fatalities among citizen and non-citizen males ages 20-65 differs significantly by manner (Natural/Non-natural) for each of the four seasons of the year, $p \leq .05$.
2. The observed rate of Natural deaths for citizen males ages 20-65 from the six medical districts under study was significantly higher than expected when the adjusted residual was determined for the spring season of the year.
3. The observed rate of Natural deaths for non-citizen males ages 20-65 from the six medical districts under study was significantly lower than expected when the adjusted residual was determined for the spring season of the year.

4. The observed rate of Non-natural deaths for non-citizen males ages 20-65 from the six medical districts under study was significantly higher than expected when the adjusted residual was determined for the spring season of the year.
5. The observed rate of Non-natural deaths for citizen males ages 20-65 from the six medical districts under study was significantly lower than expected when the adjusted residual was determined for the spring season of the year.
6. The observed rate of Natural deaths for citizen males ages 20-65 from the six medical districts under study was significantly higher than expected when the adjusted residual was determined for the summer season of the year.
7. The observed rate of Natural deaths for non-citizen males ages 20-65 from the six medical districts under study was significantly lower than expected when the adjusted residual was determined for the summer season of the year.
8. The observed rate of Non-natural deaths for non-citizen males ages 20-65 from the six medical districts under study was significantly higher than expected when the adjusted residual was determined for the summer season of the year.
9. The observed rate of Non-natural deaths for citizen males ages 20-65 from the six medical districts under study was significantly lower than expected when the adjusted residual was determined for the summer season of the year.
10. The observed rate of Natural deaths for citizen males ages 20-65 from the six medical districts under study was significantly higher than expected when the adjusted residual was determined for the Fall season of the year.

11. The observed rate of Natural deaths for non-citizen males ages 20-65 from the six medical districts under study was significantly lower than expected when the adjusted residual was determined for the Fall season of the year.
12. The observed rate of Non-natural deaths for non-citizen males ages 20-65 from the six medical districts under study was significantly higher than expected when the adjusted residual was determined for the Fall season of the year.
13. The observed rate of Non-natural deaths for citizen males ages 20-65 from the six medical districts under study was significantly lower than expected when the adjusted residual was determined for the Fall season of the year.
14. The observed rate of Natural deaths for citizen males ages 20-65 from the six medical districts under study was significantly higher than expected when the adjusted residual was determined for the winter season of the year.
15. The observed rate of Natural deaths for non-citizen males ages 20-65 from the six medical districts under study was significantly lower than expected when the adjusted residual was determined for the winter season of the year.
16. The observed rate of Non-natural deaths for non-citizen males ages 20-65 from the six medical districts under study was significantly higher than expected when the adjusted residual was determined for the winter season of the year.
17. The observed rate of Non-natural deaths for citizen males ages 20-65 from the six medical districts under study was significantly lower than expected when the adjusted residual was determined for the winter season of the year.

Research Question 2b

RQ2 - Does the rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

b) by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

1. The rate of fatalities among citizen and non-citizen males ages 20-65 differ significantly by Unintentional Injury cause of death for the three years period of study, $p = \leq .05$.
2. The observed rate of death by Accidents & Adverse Effects for non-citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined.
3. The observed rate of death by Accidents & Adverse Effects for citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined.
4. The observed rate of death by Motor Vehicle & Traffic Accidents for citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined.
5. The observed rate of death by Motor Vehicle & Traffic Accidents for non-citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined.
6. The observed rate of death by Accidental Poisoning for citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined.

7. The observed rate of death by Accidental Poisoning for non-citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined.
8. The observed rate of death by Accidental Falls for non-citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined.
9. The observed rate of death by Accidental Falls for citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined.
10. The observed rate of death by Other Causes of Unintentional Injury for non-citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined.
11. The observed rate of death by Other Causes of Unintentional Injury of Unintentional Injury for citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined.

Research Question 2c

RQ2 - Does the rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

- c) within each season of the year (spring, summer, Fall, and winter) by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

1. The rate of fatalities among citizen and non-citizen males ages 20-65 differ significantly by Unintentional Injury cause of death during each of the four seasons of the year, $p = \leq .05$.
2. The observed rate of death by Accidents & Adverse Effects for non-citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined for the spring season of the year.
3. The observed rate of death by Accidents & Adverse Effects for citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined for the spring season of the year.
4. The observed rate of death by Motor Vehicle & Traffic Accidents for citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined for the spring season of the year.
5. The observed rate of death by Motor Vehicle & Traffic Accidents for non-citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined for the spring season of the year.
6. The observed rate of death by Accidental Falls for non-citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined for the spring season of the year.
7. The observed rate of death by Accidental Falls for citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined for the spring season of the year.
8. The observed rate of death by Other Causes of Unintentional Injury for non-citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined for the spring season of the year.

9. The observed rate of death by Other Causes of Unintentional Injury for citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined for the spring season of the year.
10. The observed rate of death by Accidents & Adverse Effects effect for non-citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined for the summer season of the year.
11. The observed rate of death by Accidents & Adverse Effects for citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined for the summer season of the year.
12. The observed rate of death by Motor Vehicle & Traffic Accidents among citizen and non-citizen males ages 20-65 from the six medical districts were found not to differ significantly from the statistically expected rate when the adjusted residual was determined for the summer season of the year.
13. The observed rate of death by Accidental Poisoning for citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined for the summer season of the year.
14. The observed rate of death by Accidental Poisoning for non-citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined for the summer season of the year.
15. The observed rate of death by Accidental Falls among citizen and non-citizen males ages 20-65 from the six medical districts were found not to differ significantly from the statistically expected rate when the adjusted residual was determined for the summer season of the year.
16. The observed rate of death by Other Causes of Unintentional Injury among citizen and non-citizen males ages 20-65 from the six medical districts were found not to differ significantly

from the statistically expected rate when the adjusted residual was determined for the summer season of the year.

17. The observed rate of death by Accidents & Adverse Effects effect for non-citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined for the Fall season of the year.
18. The observed rate of death by Accidents & Adverse Effects for citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined for the Fall season of the year.
19. The observed rate of death by Motor Vehicle & Traffic Accidents for citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined for the Fall season of the year.
20. The observed rate of death by Motor Vehicle & Traffic Accidents for non-citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined for the Fall season of the year.
21. The observed rate of death by Accidental Poisoning among citizen and non-citizen males ages 20-65 from the six medical districts were found not to differ significantly from the statistically expected rate when the adjusted residual was determined for the Fall season of the year.
22. The observed rate of death by Accidental Falls for non-citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined for the Fall season of the year.
23. The observed rate of death by Accidental Falls for citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined for the Fall season of the year.

24. The observed rate of death by Other Causes of Unintentional Injury for non-citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined for the Fall season of the year.
25. The observed rate of death by other causes for citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined for the Fall season of the year.
26. The observed rate of death by Accidents & Adverse Effects for non-citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined for the winter season of the year.
27. The observed rate of death by Accidents & Adverse Effects for citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined for the winter season of the year.
28. The observed rate of death by Motor Vehicle & Traffic Accidents for citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined for the winter season of the year.
29. The observed rate of death by Motor Vehicle & Traffic Accidents for non-citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined for the winter season of the year.
30. The observed rate of death by Accidental Poisoning for citizen males ages 20-65 from the six medical districts was found to be significantly higher when the adjusted residual was determined for the winter season of the year.
31. The observed rate of death by Accidental Poisoning for non-citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined for the winter season of the year.

32. The observed rate of death by Accidental Fall for non-citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined for the winter season of the year.
33. The observed rate of death by Other Causes of Unintentional Injury for non-citizen males ages 20-65 from the six medical districts was significantly higher than expected when the adjusted residual was determined for the winter season of the year.
34. The observed rate of death by Other Causes of Unintentional Injury for citizen males ages 20-65 from the six medical districts was significantly lower than expected when the adjusted residual was determined for the winter season of the year.

Research Question 3 Findings

Research Question 3a

RQ3 - Does the rate of death among citizen and non-citizen males in the age group of 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) by manner (Natural, Non-natural)?

For the Medical District of Ajman the reported rates of fatalities among citizen and non-citizen males ages 20-65 differ significantly by manner (Natural, Non-natural), $p = \leq .05$.

1. The observed rate of death caused by Natural causes of death for citizen males ages 20-65 reported by the Medical District of Ajman was significantly higher than expected when the adjusted residual was determined.

2. The observed rate of death caused by Natural causes of death for non-citizen males ages 20-65 reported by the Medical District of Ajman was significantly lower than expected when the adjusted residual was determined.
3. The observed rate of death caused by Non-natural causes of death for non-citizen higher than expected when the adjusted residual for death rates was determined for males ages 20-65 reported by the Medical District of Ajman was significantly
4. The observed rate of death caused by Non-natural causes of death for citizen males ages 20-65 reported by the Medical District of Ajman was significantly lower than expected when the adjusted residual was determined.

For the Medical District of Dubai the reported rates of fatalities among citizen and non-citizen males ages 20-65 differ significantly by manner (Natural, Non-natural), $p = \leq .05$.

1. The observed rate of death caused by Natural cause of death for citizen males ages 20-65 reported by the Medical District of Dubai was significantly higher than expected when the adjusted residual was determined.
2. The observed rate of death caused by Natural cause of death for non-citizen males ages 20-65 reported by the Medical District of Dubai was significantly lower than expected when the adjusted residual was determined.
3. The observed rate of death caused by Non-natural cause of death for non-citizen males ages 20-65 reported by the Medical District of Dubai was significantly higher than expected when the adjusted residual was determined.
4. The observed rate of death caused by Non-natural cause of death for citizen males ages 20-65 reported by the Medical District of Dubai was significantly lower than expected when the adjusted residual was determined.

For the Medical District of Fujairah the reported rates of fatalities among citizen and non-citizen males ages 20-65 differ significantly by manner (Natural, Non-natural), $p = \leq .05$.

1. The observed rate of death caused by Natural causes of death for citizen males ages 20-65 reported by the Medical District of Fujairah was significantly higher than expected when the adjusted residual was determined.
2. The observed rate of death caused by Natural causes of death for non-citizen males ages 20-65 reported by the Medical District of Fujairah was significantly lower than expected when the adjusted residual was determined.
3. The observed rate of death caused by Non-natural causes of death for non-citizen males ages 20-65 reported by the Medical District of Fujairah was significantly higher than expected when the adjusted residual was determined.
4. The observed rate of death caused by Non-natural cause of death for citizen males ages 20-65 reported by the Medical District of Fujairah was significantly lower than expected when the adjusted residual was determined.

For the Medical District of Ra's al-Khaimah the reported rates of fatalities among citizen and non-citizen males ages 20-65 differ significantly by manner (Natural, Non-natural), $p = \leq .05$.

1. The observed rate of death caused by Natural causes of death for citizen males ages 20-65 reported by the Medical District of Ra's al-Khaimah was significantly higher than expected when the adjusted residual was determined.
2. The observed rate of death caused by Natural causes of death for non-citizen males ages 20-65 reported by the Medical District of Ra's al-Khaimah was significantly lower than expected when the adjusted residual was determined.

3. The observed rate of death caused by Non-natural causes of death for non-citizen males ages 20-65 reported by the Medical District of Ra's al-Khaimah was significantly higher than expected when the adjusted residual was determined.
4. The observed rate of death caused by Non-natural causes of death for citizen males ages 20-65 reported by the Medical District of Ra's al-Khaimah was significantly lower than expected when the adjusted residual was determined.

For the Medical District of Sharjah the reported rates of fatalities among citizen and non-citizen males ages 20-65 differ significantly by manner (Natural, Non-natural), $p = \leq .05$.

1. The observed rate of death caused by Natural cause of death for citizen males ages 20-65 reported by the Medical District of Sharjah was significantly higher than expected when the adjusted residual was determined.
2. The observed rate of death caused by Natural cause of death for non-citizen males ages 20-65 reported by the Medical District of Sharjah was significantly lower than expected when the adjusted residual was determined.
3. The observed rate of death caused by Non-natural cause of death for non-citizen males ages 20-65 reported by the Medical District of Sharjah was significantly higher than expected when the adjusted residual was determined.
4. The observed rate of death caused by Non-natural cause of death for citizen males ages 20-65 reported by the Medical District of Sharjah was significantly lower than expected when the adjusted residual was determined.

For the Medical District of Umm al-Qaiwain the reported rates of fatalities among citizen and non-citizen males ages 20-65 differ significantly by manner (Natural, Non-natural), $p = \leq .05$.

1. The observed rate of death caused by Natural causes of death for citizen males ages 20-65 reported by the Medical District of Umm al-Qaiwain was significantly higher than expected when the adjusted residual was determined.
2. The observed rate of death caused by Natural causes of death for non-citizen males ages 20-65 reported by the Medical District of Umm al-Qaiwain was significantly lower than expected when the adjusted residual was determined.
3. The observed rate of death caused by Non-natural causes of death for non-citizen males ages 20-65 reported by the Medical District of Umm al-Qaiwain was significantly higher than expected when the adjusted residual was determined.
4. The observed rate of death caused by Non-natural causes of death for citizen males ages 20-65 reported by the Medical District of Umm al-Qaiwain was significantly lower than expected when the adjusted residual was determined.

Research question 3b

RQ3 - Does the rate of death among citizen and non-citizen males in the age group of 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

- b) within each season of the year (spring, summer, Fall, and winter) by manner (Natural, Non-natural)?

Ajman Medical District

The reported rate of deaths, both Natural and Non-natural in manner, among citizen and non-citizen males ages 20-65 differ significantly in the summer and Fall seasons in Ajman Medical District for the years 2006-2008, $p = \leq .05$

1. The observed rate of deaths coded as Natural in manner for citizen males ages 20-65 reported by the medical district of Ajman was significantly higher than expected when the adjusted residual was determined for the summer and Fall seasons of the year for the years 2006-2008.
2. The observed rate of deaths coded as Non-natural in manner for citizen males ages 20-65 reported by the medical district of Ajman was significantly lower than expected when the adjusted residual was determined for the summer and Fall seasons of the year for the years 2006-2008.
3. The observed rate of deaths coded as Non-natural in manner for citizen males ages 20-65 reported by the medical district of Ajman was significantly lower than expected when the adjusted residual was determined for the summer and Fall seasons of the year for the years 2006-2008.
4. The observed rate of deaths coded as Non-natural in manner for non-citizen males ages 20-65 reported by the medical district of Ajman was significantly higher than expected when the adjusted residual was determined for the summer and Fall seasons of the year for the years 2006-2008.

The rate of deaths reported, both Natural and Non-natural in manner, among citizen and non-citizen males ages 20-65 was found not to differ significantly from the statistically expected rate in the spring or winter seasons in Ajman Medical District for the years 2006-2008, $p = \leq .05$.

Dubai Medical District (Spring & Fall)

The rate of deaths reported, both Natural and Non-natural in manner, among citizen and non-citizen males ages 20-65 differed significantly from the statistically expected rate in the spring and fall seasons in Dubai Medical District for the years 2006-2008, $p = \leq .05$.

1. The observed rate of deaths coded as Natural in manner for citizen males ages 20-65 reported by the medical district of Dubai was significantly higher than expected when the adjusted residual was determined for the spring and fall seasons of the year for the years 2006-2008.
2. The observed rate of deaths coded as Natural in manner for non-citizen males ages 20-65 reported by the medical district of Dubai was significantly lower than expected when the adjusted residual was determined for the spring and fall seasons of the year for the years 2006-2008.
3. The observed rate of deaths coded as Non-natural in manner for citizen males ages 20-65 reported by the medical district of Dubai was significantly lower than expected when the adjusted residual was determined for the spring and fall seasons of the year for the years 2006-2008.
4. The observed rate of deaths coded as Non-natural in manner for non-citizen males ages 20-65 reported by the medical district of Dubai was significantly higher than expected when the adjusted residual was determined for the spring and fall seasons of the year for the years 2006-2008.

Dubai Medical District (Summer & Winter)

The rate of deaths reported, both Natural and Non-natural in manner, among citizen and non-citizen males ages 20-65 was found not to differ significantly from the statistically expected rate in the summer and winter seasons in Dubai Medical District for the years 2006-2008, $p = \leq .05$.

1. The observed rate of deaths coded as Natural and Non-natural in manner among citizen and non-citizen males ages 20-65 reported by the medical district of Dubai was found not to differ significantly from the statistically expected rate when the adjusted residual was determined for the summer and winter seasons of the year for the years 2006-2008.

Fujairah Medical District (Spring, Summer, Fall, and Winter)

The rate of deaths reported, both Natural and Non-natural in manner, among citizen and non-citizen males ages 20-65 differ significantly in the spring, summer, fall, and winter seasons in Fujairah Medical District for the years 2006-2008, $p = \leq .05$.

1. The observed rate of deaths coded as Natural in manner for citizen males ages 20-65 reported by the medical district of Fujairah was significantly higher than expected when the adjusted residual was determined for the spring, summer, fall and winter seasons of the year for the years 2006-2008.
2. The observed rate of deaths coded as Non-natural in manner for citizen males ages 20-65 reported by the medical district of Fujairah was significantly lower than expected when the adjusted residual was determined for the spring, summer, fall and winter seasons of the year for the years 2006-2008.

3. The observed rate of deaths coded as Natural in manner for citizen males ages 20-65 reported by the medical district of Fujairah was significantly lower than expected when the adjusted residual was determined for the spring, summer, fall and winter seasons of the year for the years 2006-2008.
4. The observed rate of deaths coded as Non-natural in manner for non-citizen males ages 20-65 reported by the medical district of Fujairah was significantly higher than expected when the adjusted residual was determined for the spring, summer, fall and winter seasons of the year for the years 2006-2008.

Ra's al-Khaimah Medical District (Spring, Fall, Winter)

The rate of deaths reported, both Natural and Non-natural in manner, among citizen and non-citizen males ages 20-65 differ significantly in the spring, fall, and winter seasons in Ra's al-Khaimah Medical District for the years 2006-2008.

1. The observed rate of deaths coded as Natural in manner for citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah was significantly higher than expected when the adjusted residual was determined for the spring, fall, and winter seasons of the year for the years 2006-2008.
2. The observed rate of deaths coded as Non-natural in manner for citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah was significantly lower than expected when the adjusted residual was determined for the spring, fall, and winter seasons of the year for the years 2006-2008.

3. The observed rate of deaths coded as Natural in manner for citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah was significantly lower than expected when the adjusted residual was determined for the spring, fall, and winter seasons of the year for the years 2006-2008.
4. The observed rate of deaths coded as Non-natural in manner for non-citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah was significantly higher than expected when the adjusted residual was determined for the spring, fall, and winter seasons of the year for the years 2006-2008.

Ra's al-Khaimah (Summer)

The rate of deaths reported, both Natural and Non-natural in manner, among citizen and non-citizen males ages 20-65 was found not to differ significantly from the statistically expected rate in the summer season in Ra's al-Khaimah Medical District for the years 2006-2008.

1. The observed rate of deaths coded as Natural and Non-natural in manner among citizen and non-citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah was found not to differ significantly than when the adjusted residual was determined for the summer season of the year for the years 2006-2008.

Sharjah Medical District (Spring, Summer, Fall, and Winter)

The rate of deaths reported, both Natural and Non-natural in manner, among citizen and non-citizen males ages 20-65 differ significantly in the spring, summer, fall and winter seasons in Fujairah Medical District for the years 2006-2008, $p = \leq .05$.

1. The observed rate of deaths coded as Natural in manner for citizen males ages 20-65 reported by the medical district of Sharjah was significantly higher than expected when the adjusted residual was determined for the spring, summer, fall, and winter seasons of the year for the years 2006-2008.
2. The observed rate of deaths coded as Non-natural in manner for citizen males ages 20-65 reported by the medical district of Sharjah was significantly lower than expected when the adjusted residual was determined for the spring, summer, fall, and winter seasons of the year for the years 2006-2008.
3. The observed rate of deaths coded as Natural in manner for citizen males ages 20-65 reported by the medical district of Sharjah was significantly lower than expected when the adjusted residual was determined for the spring, summer, fall, and winter seasons of the year for the years 2006-2008.
4. The observed rate of deaths coded as Non-natural in manner for non-citizen males ages 20-65 reported by the medical district of Sharjah was significantly higher than expected when the adjusted residual was determined for the spring, summer, fall, and winter seasons of the year for the years 2006-2008.

Umm al-Qaiwain Medical District (Spring, Summer and Fall)

The rate of deaths reported, both Natural and Non-natural in manner, among citizen and non-citizen males ages 20-65 differ significantly in the spring, summer, and fall seasons in Umm al-Qaiwain Medical District for the years 2006-2008, $p = \leq .05$.

1. The observed rate of deaths coded as Natural in manner for citizen males ages 20-65 reported by the Umm al-Qaiwain Medical District of was significantly lower than expected when the adjusted residual was determined for the spring season of the year for the years 2006-2008.
2. The observed rate of deaths coded as Natural in manner for non-citizen males ages 20-65 reported by the Umm al-Qaiwain Medical District of was significantly higher than expected when the adjusted residual was determined for the spring season of the year for the years 2006-2008.
3. The observed rate of deaths coded as Non-natural in manner for citizen males ages 20-65 reported by the Umm al-Qaiwain Medical District of was significantly higher than expected when the adjusted residual was determined for the spring season of the year for the years 2006-2008.
4. The observed rate of deaths coded as Non-natural in manner for non-citizen males ages 20-65 reported by the Umm al-Qaiwain Medical District of was significantly lower than expected when the adjusted residual was determined for the spring season of the year for the years 2006-2008.
5. The observed rate of deaths coded as Natural in manner for citizen males ages 20-65 reported by the Umm al-Qaiwain Medical District of was significantly higher than expected when the adjusted residual was determined for the summer and fall seasons of the year for the years 2006-2008.
6. The observed rate of deaths coded as Natural in manner for non-citizen males ages 20-65 reported by the Umm al-Qaiwain Medical District of was significantly lower than expected

when the adjusted residual was determined for the summer and falls seasons of the year for the years 2006-2008.

7. The observed rate of deaths coded as Non-natural in manner for citizen males ages 20-65 reported by the Umm al-Qaiwain Medical District of was significantly lower than expected when the adjusted residual was determined for the summer and fall seasons of the year for the years 2006-2008.
8. The observed rate of deaths coded as Non-natural in manner for non-citizen males ages 20-65 reported by the Umm al-Qaiwain Medical District of was significantly higher than expected when the adjusted residual was determined for the summer and fall seasons of the year for the years 2006-2008.

Umm al-Qaiwain Medical District (Winter)

The rate of deaths reported, both Natural and Non-natural in manner, among citizen and non-citizen males ages 20-65 was found not to differ significantly from the statistically expected rate in the winter season in Umm al-Qaiwain Medical District for the years 2006-2008, $p = \leq .05$.

1. The observed rate of deaths coded as Natural and Non-natural in manner among citizen and non-citizen males ages 20-65 reported by the Umm al-Qaiwain Medical District was found not to differ significantly when the adjusted residual was determined for the winter season of the year for the years 2006-2008.

Research Question 3c

RQ3 - Does the rate of death among citizen and non-citizen males in the age group of 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

c) by specific cause of Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicles & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

Ajman District

For the Medical District of Ajman, the reported rates of fatalities among citizen and non-citizen males ages 20-65 differ significantly by Unintentional Injury cause of death, $p = \leq .05$.

1. The observed rate of death caused by Accidents & Adverse Effects for non-citizen males ages 20-65 reported by the medical district of Ajman was significantly higher than expected when the adjusted residual was determined.
2. The observed rate of death caused by Accidents & Adverse Effects for citizen males ages 20-65 reported by the medical district of Ajman was significantly lower than expected when the adjusted residual was determined.
3. The observed rate of death caused by Motor Vehicle & Traffic Accidents for citizen males ages 20-65 reported by the medical district of Ajman was significantly higher than expected when the adjusted residual was determined.

4. The observed rate of death caused by Motor Vehicle & Traffic Accidents for non-citizen males ages 20-65 reported by the medical district of Ajman was significantly lower than expected when the adjusted residual was determined.
5. The observed rate of death caused by Accidental Falls for non-citizen males ages 20-65 reported by the medical district of Ajman was significantly higher than expected when the adjusted residual was determined.
6. The observed rate of death caused by Accidental Falls for citizen males ages 20-65 reported by the medical district of Ajman was significantly lower than expected when the adjusted residual was determined.
7. The observed rate of death caused by Other Causes of Unintentional Injury among citizen and non-citizen males ages 20-65 reported by the medical district of Ajman were found not to differ significantly from the statistically expected rate when the adjusted residual was determined.

Dubai District

For the medical district of Dubai, the reported rates of fatalities among citizen and non-citizen males ages 20-65 did not differ significantly by Unintentional Injury cause of death, $p = \leq .05$. The observed rate of deaths caused by Accidents & Adverse Effects among citizen and non-citizen males ages 20-65 reported by the medical district of Dubai were found not to differ significantly when the adjusted residual was determined.

1. The observed rate of death caused by Motor Vehicle & Traffic Accidents for citizen and non-citizen for males ages 20-65 reported by the medical district of Dubai were found not to

differ significantly from the statistically expected rate when the adjusted residual was determined.

2. The observed rate of death caused by Accidental Poisoning among citizen and non-citizen males ages 20-65 reported by the medical district of Dubai were found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
3. The observed rate of death caused by Accidental Falls among citizen and non-citizen males ages 20-65 reported by the medical district of Dubai were found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
4. The observed rate of death caused by Other Causes of Unintentional Injury among citizen and non-citizen males ages 20-65 reported by the medical district of Dubai were found not to differ significantly from the statistically expected rate when the adjusted residual was determined.

Fujairah District

For the medical district of Fujairah, the reported rates of fatalities among citizen and non-citizen males ages 20-65 differ significantly by Unintentional Injury cause of death, $p = \leq .05$.

1. The observed rate of deaths caused by Accidents & Adverse Effects for non-citizen males ages 20-65 reported by the medical district of Fujairah was significantly higher than expected when the adjusted residual was determined.
2. The observed rate of deaths caused by Accidents & Adverse Effects for citizen males ages 20-65 reported by the medical district of Fujairah was significantly lower than expected when the adjusted residual was determined.

3. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents for citizen males ages 20-65 reported by the medical district of Fujairah was significantly higher than expected when the adjusted residual was determined.
4. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents for non-citizen males ages 20-65 reported by the medical district of Fujairah was significantly lower than expected when the adjusted residual was determined.
5. The observed rate of deaths caused by Accidental Falls among citizen and non-citizen males ages 20-65 reported by the medical district of Fujairah were found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
6. The observed rate of deaths caused by Other Causes of Unintentional Injury among citizen and non-citizen males ages 20-65 reported by the medical district of Fujairah was found not to differ significantly from the statistically expected rate when the adjusted residual was determined.

Ra's al-Khaimah District

1. For the medical district of Ra's al-Khaimah, the reported rates of fatalities among citizen and non-citizen males ages 20-65 differ significantly by Unintentional Injury cause of death, $p \leq .05$.
2. The observed rate of deaths caused by Accidents & Adverse Effects for non-citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah was significantly higher than expected when the adjusted residual was determined.

3. The observed rate of deaths caused by Accidents & Adverse Effects for citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah was significantly lower than expected when the adjusted residual was determined.
4. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents for citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah was significantly higher than expected when the adjusted residual was determined.
5. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents for non-citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah was significantly lower than expected when the adjusted residual was determined.
6. The observed rate of deaths caused by Accidental Poisoning among citizen and non-citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah were found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
7. The observed rate of deaths caused by Accidental Falls among citizen and non-citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah were found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
8. The observed rate of deaths caused by Other Causes of Unintentional Injury for non-citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah was significantly higher than expected when the adjusted residual was determined.

9. The observed rate of deaths caused by Other Causes of Unintentional Injury for citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah was significantly lower than expected when the adjusted residual was determined.

Sharjah District

For the medical district of Sharjah, the reported rates of fatalities among citizen and non-citizen males ages 20-65 differ significantly by Unintentional Injury cause of death, $p = \leq .05$.

1. The observed rate of deaths caused by Accidents & Adverse Effects for non-citizen males ages 20-65 reported by the medical district of Sharjah was significantly higher than expected when the adjusted residual was determined.
2. The observed rate of deaths caused by Accidents & Adverse Effects among citizen and non-citizen males ages 20-65 reported by the medical district of Sharjah were found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
3. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents among citizen and non-citizen males ages 20-65 reported by the medical district of Sharjah were found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
4. The observed rate of deaths caused by Accidental Poisoning among citizen and non-citizen males ages 20-65 reported by the medical district of Sharjah were found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
5. The observed rate of deaths caused by Accidental Falls for non-citizen males ages 20-65 reported by the medical district of Sharjah was significantly higher than expected when the adjusted residual was determined.

6. The observed rate of deaths caused by Accidental Falls for citizen males ages 20-65 reported by the medical district of Sharjah was significantly lower than the expected when the adjusted residual was determined.
7. The observed rate of deaths caused by Other Causes of Unintentional Injury for citizen males ages 20-65 reported by the medical district of Sharjah was significantly higher than expected when the adjusted residual was determined.
8. The observed rate of deaths caused by Other Causes of Unintentional Injury for non-citizen males ages 20-65 reported by the medical district of Sharjah was significantly lower than expected when the adjusted residual was determined.

Umm al-Qaiwain District

For the medical district of Umm al-Qaiwain, the reported rates of fatalities among citizen and non-citizen males ages 20-65 differ significantly by Unintentional Injury cause of death, $p = \leq .05$.

1. The observed rate of deaths caused by Accidents & Adverse Effects for non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain was significantly higher than expected when the adjusted residual was determined.
2. The observed rate of deaths caused by Accidents & Adverse Effects among citizen and non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain was found not to differ significantly from the statistically expected rate when the adjusted residual was determined.

3. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents for citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain was significantly higher than expected when the adjusted residual was determined.
4. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents for non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain was significantly lower than expected when the adjusted residual was determined.
5. The observed rate of deaths caused by Accidental Poisoning among citizen and non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain was found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
6. The observed rate of deaths caused by Accidental Falls for non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain was significantly higher than expected when the adjusted residual was determined.
7. The observed rate of deaths caused by Accidental Falls for citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain was significantly lower than expected when the adjusted residual was determined.
8. The observed rate of deaths caused by Other Causes of Unintentional Injury for non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain was significantly higher than expected when the adjusted residual was determined.
9. The observed rate of deaths caused by Other Causes of Unintentional Injury for citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain was significantly lower than expected when the adjusted residual was determined.

Research question 3d

RQ3 - Does the rate of death among citizen and non-citizen males in the age group of 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

d) within each of the four seasons (spring, summer, Fall, and winter) by specific cause of Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicles & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

Ajman District During spring Season

For the Medical District of Ajman, the reported rates of fatalities by Accidents & Adverse Effects among citizen and non-citizen males ages 20-65 was found not to differ significantly from the statistically expected rate during the spring season, $p = \leq .05$.

1. The observed rate of deaths caused by Accidents & Adverse Effects among citizen and non-citizen males ages 20-65 reported by the Medical District of Ajman in the spring season of the year were found not to differ significantly from the statistically expected rate when the adjusted residual was determined.

The reported rates of fatalities by Motor Vehicle & Traffic Accidents among citizen and non-citizen males ages 20-65 in Ajman Medical District was found to differ significantly during the spring season, $p = \leq .05$.

2. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents for citizen males ages 20-65 reported by the Medical District of Ajman in the spring season of the year was significantly higher than expected when the adjusted residual was determined.

3. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents for non-citizen males ages 20-65 reported by the Medical District of Ajman in the spring season of the year was significantly lower than expected when the adjusted residual was determined.

The reported rate of death caused by Accidental Falls among citizen and non-citizen males ages 20-65 reported by the Medical District of Ajman in the spring season of the year was found not to differ significantly when the adjusted residual was determined.

1. The observed rate of deaths caused by Accidental Falls among citizen and non-citizen males ages 20-65 reported by the Medical District of Ajman in the spring season of the year was found not to differ significantly from the statistically expected rate when the adjusted residual was determined.

The reported rate of death caused by Other Causes of Unintentional Injury among citizen and non-citizen males ages 20-65 reported by the Medical District of Ajman in the spring season of the year was found not to differ significantly when the adjusted residual was determined.

1. The observed rate of deaths caused by Other Causes of Unintentional Injury among citizen and non-citizen males ages 20-65 reported by the Medical District of Ajman in the spring season of the year were found not to differ significantly from the statistically expected rate when the adjusted residual was determined.

Ajman District Summer Season

For the Medical District of Ajman, the reported rates of fatalities among citizen and non-citizen males ages 20-65 not differ significantly by Unintentional Injury cause of death during the summer season, $p = \leq .05$.

1. The observed rate of deaths caused by Accidents & Adverse Effects among citizen and non-citizen males ages 20-65 reported by the Medical District of Ajman in the summer season of the year were found not to differ significantly when the adjusted residual was determined.
2. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents for non-citizen males ages 20-65 reported by the Medical District of Ajman in the summer season of the year found not to differ significantly when the adjusted residual was determined.
3. The observed rate of deaths caused by Accidental Falls among citizen and non-citizen males ages 20-65 reported by the Medical District of Ajman in the summer season of the year were found not to differ significantly from the statistically expected rate when the adjusted residual was determined.
4. The observed rate of deaths caused by Other Causes among citizen and non-citizen males ages 20-65 reported by the Medical District of Ajman in the summer season of the year were found not to differ significantly from the statistically expected rate when the adjusted residual was determined.

Ajman District Fall Season

For the Medical District of Ajman, the reported rates of fatalities among citizen and non-citizen males ages 20-65 differ significantly by Unintentional Injury cause of death for Accidental Falls during the Fall season, $p = \leq .05$

1. The observed rate of deaths caused by Accidental Falls for non-citizen males ages 20-65 reported by the Medical District of Ajman in the Fall season of the year was significantly higher than expected when the adjusted residual was determined.

2. The observed rate of deaths caused by Accidental Falls for citizen males ages 20-65 reported by the Medical District of Ajman in the Fall season of the year was significantly lower than expected when the adjusted residual was determined

For the Medical District of Ajman, the reported rates of fatalities among citizen and non-citizen males ages 20-65 was found not to differ significantly by Unintentional Injury cause of death for the categories Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, and Other Causes of Unintentional Injury during the Fall season, $p = \leq .05$

3. The observed rates of deaths caused by Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the Medical District of Ajman in the Fall season of the year were found not to differ significantly from the statistically expected rate when the adjusted residual was determined.

Ajman District Winter Season

For the Medical District of Ajman, the reported rates of fatalities among citizen and non-citizen males ages 20-65 was found to differ significantly by Unintentional Injury cause of death for Motor Vehicle & Traffic Accidents, Accidental Falls, and Other Causes of Unintentional Injury death during the winter season, $p = \leq .05$.

1. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents, Accidental Falls, and Other Causes of Unintentional Injury for citizen males ages 20-65 reported by the Medical District of Ajman in the winter season of the year was significantly higher than expected when the adjusted residual was determined.

2. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents, Accidental Falls, and Other Causes of Unintentional Injury for non-citizen males ages 20-65 reported by the Medical District of Ajman in the winter season of the year was significantly lower than expected when the adjusted residual was determined.

The rate of death caused by Accidents & Adverse Effects among citizen and non-citizen males ages 20-65 reported by the Medical District of Ajman in the winter season of the year was found not to differ significantly in the winter season of the years 2006-2008, $p = \leq .05$.

1. The observed rate of deaths caused by Accidents & Adverse Effects was found not to differ significantly for citizen and non-citizen in the winter season for the year 2006-2008.

Dubai District Spring Season

The rate of deaths caused by Accidents & Adverse Effect, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the Medical District of Dubai was found not to differ significantly from the statistically expected rate in any season of the year (spring, summer, Fall, or winter) for the years 2006-2008, $p = \leq .05$.

1. The observed rate of deaths caused by Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the Medical District of Dubai for the following seasons (spring, summer, Fall and winter) seasons of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008.

Fujairah District Spring season

The rate of death caused by Accidents & Adverse Effects among citizen and non-citizen males ages 20-65 reported by the Medical District of Fujairah in the spring season of the year differed significantly for the years 2006-2008, $p = \leq .05$.

1. The observed rate of deaths caused by Accidents & Adverse Effects for non-citizen males ages 20-65 reported by the Medical District of Fujairah in the spring season of the year was significantly higher than expected when the adjusted residual was determined.
2. The observed rate of deaths caused by Accidents & Adverse Effects for citizen males ages 20-65 reported by the Medical District of Fujairah in the spring season of the year was significantly lower than expected when the adjusted residual was determined.

Fujairah District Summer Season

The rate of deaths caused by Accidents & Adverse Effects death among citizen and non-citizen males ages 20-65 reported by the Medical District of Fujairah in the summer season of the year was differ significantly for the years 2006-2008, $p = \leq .05$.

1. The observed rate of deaths caused Accidents & Adverse Effects for non-citizen males ages 20-65 reported by the Medical District of Fujairah in the summer season of the year was significantly higher than expected when the adjusted residual was determined.
2. The observed rate of deaths caused Accidents & Adverse Effects for citizen males ages 20-65 reported by the Medical District of Fujairah in the summer season of the year was significantly lower than expected when the adjusted residual was determined.

The rate of death caused by Motor Vehicle & Traffic Accidents, Accidental Falls, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the Medical District of Fujairah in the summer season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008, $p= \leq .05$.

1. The observed rate of deaths caused by Accidents & Adverse Effect, Accidental Falls and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the Medical District of Fujairah in the summer season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008.

Fujairah District Fall Season

The rate of death caused by Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Falls and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the Medical District of Fujairah in the Fall season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008, $p= \leq .05$.

1. The observed rate of deaths caused by Accidents & Adverse Effects, Accidental Falls, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the Medical District of Fujairah in the fall season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008.

Fujairah District Winter Season

For the Medical District of Fujairah, the reported rates of fatalities by Motor Vehicle & Traffic Accidents among citizen and non-citizen males ages 20-65 was found to differ significantly in winter season for the years 2006-2008 $p= \leq .05$.

1. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents for citizen males ages 20-65 reported by the Medical District of Fujairah in the winter season of the year was significantly higher than expected when the adjusted residual was determined.
2. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents Unintentional Injury for non-citizen males ages 20-65 reported by the Medical District of Fujairah in the winter season of the year was significantly lower than expected when the adjusted residual was determined.

Ra's al-Khaimah District Spring Season

For the Medical District of Ra's al-Khaimah, the reported rates of fatalities among citizen and non-citizen males ages 20-65 was found to differ significantly by Motor Vehicle & Traffic Accidents in spring season for the years 2006-2008 $p = \leq .05$.

1. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents for citizen males ages 20-65 reported by the Medical District of Ra's al-Khaimah was significantly higher than expected when the adjusted residual was determined.
2. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents for non-citizen males ages 20-65 reported by the Medical District of Ra's al-Khaimah was significantly lower than expected when the adjusted residual was determined.

For the Medical District of Ra's al-Khaimah, the reported rates of fatalities by Motor Vehicle & Traffic Accidents, Accidental Falls and Other Causes of Unintentional Injury among citizen and non-citizen males ages 20-65 was found not to differ significantly in the spring season for the years 2006-2008 $p = \leq .05$.

1. The observed rate for the reported rates of fatalities among citizen and non-citizen males ages 20-65 was found not to differ significantly by Motor Vehicle & Traffic Accidents, Accidental Falls and Other Causes of Unintentional Injury cause in spring season for the years 2006-2008.

Ra's al-Khaimah District Summer Season

For the Medical District of Ra's al-Khaimah, the reported rates of fatalities among citizen and non-citizen males ages 20-65 was found not to differ significantly by Accidents & Adverse Effect, Motor Vehicle & Traffic Accidents, Accidental Falls, and Other Causes of Unintentional Injury cause in summer season for the years 2006-2008 $p = \leq .05$.

1. The observed rate for the reported rates of fatalities among citizen and non-citizen males ages 20-65 was found not to differ significantly by Accidents & Adverse Effect, Motor Vehicle & Traffic Accidents, Accidental Falls and Other Causes of Unintentional Injury cause in summer season for the years 2006- 2008.

Ra's al-Khaimah District Fall Season

For the medical district of Ra's al-Khaimah, the reported rates of fatalities by Motor Vehicle & Traffic Accidents among citizen and non-citizen males ages 20-65 was found to differ significantly in Fall season for the years 2006-2008 $p = \leq .05$.

1. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents for non-citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah was significantly higher than expected when the adjusted residual was determined in the fall season.

2. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents for citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah was significantly lower than expected when the adjusted residual was determined in the fall season.

The rate of death caused by Accidents & Adverse Effect, Accidental Falls, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the Medical District of Ra's al-Khaimah in the fall season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008, $p = \leq .05$.

1. The observed rate for reported death caused by Accidents & Adverse Effect, Accidental Falls, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah in the fall season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008.

Ra's al-Khaimah District Winter Season

For the medical district of Ra's al-Khaimah, the reported rates of fatalities by Motor Vehicle & Traffic Accidents among citizen and non-citizen males ages 20-65 was found to differ significantly in the winter season for the years 2006-2008, $p = \leq .05$.

1. The observed rate of reported death caused by Motor Vehicle & Traffic Accidents for non-citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah was significantly higher than expected when the adjusted residual was determined in the winter season.

2. The observed rate of deaths caused by Motor Vehicle & Traffic Accidents for citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah was significantly lower than expected when the adjusted residual was determined in the winter season.

The rate of death caused by Accidents & Adverse Effects, Accidental Falls, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah in the winter season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008, $p = \leq .05$.

1. The observed rate of deaths caused by Accidents & Adverse Effect, Accidental Falls, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the medical district of Ra's al-Khaimah in the winter season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008.

Sharjah District Spring Season

For the Medical District of Sharjah, the reported rates of fatalities among citizen and non-citizen males ages 20-65 was found to differ significantly by Accidents & Adverse Effects in spring season for the years 2006-2008 $p = \leq .05$.

1. The observed rate of deaths caused by Accidents & Adverse Effects for non-citizen males ages 20-65 reported by the Medical District of Sharjah was significantly higher than expected when the adjusted residual was determined in the spring season.

2. The observed rate of deaths caused by Accidents & Adverse Effects for citizen males ages 20-65 reported by the Sharjah Medical District was significantly lower than expected when the adjusted residual was determined in the spring season.

The rate of death caused by Accidents & Adverse Effect, Accidental Poisoning, Accidental Falls, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the medical district of Sharjah in the spring season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008, $p = \leq .05$.

1. The observed rate for reported death caused by Accidents & Adverse Effect, Accidental Poisoning, Accidental Falls, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the Medical District of Sharjah in the spring season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008.

Sharjah District Summer Season

The rate of reported death caused by Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the Medical District of Sharjah in the summer season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008, $p = \leq .05$.

1. The observed rate for reported death caused by Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported

by the medical district of Sharjah in the summer season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008.

Sharjah Medical District Fall Season

For the medical district of Sharjah, the reported rates of fatalities by Accidents & Adverse Effects in fall season among citizen and non-citizen males ages 20-65 was found to differ significantly for the years 2006-2008, $p = \leq .05$.

1. The observed rate of reported caused by Accidents & Adverse Effects for non-citizen males ages 20-65 reported by the medical district of Sharjah was significantly higher than expected when the adjusted residual was determined in the fall season for the years 2006-2008.
2. The observed rate of reported death caused by Accidents & Adverse Effects for citizen males ages 20-65 reported by the Sharjah Medical District was significantly lower than expected when the adjusted residual was determined in the fall season for the years 2006-2008.

The rate of reported death caused by Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the Medical District of Sharjah in the fall season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008, $p = .05$.

3. The observed rate of reported deaths caused by Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls and Other Causes of Unintentional Injury death

among citizen and non-citizen males ages 20-65 reported by the medical district of Sharjah in the fall season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008.

Sharjah Medical District Winter Season

The rate of reported deaths caused by Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the Medical District of Sharjah in the winter season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008, $p = \leq .05$.

1. The observed rate of reported death caused by Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the medical district of Sharjah in the winter season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008.

Umm al-Qaiwain Medical District Spring Season

The rate of reported death caused by Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the Medical District of Umm al-Qaiwain in the spring season of the year was found to be differ significantly for the years 2006-2008, $p = \leq .05$.

1. The observed rates of reported deaths caused by Accidents & Adverse Effects, and Other Causes of Unintentional Injury death for citizen males ages 20-65 reported by the medical

district of Umm al-Qaiwain in the spring season of the year were significantly lower than expected for the years 2006-2008.

2. The observed rates of reported deaths caused by Accidents & Adverse Effects and Other Causes of Unintentional Injury death for citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the spring season of the year were significantly lower than expected for the years 2006-2008.
3. The observed rate of reported deaths caused by Motor vehicle & Traffic Accidents for citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the spring season of the year was significantly higher than expected for the years 2006-2008.
4. The observed rate of reported deaths caused by Motor vehicle & Traffic Accidents for non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the spring season of the year was significantly lower than expected for the years 2006-2008.

The rate of reported deaths caused by Accidental Poisoning among citizen and non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the spring season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008, $p = \leq .05$.

1. The observed rate of reported deaths caused by Accidental Poisoning for citizen and non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the spring season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008.

Umm al-Qaiwain District Summer Season

The rate of reported death caused by Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, and Accidental Falls among citizen and non-citizen males ages 20-65 reported by the Medical District of Umm al-Qaiwain in the summer season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008, $p = \leq .05$.

1. The observed rate of reported deaths caused by Accidents & Adverse Effect, Motor Vehicle & Traffic Accidents, and Accidental Falls among citizen and non-citizen males ages 20-65 reported by the Medical District of Umm al-Qaiwain in the summer season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008.

The rates of reported deaths caused by Accidental Poisoning and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the Medical District of Umm al-Qaiwain in the summer season of the year were found to differ significantly from the statistically expected rate for the years 2006-2008, $p = \leq .05$

1. The observed rate of reported death for death caused by Accidental Poisoning for citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the summer season of the year was significantly higher than expected for the years 2006-2008.
2. The observed rate of reported death for death caused by Accidental Poisoning for non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the summer season of the year was significantly lower than expected for the years 2006-2008.

3. The observed rate of reported death for death caused by Other Causes of Unintentional Injury death for citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the summer season of the year was significantly lower than expected for the years 2006-2008.
4. The observed rate of reported death for death caused by Other Causes of Unintentional Injury death for non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the summer season of the year was significantly higher than expected for the years 2006-2008.

Umm al-Qaiwain Medical District Fall Season

The rates of reported deaths caused by Motor Vehicle & Traffic Accidents, Accidental Falls, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the fall season of the year were found to differ significantly for the years 2006-2008, $p = \leq .05$.

1. The observed rate of reported deaths caused by Motor Vehicle & Traffic Accidents for citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the fall season of the year was significantly higher than expected for the years 2006-2008.
2. The observed rate of reported deaths caused by Motor Vehicle & Traffic Accidents for non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the fall season of the year was significantly lower than expected for the years 2006-2008.
3. The observed rates of reported deaths for Accidental Falls and Other Causes of Unintentional Injury death for non-citizen and males ages 20-65 reported by the medical

district of Umm al-Qaiwain in the fall season of the year were significantly higher than expected for the years 2006-2008.

4. The observed rate of reported death for Accidental Falls and Other Causes of Unintentional Injury death for citizen and males ages 20-65 reported by the medical district of Umm al-Qaiwain in the fall season of the year were significantly lower than expected for the years 2006-2008.

The rates of reported deaths caused by Accidental Poisoning among citizen and non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the fall season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008, $p = \leq .05$.

1. The observed rate of reported deaths caused by Accidental Poisoning among citizen and non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the fall season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008, $p = \leq .05$.

Umm al-Qaiwain Medical District Winter Season

The rates of reported deaths caused by Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Falls, and Other Causes of Unintentional Injury death among citizen and non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the winter season of the year was found to differ significantly from the statistically expected rate for the years 2006-2008, $p = \leq .05$.

1. The observed rates of reported deaths caused by Accidents & Adverse Effects, Accidental Falls, and Other Causes of Unintentional Injury death among non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the winter season of the year were found not to differ significantly from the statistically expected rate for the years 2006-2008.
2. The observed rates of reported death caused by Accidents & Adverse Effect, Accidental Falls, and Other Causes of Unintentional Injury death for citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the winter season of the year were found not to differ significantly from the statistically expected rate for the years 2006-2008.
3. The observed rate of reported deaths caused by Motor Vehicle & Traffic Accidents for citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the winter season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008.
4. The observed rate of reported deaths caused by Motor Vehicle & Traffic Accidents for non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the winter season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008.

The rates of reported death caused by Accidental Poisoning among citizen and non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the winter season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008, $p = \leq .05$.

The observed rates of reported death caused by Accidental Poisoning among citizen and non-citizen males ages 20-65 reported by the medical district of Umm al-Qaiwain in the winter season of the year was found not to differ significantly from the statistically expected rate for the years 2006-2008.

Conclusions

Based on the findings of this study the following conclusions were drawn:

Conclusions from the Frequency Profile

1. Unintentional injury deaths represented more than one quarter of the total reported deaths and this cause category represented the second leading cause of death reported by the six medical districts managed by the UAE Ministry of Health for the years 2006-2008.

This conclusion agreed with the UAE WHO Country Cooperation Strategy 2007 statement indicating that unintentional injury was the second cause of deaths in the UAE (WHO, 2007).

This conclusion also agreed with the study by Eid, Lunsjo, Torab and Abu-Zidan in 2007 indicating that trauma is a major health problem in the UAE and is the second leading cause of death responsible for 18% of mortality (Eid et al, 2007). Barss et al. published a study in 2009 which reported unintentional injury to be the second most frequent cause of death in the UAE agreed with this research study addressing unintentional injury in the six of the UAE medical districts included in this study (Barss, Addley, 2009).

2. Sharjah and Dubai Medical Districts reported more than three quarters of Unintentional Injury deaths recorded by the six medical districts managed by the UAE Ministry of Health for the years 2006-2008.

3. Motor Vehicle & Traffic Accident deaths represented half of the total Unintentional Injury deaths in the six medical districts managed by the UAE Ministry of Health by frequency for the years 2006-2008 and almost one third of these deaths were reported by Sharjah Medical district.

This conclusion agreed with both Al-Kharusi (2008) and Makhoul & El-Barbir (2006), who reported that unintentional deaths caused by road traffic accidents was one of the major public health problems and leading cause of deaths in Middle East (Al-Kharusi, 2008 & Makhoul & El-Barbir, 2006).

4. Accidental Poisoning deaths represented almost one fifth of the total Unintentional Injury deaths by frequency and were the second leading cause of Unintentional Injury deaths after Motor Vehicle & Traffic Accident in the six medical districts managed by the UAE Ministry of Health for the years 2006-2008.

No prior published studies were found addressing Accidental Poisoning of unintentional injury death in the United Arab Emirates.

5. More than one fifth of the total deaths were reported for the years 2006-2008 by the six medical districts managed by the UAE Ministry of Health were recorded with no specific cause of death identified and the deaths recorded with no specific cause of death identified were not distributed evenly among the six medical districts managed by the UAE Ministry of Health. For example Dubai and Ajman Medical Districts together represented over three quarters of the deaths reported for the six medical districts with no specific cause identified.

This conclusion agreed with a study by Barss, Addley et al. (2009) which stated that future research should address the lack of data in the UAE regarding cause of injury.

6. The current type of data collected by the six medical districts managed by the UAE Ministry of Health surveillance system limits the level of analysis that can be conducted for Unintentional Injury to only determining the specific cause of death such as, Motor Vehicle and Traffic Accident. For example at present no data is collected focused on whether the fatality recorded was the driver, passenger, or pedestrian when the death was occurred. A study by Montazari was conducted in Iran in 2003 stated that of all traffic accidents related deaths in the 2003 period 65% were reported to be pedestrian or car occupants rather than drivers (Montazari,2003) . This study focusing on the six medical districts in the UAE cannot confirm if the individual who died as a result of traffic accident was a driver, pedestrian an occupants or wearing a seat belt due to the lack of specificity in the medical district fatality reports.

7. The Unintentional Injury caused by Accident and Adverse Effects represented the third leading cause of death of the total Unintentional Injury deaths with slightly more than one fifth of the total Unintentional Injury death for males in the age group 20-65 reported by the six medical districts managed by the UAE Ministry of Health in the years 2006-2008.

No prior published studies were found addressing Accident and Adverse Effects of unintentional injury death in the UAE.

8. Deaths caused by Accidental Fall, represented the fourth leading cause of death of the total Unintentional Injury deaths and less than 10% of the total Unintentional Injury death for males in the age group 20-65 reported by the six medical districts managed by the UAE Ministry of Health.

No data was available for Falls for a total population in the United Arab Emirates, whoever prior published studies were available addressing the need to reduce work place relate falls (Barss, Addley et al 2009).

9. Males represented over three quarters of the total death reported by the six medical districts managed by the UAE Ministry of Health for the years 2006-2008.

This conclusion agreed with the study published by Takala in 2002 which reported that men represented 80% of the reported accidental occupation deaths. While no prior research focusing on all male deaths was found. The prior research by Takala published in 2002 focused on similar high rate only on occupation related deaths of males.

10. Non-citizen males represented three quarters of male fatality deaths recorded by the six medical districts managed by the UAE Ministry of Health for the years 2006-2008.

This conclusion was different from the data presented in the UAE Preventive Medicine Annual Report published in 2007 in which the number of unintentional injury death for non-citizen was provided for 2005. When the researcher calculated the number of deaths for unintentional injury for male non-citizens from this 2007 report the percentage of this unintentional male non-citizens death was 11% higher than the percentage of deaths for non-citizen males found by this research study (Ministry of Health Annual Report, 2007).

Conclusions Related to Research Questions

Research Question 1a

RQ1- Does the rate of death for males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) for all males ages 20-65 by manner (Natural, Non-natural)?

The rate of death for all males in the age group 20-65 reported as fatalities by rate among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differed

significantly by manner (Natural and Non-natural) for the year 2006-2008. No prior published studies were found comparing fatalities among males by rate at the districts or national level by Natural and Non-natural death.

Research Question 1b

RQ1 - Does the rate of death for males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

b) for all males ages 20-65 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

The rate of death for all males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health differed significantly by the specific cause of Unintentional Injury cause of deaths (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes) for the years 2006-2008.

Research Question 1c

RQ1 - Does the rate of death for males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

c) for citizen males ages 20-65 by specific Unintentional Injury cause of death (Accidents & Adverse Effects. Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

The rate of death for citizen males ages 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health differed significantly by the specific cause of Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls and Other Causes) for the years 2006-2008. When citizen males ages 20-65 were analyzed among the six UAE medical districts for the years 2006-2008, the death rate from Motor Vehicle & Traffic Accidents was significantly higher in the districts of Ajman and Fujairah than the other four medical districts. When citizen males ages 20-65 were analyzed among the six UAE medical districts for the years 2006-2008, the death rate from Accidental was significantly higher in the districts of Dubai and Sharjah than the other four medical districts. No prior published studies were found comparing rate of Unintentional Injury deaths for citizen males ages 20-65 among the six UAE medical districts. No prior published studies were found comparing fatalities among males by rate at the districts or national level by specific cause of Unintentional Injury death.

Research Question 1d

RQ1 - Does the rate of death for males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

d) for non-citizen males ages 20-65 by specific Unintentional Injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

The rate of death for non-citizen males ages 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health differed significantly by the specific cause of

Unintentional injury cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls and Other Causes) for the years 2006-2008.

When non-citizen males ages 20-65 were analyzed among the six UAE medical districts for the years 2006-2008, the death rate from Motor Vehicle & Traffic Accidents was significantly higher in the districts of Fujairah and Ras al-Khaimah than the other four districts .When non-citizen male ages 20-65 were analyzed among the six UAE medical districts for the years 2006-2008, the death from accidental falls was significantly higher in the districts of Ajman than the other five medical districts .No prior studies were found comparing the rate of Motor vehicle & Traffic Accidents deaths or the rate of Accidental Falls deaths for non-citizen males ages 20-65 among the six UAE medical districts for the years 2006-2008. In the district of Umm al-Qaiwain the rate of death from accidental poisoning for citizen males ages 20-65 and noncitizen males in the same age group was significantly higher than the rate of death for Accidental Poisoning reported from the other five medical districts No prior studies were found addressing the rate for cause of Accidental Poisoning deaths among the six UAE medical districts for the years 2006-2008.

Research Question 2a

2 - Does the rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

- a) within each season of the year (spring, summer, Fall and winter) by manner (Natural, Non-natural)?

The rate of death for citizen and noncitizen males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health differed significantly by manner of death (Natural and Non-natural within each season of the years for the period 2006-2008). No prior published studies were found comparing fatalities among males by rate at the districts or national level by Natural and Non-natural death and within each season of the year.

2 - Does the rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

b) by specific Unintentional Injury Cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

The rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health differed significantly by Unintentional Injuries cause of deaths for (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes). For example non-citizen males ages 20-65 reported a higher rate of death for the unintentional injury causes of Accidents & Adverse Effects, Accidental Falls and for Other Causes category than male citizens in the same age group. Also male citizens reported a high rate of death for Unintentional Injury cause category of Motor Vehicle & Traffic Accidents and Accidental Poisoning than male non-citizens in the same age group.

This conclusion is consistent with the study that was conducted in Lebanon by Ahonen, Benavides & Benach in 2007. This study found the type of occupational injuries among non-nationals differed from the type of injuries reported among nationals. The conclusion also agreed

with the studies by Jones, 2000, Khlal & Courbage 1996, Loh & Richard 2004 and Sincavage 2005 in which they specify that the difference in accidental occupational deaths rates for national and non-national have been reported in many countries across the world (Ahonen, Benavides & Benach in 2007, Jones, 2000, Khlal & Courbage 1996, Loh & Richardson 2004 and Sincavage 2005).

Research Question 2c

2 - Does the rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities among the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

c) within each season of the year (spring, summer, Fall, and winter) by specific Unintentional Injury Cause of death (Accidents & Adverse Effects, Motor Vehicle & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

The rate of death for citizen and non-citizen males in the age group of 20-65 reported as fatalities for the six medical districts managed by the UAE Ministry of Health differed significantly by specific cause of unintentional injury within each season of the year and during the years 2006-2008. For example the rate of death for Accidents & Adverse Effects cause of death for non-citizen males was higher in each of the four seasons than the rate of death for citizen males. Also the rate of death for citizen males was higher for the cause of Motor Vehicle & Traffic Accidents than non-citizen males in the age group 20-65 during all seasons of the year except during the summer season. In addition the rate of death for male citizens was higher for the Unintentional Injury cause of Accidental Poisoning than the rate of death for males non-citizens in the summer and winter seasons. No prior published studies were found addressing this specific issue of the rate of unintentional injury death within a specific season of the year.

Research Question 3a

3 - Does the rate of death among citizen and non-citizen males in the age group of 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

a) by manner (Natural, Non-natural)?

The rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health differed significantly by manner (Natural & Non-natural) for the years 2006-200. No prior published studies were found addressing this specific issue of the rate of Natural or Non-natural death within a specific season of the year.

Research Question 3b

3 - Does the rate of death among citizen and non-citizen males in the age group of 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

b) within each season of the year (spring, summer, Fall, and winter) by manner (Natural, Non-natural)?

1. The rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities within each of six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differed significantly during the spring season by manner (Natural and Non-natural) within all six medical districts under study except for the Ajman Medical District.

No prior published studies were found addressing this specific issue of the rate of Natural or Non-natural death within a specific season of the year

2. The rate of death for citizen and non-citizen males in the age group 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health differed significantly within the summer season by manner (Natural and Non-natural) in all the six medical districts except in the medical districts of Dubai and Ra's al-Khaimah for the years 2006-2008.

No prior published studies were found addressing this specific issue of the rate of Natural or Non-natural death within a specific season of the year.

3. The rate of death for citizen and non-citizen males in the age group 20-65 for each of six medical districts managed by the UAE Ministry of Health differed significantly within the fall season by manner (Natural & Non-natural) in all the six districts for the years 2006-2008.

No prior published studies were found addressing this specific issue of the rate of Natural or Non-natural death within a specific season of the year.

4. The rate of death for citizen and non-citizens males in the age group 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differed significantly by manner (Natural and Non-natural) in winter only in the three medical districts of Fujairah, Ra's al-Khaimah and Sharjah.

No prior published studies were found addressing this specific issue of the rate of Natural and Non-natural death within a specific season of the year.

Research Question 3c

3 - Does the rate of death among citizen and non-citizen males in the age group of 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

c) by specific Cause of Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicles & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

The rate of Unintentional Injury deaths for citizen and non-citizen males in the age group 20-65 reported as fatalities for the six medical districts managed by the UAE Ministry of Health differed significantly by specific cause of Unintentional Injury death within each of the six medical districts except the medical district of Dubai for the years 2006-2008.

While no prior studies were completed addressing citizen status by medical districts this conclusion agrees with prior studies focused on a region of the world or at the country level.

These include a study by Jones in 2000 which stated that non-nationals globally are considered at high risk from accidents. In addition, study by Carballo & Mboup in 2005 indicated occupational injury to be almost two times higher among non-national workers in Europe than among national workers. Studies by Khlal & Courbage in 1996 and Loh & Richardson in 2004 stated fatal occupational injuries among foreign- born workers in their host countries were more common than fatal injuries among national workers (Jones 2000, Carballo & Mboup 2005 Khlal & Courbage 1996 and Loh & Richardson 2004).

Research Question 3d

3 - Does the rate of death among citizen and non-citizen males in the age group of 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 differ significantly when analyzed:

d) within each of the four seasons (spring, summer, Fall, and winter) by specific Cause of

Unintentional Injury death (Accidents & Adverse Effects, Motor Vehicles & Traffic Accidents, Accidental Poisoning, Accidental Falls, and Other Causes)?

1. The rate of death by causes of Unintentional Injury for citizen and non-citizen males in the age group 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health differed significantly for all of the six medical districts under study during the spring and winter seasons except for Dubai Medical District for the years 2006-2008.

No prior published studies were found addressing this specific issue of the rate of Unintentional Injury death within a specific season of the year.

2. The rate for Unintentional Injury death by cause for citizen and non-citizen males in the age group 20-65 reported as fatalities within each of the six medical districts managed by the UAE Ministry of Health differed significantly for only three of the six medical districts during the summer and fall seasons for the years 2006-2008.

No prior published studies were found addressing this specific issue of the rate of Unintentional Injury death within a specific season of the year

3. The rate of Unintentional Injury death by cause of for citizen and non-citizen males in the age group 20-65 reported as fatalities for the medical district of Dubai did not differ significantly during any of the four seasons of the year for the years 2006-2008.

No prior published studies were found addressing this specific issue of the rate of Unintentional Injury death within a specific season of the year.

4. The rate of Unintentional Injury death by cause of for citizen and non-citizen males in the age group 20-65 reported as fatalities in Umm al-Qaiwain Medical District differed significantly during each of the four seasons of the year for the years 2006-2008.

No prior published studies were found addressing this specific issue of the rate of Unintentional Injury death within a specific season of the year.

Recommendations

Based upon the findings, conclusions and literature review of the study, the following recommendations were made:

1. Unintentional Injury deaths varied significantly by cause, therefore each of the medical districts managed by the UAE Ministry of Health need to analyze their own fatality data. A district surveillance system would allow each district to prioritize causes of Unintentional Injury.
2. Each of the six medical districts needs to focus on prevention actions on the most significant causes for individual high risk sub groups to reduce premature deaths.
3. Each of the six UAE medical districts should collect more detailed information about Unintentional Injury causes of death to allow for an analysis of the circumstances

surrounding a death caused by unintentional injuries. For example under Motor Vehicle & Traffic Accident no data was available to determine if the individual who died was driver, passenger, pedestrian or wearing a seat belt. (See Appendix A for an example of a more detailed death notification form currently used by the medical districts managed by Abu-Dhabi Health Authority).

4. Each of the six UAE medical districts should implement Unintentional Injury prevention strategies to reduce deaths caused by Accidents & Adverse Effects and Accidental Falls targeting non-citizen males in the age group 20-65. The program could be emphasized during all seasons.
5. Each of the six medical districts should implement unintentional injury prevention strategies to reduce deaths caused by motor vehicles and traffic accident targeting citizen males in the age group 20-65. The program should be emphasized during all seasons.
6. Each of the UAE six medical districts should implement Unintentional Injury prevention strategies to reduce deaths caused by Accidental Poisoning targeting citizen males in the age group 20-65. The program should heavily emphasized during both summer and winter seasons.
7. Dubai and Sharjah Medical Districts both need to implement strategies to reduce all causes of unintentional injury deaths targeting each sub group of citizen and non-citizen males in the age group 20-65.
8. Because there was a significant difference among all the six medical districts in the rate of deaths for manner (Natural and Non-natural) during the different seasons for all males' citizen and non-citizen ages 20-65, further research is needed to determine why these differences in causes of death exist.

9. The medical districts of Dubai and Sharjah should implement Unintentional Injury prevention strategies targeting both citizens and non-citizens to reduce deaths caused by Motor Vehicle and Traffic Accidents. Because the majority of deaths caused by Unintentional Injury deaths in the Medical districts of Dubai and Sharjah were reported to be caused by Motor Vehicle and Traffic Accidents, these two medical districts must expand their efforts to fund and implement prevention strategies to overcome growing public health problems of deaths caused by Motor Vehicles and Traffic Accidents in the UAE.

10. More than one fifth of the total deaths were reported for the years 2006-2008 by the six medical districts managed by the UAE Ministry of Health has having no specific cause of death identified. There should be actions taken to reduce the number of fatalities that was reported with no cause of death identified. Taking these actions should be a high priority for the medical districts of Dubai and Ajman. The medical districts should communicate with individuals who fill out the death notification forms to increase the percentage of deaths recorded with specific causes identified. For example each medical district should establish a fatality review process to insure an accurate number of deaths are recorded with specific cause.

11. Further research is needed to understand the specific type of incidences resulting from Accidental Poisoning death in males ages 20-65 in the UAE.

Chapter Summary

Chapter V includes findings generated by this research study. This study also provided the study conclusions and the recommendations made by the researcher. Chapter VI presents a retrospective of this study.

CHAPTER VI

THE STUDY IN RETROSPECT

This research was based on an analysis of the fatality data reports provided by the six medical districts managed by the UAE Ministry of Health for the years 2006-2008 categorized by citizen status, gender, age group, season of the year, and specific cause of death. Non-citizen males represented the highest percentage of the total male deaths reported by the six medical districts managed by the UAE Ministry of Health. When the fatality data was analyzed by manner of death (natural and non-natural), natural causes of death represented more than one half of the all deaths reported by the six medical districts managed by the UAE Ministry of Health for the years 2006-2008, and of deaths from natural causes, citizen males died at higher rates than non-citizen males.

Health research should be based on the assessment of natural and non-natural causes of death in order to understand the magnitude of health problems. To reduce deaths from natural causes in all medical districts managed by the UAE Ministry of Health, prevention programs should be planned and implemented targeting citizen males ages 20-65. Research studies should also focus not only on the cause of natural deaths, but also on the specific circumstances surrounding them, that is, the circumstances that lead directly to death. For example, cardiac arrest is commonly reported as a cause of death but the actual conditions that led to cardiac arrest, such as diabetes and/or hypertension, should be identified as the cause of death. Inaccurate or missing classification of causes of death limits the possibilities for interpreting the causes of death. Therefore, prevention programs should be implemented to eliminate inaccurate reporting of causes of death. Timely and current information about population health problems is very important because these health problems are always changing.

Among the non-natural causes (homicide, suicide, and unintentional injury), this study focused on unintentional injury. The problem of unintentional injuries among males in the age group 20-65 in the six medical districts managed by the UAE is increasing and was found by the current study to be a major public health problem. No studies evaluating and analyzing unintentional injury among other segments of the UAE population were found. There is a need for more research on populations that have not yet received attention, especially citizen and non-citizen women. Because unintentional injury deaths are preventable, public health professionals should encourage accurate research that highlights the magnitude of the problem. Prevention and intervention efforts need to focus on identifying factors that decrease the risk of unintentional injury. Actions should be taken to minimize or prevent this problem.

Results of this study showed that males were at higher risk than females for being injured or killed in accidents. The same result has been found by other studies, as documented in the literature review. It may be attributable to males' greater exposure to accidents such as traffic accidents, accidental falls in the work place, and other associated factors. More research should be completed to address this important issue of why men are more likely to be injured than women. Thus, studies that explore the difference in exposure to accidents based on gender are needed to better understand the distribution of risk across the entire UAE population.

Additionally, the current study found that men who are of working age (20-65 years) are at more risk for injuries and accidents than men of other ages. This is well documented in this study as well as in other studies (Ministry of Health Preventive Medicine Annual Report, 2006; Takala, 2002). The higher death rate for this population affects social and economic stability because men are dying at their productive work age. This clearly signifies the need for more targeted interventions for this group.

In this study and through the literature review the researcher found that the death rate from road traffic injuries was high in almost all the medical districts in the UAE and especially in the six medical districts managed by the UAE Ministry of Health. Investigators in the UAE should identify intervention strategies to lower the death toll from traffic accidents. Public health officials, road traffic designers, city municipalities, police, policy makers and legislators need to implement effective measures and funds should be made to lower the injuries and deaths from motor vehicle accidents in the UAE as a whole and especially in the medical districts that reported a higher number of motor vehicle traffic deaths.

In order to pursue effective research and policies, death data must be reported accurately. Researchers and health professionals cannot analyze and interpret public health problems without accurate data. In order to describe and monitor any public health problems they rely on the surveillance system of the health authorities. The information generated from the analysis of death data can be used for planning, implementing and evaluating health programs used to implement prevention measures. This study can suggest a few ways that the surveillance system in the UAE can be improved to better address public health problems. First, the medical districts that reported a high number of unknown causes of deaths, such as Dubai Medical District, should take some measures to improve the death reporting system. Health professionals can work to ensure that the surveillance system is evaluated more frequently in order to eliminate the number of deaths reported with no specific cause of death and reduce all unnecessary duplication. Documentation of the causes of death for statistical research need to be used to assist in developing public health goals, policies, and services. Implementation of surveillance systems is one way of translating information into actions. The need for surveillance systems to identify populations at risk is very important and should be considered a priority.

There are numerous ways that reporting of deaths can be improved to yield more information. Death reports can be made more meaningful if data about the individual who died are incorporated and recorded in the death report. In cases of unintentional injury, death can result from multiple causes such as head injury or hip fracture that resulted from a motor vehicle or traffic accident. It would be beneficial to report the multiple causes that led to death, not only the ultimate cause of death such as a motor vehicle and traffic accident. More specific classification can help health professionals to target the primary cause and ultimately prevent some deaths. For example, the broad cause of death category “accidental poisoning” could be modified with specific codes that indicate which type of poisoning caused the death. Types of accidental poisoning needs be identified specifically. Another area where reporting could be improved is in the category injury due accidental falls, which could be reported with more specific details about the circumstances of the fall. For example, work-related death injuries should receive careful consideration as a main cause of accidental falls and reported deaths according to the causes of death codes in the ICD-10 (WHO, 2007).

Finally, it is important that death forms be well organized to avoid duplication of data. Barrs & Grivna (2009) found that the some unintentional injury deaths received a second code of “injury” in addition to a code indicating intentional injury, homicide or suicide; this resulted in double coding of many cases. This reporting error should be eliminated so that mortality data will be reported more accurately.

This analysis offers public health researchers and professionals an important source of information about causes of death from unintentional injury: which causes occur at the highest rates, in what seasons, and in what specific medical districts. This approach provides benefits beyond the simple reporting of frequencies, especially when comparing different groups, such as

citizens and the ever-expanding non-citizen population. The same approach could be applied to study differences in risk between genders, age groups, and other groups of interest.

Chapter Summary

Chapter VI presents a retrospective view of the significance of this study of unintentional injury rates among males in selected medical districts in the United Arab Emirates.

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APPENDICES

APPENDIX A

Copy of the traditional death notification form and a copy of the Abu-Dhabi Health Authority death notification form.

UNITED ARAB EMIRATES

MINISTRY OF HEALTH

DEPT. OF PREVENTIVE MEDICINE



وزارة الصحة
الإمارات العربية المتحدة

وزارة الصحة

إدارة الطب الوقائي

DISTRICT :

منطقة :

إبلاغ وفاة


DEATH NOTIFICATION

DECEASED PARTICULARS	معلومات عن المتوفي
Full Name : : الاسم الكامل Age : Year سنة Month شهر Day يوم Sex : الجنس Nat : الجنسية Religion : الديانة Marital Status : الحالة الاجتماعية Occupation : المهنة Address : Town : المدينة Emirate : الإمارة Place of death : Town مكان الوفاة : المدينة Emirate : الإمارة Name of Hospital : اسم المستشفى الذي حصلت به الوفاة Hospital File No. : رقم ملف المستشفى :	
DATE & CAUSE OF DEATH	تاريخ وسبب الوفاة
Date & Time of death : تاريخ ووقت الوفاة : PM مساء AM صباحاً Year سنة Month : شهر Day : يوم Direct cause of death : السبب المباشر للوفاة : Leading cause of death : الحالة التي أدت إلى السبب المباشر : Actual cause of death : السبب الأصلي : other significant causes : حالات أخرى ساعدت على الوفاة :	
NOTIFIER PARTICULARS	معلومات عن المبلغ
Name of notifier : اسم المبلغ : Nationality : جنسية : Relationship to deceased : النسبة : Address : العنوان : Date التاريخ : Signature : التوقيع : Doctor's Name : اسم الطبيب الذي قام بتحرير البلاغ : Signature : الاسم : Name التوقيع :	

Notice :
This notification form is not a formal certification.
The death certificate is issued by the department of
preventive Medicine after verifying the information in
this form.

تنبيه :
هذا البلاغ لا يعتبر شهادة وفاة رسمية . وتقوم
إدارة الطب الوقائي بإصدار شهادة الوفاة بعد
التأكد من صحة البيانات المدونة في هذا البلاغ .

PM - 6


Health Authority Abu Dhabi
هيئة الصحة أبوظبي

Death Notification / بيان وفاة

Both sides must be completed
PLEASE COMPLETE IN BLOCK CAPITALS

SECTION 1 / القسم 1

To be completed by Hospital/Health Facility Clinical or Nursing Staff / **بإكمال أطباء المستشفى أو الممرضين**

<p>Deceased particulars / معلومات المتوفى</p> <p>First name: <input type="text"/></p> <p>Second name: <input type="text"/></p> <p>Family name: <input type="text"/></p> <p>Mother's name: <input type="text"/></p> <p>Sex (use one box): <input type="checkbox"/> Female <input type="checkbox"/> Male</p> <p>Date of birth: <input type="text"/> DD / <input type="text"/> MM / <input type="text"/> YYYY</p> <p>Hospital # of admission: <input type="text"/></p> <p>Health Insurance # (PIC # if no insurance #): <input type="text"/></p> <p>Passport # (if any): <input type="text"/></p> <p>Nationality: <input type="text"/></p> <p>Usual residence Emirate/Country (if outside UAE): <input type="text"/></p> <p>Occupation (Use one box only): <input type="checkbox"/> Unemployed <input type="checkbox"/> Student <input type="checkbox"/> Retired <input type="checkbox"/> Other (specify): <input type="text"/></p> <p>Employed (specify): <input type="text"/></p> <p>Other (specify): <input type="text"/></p>	<p>Informant particulars / معلومات المبلغ</p> <p>First name: <input type="text"/></p> <p>Second name: <input type="text"/></p> <p>Family name: <input type="text"/></p> <p>Relationship to deceased: <input type="text"/></p> <p>Passport # (if any): <input type="text"/></p> <p>Nationality: <input type="text"/></p> <p>Carded number (if any): <input type="text"/></p> <p>Carded number (mobile): <input type="text"/></p> <p>Date information provided: <input type="text"/> DD / <input type="text"/> MM / <input type="text"/> YYYY</p> <p>Informant signature: I certify that the details given by me here are to the best of my knowledge.</p> <p>Signature: <input type="text"/></p> <p>Date: <input type="text"/> DD / <input type="text"/> MM / <input type="text"/> YYYY</p> <p>Print name: <input type="text"/></p>
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SECTION 2 / القسم 2

To be completed by examining physician / **بإكمال طبيب الطبيب المعائن**

Note: check only those to be completed / *ملاحظة: راجع الأقسام التي يجب إكمالها فقط*

<p>Death details / معلومات الوفاة</p> <p>Time and date: <input type="text"/> HH:MM / <input type="text"/> DD / <input type="text"/> MM / <input type="text"/> YYYY</p> <p>Location: <input type="text"/></p> <p>(Use one box only): <input type="checkbox"/> Hospital <input type="checkbox"/> Home <input type="checkbox"/> Road <input type="checkbox"/> Workplace <input type="checkbox"/> Public place <input type="checkbox"/> Other (specify): <input type="text"/></p> <p>ICD10 code: <input type="text"/></p> <p>Extraneous fatal death: <input type="checkbox"/> No <input type="checkbox"/> Yes</p> <p>Additional information for death form must be completed: <input type="checkbox"/> No <input type="checkbox"/> Yes</p> <p>Referred to forensic doctor: <input type="checkbox"/> No <input type="checkbox"/> Yes</p> <p>Police case: <input type="checkbox"/> No <input type="checkbox"/> Yes</p> <p>This section to be reviewed by: <input type="checkbox"/> No <input type="checkbox"/> Substantially <input type="checkbox"/> Probably <input type="checkbox"/> Unlikely</p> <p>Which related death: <input type="checkbox"/> No <input type="checkbox"/> Substantially <input type="checkbox"/> Probably <input type="checkbox"/> Unlikely</p> <p>ICD10 code: <input type="text"/></p> <p>Likely factors contributing to death:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Tobacco</td> <td><input type="checkbox"/></td> <td>P11.0</td> </tr> <tr> <td>Alcohol</td> <td><input type="checkbox"/></td> <td>F10.0</td> </tr> <tr> <td>Inappropriate/unhealthy diet</td> <td><input type="checkbox"/></td> <td>Z71.0</td> </tr> <tr> <td>Lack of exercise</td> <td><input type="checkbox"/></td> <td>Z72.0</td> </tr> <tr> <td>Obesity</td> <td><input type="checkbox"/></td> <td>E66.0</td> </tr> </table> <p>Other, specify: <input type="text"/></p>	Tobacco	<input type="checkbox"/>	P11.0	Alcohol	<input type="checkbox"/>	F10.0	Inappropriate/unhealthy diet	<input type="checkbox"/>	Z71.0	Lack of exercise	<input type="checkbox"/>	Z72.0	Obesity	<input type="checkbox"/>	E66.0	<p>Examining physician:</p> <p>First name: <input type="text"/></p> <p>Second name: <input type="text"/></p> <p>Family name: <input type="text"/></p> <p>ICD license # (if any): <input type="text"/></p> <p>Death certifiable: <input type="checkbox"/> No <input type="checkbox"/> Yes</p> <p>Time and date: <input type="text"/> HH:MM / <input type="text"/> DD / <input type="text"/> MM / <input type="text"/> YYYY</p> <p>Physician signature & stamp: I certify that I completed the causes of death on both sides of the form to the best of my knowledge.</p> <p>Signature: <input type="text"/></p> <p>Date: <input type="text"/> DD / <input type="text"/> MM / <input type="text"/> YYYY</p> <p>Name of hospital: <input type="text"/></p> <p>Hospital stamp: <input type="text"/></p>
Tobacco	<input type="checkbox"/>	P11.0														
Alcohol	<input type="checkbox"/>	F10.0														
Inappropriate/unhealthy diet	<input type="checkbox"/>	Z71.0														
Lack of exercise	<input type="checkbox"/>	Z72.0														
Obesity	<input type="checkbox"/>	E66.0														

SECTION 3 / القسم 3

To be completed by Death Certification Section/ Preventive Medicine Department / **بإكمال قسم شهادة الوفاة / إدارة الطب الوقائي**

<p>Registration particulars / معلومات التسجيل</p> <p>Health Office or Consulate: <input type="text"/></p> <p>Registration number: <input type="text"/></p> <p>Registration date (month/year): <input type="text"/></p> <p>Death Certification Officer name: <input type="text"/></p> <p>Death Certification Section stamp: <input type="text"/></p>	<p>Physician signature & stamp: I certify that I completed the causes of death on both sides of the form to the best of my knowledge.</p> <p>Signature: <input type="text"/></p> <p>Date: <input type="text"/> DD / <input type="text"/> MM / <input type="text"/> YYYY</p>
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Note: This notification is not a formal Death certificate. Certified copy for medical record to be sent by Death Certification Section, Preventive Medicine Department.

Causes of Death

To be completed by examining physician

Complete the upper left box first, to help identify the main underlying disease or injury that caused the death. Then follow the appropriate arrow to other box(es) to provide details for cardiovascular, cancer, or injury deaths. Finally complete the boxes for the causal sequence by specifying one underlying and one immediate cause, and as many intermediate causes as necessary. Never use "natural causes", "cardiac arrest", "respiratory arrest", or "cardiorespiratory arrest" in any of the boxes; do not use "multiple organ failure" (specify dominant cause, e.g., disseminated intravascular coagulation), or signs and symptoms such as hypotension; **do not use abbreviations.**

Use this table to help define the major disease category or injury that was the underlying cause of death

Try to choose one, but if unsure, list (e.g., diabetes with cardiovascular disease).

Check box(es)

Injury (external cause)

Neoplasm (cancer)

Cardiovascular disease

Diabetes mellitus

Congenital anomalies

Infectious diseases

Other disease, specify

If death resulted from Cardiovascular disease, specify type(s)

Check box(es)

Circulatory system disease

Atherosclerosis

Ischemic heart disease

Myocardial infarction

Cardiovascular disease

Hypertension

Other, specify

If death resulted from Cancer specify primary type

Check box(es)

Trachea/larynx and lung

Breast

Stomach

Colon/rectum

Leukemia/lymphoma

Cervix of uterus

Prostate

Other, specify

If death resulted from injury, specify the date, time, intent, cause, and place of injury

Date and time of injury

Intent of injury

External cause/ type of injury

Place of injury

Details of where, how injury occurred

If injury was a traffic/road-related injury, specify these additional details for the victim:

For vehicle occupant, was victim wearing safety belt or in a child restraint/infant seat?

For bicyclist, motorcyclist: was victim wearing a helmet?

Was a product, device, chemical involved in the death?

Causal sequence of death:

List disease, injury, or complication in the sequence that they caused death, with the first underlying cause in the first column and one intermediate cause in the second column and immediate cause in the final column. Never use "natural causes", "cardiac arrest", "respiratory arrest" or "cardiorespiratory arrest" or "all ages"; do not use "multiple organ failure" (specify dominant cause, e.g., disseminated intravascular coagulation), or signs and symptoms such as hypotension. **do not use abbreviations.**

Underlying cause → **Intermediate cause(s)** → **Immediate cause** → **Other significant conditions**

Describe: Disease or injury incident that initiated conditions leading to death → Diseases, injuries, complications, if any, giving rise to immediate cause → First disease or complication before death → Contributing to the death but not resulting from underlying cause

Example 1: Road traffic crash → Myocardial infarction, thromboembolism → Pulmonary embolism → Vehicle rollover/spinout, injury

Example 2: Colon cancer → Lung cancer, brain metastases → Pneumonia → Vehicle rollover, bypass surgery

Example 3: Alcoholism → Myocardial infarction → Cardiac arrhythmia → Head injury, bypass surgery

Example 4: HIV infection → Acquired immunodeficiency syndrome → Pneumocystis carinii pneumonia → Head injury

Write causes in words

Estimated time interval to death

To be completed by Death Certification Section/Preventive Medicine Department

Write in the most appropriate disease or injury in the boxes, based on information in all the above boxes completed by the physician, including the adjacent notes. Please then refer to the ICD10 Manual on Causes of Death to find the precise code(s) for the cause of death. For the underlying disease or external cause of injury, and for the immediate cause, choose only one; for intermediate, there can be more than one. If the underlying cause of death is an injury, use only the codes from the range V01-Y98 in the respective box. For example, for "car occupant (driver) injured in collision with car, pick-up truck or van", the ICD10 code is V43.2. For the type of injury as intermediate cause, say a skull fracture; you should use the nature of injury codes S80 to T98. Never use terms such as "natural causes", "cardiac arrest", "respiratory arrest", or "cardiorespiratory arrest" in any of the boxes; do not use "multiple organ failure" (specify dominant cause, e.g., disseminated intravascular coagulation), or signs and symptoms such as hypotension. **do not use abbreviations.**

Underlying disease or external cause of injury

Intermediate cause(s)

Immediate cause

Other significant conditions

Write causes in words

ICD10 code(s)

APPENDIX B

Tables of Chi-square analysis of rate of death for citizen and non-citizen males ages 20-65 by manner in each of the six UAE medical Districts during each season for the years 2006-2008

Table A35: Rate of Death for Citizen and Non-citizen Males ages 20-65 by Manner in Ajman Medical District during the Spring Season

			Citizen Status		Total
			citizen	Noncitizen	
Manner	Natural	Observed Count	24	35	59
		Expected Count	20.5	38.5	59.0
		Adjusted Residual	1.3	-1.3	
	Non-natural	Observed Count	18	44	62
		Expected Count	21.5	40.5	62.0
		Adjusted Residual	-1.3	1.3	
Total		Total Count	42	79	121

a. Chi-square=1.809, df=1, sig=.179n.s

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table B35: Rate of Death for Citizen and Non-citizen Males ages 20-65 by Manner in Ajman Medical District during the Summer Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	30	37	67
		Expected Count	21.5	45.5	67.0
		Adjusted Residual	3.2	-3.2	
	Non-natural	Observed Count	12	52	64
		Expected Count	20.5	43.5	64.0
		Adjusted Residual	-3.2	3.2	
Total		Total Count	42	89	131

a. Chi-square=10.179, df=1, sig=.001*

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table C35: Rate of Death for Citizen and Non-citizen Males ages 20-65 by Manner in Ajman Medical District during the Fall Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	24	35	59
		Expected Count	16.5	42.5	59.0
		Adjusted Residual	3.0	-3.0	
	Non-natural	Observed Count	12	58	70
		Expected Count	19.5	50.5	70.0
		Adjusted Residual	-3.0	3.0	
Total		Total Count	36	93	129

a. Chi-square=8.814, df=1, sig=.003*

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table A36. Rate of Death for Citizen and Non-citizen Males Ages 20-65 by Manner in Dubai during the Spring Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	76	25	101
		Expected Observed Count	71.0	30.0	101.0
		Adjusted Residual	**3.6	** -3.6	
		Non-natural	Observed Count	2	8
	Expected Observed Count	7.0	3.0	10.0	
	Adjusted Residual	** -3.6	**3.6		
	Total Count			78	33

a. Chi-square=13.294, df=1, sig=.000*

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table B36. Rate of Death for Citizen and Non-Citizen Males Ages 20-65 by Manner in Dubai Medical District during the Summer Season

			Nationality		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	64	21	85
		Expected Observed Count	61.1	23.9	85.0
		Adjusted Residual	1.7	-1.7	
	Non-natural	Observed Count	10	8	18
		Expected Observed Count	12.9	5.1	18.0
		Adjusted Residual	-1.7	1.7	
Total Count			74	29	103

a. Chi-square=2.861, df=1, sig=.091n.s.

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table C36. Rate of Death for Citizen and Non-citizen Males Ages 20-65 by Manner in Dubai Medical District during the Fall Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	41	15	56
		Expected Observed Count	37.9	18.1	56.0
		Adjusted Residual	**2.4	** -2.4	
	Non-natural	Observed Count	3	6	9
		Expected Observed Count	6.1	2.9	9.0
		Adjusted Residual	** -2.4	**2.4	
Total Count			44	21	65

a. Chi-square=5.639, df=1, sig=.018*

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table D36. Rate of Death for Citizen and Non-citizen Males Ages 20-65 by Manner in Dubai Medical District during the Winter Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	49	27	76
		Expected Observed Count	47.6	28.4	76.0
		Adjusted Residual	.8	-.8	
	Non-natural	Observed Count	8	7	15
		Expected Observed Count	9.4	5.6	15.0
		Adjusted Residual	-.8	.8	
Total Count			57	34	91

a. Chi-square=.664, df=1, sig=.415n.s.

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table A37 Rate of Death for Citizen and Non-citizen Males Ages 20-65 by Manner in Fujairah Medical District during the Spring Season

			Citizen Status		Total
			citizen	Non-citizen	
Manner	Natural	Observed Count	43	14	57
		Expected Observed Count	27.6	29.4	57.0
		Adjusted Residual	**5.4	**-.5.4	
	Non-Natural	Observed Count	21	54	75
		Expected Observed Count	36.4	38.6	75.0
		Adjusted Residual	**-.5.4	**5.4	
Total Count			64	68	132

a. Chi-square=29.180, df=1, sig=.000*

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table B37 Rate of Death for Citizen and Non-citizen Males ages 20-65 by Manner in Fujairah Medical District during the Summer Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	34	16	50
		Expected Observed Count	27.5	22.5	50.0
		Adjusted Residual	**2.5	**_2.5	
	Non -natural	Observed Count	26	33	59
		Expected Observed Count	32.5	26.5	59.0
		Adjusted Residual	**_2.5	**2.5	
Total Count			60	49	109

a. Chi-square=6.264, df=1, sig=.012*

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table C37 Rate of Death for Citizen and Non-citizen Males Ages 20-65 by Manner in Fujairah Medical District during the Fall Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	43	29	72
		Expected Observed Count	26.6	45.4	72.0
		Adjusted Residual	**5.7	**_5.7	
	Non-natural	Observed Count	9	60	69
		Expected Observed Count	25.4	43.6	69.0
		Adjusted Residual	**_5.7	**5.7	
Total Count			52	89	141

a. Chi-square=32.980, df=1, sig=.000*

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table D37 Rate of Death for Citizen and Non-citizen Males ages 20-65 by Manner in Fujairah Medical District during the Winter Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	64	35	99
		Expected Observed Count	56.4	42.6	99.0
		Adjusted Residual	**2.4	** -2.4	
	Non-natural	Observed Count	34	39	73
		Expected Observed Count	41.6	31.4	73.0
		Adjusted Residual	** -2.4	**2.4	
Total Count			98	74	172

a. Chi-square=5.598, df=1, sig=.018*

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table A38 Rate of Death for Citizen and Non-citizen Males Ages 20-65 by Manner in Ra's al-Khaimah Medical District during the Spring Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	60	59	119
		Expected Observed Count	51.7	67.3	119.0
		Adjusted Residual	**2.7	** -2.7	
	Non-natural	Observed Count	16	40	56
		Expected Observed Count	24.3	31.7	56.0
		Adjusted Residual	** -2.7	**2.7	
Total Count			76	99	175

a. Chi-square=7.399, df=1, sig=.007*

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table B38. Rate of Death for Citizen and Non-citizen Males Ages 20-65 by Manner in Ra's al-Khaimah Medical District during the Summer Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	68	62	130
		Expected Observed Count	61.5	68.5	130.0
		Adjusted Residual	1.9	-1.9	
	Non-natural	Observed Count	30	47	77
		Expected Observed Count	36.5	40.5	77.0
		Adjusted Residual	-1.9	1.9	
Total Count			98	109	207

a. Chi-square=3.455, df=1, sig=.063n.s.

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table C38. Rate of Death for Citizen and Non-citizen Males Ages 20-65 by Manner in Ra's al-Khaimah Medical District during the Fall Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	71	65	136
		Expected Observed Count	53.0	83.0	136.0
		Adjusted Residual	**5.9	** -5.9	
	Non-natural	Observed Count	3	51	54
		Expected Observed Count	21.0	33.0	54.0
		Adjusted Residual	** -5.9	**5.9	
Total Count			74	116	190

a. Chi-square=35.378, df=1, sig=.000*

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table D38 Rate of Death for Citizen and Non-Citizen Males Ages 20-65 by Manner in Ra's al-Khaimah Medical District during the Winter Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	87	59	146
		Expected Observed Count	72.1	73.9	146.0
		Adjusted Residual	**3.9	**3.9	
	Non-natural	Observed Count	33	64	97
		Expected Observed Count	47.9	49.1	97.0
		Adjusted Residual	**3.9	**3.9	
Total Count			120	123	243

a. Chi-square=15.242, df=1, sig=.000*

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table A39 Rate of Death for Citizen and Non-citizen Males Ages 20-65 by Manner Death in Sharjah Medical District during the Spring Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	53	41	94
		Expected Observed Count	41.5	52.5	94.0
		Adjusted Residual	**3.4	**3.4	
	Non-natural	Observed Count	30	64	94
		Expected Observed Count	41.5	52.5	94.0
		Adjusted Residual	**3.4	**3.4	
Total Count			83	105	188

a. Chi-square=11.412, df=1, sig=.001*

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table B39 Rate of Death for Citizen and Non-citizen Males Ages 20-6 by Manner of Death in Sharjah Medical District during the Summer Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	42	39	81
		Expected Observed Count	33.7	47.3	81.0
		Adjusted Residual	**2.6	**2.6	
	Non-natural	Observed Count	30	62	92
		Expected Observed Count	38.3	53.7	92.0
		Adjusted Residual	**2.6	**2.6	
Total Count			72	101	173

a. Chi-square=6.565, df=1, sig=.010*

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table C39 Rate of Death for Citizen and Non-citizen Males Ages 20-65 by Manner in Sharjah Medical District during the Fall Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	40	39	79
		Expected Observed Count	31.1	47.9	79.0
		Adjusted Residual	**2.9	**2.9	
	Non-natural	Observed Count	23	58	81
		Expected Observed Count	31.9	49.1	81.0
		Adjusted Residual	**2.9	**2.9	
Total Count			63	97	160

a. Chi-square=8.285, df=1, sig=.004*

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table D39 Rate of Death for Citizen and Non-citizen Males Ages 20-65 by Manner in Sharjah Medical District during the Winter Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	62	47	109
		Expected Observed Count	49.3	59.7	109.0
		Adjusted Residual	**3.8	** -3.8	
	Non-natural	Observed Count	23	56	79
		Expected Observed Count	35.7	43.3	79.0
		Adjusted Residual	** -3.8	**3.8	
Total Count			85	103	188

a. Chi-square=14.256, df=1, sig=.000*

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table A40. Rate of Death for Citizen and Non-citizen Males Ages 20-65 by and by Manner in Umm al-Qaiwain Medical District during the Spring Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	106	76	182
		Expected Observed Count	113.8	68.2	182.0
		Adjusted Residual	-2.0	2.0	
	Non-natural	Observed Count	76	33	109
		Expected Observed Count	68.2	40.8	109.0
		Adjusted Residual	2.0	-2.0	
Total Count			182	109	291

a. Chi-square=3.837, df=1, sig=.050n.s.

b. ** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table B40 Rate of Death for Citizen and Non-citizen Males Ages 20-65 by Citizen Status and by Manner in Umm al-Qaiwain Medical District during the Summer Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	91	76	167
		Expected Observed Count	79.6	87.4	167.0
		Adjusted Residual	**3.0	**3.0	
	Non-natural	Observed Count	30	57	87
		Expected Observed Count	41.4	45.6	87.0
		Adjusted Residual	**3.0	**3.0	
Total Count			121	133	254

a. Chi-square=9.180, df=1, sig=.002*

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table C40 Rate of Death for Citizen and Non-citizen Males Ages 20-65 by Manner in Umm al-Qaiwain Medical District during the Fall Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	91	48	139
		Expected Observed Count	67.8	71.2	139.0
		Adjusted Residual	**5.6	**5.6	
	Non-natural	Observed Count	45	95	140
		Expected Observed Count	68.2	71.8	140.0
		Adjusted Residual	**5.6	**5.6	
Total Count			136	143	279

a. Chi-square=31.003, df=1, sig=.000*

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

Table D40 Death for Citizen and Non-citizen Males Ages 20-65 by Manner in Umm al-Qaiwain Medical District during the Winter Season

			Citizen Status		Total
			Citizen	Non-citizen	
Manner	Natural	Observed Count	91	67	158
		Expected Observed Count	95.5	62.5	158.0
		Adjusted Residual	-1.1	1.1	
	Non-natural	Observed Count	91	52	143
		Expected Observed Count	86.5	56.5	143.0
		Adjusted Residual	1.1	-1.1	
Total Count			182	119	301

a. Chi-square=1.146, df=1, sig=.284n.s.

b.** An adjusted residual of less than -2 or more than +2 was considered to be significant. Those found between -2 and +2 were not significant.

VITA

Amina Ahmed Hashim was born in Sharjah, United Arab Emirates (UAE). She attended Public schools in Kuwait. After graduating from Al Fhaheel Secondary School for Girls, Amina attended the Institute of Education for Teachers in Kuwait from 1974-1976 and received her Higher Diploma in Teaching. She taught science in Fatima Bent Al Khtab Elementary School in Kuwait, from 1976-1977, and at Eshbellia Elementary School in Sharjah, UAE from 1977-1980. In 1980, Amina went to the United States of America to pursue her Bachelor of Science in Health Education at the East Tennessee State University. After her graduation in 1985, Amina went back to UAE and taught science at Sharjah Preparatory School for two years. In 1988 she resigned from the Ministry of Education and joined the Ministry of Health in the UAE. There Amina worked as a professional health educator and a Director of Health Education in Sharjah Medical District from 1988-2002. In 2002 she went back to the USA and earned her Master's in Public Health from East Tennessee State University in 2004. After graduation, she returned to the UAE to continue her work as a Director of Health Education in Sharjah Medical District. Amina went back to the United States of America in 2006 and began the doctoral program in Health and Human Sciences at the University of Tennessee, Knoxville. Amina Ahmed Hashim received her Doctorate in Health and Human Sciences with a concentration in Community Health Education in August 2010.