

MOUNTAIN BIKE INJURIES: A TEN YEAR
RETROSPECTIVE EVALUATION
1998 TO 2007

By

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CHAPTER I

INTRODUCTION

Cycling became a popular sport shortly after the creation of the bicycle. Early bicycles were built in Europe during the early 1800s.^{1,2} Although early bicycles did not have pedals or steering, these developments were implemented by the middle of the century.¹ Bicycles began to gain popularity around the 1860s, and riders began to challenge each other to quests of speed.¹⁻³ Cycling clubs formed, thereby increasing the popularity of cycling and racing.³ Bicycle designs morphed as racers sought greater speeds. The large, front wheeled Ordinary bicycle allowed riders to travel farther and faster than its predecessor, the Boneshaker, as bikes of that era had no gearing; a larger wheel translated into more distance per revolution of the pedals.¹ Eventually, bicycle designs began to favor the safety of the rider; developers added gearing, and bicycles began to look like modern cycles around the turn of the century.³ Bicycling was the favored sport during the dawn of the 20th century.⁴

As automobiles began to gain popularity in the early 20th century, the “heyday” of the bicycle came to a close.³ The bicycle lost favor as other sports became more prominent, especially in the United States.⁴ Bike sales declined and manufacturers lost interest in improving designs.³ The bikes of the 1950s were essentially the same as those of 1900.⁴ Bikes gained favor again when gas prices increased in the 1970s and emphasis

on improved designs returned.³ Bicycle designers and manufacturers improved upon the previous bicycle design until they made a lightweight, two-derailleur, caliper braked machine.³ A resurgence in bicycling occurred in the mid 1900s and paved the way for new uses of the bicycle, such as mountain biking.

According to USA Cycling, the sport of mountain biking began in the mid-1970s when cyclists, looking for a greater challenge than the road, placed fat tires (2 inches wide compared to 23 mm wide on the typical road bike) on their bikes and tackled the terrain of Marin County, California.⁵ Participation gradually increased as these early riders began to build bikes that could withstand the abuses of off-road riding.⁴ Races were established and popularity grew.⁵⁻⁸ The National Off-Road Bicycling Association and the International Mountain Bike Association were created in the 1980s to encourage racing and support the sport.^{9, 10} Today, approximately 39 million Americans participate in the sport of mountain biking¹¹ and mountain bikes represent the greatest proportion of bicycles sold in the United States of America.¹²

With increased popularity and ridership, injuries began to occur. Several researchers have examined mountain bike related injuries. Researchers studying mountain biking injuries frequently defined an injury as any bodily harm severe enough to prevent completion of a ride.¹³⁻¹⁷ Many researchers have focused their efforts on studying competitive riders, especially in the United States.¹⁶⁻¹⁸ Most of the body of knowledge about mountain bike injuries ignored the casual rider because of this.

Mountain bike injuries occur most commonly when a rider is riding downhill.^{13, 15, 17, 19} Riders sustained injuries from falling forward over the handlebars, falling to the side, or colliding with other riders or objects on the trail, such as trees.^{13, 14} The most

severe injuries tended to occur when a rider fell forward over the handlebars while riding downhill.¹⁷ Riders injured the upper extremity more frequently than other body segments.²⁰ Lower extremity injuries followed the upper extremity in frequency, and in most cases, riders sustained injury to the lower extremity more than the head, neck, or trunk.¹⁴ Superficial wounds, such as bruises, lacerations, and abrasions were much more common than fractures or joint injuries.²¹ Serious injuries have been known to occur in mountain biking. Life threatening injuries including femur fractures, pneumothorax, ruptured diaphragm, brain and spinal injuries do occur.^{20, 22, 23}

Mountain bike related injuries are common due to the popularity of the sport. This sport draws thrill seekers after an adrenaline rush on a steep downhill run or on a tight, twisty trail through trees (note the sport's beginnings). Injuries have become an integral part of this sport because of its tendency to draw those seeking an adrenaline rush. Little research has evaluated injury patterns among all types of mountain bikers, whether competitive or not, and regardless of the type of riding performed.

Purpose of the Study

This study will examine trends in mountain biking injuries from 1998 to 2007, providing a current picture of mountain bike injuries among all types of riders in the United States, particularly in terms of injury severity. By covering ten years, this study will determine trends in mountain biking injuries. The primary trends to be examined include injury frequency, injury severity, body segment injured, type of injury, sex of the injured person, and age of the injured person. The trends discovered will help provide a foundation for evaluation of safety practices and the development of training programs.

Significance of the Study

While personal experience and anecdotal evidence indicate that injuries are a fact of mountain biking, little research has examined the nature of mountain bike injuries in the United States among non-competitive riders. The majority of research conducted in the U.S. has been among elite, competitive riders;^{13, 15, 16, 18, 21, 24, 25} nonetheless, a greater proportion of injuries have been shown to occur during training rather than during competition.²⁰ Some researchers have looked beyond competitive biking in the United States by collecting injury data from regional emergency departments.²³ Rivara and colleagues published their research in 1997 and may not provide an accurate picture of mountain biking injuries today as participation trends and equipment have changed over time. The current study examines injuries that occurring in all types of mountain bikers across the nation regardless of skill level by focusing on a national database. This national emphasis gives the current study greater scope than other studies in the United States and will improve its potential generalizability. Better generalizability is desired so that mountain bikers can better understand their injury risk and work to prevent future injuries.

Additionally, existing research fails to examine injuries over an extended period of time. This study will examine trends over a ten year time period. This extended period of time should provide valuable information about injury trends that could allow bicycle manufacturers to improve designs. Another benefit that could come from studying mountain biking injuries centers upon rider preparedness. Injury patterns could reveal a need for specific training protocols that reduce the risk of biking injuries. Rider preparedness also includes helping riders understand their own skill level and their

capabilities. Educating them about riding within their abilities could also reduce the risk of injuries.

Other gaps in current research include sex differences in injury patterns. Most research has been conducted among males because they are the majority of mountain biking participants.^{13, 20, 26} One study specifically evaluated sex differences by compiling data at national mountain bike races.²⁴ Examining injury patterns by sex will provide valuable information about differences in injury patterns between sexes. This information could lead to better design of female specific equipment or might find that females' riding styles differ from males. This could help reduce the risk of injury among female riders. Lastly, research exists that establishes trends, other than frequency of injury, between injuries and age of the rider. The current study will evaluate those trends to determine whether or not patterns relate to the age of the rider. Age related data might be useful in reducing the risk of injury and injury severity among varying ages of riders.

Study Hypotheses

The research hypotheses are as follows:

General Hypotheses

1. There is no difference in injury frequency from 1998 to 2007.
2. There is no difference in injury severity from 1998 to 2007.
3. There is no difference in the distribution of injuries across body segments from 1998 to 2007.
4. There is no difference in the distribution of injury type from 1998 to 2007.
5. There is no difference in injury severity for body segment injured.
6. There is no difference in injury severity based on injury type.

Sex Related Hypotheses

7. There are no sex differences in injury frequency from 1998 to 2007.
8. There are no sex differences in age of injured persons from 1998 to 2007.
9. There are no sex differences in injury severity from 1998 to 2007.
10. There are no sex differences in body segment injured from 1998 to 2007.
11. There are no sex differences in injury type from 1998 to 2007.
12. There are no sex differences in injury frequency by year from 1998 to 2007.
13. There are no sex differences in injury severity by year from 1998 to 2007.
14. There are no sex differences in distribution of body part injured by year from 1998 to 2007.
15. There are no sex differences in injury type by year from 1998 to 2007.

Age Related Hypotheses

16. There are no age differences in frequency of injuries from 1998 to 2007.
17. There are no age differences in injury severity from 1998 to 2007.
18. There are no age differences in body part injured from 1998 to 2007.
19. There are no age differences in injury type from 1998 to 2007.
20. There are no age differences in injury frequency by year from 1998 to 2007.
21. There are no age differences in injury severity by year from 1998 to 2007.
22. There are no age differences in body part injured by year from 1998 to 2007.
23. There are no age differences in injury type by year from 1998 to 2007.

Assumptions

1. It was assumed that all data in the National Electronic Injury Surveillance System (NEISS) database were accurate.

2. It was assumed that the data in the NEISS database provided a representative sample of mountain bike riders throughout the entire United States.
3. It was assumed that the primary researcher accurately applied Abbreviated Injury Scale (AIS) scores to the data during analysis.²⁷

Limitations

1. Results are limited by the possibility of human error. Input of injuries into the NEISS database is dependent on human judgment. Some mountain bike related injuries may not have been coded correctly.

Delimitations

1. The injury definition used in this study excludes many minor injuries for which a person would not seek emergency medical treatment, such as abrasions, contusions, and minor lacerations.
2. Chronic injuries are excluded.
3. Cases from the NEISS database are included in this study provided that the injury occurred while mountain biking.
4. Strict definitions of mountain biking allow for trail only injuries; however, some injuries might occur on roads or pavement while performing freeride types of mountain biking and were included. Injuries that occurred as a result of a collision with a motor vehicle were excluded.

Operational Definitions

Abdomen is the area of the trunk between the ribs or diaphragm and the pelvic bones. It includes the major organs of the body, excluding the heart and lungs.²⁸

Abrasion is a disturbance to the skin surface caused by a scrape against a rough or uneven surface.²⁹

Concussion is a brain injury generally caused by a blow to the head resulting in immediate impairment, including loss of consciousness, post-traumatic amnesia, dizziness, blurred vision, and other symptoms of neural impairment.²⁹

Dislocation is the disruption of a joint structure such that manual or surgical replacement of the bones is necessary.²⁹ Subluxations are similar to dislocations except the joint returns to its correct alignment without manual or surgical techniques. Subluxations were included as dislocation type injuries.

External and Other includes all skin injuries and injuries related to temperature, such as frostbite or burns.²⁷

Face is the frontal portion of the head including the eyes, ears, nose, and lips.²⁷

Fracture is a broken bone.²⁹

Head refers to the cranium, scalp, and brain but excludes the face.²⁷

Head, face, and neck is the combination of the cranium and brain, the frontal portion of the head, and the cervical spinal area.

Injury is defined as bodily harm that was severe enough for the individual to seek medical treatment at an emergency facility.

Injury severity is based on the Abbreviated Injury Severity (AIS) score.

Laceration is a skin injury characterized by jagged or uneven edges and caused by contact with a sharp, or pointed object that tears the skin.²⁹

Lower extremity is the portion of the body comprised of the toes, foot, ankle, lower leg, knee, upper leg, and hip region.²⁹ By the AIS definition, the lower extremity includes the pelvis and buttocks.²⁷

Mountain bike is a bike capable of being ridden off-road or for stunt activities. These bikes are generally characterized by 26 inch wheels, fat tires, and mostly straight handlebars. This excludes road bikes and BMX bikes.

Mountain biking is considered to be riding a mountain bike on an unpaved surface or performing trials style stunts on paved surfaces. Generally, the unpaved surface consists of a trail through varying terrain.

NEISS is the National Electronic Injury Surveillance System. The database is considered to be a representative sample of all types of injuries occurring in the United States.

Neck is the cervical spinal area and includes all structures between the sternoclavicular joint and the cranium.²⁷

Soft tissue injuries are those that occur to skin, subcutaneous tissue, and muscle. This category of injuries includes sprains, strains, abrasions, contusions, and lacerations.

Spine is the spinal column including the spinal cord.²⁷

Sprain is an injury to a ligament, which connects bone to bone.²⁹

Strain is an injury to a muscle or a tendon. This may include overstretching, ripping, or tearing type injuries.²⁹

Thorax is the area of the upper trunk between the neck and the diaphragm and includes the rib cage, heart, and lungs.²⁸

Upper extremity is the portion of the body comprised of the fingers, hand, wrist, forearm, elbow, upper arm, shoulder, and shoulder girdle including the clavicle.²⁹

CHAPTER II

REVIEW OF RELATED LITERATURE

A Brief History of the Bicycle

The earliest versions of bicycles were possibly developed by the Egyptians, as evidenced by hieroglyphics found in some tombs of two-wheeled, bicycle-like devices.²³ Bicycles next appeared in history during the Roman era when pictures depict Roman soldiers astride a two wheeled bike-like device;² Leonardo DaVinci designed a bicycle prototype in 1490.³ A French mathematician became the first to actually build a working model of a bicycle in the 1690s.³⁰ This earliest known design resembled modern bicycles in design.² However, it was ignored by riders and builders.²

After these early forays into bicycle building, a two-wheeled self-propelled device was developed in Paris in 1791 by Comte de Sivrac. This model resembled a hobbyhorse with a rider sitting on a wooden bar which connected the wheels. The rider propelled him or herself by “striding” or pushing with his or her feet.¹ This velocipede, as it was called, had no steering and a fixed front wheel which the rider steered by leaning.^{1,2} A German baron, Karl von Drais, added steering in 1817 to make his own velocipede easier to ride.² Velocipedes were entirely constructed of wood, making them extremely heavy and difficult to push.¹ In an effort to make the velocipede lighter, Denis Johnson, a London blacksmith, built a bicycle frame from iron rods in 1819.²

Early mechanized propulsion methods date back to 1819; however, these mechanisms were too large and cumbersome to be efficient and, therefore, did not gain

popularity.¹ The search for effective mechanized propulsion methods took the next step during the 1830s and 1840s when three different Scotsmen built and rode velocipedes with pedal attachments called “Boneshakers.”¹ A Boneshaker could be ridden faster than the King’s Mail Coach over a distance of about 10 miles, which could never have been accomplished on a velocipede.¹ Pedal attachments to the front wheel of the hobbyhorse style bike did not become widely used until the 1860s when a bicycle with pedals was built in Paris where they became fashionable.¹ The only other alteration to bicycle design during this time occurred when innovators developed a rear-wheel brake system.¹ Boneshakers were significant improvements over the velocipedes as they were faster and more efficient machines.

An era of experimentation and innovation followed the popularity of the early Boneshakers.^{1,3} The Boneshakers of the 1860s were very heavy, weighing as much as 100 lbs, making them difficult to propel.^{1,3} Riders sought ways to lighten the bicycles and make them easier to ride.¹ This time of innovation also inspired the development of monocytes, where the rider sat inside a large wheel, as well as dicycles, which had two parallel wheels.¹ Some Boneshaker modifications were designed around comfort and safety, such as spring seats and more effective braking systems; however, the major design improvements centered around changes to the wheels.¹ In the late 1860s and early 1870s, experimenters developed wheels with spokes and created tensioning mechanisms for those spokes.¹ Wooden rims were used initially, but builders quickly traded wood for steel rims when the wood would not maintain its shape.¹ The use of steel rims allowed the creation of spokes that tightened individually by use of nipple adjustments, and these wheels became standard shortly after the transition from wood to steel. Such innovation

in wheels and spokes set the stage for lighter bikes, and as bikes got lighter, riders began to challenge each other to races.¹⁻³ Cycling clubs held the first races as early as 1869.¹⁻³

The quest for speed generated new developments in bicycle design.³ Most of the Boneshakers had wheels of equal sizes, typically 30 inches in diameter.¹ Bicycle racers and builders knew that a larger front wheel could travel farther with every pedal stroke.³ With this in mind, builders began to make Boneshakers with front wheels of up to 48 inches in diameter.¹ The end product of this innovation was called an “Ordinary” which consisted of a pedal driven, large front wheel and a very small rear wheel.³ The front wheels of the new Ordinaries were often 60 inches in diameter; in the case when the rider was particularly tall, the wheel could be even larger.¹ The design of the Ordinary, along with improvements in metallurgy, allowed it to weigh significantly less than the old Boneshakers with weights ranging from 35 to 50 lbs.¹ In fact, some of the racing models were as light as 25 lbs,³ with one weighing in at a mere 22 lbs.¹ These light weight, large wheeled machines were ideal for racing.

While the Ordinaries were popular among racers and relative risk takers, they were not considered safe for the general population.¹ The rider sat high off the ground directly over the pedals making the center of gravity of the bicycle settle toward the front of the machine and increasing the risk of a forward fall off the bicycle.^{1,3} Racers often removed the brakes to make their ride lighter since a lighter machine could more easily be propelled; ironically, the use of a brake on an Ordinary could be as dangerous as not having one.^{1,3} A rider faced with the need to stop quickly would pull the brake only to find his or her center of gravity shift forward, resulting in a forward fall over the high handlebars.^{3,31} Experienced riders wrote books or guides to riding bicycles because

Ordinaries were so challenging to mount, ride, and dismount safely.¹ One such guide advised riders who needed to stop to find a tall hedge, pick out a soft spot, and fall off into the hedge to avoid injury.¹ In spite of the danger, popularity of the Ordinaries grew to the point that many cycling clubs formed during this era.^{1,3} The clubs often sponsored races and helped to build special tracks for such contests.^{1,3} Races and clubs led to what has been considered a “heyday” in cycling, which began during the 1880s.³

The popularity of the Ordinaries continued, but the average person preferred to not risk life and limb by climbing aloft the big-wheeled bicycles.^{1,3,31} Bike manufacturers began keeping the safety of the rider in mind, altering the design of the Ordinary.³ Some of these early designs, referred to as “Safeties,” simply switched the front and rear wheel of the Ordinary while others adjusted the seat more rear-ward.¹ Some Safety models angled the front fork backward, while other builders completely rethought the design of a bicycle.¹ These unique design innovations included the unicycle and monocyte, and improved tricycle designs.¹ Unicycles were made of a single wheel and a seat above it³ while monocytes consisted of one large wheel with a seat and pedals inside.¹ These models found little popularity other than in the circus.³ Tricycles existed for some time prior to this and were favored primarily by women; however, their popularity increased in the late 1880s due to lighter weight designs and increased safety of riders.³

Safety bicycle design continued to progress as advancements in metallurgy allowed gearing and sprockets to be manufactured,³¹ which in turn allowed a small wheeled bike to be geared to travel the same distance as an Ordinary with each turn of the pedals.¹ From this point forward, bikes more closely resembled the bikes of today with

wheels of similar sizes and gearing.¹ Still called Safeties, these new bikes proved easier to ride and dismount safely, especially since rear-wheel braking systems were more effective than those on the Ordinary.¹ Many riders still preferred Ordinary bicycles to Safeties because of their speed and the softer rider provided by the big wheel.⁴

Two enhancements in bicycle design finally increased the popularity of the Safety over the Ordinary.³¹ The first occurred when a Scottish veterinarian by the name of Dunlop added pneumatic tires to the Safety in the mid to late 1880s.^{1,3} These tires were originally glued onto the wheel and eventually changed to a tube inside a tire that fit snugly on the rim.¹ Pneumatic tires were first developed in 1885, but high cost prevented them from wide use on bicycles until the mid-1890s when cost decreased.¹ In 1889 W. Hume defeated a racing field of Ordinaries on a pneumatic tired Safety, and in doing so, he signaled the beginning of the end for the Ordinary as the desire for speed drew racers to the Safety.³ The second development came with the design of coaster brakes.³ This new braking system included a freewheel which allowed the rear wheel to spin without the constant need to pedal.³ In other words, a rider could now coast in a relaxed state, yet he or she still had the ability to stop quickly since coaster brakes proved the most effective braking system designed for a bicycle to date.³ Pneumatic tires and coaster brakes meant the Safety was the bike of the future while the Ordinary lost societal favor.³¹ Women's willingness to ride the Safety also fueled its popularity.¹ Until the development of the Safety, society considered bicycles to be a machine for males and relegated females to tricycles.³ The frame design of the Safety allowed it to be built with a dropped down top tube which enabled a female to ride while wearing a skirt or dress.¹

Riding Safety bicycles became fashionable during the 1890s in both Europe and America with membership in cycling clubs soaring.¹

By 1905 the craze over cycling dissipated as automobiles and motorcycles became more prominent.³ Bike manufacturers went out of business, races no longer drew large crowds, and membership in cycling clubs dwindled.¹ With a lack of interest in bicycles, designs stagnated until the 1970s.³ A bicycle purchased in 1950 differed little from a bicycle purchased in 1900,³ but as bike sales increased in the 1970s, designers and builders worked to improve bicycle design.^{1,3} Manufacturers trimmed weight through improvements in metallurgy, created a two derailleur shifting system, and traded coaster brakes for caliper braking systems.³ These changes led to the familiar bicycle of today with many different varieties, such as road bikes, track bikes, cyclocross bikes, triathlon bikes, touring bikes, commuting bikes, BMX bikes, and various styles of mountain bikes.

History of Mountain Biking

Beginnings of the Sport

The exact beginning of the sport of mountain biking proves difficult to pinpoint. According to the Mountain Bike Hall of Fame, mountain biking may have begun as early as 1896 when a group of soldiers rode 800 miles to determine whether or not bikes would be a valuable asset during a time of war. These soldiers may have earned the designation of the first true mountain bikers.⁷

Mountain biking began as a sport during the 1970s in California, according to USA Cycling.⁵ However, USA Cycling does not credit John Finley Scott, who built an early version of a mountain bike in 1953 and whom the Mountain Bike Hall of Fame considers the first “mountain bike enthusiast”.⁷ Both sources agree that modern mountain

biking began in the Marin County area of California.^{5,7} Adrenaline seekers, including Gary Fisher, Joe Breeze, and Charlie Kelly, took bicycles out on area trails and began competing to determine the best and fastest riders.⁵ The riders modified early model Schwinn bikes, trading the skinny tires (23 mm wide) for fat tires (2 inches wide), adding motorcycle brakes as well as derailleurs and shifting systems, because they realized that traditional road bicycles would not handle the abuse of off-road riding.^{7,32}

In 1977, Charlie Kelly grew weary of paying for replacement World War II era bicycle frames and asked Joe Breeze to build him a custom bike for off-road use.⁹ Breeze completed this first off-road racing bike in 1978, called a Breezer bike, after building a test frame for himself.⁹ The two bikes performed well in the 1978 Repack as Breeze won his first race on his new bike.³³ Shortly after seeing the opportunity for improved riding performance by custom building a mountain bike, Kelly and Gary Fisher joined forces with fellow mountain biker and bike frame builder, Tom Ritchey.⁹ The threesome formed Kelly-Fisher MountainBikes to manufacture mountain bicycles in 1979, becoming the first company solely to sell mountain bikes.⁹ Bicycle manufacturers mass produced models designed for trails soon thereafter.^{34,35}

As the sport became more coordinated, organizations were formed and competitions began to be held with the first races taking place in 1976.^{9,36} Recognition of the sport increased as World Championships were held as early as 1990, and in 1996 mountain biking became an Olympic event.³² Kelly and Fisher helped to establish the National Off-Road Bicycling Association (NORBA) in 1983 with the dual purposes of promoting the sport and organizing races.^{9,37} In 1988, other California area riders formed the International Mountain Bike Association (IMBA) with the intent to promote trail

advocacy, trail building, and rider safety.³⁸ Both organizations remain critical to the sport of mountain biking today; NORBA has become the mountain bike arm of USA Cycling and functions as the premier racing organization of the United States,⁵ while IMBA provides advocacy and trail building expertise for the sport.¹⁰ Internationally, the Union Cycliste Internationale promotes the sport.³⁹

Types of Mountain Biking

Mountain biking consists of several types of riding. Each often requires specialized equipment and skills, but all are performed on a sturdily built bike frame with straight handlebars and fat tires, usually 26 or 29 inches in diameter. The various modes of mountain biking include cross country, downhill, dual slalom, mountain cross, observed trials, and freeride.

Cross Country Mountain Biking

Cross country mountain biking consists of riding a bike on a trail, often single track, that is narrow enough to allow only one bike to traverse at a time. Trails typically have multiple types of terrain with few, if any, built structures; thus, the main objective of cross country biking is to negotiate the natural terrain found along a trail. This often means riding over logs, up and down rocky sections, through sand, and in and out of trees. Cross country riding differs from other types of bicycling as riders must carry any necessary equipment for trail repairs with them. Cross country riders often fix flat tires and perform other minor maintenance during rides and races. Trail lengths vary significantly depending on terrain, available space, and capability of the responsible organization to maintain the trails; however, during Olympic races the trail distances are typically 40 to 50 km for males and 30 to 40 km for females.⁴⁰

Most riders wear minimal protective clothing, helmets and gloves, and carry only the necessary amount of maintenance equipment to minimize weight carried over the course. Bikes ridden for cross country style riding are generally lightweight and maneuverable. Figures 1 and 2 show two different types of mountain bikes; Figure 1 is a picture of a hardtail, while Figure 2 reveals a full suspension bike. A hardtail bike is one that has no suspension system in the rear but generally has a front suspension system. A full suspension bike has both front and rear suspension systems. The full suspension ride is generally more comfortable in spite of being heavier.



Figure 1. Gary Fisher Tassajara – Example of a Hardtail Mountain Bike (photo used with permission)



Figure 2. Gary Fisher Supercal – Example of a Full Suspension Mountain Bike (photo used with permission)

Downhill Mountain Biking

Cross country mountain biking represents the sport of mountain biking at the Olympic games and served as the primary type of mountain biking found in the early years of the sport;⁴ however, other types of mountain biking exist. Downhill mountain biking began as a sport in Marin County with the earliest race, the Repack.³⁶ The Repack earned its name because the wear and tear on the hub style coaster brakes required riders to stop and refill the hub with grease, especially if they were riding the course multiple times.³⁶ The original downhill course descended 1,300 feet over a distance of approximately 2.1 miles.⁴¹ Ideal locations for downhill riding include ski slopes during the summer months, and courses often incorporate drops of several feet throughout the ride. Races, sanctioned through NORBA, are conducted with one rider on the course at a time to minimize the risk of collisions.⁴² Riders race against the clock to win. A course

can be completed in three to six minutes at the professional level, depending on the course length.^{43, 44}

Cross country and downhill mountain biking differ primarily in the gear used, especially the bikes. A downhill bike generally has a heavier frame along with heavy-duty, full suspension systems to allow the bike and rider to handle the speed and drops of a downhill course;⁴² a cross country bike frame is lighter and may not have front and/or rear suspension systems.⁴⁵ Figure 3 is a picture of a downhill mountain bike that shows the heavier construction of the frame and front suspension systems compared to the cross country style bikes. Additionally, the suspension systems found on downhill bikes are more robust, allowing greater shock absorption. Riders generally prefer this type of bike for downhill riding because it provides a smoother ride over the big drops and trail obstacles they must negotiate at relatively high speeds.⁴

Aside from differences in bikes, cross country and downhill mountain biking rely on different types of protective gear. Cross country riders typically wear a lightweight cycling helmet, gloves, and clothing suited for the weather. Downhill riders use a full face helmet as well as chest, leg, and arm protection and thicker, more protective gloves.³² The additional protective gear is generally used because the high speeds attained during a downhill run easily translate into injury if a crash occurs.



Figure 3. Santa Cruz v10 – Example of a Downhill Mountain Bike (photo used with permission)

Dual Slalom/Mountain Cross/Observed Trials Mountain Biking

Other types of riding and racing supported by NORBA include dual slalom, mountain cross, and observed trials. In dual slalom and mountain cross, riders compete two at a time and four at a time, respectively, on a short, cross country style course.⁴² The gear and equipment utilized for dual slalom and mountain cross is the same as for cross country mountain biking.

The other type of racing supported by NORBA is observed trials. Observed trials consists of riders attempting to complete an obstacle course without falling or touching their feet to the ground.³² These courses are designed with non-natural obstacles such as wooden pallets, cars, or even wire spools, along with natural objects like rocks or boulders.⁴⁶ A trials competition consists of riders negotiating a course for time, with deductions in score or style points based on the number of times they have to regain their balance by touching a foot to the ground or a part of an obstacle.⁴⁵ In non-competitive

trials, riders often utilize existing obstacles such as curbs, parking blocks, staircases, retaining walls, and even chain link fences to ride, rather than building a course.⁴⁶ Neither the competition nor non-competitive type of trials riding involves riding off road. Another key difference between trials and other types of mountain biking relates to the bike. Trials bikes, shown in Figure 4, differ from cross country and downhill bikes in that they seldom have seats because a seat would be in the way of the rider and prevent completion of various skills.⁴⁷



Figure 4. Echo Control – Example of a Trials Bike (photo used with permission)

Freeride Mountain Biking

A final type of mountain biking is called freeride and is not generally recognized as a competitive type of riding by national or international mountain biking organizations. Freeride is best described as a combination of trials and cross country or

downhill riding due to similarities to trials in terms of skills and type of riding.⁴⁸ Freeride differs from downhill and cross country mountain biking in that structures are built on trails.⁴⁸ Many times these structures are narrow bridges, walls, ramps, platforms, and teeter-totters. Jumps and stunts are key aspects of freeride and trials, along with riding on only one wheel, known as manualing. Riders perform these skills on bikes designed similar to downhill bikes with the exception that they tend to be lighter to increase a rider's ability to ride uphill, if desired. Freeride is seldom competitive other than individual challenges between riders that often occur when negotiating a structure, performing a stunt, or attempting a new skill.⁴⁸ To allow riders to participate in their sport regardless of weather, some trails are built in indoor facilities, such as Ray's MTB Indoor Park in Cleveland, Ohio.⁴⁹ Ray's consists of balance beams, drops, jumps, and numerous other obstacles. Figure 5 illustrates a freeride bike, which may look very similar to a downhill bike; however, a freeride bike is designed to be lighter weight and more maneuverable.



Figure 5. Scott Gambler – Example of a Freeride Mountain Bike (photo used with permission)

Mountain biking organizations recognize cross country, downhill, dual slalom, mountain cross, and trials, but not freeride, in spite of its increasing popularity among mountain bikers. The type of riding popular in any geographical area seems to depend on the available natural terrain. For example, downhill riding is more common in very hilly or mountainous regions, whereas cross country is very common in regions with relatively flat terrain. Trials is performed more in urban settings than other types of mountain biking. Freeride is popular in cross country and downhill areas provided someone has built structures as trail features.

Profile of Mountain Bikers

Creating a profile of the typical mountain biker will provide valuable information in evaluating the results of the current study by forming a point of comparison against the typical injured mountain biker found in the current study. Riders have been described as

extreme individualists, which makes this task challenging.¹⁴ The typical mountain biker is a young male who commonly wears a helmet while riding cross country.

Most research conducted among mountain bikers has been conducted among males,^{13-15, 17-23, 26, 50-55} and researchers who have studied both males and females report a higher number of male participants in the sport.^{17, 20, 25, 54} Only 24.5% of survey respondents were female in a study conducted by Kronisch;²⁵ Chow found that fewer than 18% of survey respondents were female.¹⁹ In 2002 NORBA reported that 11% of its membership was comprised of females¹⁷ while the Outdoor Industry Foundation reported that females were 37% of mountain bike participants in 2005.¹¹ *Mountain Bike Action* magazine conducted a survey of its readership in 2008 in which only 6% of survey respondents were female.⁵⁶ The magazine editors attempted to reason that females accounted for a much higher percentage of their readership, and therefore a higher percentage of mountain bikers by concluding that 67% of the males who responded were married and that respondents reported sharing their magazine.⁵⁶ In the end, the magazine estimated that 50% of their readership, and thus of mountain bikers, were female.⁵⁶ Most researchers found a greater percentage of males involved in the sport of mountain biking. While determining the exact percentage of mountain bikers who are female may be impossible, the number is likely closer to 25% found by Kronisch than the 50% estimated by *Mountain Bike Action*.

Most mountain bikers fall within the age range of young adults, with ages ranging from 22 to 36.¹⁷ Chow conducted a survey in 1993, in which the mean age of mountain bikers was 36.2, with a range of 14 to 68.¹⁹ The average age in Chow's study was at the high end of the range while the low end of the age range is represented by Grooten in

1999, who found a mean age of 23, and Jeys et al. in 2001 (mean age of 22.5 with a range of 8 to 71).^{20, 26} The survey conducted by *Mountain Bike Action* in 2008 found that respondents' age averaged 39, which is older than found in previous surveys.⁵⁶ This increase in age could be attributed to the aging of the readership of *Mountain Bike Action*; the survey could have been conducted with the same group of riders who are now older. In 2005 the Outdoor Industry Foundation found that the typical mountain biker was between the ages of 16 and 34.⁵⁷ Overall, mountain bikers tend to be young adults; however, the average age of mountain bikers may be increasing.

The editorial staff of *Mountain Bike Action* magazine conducted a survey of their readership in which they discovered a few more details about the typical survey respondent. Those who returned surveys had an average income of \$81,000, spent an average of 9.5 hours per week riding, rode dual-suspension trailbikes or hardtail cross country bikes, planned vacations around mountain biking, and participated in numerous outdoor activities.⁵⁶ Chow and colleagues found that 44.4% of their survey respondents rode bikes 1 to 2 times a week with an additional 41.4% riding 3 to 5 times per week. Additionally, Chow's subjects rode a bike an average of 6.6 hours per week with an average of 5.0 hours spent on a mountain bike.¹⁹

Another fact about mountain bikers is that they commonly wear helmets, at least in the U.S. and England.^{13, 20} In a commentary at the end of an article by Jeys et al., Chris Jarvis, the Governing Body Medical Officer of the British Cycling Federation, commended the mountain bike community for its strong tendency for wearing helmets while riding.²⁰ This may be in part due to a carry-over effect of helmet use being required for competition; however, it is rare to see a mountain biker on a trail without a helmet.

Research in the United States reported nearly 90% helmet use among mountain bikers.²⁵ Rivara, who also conducted research in the United States, found that 80% of injured mountain bikers were wearing helmets at the time of injury.²³ The recent survey conducted by *Mountain Bike Action* confirms high helmet usage by riders as only 1% of survey respondents said they ride helmetless.⁵⁶

In summary, mountain bikers are generally young adult males. Riders tend to be under the age of forty; although, they may be getting older. Mountain bikers spend time riding their bicycles on trails, whether male or female, while helmeted. This profile could be compared to the demographics of injured individuals; knowing if individuals who are injured differ from the profile, for example that they are younger or older than the average rider, would provide valuable information.

Popularity of Mountain Biking

The sport of mountain biking has gained in popularity since its inception in the 1970s. Thirty-nine million Americans participated in mountain biking in 2005 according to the Outdoor Industry Foundation, using the foundation's definition of mountain biking as riding on single track dirt type trails.¹¹ Among individuals over the age of 16 who participated in outdoor activities during 2005, 17.4 % mountain biked.¹¹ The number of mountain bikers in 2005 grew to a total of 50 million Americans when the definition expanded to include wide dirt tracks or dirt roads.⁵⁷ However, the National Sporting Goods Association reported that participation had declined in 2006 by 7.2% to 8.5 million participants over the age of seven. This reflects a general trend in biking; the National Sporting Goods Association reported participation in all types of bicycling had dropped to 35.6 million, a 13.3% decline from the previous year.⁵⁸ Participation rates in

bicycling may be declining; however, in 2006 Americans purchased 12.7 million bicycles, excluding small children's bikes.¹² Mountain bikes represented the greatest percentage (28.5) of bikes sold with road bikes being the next highest percentage at 17.0.⁵⁹ Other categories of bikes sold include comfort, hybrid, cruiser, youth, and other. However, bicycle buyers invest in more bicycles that are capable of being ridden off-road than any other type of bicycle.¹² This seems to indicate a continuing strong interest in mountain biking.¹²

Membership in mountain biking organizations serves as another indicator of participation levels in the sport of mountain biking. Two nationwide organizations exist in the United States: the International Mountain Bike Association (IMBA) and the National Off Road Biking Association (NORBA), which is the mountain biking arm of USA Cycling. IMBA was formed to and continues its purpose to "create, enhance and preserve trail opportunities for mountain bikers worldwide."^{10, 60} IMBA serves their membership of 32,000 riders by providing, maintaining, and building trails while encouraging low impact riding to prolong the life of a trail.⁶⁰ NORBA has 11,303 mountain biking members (Lindsay Luther, e-mail communication, June 21, 2007). A copy of this communication is provided in Appendix A.

The popularity of mountain biking is also seen in a study of the economic impact to a mountain biking area. In 1996, mountain bikers traveling to Moab, Utah spent an average of \$1,483 each on travel, living, and riding expenses. The overall value of mountain biking in the Moab area came to \$1.3 million that year.⁵¹ Fix and colleagues found that mountain bikers who traveled to Moab spent an average of between \$195 and \$235 per trip; however, they only examined the spring riding season in 1996 and did not

estimate annual costs.⁶¹ Fix et al. conducted a follow-up study in the same area for 1997 and found an annual expense of between \$8,422,800 and \$8,770,300 with an average cost per trip between \$197 and \$205.⁶² Researchers in these studies specifically chose Moab because of the popularity of the area among mountain bikers.^{51, 61, 62} A study of travel costs in New Mexico found that mountain bikers take 6.91 trips per year with an average cost of \$150 per trip compared to hikers who took an average of 1.93 trips per year with an average cost of \$130 per trip.⁶³ Mountain bikers were found to spend more annually than hikers (\$1,040 compared to \$251).⁶³ Thus, mountain biking generates income for areas with attractive mountain biking terrain, such as Moab, Utah, and New Mexico, because it is a popular activity.

Parks and Recreation magazine reported in 2005 that freeride mountain biking had become one of the hottest trends and most rapidly growing areas of mountain biking.⁶⁴ Freeride may be gaining popularity because of media attention, particularly from the television show “Drop In” which is preparing for its fifth season.⁶⁵ The show follows a group of mountain bikers as they perform freeride and trials skills, riding on various popular trails as well as in urban settings.⁶⁵ Media attention was also given to the mountain biker who jumped his bike over the Peleton of the 2003 Tour de France.⁶⁶ The trend toward freeride and the increased publicity of the dangerous aspects of the sport indicate that participation in some aspects of mountain biking may still be high, even if overall participation in the sport is beginning to decline. As such, serious injuries are likely to become more common.

Current Research on Mountain Biking Injuries

Several studies have been conducted related to mountain biking injuries. The following section summarizes the findings of these studies by examining injury definitions used by researchers, injury mechanism, and injury type.

Injury Definition

Researchers tend to use three different definitions of an injury. One definition relates to individuals seen in an emergency room or admitted to a trauma center.^{20, 23, 67} This definition was used by Kim et al. as they required subjects to have sustained an injury severe enough admission to the trauma center.⁶⁷ Rivara and colleagues reviewed hospital emergency logs and treatment forms for any reference of injury related to mountain biking; therefore, they defined an “injury” as anything severe enough for which an individual sought treatment at an emergency room facility.²³ Jeys et al. used an even more exclusive definition by relying on injuries that presented at a hospital’s orthopedic trauma unit.²⁰ These definitions exclude many injuries because not all injuries are severe enough to warrant emergency medical treatment.

The most common definition of an injury was one that was severe enough to prevent a rider from completing a ride or one that caused the rider to miss at least one day of riding.¹³⁻¹⁷ Many of these studies were conducted at mountain bike races of elite and/or professional riders¹⁶⁻¹⁸ or of amateur riders at national level competitions.^{13, 15} However, Gaulrap relied on survey results where riders self-reported either an inability to complete a ride or missing a day of riding.¹⁴ A similar definition was used to survey professional and elite riders in two studies conducted by Pfeiffer, who included any injury requiring the rider to stop and seek treatment, even if self-treatment, before continuing to ride.^{18, 21}

Finally, researchers created their own categorical descriptions of injuries for use in survey based studies. These categorical descriptions varied from minor injuries to severe injuries, with accompanying descriptions ranging from “did not inhibit training or competition” to “hospital admission needed.”^{19, 26}

The use of differing injury definitions can result in differences in injury rates reported by comparatively inflating the overall rates with self treated injuries and minor skin wounds, while deflating the rates for injuries severe enough to present at an emergency room for treatment. For example, Kronisch and his colleagues used a definition that only included injuries preventing further riding or competition for at least one day.¹⁵ This definition resulted in a reported injury rate of 0.4%.¹⁶ On the other hand, Carmont reported all injuries sustained and found an injury rate of 30%.⁶⁸ Grooten et al. discovered that 75% of survey respondents reported suffering at least a minor injury, which did not disrupt training or riding, while 49% of respondents reported a major injury, which prevented training or riding for a least one day.²⁶ These variations illustrate the importance of being precise in providing an injury definition.

Injury Mechanism

Mountain biking injuries occur in a variety of ways. Reports indicate that injuries most often occurred from a fall while riding downhill.^{13, 15, 17, 19} Kronisch and Pfeiffer found the most common causes of injury included a forward fall over the handlebars, a sideways fall, and collisions with stationary objects or other riders.¹⁷ Mountain bikers call this first type of fall or crash an “endo” (“end over end”), especially when it occurs while riding downhill. Chow and Kronisch found that nearly 65% of injuries among competitive U.S. mountain bikers were sustained during forward falls over the

handlebars.¹³ Researchers agree that falls over the handlebars are a more common cause of severe injury, especially to the head and neck, than other injury mechanisms in mountain biking.^{13, 14, 16, 17, 24, 69} A case report of three severe cervical spine injuries illustrates this conclusion. All three cases occurred when the riders landed on their heads after an “endo.” The first rider suffered a mechanical failure while riding downhill; the second rider unsuspectingly rode over a sudden drop on a trail; and the third rider lost his balance while riding downhill. All three cases resulted in significant long term disability to the rider.⁷⁰

Falls to the side of the bike are the second most common cause of injury.¹⁷ These falls generally result in injuries to the extremities and are less severe than injuries to the head and neck caused by forward falls.¹⁷ The last major cause of injury were collisions, which were found to account for anywhere from 2 to 25% of injuries.^{13, 24} Injury severity from collisions tended to be equally severe as injuries from sideways falls.¹⁷ Injuries among child mountain bikers were often reported to occur because of a collision with the handlebars during a fall.⁷¹⁻⁷⁴ A large proportion of these injuries related to inadequately covered or protected handlebars.^{71, 73} A poorly designed bar end for handlebars caused abdominal injuries until manufacturers removed it from the market.⁷⁴

Knowing the direction of a fall does not provide enough information to understand the injury mechanism. Gaulrapp and colleagues found that riders first blamed slippery terrain for their injury (44%), followed by their own judgment (34%) and excessive speed (33%).¹⁴ Other causes of forward falls included obstacles on the trail, fatigue, error in applying brakes, and loss of traction.¹⁷ Kronisch, Pfeiffer, and Chow found the following to be related to injury frequency: loss of traction, loss of control,

mechanical failure, and collision with another rider or a stationary object.¹⁶ Grooten found that minor injuries occurred from overtraining while major injuries resulted from a fall of some sort.²⁶ Another study revealed an injury mechanism consisting of a fall to the side while at least one foot was stuck in a clipless pedal, which resulted in laceration of the right leg from contact with chain ring in addition to the typical injuries from falling to the side.⁵⁵

Generally, injuries occur more commonly during recreational or training rides than during competitions.²⁰ This suggests that researchers who focus on competitive racing overlook most of the injuries in the sport. Speed and terrain may also impact the risk or severity of injury.¹⁷ More injuries occur while riding on loose gravel or sand where traction is compromised.¹⁷ Additionally, higher injury severity corresponds to faster riding speeds.¹⁷

Sex related differences have been discovered in injury mechanisms.¹⁵ These differences in mechanism account for variations in injury severity between sexes.¹⁶ Kronisch, Pfeiffer, and colleagues studied injury characteristics at three different NORBA National Championship Series races.¹⁵ They found that while females participated in fewer numbers, their injury rate was significantly different from males.¹⁵ Females suffered 1.05 injuries for every 100 starts in cross country races, while their male counterparts only suffered 0.40 injuries for the same number of starts.¹⁵ Additionally, females were found to suffer more severe injuries than their male counterparts, with an Injury Severity Score (ISS) of 2.5 compared to 2.0 for males.¹⁶ Researchers discovered female riders experienced a forward fall over the handlebars more frequently than male riders,¹⁵ which is the injury mechanism that leads to the

highest degree of injury severity.²⁴ This at least partially explains the difference in injury severity between sexes. Another explanation for the differences in injury frequency and severity between sexes may be related to upper body strength. Females typically are weaker in upper-body strength than males; consequently, they are not as able to push their body weight backward on the bike allowing them to prevent a forward fall.¹⁵ Factors other than upper-body strength may also be involved such as torso length, weight distribution, balance, and sex-specific equipment design.

Injury Type

Beyond studying the injury mechanisms, injury type has also been studied by researchers. Some researchers focused narrowly on case reports of specific types of injuries such as incus dislocation to the external auditory canal,⁷⁵ fracture dislocation of the tarsometatarsal (Lisfranc's) joint,⁵⁰ transection of the pancreas and small bowel evisceration,⁷⁶ bilateral elbow dislocation,⁷⁷ and deep laceration of the mucosa of the mandible.⁷⁸ Other researchers broadened their scope from case studies but still focused on a narrow range of injury types. For example, one looked only at facial injuries,⁷⁹ while another considered only non-penetrating abdominal injuries in children.⁷¹ Rajapaske et al. looked at forearm fractures and found distal fractures to be more common than proximal in spite of radial head fractures occurring in the greatest frequency.⁸⁰ Additionally, one researcher reported three cases of injury to the right leg due to contact with the chain ring, which resulted in delayed healing, the need for skin grafts, and damage to the patella tendon.⁵⁵

However, many researchers considered a broad variety of injury types, based on injury definitions discussed previously. Gaulrapp and colleagues found skin lacerations,

wounds, and contusions to be the most common, accounting for nearly 75% of all injuries.¹⁴ Pfeiffer, in agreement with Gaulrap, reported that wounds and bruises accounted for the greatest percentage of injuries in both sexes (58% in males and 68% in females).¹⁸ Both researchers found joint injuries, which included sprains, strains, ligament tears, and dislocations, to follow skin related injuries in terms of frequency.^{14, 18} Pfeiffer showed joint injuries to account for 37.5% of injuries among males and 27.5% of injuries among females;¹⁸ Gaulrapp reported that only 9.9% of injuries were joint related.¹⁴ Gaulrapp further found skin and joint injuries outnumbered fractures, muscle injuries, concussions, and dental and overuse injuries in frequency.¹⁴

In contrast to the findings of Gaulrapp and Pfeiffer, Kloss and colleagues argue that dentoalveolar trauma and facial fractures take the place of joint injuries as the second most common type of mountain biking injury.⁸¹ This contrasts with data from Rivara et al. who found that helmet use significantly reduced the number of facial injuries with only 23.6% of injuries being head or facial in nature.²³ Okun stated that helmets reduced the number of head and brain injuries by nearly 90% with facial injuries decreasing by 65%.⁸² Kloss attributed the high number of head and facial injuries to lack of helmet usage.⁸¹ Although Kloss did not report helmet usage, differences in helmet use are the likely cause of the different findings, especially since researchers have found that mountain bikers who wore helmets were less likely to suffer injury to upper and middle portions of the face.⁸³ Mountain bikers have been commended for their frequent helmet use,²⁰ and their tendency to use helmets provides an explanation for the low numbers of facial injury reported in most studies.

Body Segment Injured

Not only have researchers examined the types of injuries that tend to occur among mountain bikers, they have also considered the body segments. Researchers found that 45.5% of injuries occurred to the upper extremity compared to 38.8% of injuries for the lower extremity.¹⁴ Jeys and colleagues discovered that injuries to the upper extremity exceeded injuries to any other body part (60% of total injuries), with clavicle fractures (13% of all injuries) representing the greatest percentage of upper extremity injuries.²⁰

Not all studies found injury to the upper extremity to be the most frequent. Pfeiffer found that males experienced a greater number of lower extremity injury, over 50% of all injuries, while females injured the upper and lower extremities equally.¹⁸ Pfeiffer also found that females sustained a relatively high degree of trunk injuries, namely low back injury (16.5% of all injuries).¹⁸ Kim et al. reported a lower number of injuries to the extremities, with both upper and lower comprising 45.5% of the total.⁶⁷ The remainder of injuries reported by Kim were to the head (12%), spine (12%), chest (10%), face (10%), abdomen (5.4%), the genitourinary region (2.2%), and neck (1%).⁶⁷ Jeys et al. reported that injuries to the head (9.1%) and trunk (6.3%) trailed extremity injuries in frequency.¹⁴ Thus, the most commonly injured body segments were reported to be the upper and lower extremities while other body segments varied in the frequency of injury.

Injury Severity

Aside from evaluating injury type and body segment injured, several studies evaluated the severity of injuries sustained by mountain bikers. Grooten et al. conducted a survey in which respondents were asked to classify injuries as minor, meaning the

injury did not prevent the ability to continue riding, or as major, meaning the injury prevented further riding; 75% of respondents reported suffering a minor injury.²⁶ Kronisch and colleagues also found a high number of minor injuries in spite of the fact that their analysis excluded abrasions, contusions, and lacerations because they were not severe enough to meet the study's injury definition.²⁵ Likewise, Jeys et al. excluded most soft tissue injuries and lacerations because subjects were recruited from an emergency room setting; however, soft tissue injuries still comprised 10% of all injuries.²⁰ While these injuries proved severe enough for the rider to seek medical treatment, they were not severe enough to classify as a serious injury.²⁰ Pfeiffer found that 62% of injuries among male riders and 68% among female riders in the NORBA pro/elite category were either wounds or bruises; these injuries were severe enough to warrant stitches in only a few cases.²¹ Pfeiffer found a similar ratio of wounds and bruises to other injuries in a follow-up study.¹⁸ This makes the most common injury related to mountain biking minor, superficial soft-tissue wounds.

When considering injury severity, life threatening injuries should be examined. Mountain bikers have seldom died from injuries and fatal injuries have not been reported in the majority of research^{14, 16, 18, 24, 67}. Jeys and colleagues found several life threatening injuries, such as open fracture of the femur, severe head injury, pneumothorax, and a cervical spine injury.²⁰ All of these near fatal injuries combined to represent less than 3% of the total injuries reported.²⁰ Researchers also reported deaths related to mountain biking; the first was due to a brain injury (the rider was not wearing a helmet)²³ while the second occurred as a result of a ruptured diaphragm.²² A middle-aged female died after a head on collision with another cyclist on a trail around Lake Shawnee in the Topeka, KS

area in August 2007. The other cyclist was also severely injured; neither was wearing a helmet.⁸⁴

Chronic Injuries

All of the research reported thus far has been related to acute injuries. Most studies related to mountain bike injuries have been conducted at mountain bike races and competitions^{13, 18, 24} or relied on emergency room or trauma center data;^{20, 23, 67} both of these methods exclude chronic injuries. However, a few studies have examined chronic injuries associated with mountain biking. Kronisch conducted a survey of musculoskeletal injuries among mountain bikers in which chronic injuries represented 10% of the total; among these knee pain, specifically tendonitis and chondromalacia, was the most common complaint followed by thigh pain, upper back pain, and piriformis syndrome.²⁵ Kronisch only examined chronic musculoskeletal injuries while other researchers have examined injuries to other components of the body. Ortega and colleagues looked at chronic heart injury associated with endurance mountain bike racing where distances may exceed 100 km.⁸⁵ While markers for heart damage following an endurance race were found to be significantly elevated, this finding was not unique to mountain biking; instead, it was related to endurance activities in general.⁸⁵

Other researchers evaluated chronic injuries to nerves. Patterson et al. evaluated the incidence of ulnar and median nerve palsy in mountain and road cyclists, sometimes referred to as “cyclists’ palsy.”⁸⁶ They discovered that mountain bikers complained of the onset of new or different symptoms more commonly than did road cyclists, and they attributed the differences to the fewer number of hand position adjustments found on the handlebars of mountain bikes compared to road bikes.⁸⁶ Road bike handlebars are curved

providing more possible positions for hand placement than the mostly straight mountain bike handlebars. In contrast, Kennedy reported the incidence of cyclists palsy to be unrelated to handlebar design.⁸⁷

Another commonly reported chronic nerve injury consists of injury to nerves in the saddle area, which has been found to occur in both mountain biking and road cycling.⁸⁸⁻⁹² Researchers studied pudendal nerve injury, or the Alcock syndrome, which resulted in genital numbness due to long term contact with a bicycle seat.^{90, 91} The pudendal nerve sends sensory information from the genitalia while communicating motor information to the perineal muscles; because of similarities in the pudendal nerve anatomy, males and females have equal risk of suffering pudendal nerve compression.⁸⁷

The cause of genital numbness and impotence in cyclists has been linked to the amount of time spent in the saddle, which explains the increased incidence of numbness among road cyclists who do not get up out of the saddle as often as mountain bikers.⁹² Sommer and colleagues made several suggestions for avoiding numbness and impotence, including limiting training time, altering the angle of the saddle so that the nose is level or pointed slightly downward, keeping the knee from fully extending at the bottom of the pedal stroke, and adjusting body position every ten minutes while riding.⁹² Kennedy, who reviewed literature related to neurologic injuries among cyclists, surmised that most pudendal nerve symptoms disappear after a brief period of rest from cycling.⁸⁷ Frauscher et al. compared nerve related abnormalities in the scrotum among mountain bikers and non-bikers and found that 94% of mountain bikers, compared to 16% of non-bikers, had abnormalities that could be considered pathological.⁸⁸ Mitterberger also found a higher incidence of scrotal disorders among mountain bikers when compared to road cyclists;

however, mountain bikers spent more time in the saddle even though both groups of cyclists road the same number of miles per year.⁹³ In contrast, Hermann et al. discovered that long distance mountain biking failed to increase various measures of prostate-specific antigen types in men, which are used as markers of prostate cancer.⁹⁴ While most such genitourinary injuries develop over time, Golash and colleagues reported a case in which an amateur mountain biker collided with his handlebars during a forward fall resulting in a traumatic priapism.⁸⁹

Chronic injuries among mountain bikers have not been extensively evaluated. Most chronic musculoskeletal injuries have been joint or tendon related. Likewise, nerve injuries among mountain bikers have been shown to generally be chronic by nature, and while perhaps uncomfortable to the rider, these injuries are not severe or life-threatening.

Limitations in Current Research

Limitations among these studies primarily center on the method of recruiting subjects. Mountain bikers have been noted to be extremely individualistic in nature¹⁴ which presents a challenge for researchers desiring to study injuries among this population group. Some researchers have relied on club membership for subject recruitment.^{19, 25} Other subject recruitment methods relied on competitive riders as researchers collected data at races.^{13, 16, 26} Researchers who focus on competitive races exclude those riders not interested in competing or who do not have sufficient skill for competition. Additionally, the competitive events selected were at a national level. Many riders may compete in local or regional races, but do not attend national competitions. A further limitation of subject recruitment based on competitive race involvement relates to injuries that occur more frequently during training than competition.²⁰

Another subject recruitment technique involved sending surveys to subscribers of a popular mountain bike magazine.¹⁴ This could exclude several segments of the mountain biking population: those who are unaware of the magazine, those who do not like the magazine, those who do not feel they can afford a magazine subscription, and others. Subject recruitment remains challenging for researchers studying mountain bikers because of the high degree of individualism and the lack of any type of central database of sport participants.¹⁴

The lack of consistency among researchers regarding injury definition creates another limitation to injury research. As discussed previously, researchers rely on definitions that differ from injuries resulting in the need to seek medical attention at an emergency medical facility,^{20, 23, 67} injuries causing a loss of time from riding,^{13, 14, 16} or injuries that did not result in the loss of riding time.^{19, 26} Varied definitions result in differing injury rates, hinder the ability to compare studies directly, and inhibit the overall understanding of mountain bike injuries.

Related Sports

Thorough understanding of mountain biking warrants a look at several related sports. Road cycling is reviewed because of the similarity to mountain biking in that the athletes also ride bicycles. Sports considered extreme or adventure related are examined due to the perceived similarities in participants of extreme sports or activities.

Road Cycling

Road cycling is similar to mountain biking in that both sports take place on a bicycle and generally occur outdoors. Several researchers examining mountain bike injuries have compared them to road cycling injuries^{54, 81, 95}; therefore, road cycling

injuries are considered. A road cyclist risks injury due to collisions with moving objects, such as automobiles or dogs; collisions with stationary objects, such as parked automobiles; or from a fall, especially when riding on a wet road surface.⁵⁴ The typical injury pattern and severity in road cycling differ from mountain bike injuries. Road cycling injury frequency and severity relate closely to the rider's speed,⁹⁶ while mountain bike injuries are more related to the direction of the fall.¹⁷

Several researchers examined the body segment that sustained injury. Richter and colleagues found that the lower extremity and head comprised the body regions most at risk of sustaining an injury, especially at speeds over 50 km/h.⁹⁶ Jacobsen et al. found that road cyclists suffered primarily from upper extremity injuries.⁵⁴ The upper extremity (46.7%) preceded the lower extremity (29.1%) and head injuries (17.0%).⁵⁴ This pattern is similar to the pattern found among off-road cyclists.⁵⁴ Lower extremity injuries occurred less frequently (only 40.8% of all off-road injuries) while head injuries (24.1% of total injuries) occurred more frequently among off-road cyclists.⁵⁴

Off-road cyclists suffered fewer concussions than their road counterparts (1.2% of all injury types compared to 2.6%) in spite of being at greater risk of head injury.⁵⁴ Researchers found that in New Zealand only 38% of off-road cyclists wore a helmet at the time of the injury compared to 63.9% of road cyclists.⁵⁴ Rivara et al. found the same pattern of injury rates among both types of cyclists; however, the risk of head injury among road cyclists doubled compared to off-road cyclists because of the differences in helmet use between the two groups.²³ Both Jacobson and Richter found a high proportion of severe head injuries in non-helmeted road cyclists and recommended helmet use as a means of reducing injury risk.^{54, 96} Richter, whose research was conducted in Germany,

found that less than 2% of the injured cyclists were wearing a helmet at the time of the accident.⁹⁶ In contrast, Rivara et al. studied cycling in the United States and found that 80% of off-road cyclists wore helmets while just under 50% of road cyclists wore helmets.²³

Aside from evaluating the body segment injured, several researchers considered the type of injury sustained by road cyclists. Jacobson and colleagues found that soft tissue injury occurred most frequently (64.1% of injuries) followed by bone, tendon, or joint injuries (33.3%), and concussion (2.6%) when evaluating injury type among road cyclists.⁵⁴ This pattern mimics the trend found among off-road cyclists; however, off-road cyclists suffer soft tissue injuries somewhat more frequently (69.1% of injuries) than bone, tendon, or joint injuries (29.7%).⁵⁴ Likewise, Rivara and colleagues found that both types of cyclists suffered from soft tissue injuries more frequently than other injury types.²³ Abrasions, contusions, and lacerations combined accounted for the greatest proportion of injuries.²³ Cyclists may have reported multiple injuries making evaluation of percentages difficult in Jacobson's research.⁵⁴ Fractures and dislocations followed soft tissue injuries. Next were sprains, dental injuries, brain injuries, other, and internal organ/vessel/nerve injury.⁵⁴ The order of injury frequency among off-road cyclists was soft-tissue, fractures and dislocations, sprains, other, internal organ/vessel, nerve, brain, and dental.²³

Another interesting distinction between the two types of cyclists is that nerve injuries more commonly occur among road cyclists compared to their mountain biking counterparts.^{86, 97} The ulnar nerve proved particularly susceptible to injury due to compression on the handlebars. Patterson and colleagues found that ulnar nerve

entrapment occurred among 70% of cyclists, especially those unaccustomed to riding long distances.⁸⁶ They discovered that this condition appeared more frequently in mountain bikers than road cyclists.⁸⁶ Other nerve injuries, particularly the pudendal nerve, have been more commonly reported among road cyclists.⁹⁰⁻⁹² Anderson also reported irritation of the ischiadicus nerve, which results from cycling in shoes that are too tight.⁹⁷ In general, differences in injury type between road and off-road cyclists may relate to the typical cause of injury. Off-road cyclists suffer injury as a result of a fall more frequently (75.2% of mountain bikers compared to 59.3% of road cyclists) while road cyclists more commonly sustain injury from collisions (23.7% of road cyclists compared to 11.5% of mountain bikers).⁵⁴

Differences in body segment injured and injury type relate to injury mechanism, whether it was a fall or a collision. Researchers also found that a cyclist's location made a difference in the injury likelihood.^{95, 96} Richter et al. discovered that cyclists who used designated bicycle lanes were less likely to have severe injuries when involved in crashes.⁹⁶ A study of bicycle commuting revealed that commuters were safest when they traveled on roads even when miles of off-road trails are available for commuting.⁹⁵ However, trails were found to increase rider safety over commuting on sidewalks.⁹⁵ The risk of injury increases when cyclists ride on sidewalks or designated trails and decreases when they ride on roads with bike lanes.

Several researchers have evaluated the severity of injuries among road cyclists. Richter found that injury severity increased as speed increased. The percentage of injured individuals with a Maximum Abbreviated Injury Scale (MAIS) score of 6, which is the highest, jumped from 0.2 to 2.5% when speeds increased to over 50 km/h.⁹⁶ The

percentage again increased drastically when speeds moved above 70 km/h to 11.1%; however, the percentage of injuries with a MAIS score of 6 was only 0.2% for all speeds.⁹⁶

None of the studies among mountain bikers utilized the MAIS scale; rather, researchers more commonly relied on the Injury Severity Score (ISS). The Abbreviated Injury Score (AIS) is the foundational calculation for both injury scales. The AIS has a maximum score of six for the most severe injuries. The ISS sums the three most severe injuries while the MAIS is the highest AIS for all body parts. Rivara and colleagues report that only 4% of off-road cyclists suffered injuries of an ISS greater than 8.²³ Injury severity on the MAIS scale is comparable in both road cycling and mountain biking. Additionally, Rivara and colleagues found that over 96% of the injured cyclists who sought treatment at emergency departments in the Seattle, Washington area were road cyclists.²³ Thus, road cycling seems to be more dangerous, especially because the injuries presented in mountain bikers were less severe, in general, than the road cycling counterparts. Four road cyclists died of injuries they sustained while only one mountain biker died.²³ Another interesting finding is that 80% of injured mountain bikers used helmets at the time of injury, while only 50% of other injured cyclists were wearing a helmet.²³ This study was limited by the fact that the researchers did not compare injury rates to participation rates among the two types of cycling. In the end, mountain biking may prove a safer sport than road cycling because of the more frequent helmet use and the lower risk of head injury.²³

Bicycle Motocross

BMX, or bicycle motocross, riding is similar to freeride mountain biking.⁹⁸ The bikes are smaller, with wheels being 20 inches in diameter rather than 26 inches; however, the type of jumps, stunts, and skills performed on a BMX look like those performed in freeride mountain biking. The majority of BMX participants are young males, similar to mountain biking.⁹⁹ BMX debuted as an Olympic sport in Beijing in 2008.¹⁰⁰

Most injuries from BMX riding have been minor.¹⁰¹ Research conducted at races found a high proportion of abrasions and contusions (72.1% of all injuries) with sprains accounting for 13.1% of injuries.¹⁰¹ However, more serious injuries have been reported, including a fractured skull, liver trauma, spleen trauma, and spinal injuries.^{102, 103} Spinal injuries serious enough to result in paraplegia have also occurred.¹⁰³

Fractures are not quite as serious as spine, skull, and internal injuries, and were reported by Brøgger et al. to represent only 6.6% of injuries among BMX riders.¹⁰¹ Illingworth found a higher percentage of fractures among BMX riders with 18.3%.⁹⁹ Illingworth failed to specify whether or not these injuries were to the upper or lower extremity; Brøgger reported a majority of upper extremity fractures (75% of all fractures).¹⁰¹ When considering all injury types, BMX riders have been shown to be similar between upper extremity injury (31.4%) and lower extremity (37.1%).

Brøgger et al. determined BMX riding to be relatively dangerous in spite of finding a majority of minor injuries.¹⁰¹ Soysa considered BMX injuries to have reached epidemic proportions.¹⁰² BMX is a dangerous sport with a high level of risk for serious injury.

Snowboarding and Skiing

Snowboarding and skiing differ greatly from mountain biking. However, the downhill nature of the two sports seems to attract participants much like downhill mountain biking. Like mountain biking, snowboarding and skiing are performed in an outdoor, mountainous setting. Therefore, snowboarding and skiing are included in this discussion of related sports.

Several researchers evaluated injury rates for skiing and snowboarding. Torjussen reported injury rates of 3.4 to 4.0 for every 1000 runs for competitive snowboarders.¹⁰⁴ Xiang et al. examined injury rates by age group and revealed that skiers and snowboarders ages 10 to 24 experienced injury rates that were nearly double those of other age groups when evaluated based on population estimates.¹⁰⁵ Skiers in the 10 to 13 year old age group suffered injury at a rate of 6.1 per 1000 population, while snowboarders in the same age group had an injury rate of 8.8 per 1000 population.¹⁰⁵ Xiang revealed a consistent pattern of higher injury rates among snowboarders than skiers for all age groups.¹⁰⁵ Injury rates discovered by Xiang are high when compared to a second study by Torjussen and Bahr which showed an overall injury rate of 1.3 per 1000 runs for competitive snowboarders.¹⁰⁶ The different injury rates contrast because one study relied on the number of runs while the other used the number of participants, making a direct comparison difficult.

Not every researcher reported overall injury rates for both sports. Hagel and colleagues studied skiers and snowboarders in Quebec and revealed that snowboarders experienced greater injury rates for head/neck injuries (1.5 times the risk), trunk injuries (2 times the risk), and upper extremity injuries (3 times the risk) than skiers, while the

only body segment for which snowboarders experienced a lower injury rate than skiers was the lower extremity.¹⁰⁷ Schneiders et al. compared the relative risk of various activities among children and discovered that children who snowboard had 4.2 times the risk of injury than those who ride a bicycle.¹⁰⁸ Schneiders did not report injury rates among skiers, but Xiang et al. and Hagel et al. found higher injury rates among snowboarders. Additionally, Hagel discovered an increase in injury prevalence among skiers and snowboarders in Quebec from 1995 and 1996 to 1999 and 2000 especially among younger participants.¹⁰⁷ Xiang et al. reported no difference in injury rates among skiers but a 73% higher injury rate for male snowboarders¹⁰⁵ while Torjussen and Bahr discovered no significant differences in injury frequency between sexes among snowboarders.¹⁰⁶

Researchers have evaluated injury rates among skiers and snowboarders but have not examined injury severity in the same manner. Torjussen and Bahr found that injury severity generally ranked a 2 or lower on the Abbreviated Injury Scale (AIS) among competitive snowboarders.¹⁰⁶ In fact, 99% of injuries ranked AIS 2 or lower, leaving only 1% of injuries to be classified as severe.¹⁰⁶ Schneiders et al. reported that only 0.99% of cases classified as severe using the Injury Severity Score (13 or higher); however, this report included all sport activities in their study, not just skiing or snowboarding.¹⁰⁸ In another study, Torjussen and Bahr revealed a high number of minor and moderate injuries (AIS of 1 or 2) with only 4 cases out of 116 (0.03%) being classified as severe (AIS = 3).¹⁰⁴ The evidence of these studies show that skiing and snowboarding injuries are not generally serious.

Besides examining injury rates and severity, researchers considered the body segment injured along with the type of injury that occurred among skiers and snowboarders. Xiang and colleagues reported soft tissue injuries, fractures, and traumatic brain injuries occurred commonly among both skiers and snowboarders.¹⁰⁵ Torjussen and Bahr also discovered a high number of soft tissue injuries, with contusions or wounds representing 46.9% of injuries and strains/sprains representing 21.9%.¹⁰⁴ They reported fractures second in frequency with 21.9%; dislocations comprised the remaining 12.5% with no head injuries represented.¹⁰⁴ The absence of head injuries proves interesting because Xiang et al. found traumatic brain injuries to be the third most common injury among skiers, frequently sustained by older participants (55 to 64 years of age).¹⁰⁵ In terms of body segment injured, Xiang showed skiers most frequently injured the knee, head/face, and shoulder while snowboarders injured the wrist, arm, and head/face more frequently.¹⁰⁵

The injury pattern found among skiers was similar to the findings of Torjussen and Bahr, who studied competitive snowboarders. They found that the most common acutely injured body parts among these athletes were the knee and shoulder, followed by the back and wrist.¹⁰⁶ Further, the knee was the most commonly chronically injured body part.¹⁰⁶ In a second phase of their study, Torjussen and Bahr found that the knee, back, and head sustained injury most commonly.¹⁰⁶ Hagel et al. emphasized injury rates for various body segments rather than stating overall percentages of injuries for each body segment.¹⁰⁷ Nonetheless, an increase in head and neck injuries were reported for the duration of their study.¹⁰⁷ Researchers suspected that an increase in the number of snowparks and new types of ski equipment related to the increase in injuries.¹⁰⁷ Overall

injury patterns showed that soft tissue injuries, primarily to the lower extremity, were expected for snowboarders and skiers.

Snowboarders tended to be more at risk of injury than skiers. Although injury rates may have increased, the severity of injuries has remained relatively low.¹⁰⁶

Differences in injury patterns between competitive snowboarders, and casual skiers and snowboarders were attributable to differences between competition and pleasure skiing.

Skateboarding and Rollerblading

Like snow sports, skateboarding and rollerblading seem to have little in common with mountain biking, but are included here because of the perceived appeal of these sports among risk-taking individuals. These sports frequently take place in skate parks that have similar features to structures utilized by freeride mountain bikers. When skateparks are unavailable, participants often participate in urban settings and perform stunts similar to trials mountain biking on urban structures. Additionally, participants are generally young males, as found commonly among mountain bikers.¹⁰⁹ Therefore, research evaluating skatepark related injuries along with skateboarding and rollerblading injuries in general was examined.

Skateparks have been a common place for participation in the sports of skateboarding and rollerblading. Sheehan et al. conducted a study among children who skateboarded and rollerbladed; opening a skatepark in a local neighborhood increased number of fractures related to these to activities.¹¹⁰ Macdonald and colleagues, who included BMX in their study, also found that opening a skate park significantly increased the number of skateboarding, rollerblading, and BMX related injuries treated in a nearby hospital.¹¹¹

Regardless of the physical location in which injuries occurred, researchers consistently found upper extremity fractures to be common. Sheehan et al. reported the greatest percent of injuries were fractures of the forearm (65%), while the hand, ankle, knee, and tibia were also found to suffer fractures.¹¹⁰ The number of fractures found by Sheehan et al. have been confirmed in research by Rethnam et al. and Zalavras et al. Rethnam et al. studied skateboard related injuries treated in an orthopedic division of a hospital.¹¹² They showed that upper extremity injuries (74%) occurred more commonly than lower extremity injuries (26%).¹¹² Rollerbladers have been shown to injure the upper extremity more frequently than other body segments with wrist injuries being most common (29% of all injuries).¹¹³ Zalavras et al. evaluated fractures among pediatric patients and discovered that skateboarding resulting in a high percentage of upper extremity fractures (68.2% compared to other body segments).¹⁰⁹ Fractures were the most frequent type of orthopedic injury (78% of all injuries) with the remaining percentage comprised of soft tissue injuries.¹¹² None of the injuries reported by Rethnam et al. were severe enough to warrant surgery; although, 14% of patients were hospitalized for observation, including one with a femoral fracture.¹¹² Interestingly, skateboarding resulted in a greater number of open fractures than did the control activities (2.3% of all fractures for controls compared to 5.8% for skateboarders).¹⁰⁹

Mulder and Hutten used a European database to compare the ratio of fractures to overall injuries for rollerblading and for all injuries reported. They discovered a high ratio for rollerblading, which indicates a potentially high injury severity for the sport.¹¹³ Loy and Della-Giustina state that approximately 40% of rollerblading injuries were fractures.¹¹⁴ Love and Ponnambalam examined dental and facial injuries and were

surprised to find skateboarding emerge as a cause of dental injuries (representing 2% of total injuries).¹¹⁵ Fasciglione et al. also reported a high number of dental injuries among rollerbladers (reported by 69.9% of survey respondents).¹¹⁶ In contrast, Macdonald found the majority of injuries to be musculoskeletal, primarily fractures or sprains with the upper and lower limbs sustaining more frequent injuries than the trunk or head.¹¹¹

Sheehan et al. concluded that a skatepark increased the willingness of children to try tricks when not wearing appropriate protective gear.¹¹⁰ Macdonald and colleagues confirmed these findings by showing that only about 25% of the injured individuals were wearing protective equipment at the time of their injury.¹¹¹ Mulder and Hutten suggested the use of such protective equipment as a strategy for reducing injuries among rollerbladers.¹¹³ Loy and Della-Giustina stated that, although rollerbladers may attain speeds of 50 miles per hour, nearly two-thirds do not use protective gear.¹¹⁴ Opening skateparks significantly increased the number of injuries in studies by Sheehan and Macdonald.^{110, 111}

Sheehan and colleagues found that the injured individuals were male 80% of the time.¹¹⁰ Macdonald also found the majority of injured persons were male, both prior to the opening of the skatepark and afterward.¹¹¹ Other researchers showed the majority of injured skateboarders to be male,^{109, 112} while Shannon found that males represented the majority of regular participants at a local skatepark.¹¹⁷ Mulder and Hutten reported a much more balanced male to female ratio of 1.4:1 for rollerbladers.¹¹³

Skateboarding and rollerblading resulted in upper extremity injuries most of the time, particularly wrist fractures. Males suffered injury much more frequently than did

their female counterparts with the potential exception of rollerblading. The potential for serious injury was present with these sports.

Other Sports

Several studies examined injuries in children and adolescents. These studies included mountain biking as an activity at the time of injury even though they did not focus specifically on mountain bike injuries.^{118, 119} These studies allowed a comparison of mountain biking to other sports.

Emery et al. conducted a survey based study in Canada and found that 65.7% of high school students reported sustaining at least one sports related injury.¹¹⁸ Nearly 50% of these students sustained injuries severe enough to warrant missing a minimum of one day of their sport activity.¹¹⁸ Michaud et al. revealed injuries among school aged children and adolescents to be most commonly caused by sport participation.¹¹⁹ Males experienced injury more commonly than females; although, the ratio in this study seems significantly lower than that of other research.¹¹⁹ Emery and colleagues found no difference in injury rates between sexes in overall sport participation.¹¹⁸ Other researchers found that over the age of ten boys were more likely to sustain a fracture than girls.¹²⁰

Those students who were most involved in sports, whether formal or recreational, suffered the highest injury incidence.¹¹⁹ Injury prevalence among children and adolescents seems to be related to the Tanner pubertal stage of development more than to chronologic age.¹¹⁹ Emery and colleagues found that injury rates related to sport participation rates.¹¹⁸

One study found that the most commonly injured body parts were the ankle and knee.¹¹⁸ The most common fracture site was the distal radius.¹²⁰ However, these findings

related to the overall injury incidence and not just to mountain biking. The most common activities at the time of the injury were soccer and bicycle riding,¹²⁰ basketball and snowboarding,¹¹⁸ and bodybuilding.¹¹⁹

Cycling (including road, mountain and BMX) was found to be one of the top five sports that resulted in loss of consciousness.¹¹⁸ The overall number of injuries related to cycling ranked eleventh among all sports included in the survey while cycling ranked seventh in terms of injury severity.¹¹⁸ Another study found that the relative risk of injury while participating in bicycling and soccer was much lower than rollerblading, skateboarding, and snowboarding.¹²⁰ This held true even though injured individuals most commonly were playing soccer or riding a bike at the time of injury.¹²⁰ Boden and Prior evaluated sport related causes of spinal injuries to determine which sports were associated with the highest risk of causing a catastrophic spinal injury.¹²¹ Researchers conducted this study because such injuries account for 7% of all spinal cord injuries in the United States each year.¹²¹ The sports included in this categorization include football, ice hockey, wrestling, downhill skiing and snowboarding, rugby, cheerleading, and baseball.¹²¹ This study excluded biking and mountain biking indicating that spinal injuries are not as common in the world of cycling; instead, the majority of mountain bike injuries to the head and neck area seem to be either concussion or mandibular injuries more than spinal injury.^{14, 81}

Research indicates that responsibility for the most severe injuries does not lie with the sport of mountain biking even if the sport proves responsible for a high number of injuries.^{118, 120, 121} From this, one may deduce that mountain biking remains a relatively safe sport.

Other Related Mountain Bike Research

Impact on Hospitals

A 2005 study looked at the impact of a mountain bike competition involving cross country, downhill, and 4X style races on a local, rural hospital in England.⁶⁸ Small, rural hospitals deal with limited resources, and a large influx of injuries related to a competition, such as the Fort William Mountain Bike Race, may significantly overstretch those resources.⁶⁸ The findings of this study showed that mountain bike race related injuries increased the new evaluations at the hospital by nearly 30% during the duration of the race, including practice times.⁶⁸ Researchers found an injury rate during this competition of 30%, rather than the 0.4% injury rate reported by Kronisch, as the injury definition included all injuries, even superficial abrasions and contusions, instead of only those injuries severe enough to prevent further riding.⁶⁸

Physiology of Mountain Bikers

Mountain biking is a unique sport requiring unique skills and abilities. Understanding the physiology of mountain bikers could provide some insight into the type of injuries they sustain. The physiologic and metabolic capabilities of mountain bikers affect fatigue levels, which could relate to an increased risk of injury.

The sport of mountain biking requires distinctive physiologic and metabolic capabilities in riders. Research shows that a high level of both aerobic fitness and anaerobic fitness is important for elite level riders.^{53, 122-124} Exercise intensity may average as high as 90% of heart rate maximum during cross country races.^{53, 123} Additionally, riders maintained an intensity of about 85% of their VO_{2max} for the duration of competition, which averaged 145 minutes.¹²² This indicates that mountain biking

requires a high level of aerobic metabolism to supply energy.¹²² Mountain bikers were found to have a higher energy expenditure, or exercise intensity, when compared to road cyclists.¹²⁴ This may be due to the slightly greater body mass of mountain bikers, the greater rolling resistance of the wider tires, or the intense isometric contractions that are employed when riding over rough terrain.^{123, 124} Mountain bikers also generally attain a higher VO_{2max} than their road biking counterparts.^{123, 124}

Impellizzeri and Marcora found that blood lactate levels may reach as high as 9 mmol/L in the early stages of a race.¹²³ These levels generally dropped in later stages, but may stay as high as 6 mmol/L.¹²³ These blood lactate values indicated a strong reliance on anaerobic metabolism during mountain bike races since lactate threshold is generally considered to be around 4 mmol/L.¹²³ Therefore, successful mountain biking performance relied on a high level of anaerobic power. Impellizzeri and colleagues agreed with this in a study in which they found that VO_{2max} and peak power output were not the best predictors of performance among elite, internationally competitive mountain bikers.¹²² Rather, oxygen consumption and power output at respiratory compensation threshold were better predictors among these athletes.¹²² Researchers defined respiratory compensation threshold as the point where carbon dioxide produced during exercise increased the second time, which indicates a high level of anaerobic energy production.¹²²

Researchers have studied downhill mountain bike riders' physiologic characteristics, as well.^{52, 124} Hurst and Atkins studied power output during downhill runs and found that physical effort was intermittent.⁵² Maximum power were attained in the first ten seconds of the downhill run; this was followed by intermittent periods of pedaling and coasting.⁵² In fact, coasting comprised about 50% of the total run time.⁵²

Athletes' heart rates remained around 90% of heart rate max for the duration of the downhill run in spite of this large coasting time.⁵² The high level of isometric contraction required by the large muscles of the lower body during negotiation of obstacles on the trail explained the high heart rate levels.⁵² Researchers found that the average power outputs during the downhill run were only 9% of the peak power outputs. This was explained by the long periods of coasting incorporated into a downhill run.⁵²

Lee and colleagues compared physiology of mountain bikers to road cyclists. They found that mountain bikers had a greater power output when measured relative to body mass than their road cycling counterparts.¹²⁴ The high power output required by downhill riders, along with the early development of that power, indicates a strong reliance on anaerobic energy metabolism.¹²⁴ Mountain bikers differ from road cyclists in other ways as well. A study comparing bone mineral density of mountain bikers and road cyclists found that mountain bikers had significantly greater bone mineral density than either road cyclists or control subjects.¹²⁵ This likely relates to the more dynamic movements in mountain biking, such as jumping and landing jumps, which place greater stress on the skeletal system resulting in greater bone mineral density.¹²⁵

Injury Severity

Injury severity scores prove useful in providing medical professionals a common language when discussing injuries and their severity.¹²⁶ The Abbreviated Injury Score (AIS) was one of the first scales used to classify injury severity.^{127, 128} It is also among the most popular scales,¹²⁷ due to its simplicity. To utilize the AIS, an injury score ranging from 1 to 6 is assigned for a particular body part based on that injury's severity.¹²⁸ An AIS of 1 is equivalent to a minor injury while a 6 is considered maximal or

unsurvivable.²⁷ The scale's developers classified an injury as "serious" if it was assigned a score of three or greater.¹²⁶ If a patient has injuries to multiple body parts, or even multiple injuries to the same body part, multiple AIS scores are assigned.¹²⁷ Some researchers chose to report only the highest AIS score for an injured body segment,¹²⁹ since the AIS scale is categorized by body segment.²⁷ Because of the scale's focus on body segment, it is considered to be an anatomically focused scale.¹³⁰ A weakness of the AIS is that it has not been found to be the best predictor of injury survivability.¹²⁶ In an attempt to better predict injury survivability, other scales have been developed.

The Injury Severity Score (ISS), which also is anatomic in its focus, is a scale based on the AIS scoring system. AIS scores are assigned for all injured body segments, and the three highest scores are squared. The ISS score is the sum of the square of the three highest AIS scores.¹³¹ The ISS was found to correlate more closely to mortality than the AIS score and accounted for twice as much of the variation in mortality.¹³² The ISS may range from 0 to 75; if an AIS score included in the calculation is a 6, the ISS score is automatically recorded as a 75.¹³¹ A revision of the ISS led to the development of the New Injury Severity Score (NISS). The ISS utilizes three AIS scores from different body segments; one body segment may suffer multiple injuries. The NISS allows the three highest AIS scores to be used regardless of body segment.¹²⁷ The NISS has been found to better correlate to mortality than the ISS.¹²⁷

While the AIS, ISS, and NISS are anatomic in focus, sometimes a more physiologic focus is needed to predict patient outcomes. One physiologic system is the Revised Trauma Score (RTS) and was developed to aid in triage.¹³⁰ The RTS relies heavily on the Glasgow Coma Scale, which is intended to assess an individual's level of

consciousness by scoring an individual on motor, verbal, and eye responses.²⁸ The RTS utilizes a patient's Glasgow Coma Scale score along with his or her systolic blood pressure and respiratory rate. These numbers are entered into an equation ($RTS = 0.9368 \text{ GCS} + 0.7326 \text{ SBP} + 0.2908 \text{ RR}$) which enables scores to range from 1 to 7.8408.¹³³ The RTS has been shown to highly relate to a patient's chances of survival.¹³⁴

Scales have been developed that combine anatomic and physiologic methods of evaluating injury severity. One of these is the Trauma – Injury Severity Score (TRISS). This scale combines the RTS and the ISS to provide both an anatomic and a physiologic perspective.¹³⁰ TRISS uses a complex calculation method to predict the probability that a patient will survive his/her injuries.¹³⁵ Another combined scoring system, the Glasgow Outcome Scale (GOS-E), relies on the ISS and AIS in conjunction with the Glasgow Coma Scale. The GOS-E provides the best estimate of head trauma injury severity, especially brain injury, when compared to any of the three measures independently.¹³⁶

Caution must be used when evaluating injury severity scores, particularly the ISS and NISS, because they are ratio measures in nature.¹²⁷ An ISS score of 20 is not necessarily twice the injury severity of a 10 even though it is more severe.¹²⁷ Since the ISS and NISS are based on the AIS, this weakness applies to the AIS, as well. The AIS proves the simplest and easiest to use even if it is not the most useful in predicting survivability outcomes.

Research regarding mountain bike related injuries typically relied on the AIS or ISS injury severity scores.^{13, 15, 16, 23, 67} Researchers used the Injury Severity Score (ISS) to quantify the level of injury sustained by patients while mountain biking in a ten year study of mountain bike related injuries among patients admitted to a trauma center in

British Columbia.⁶⁷ Authors found that injuries with an AIS score of greater than 3 increased significantly over the study period.⁶⁷ Other researchers used both the AIS and ISS scores.^{13, 23} Researchers have more recently relied on the AIS when studying skiing and snowboarding injuries perhaps due to the weaknesses in the ISS scale.^{104, 106}

NEISS

In 1973 the Consumer Product Safety Commission (CPSC) created the National Electronic Injury Surveillance System (NEISS). This surveillance system is intended to track injury data related to consumer products. The NEISS compiles data from approximately 100 hospitals in the United States having a minimum of 6 beds and a 24 hour emergency department.¹³⁷ Hospitals in the sample are stratified based on the number of annual emergency room visits they receive. The CPSC relied on 4 stratifications plus an additional category for children's hospitals.¹³⁸ A random sampling of hospitals that met the stratum criteria were selected and recruited for participation in the NEISS database.¹³⁸ The CPSC intended this sample to be representative of all emergency room departments across the nation.¹³⁷ Data collected by the NEISS include the date of injury, consumer product involved, sex, age, diagnosis, location of injury, and body part involved, along with a brief narrative of the accident event.¹³⁹

Researchers consider this database to be a nationally stratified sample of documented injuries¹⁴⁰ which provides high quality data about injuries nationwide.¹⁴¹ The Centers for Disease Control (CDC) have relied on NEISS data during research projects.¹⁴² Griffin et al. hold that the validity of the NEISS has been established by previous researchers and governmental agencies.¹⁴³ Researchers have used NEISS data to study a variety of injury situations including bites and stings,¹⁴⁴ falls among elderly individuals,¹⁴⁵ injuries among

children caused by or on an elevator,¹⁴⁶ martial arts related injuries among children,¹⁴⁷ golf cart related injuries,¹⁴⁸ treehouse related injuries,¹⁴⁹ and many others.

CHAPTER III

METHODS

Data Collection

For this study, data were obtained from the National Electronic Injury Surveillance System (NEISS) database for the span of years from 1998 to 2007. The NEISS database provides an online query tool for all data recorded in the database since 2001. The NEISS homepage was accessed and the “Query NEISS” link was chosen to access the query builder page. Data from 2001 to 2007 were acquired via the online resource. The online query builder allowed the researcher to search the database for all injuries related to mountain bikes one year at a time by using the product code 5033 for “Mountain Or All-Terrain Bicycles And Accessories.”¹⁴⁹ This code was created in 1994 to distinguish mountain bikes from other bikes, which are coded as 5040 “Bicycles or Accessories (excluding mountain or all-terrain).”¹⁴⁹ For 1998 to 2000, data were requested via e-mail from the Consumer Product Safety Commission, which is the organization that initiated and maintains the database. The data table is located in Appendix B.

Once the mountain bike injury data were obtained, each injury was evaluated to verify that it met the definition of a mountain bike injury. Injuries that did not occur on a mountain bike or that involved a motor vehicle were excluded. Injuries attributed to a mountain bike that were not incurred while riding were also excluded. Researcher

initially excluded injuries that occurred in the street or on a road; however, these were incorporated into the data pool in order to not exclude injuries due to trials type riding.

After the data were collected and the appropriate cases excluded, an injury severity score was assigned. This was done using the Abbreviated Injury Scale (AIS). In the case that an individual suffered multiple injuries, the highest AIS score was recorded and only the most severe injury was evaluated. Consistent with previous research, an AIS score of more than three was considered severe.^{67, 127} The following descriptions correlate with the numbered score for the AIS.²⁷

Table 1. AIS Score Descriptions

AIS Score	Description
1	Minor
2	Moderate
3	Serious
4	Severe
5	Critical
6	Maximal

The AIS score was developed by the Association for the Advancement of Automotive Medicine (AAAM).¹⁵⁰ The AAAM published updated guidelines for the AIS in 2005.²⁷ These guidelines are prescriptive in terms of assigning AIS scores. Following these descriptions, the body segment injured was identified. The body segments for the AIS include head, face, neck (excludes the vertebrae), thorax, abdomen, spine, upper extremity, lower extremity, external, and other. The 2005 AIS guidelines were searched for the corresponding injury description. The AIS score provided in the guidelines was recorded.

For example, if the injury was a fractured distal radius, the researcher opened the AIS 2005 handbook to the section on upper extremity. The upper extremity section is broken down into various categories, such as whole area, vessels, nerves,

muscles/tendons/ligaments, joints, and skeletal. A distal radius fracture is a skeletal injury, so the researcher referenced the skeletal category and found the radius. Pictures included in the guide helped determine the classification of the injury. A distal radius fracture could be on the shaft of the radius, extra-articular, part articular, or complete articular. Any of these could be an open fracture. The description that best fit the particular injury was selected. In this example, the fracture was of the shaft of the distal radius. The AIS 2005 handbook classifies this injury with a severity of 2. Thus, the researcher recorded an AIS score of 2 for a distal radius fracture.

Some cases reported multiple injuries in the description. The most severe injury listed was recorded for those cases. If injuries were of the same severity, the case that was coded into the NEISS database was used. The database contains fields for the primary injury and diagnosis. If the description indicated equal severity for two injuries, the researcher defaulted to the injury in the database fields for body segment and diagnosis.

Injuries were categorized initially by body segment based upon the segment classifications used by the AIS 2005 handbook. The head, face, and neck categories were combined for ease of statistical analysis. The neck category contained only 12 cases, while the head and face contained 247 and 277 cases, respectively. Thus, the final body segment categories used in the current study included head/face/neck, thorax, abdomen, spine, upper extremity, and lower extremity. Using combined body segments made trend analysis with Chi-square more feasible by decreasing the number of cells with too few cases.

Injuries were also categorized by type. Injury types used included fracture, concussion, sprain, dislocation, strain, abrasion, and laceration. These categories were

chosen because they were the most commonly used injury categories from previous research.^{13-21, 23-25, 54, 67, 69, 79, 81, 83, 105, 111} A visceral category was included to account for any injuries to the internal organs that would not be included in other injury categories. A category of “other” was created for injuries that did not meet the definitions of the previously defined categories. Often the category of “other” was used for foreign bodies, such as cactus, in the skin. The original categories used for this study include fracture, concussion, sprain, dislocation, strain, abrasion, laceration, and visceral; however, for the ease of analysis, the sprain, strain, abrasion, and laceration categories were combined into one category called soft tissue injuries. Additionally, the visceral category was combined with the “other” category to create an internal/visceral/other category.

Data Analysis

The mountain bike injury data were examined for trends in frequency, age, sex, injury severity, and body part using a combination of Chi-square, Mann-Whitney, and ANOVA analyses. All analyses were completed using SPSS. A *P*-value of 0.01 was utilized for significance due to the large sample size of the study. Chi-square was chosen because much of the data were categorical and did not allow analysis using parametric techniques. Chi-square residual values were considered significant if greater than 2.58 or less than -2.58 because this corresponds to a *P*-value of 0.01. For some analyses, variable categories such as year injured, body segments, and injury types, were combined into two year groupings to increase the likelihood of meeting the criteria for the Chi-square analyses.

The general hypotheses were evaluated first. Differences in injury frequency were evaluated using a Chi-square Goodness of Fit test. This was done initially without

calculating expected values from participation data. A follow-up analysis was performed after expected values were created for 1998-2005 based on the number of outings reported annually by the National Sporting Goods Association.¹⁵¹

Injury severity over the ten year span was analyzed using a one-way ANOVA where year was the independent variable and AIS score was the dependent variable. ANOVA was selected for this analysis because injury severity was not a categorical variable making a parametric test was possible. The distribution of injuries across body segments for the ten years and the distribution of injuries across injury type were evaluated with a Chi-square distribution analysis. Injury severity was examined by body segment and injury type using a one-way ANOVA (the AIS score was used as the dependent variable in both cases).

Sex related hypotheses were similar to the general hypotheses. Evaluation of sex differences in injury severity was planned with a T-test (sex as the independent variable and AIS score as the dependent variable); however, Levene's Test for Equality of Variances was significant, meaning that a nonparametric Mann-Whitney test was more appropriate. Differences in ages between sexes were evaluated using an independent samples T-test. Sex differences in body segment and injury type were both analyzed with a Chi-square distribution test. Injury frequencies between the two sexes were also evaluated with Chi-square. A 2 by 10 factorial ANOVA was used to evaluate sex differences in injury severity over the ten years (sex and year were used as independent variables with AIS score as the dependent variable). Evaluation of trends over time relied on a three level Chi-square analysis.

Age related hypotheses were evaluated in a manner similar to the sex related hypotheses. Age was grouped into categories to increase the number of cases in the younger and older ages. Categories used included: 5 to 14, 15 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64, and 65 and older. Frequency of injuries by age group was evaluated using a Chi-square Goodness of Fit test. This test was chosen because of its ability to determine whether or not the observed frequencies differed from the expected. Injury severity by age was evaluated using an ANOVA with Tukey HSD post-hoc tests. This was done initially by age and then repeated using age groups. Age related differences in body segment injured and in injury type were analyzed using a Chi-square distribution test. Chi-square was chosen because of the categorical nature of the data. Evaluation of trends over time was completed using a three level Chi-square analysis.

CHAPTER IV

RESULTS

General Hypotheses

Injury Frequency

The initial evaluation for the general hypotheses consisted of injury frequency comparison by year. Evaluation of the ten years of data showed that a significant difference existed in the injury frequencies ($P \leq 0.01$). Chi square goodness of fit test revealed that years prior to 2002 tended to have more than the expected number of injuries, while 2003 and later exhibited fewer than expected injuries per year. The year 2001 was the most extreme with 13.4% of the total injuries compared to 2004, which contained only 6.8% of the total injuries. These figures are shown in Table 2. A follow-up evaluation was conducted with the years grouped into two year groupings. A similar pattern was found ($P \leq 0.01$) such that 2000-2001 and prior contained more than the expected number of injuries while 2002-2003 and later had fewer than expected (see Table 3).

Table 2. Number of Injuries by Year*

Year	Observed	Expected
1998	384	310.1
1999	394	310.1
2000	364	310.1
2001	416	310.1
2002	369	310.1
2003	235	310.1
2004	212	310.1
2005	232	310.1
2006	250	310.1
2007	245	310.1
Total	3,101	3,101.0

* All years were significant ($P \leq 0.01$)

Table 3. Number of Injuries by Year Group*

Year	Observed	Expected
1998-1999	778	620.2
2000-2001	780	620.2
2002-2003	604	620.2
2004-2005	444	620.2
2006-2007	495	620.2
Total	3,101	3,101.0

* All groups were significant ($P \leq 0.01$)

Comparison of injury frequencies is more meaningful when a frame of reference is provided for those numbers. In this case, the frame of reference used was the participation numbers for the years 1998 through 2005. Comparing injury frequencies to participation numbers provided a better picture of injury rates than just the frequencies alone. Participation data were used to create expected injury frequencies from 1998 through 2005. This was calculated by adding the number of injuries for these years and dividing by the total number of participants. As a result, an injury rate of 0.24 was used to calculate the expected number of injuries for each of these years.

Significant differences in injury frequencies were present when compared to expected frequencies ($P \leq 0.01$). The year 1999 (394 observed injuries) differed from the expected number of injuries (223 expected) with 15.1% of the injuries and only 8.5% of the participants. Previous analyses showed 2001 to differ the most from the expected values; however, when compared to the number of mountain biking participants, 2001 actually contained fewer than expected injuries. Table 4 contains the observed numbers of injuries compared to the expected numbers based on the participation data. Additionally, Table 4 shows the percentage of injured persons each year and the percentage of participants for each year. Figure 6 demonstrates the variation in the actual injury frequency and the expected injury frequency based on participation data. While participation rates dropped from 2003 through 2005, 2005 contained more than the expected number of injuries. The overall trend in injury frequency shows increasing frequency through 2001 with a subsequent decline through 2004. The year 2005 exhibited a greater number of injuries than expected ($P \leq 0.01$).

Table 4. Number of Injuries per Year Compared to Participation Data*

Year	Number of Injuries	Percentage of Injuries	Number of Participants	Percentage of Participants	Expected Number of Injuries
1998	384	14.74	1,314	12.17	317.12
1999	394	15.12	924	8.56	223.00
2000	364	13.97	1,395	12.92	336.67
2001	416	15.96	1,929	17.86	465.55
2002	369	14.16	1,855	17.18	447.69
2003	235	9.02	1,181	10.94	285.02
2004	212	8.14	1,274	11.80	307.47
2005	232	8.90	926	8.58	223.48
Total	2,606	100.00	10,798	100.00	2,606.00

* All years were significant ($P \leq 0.01$)

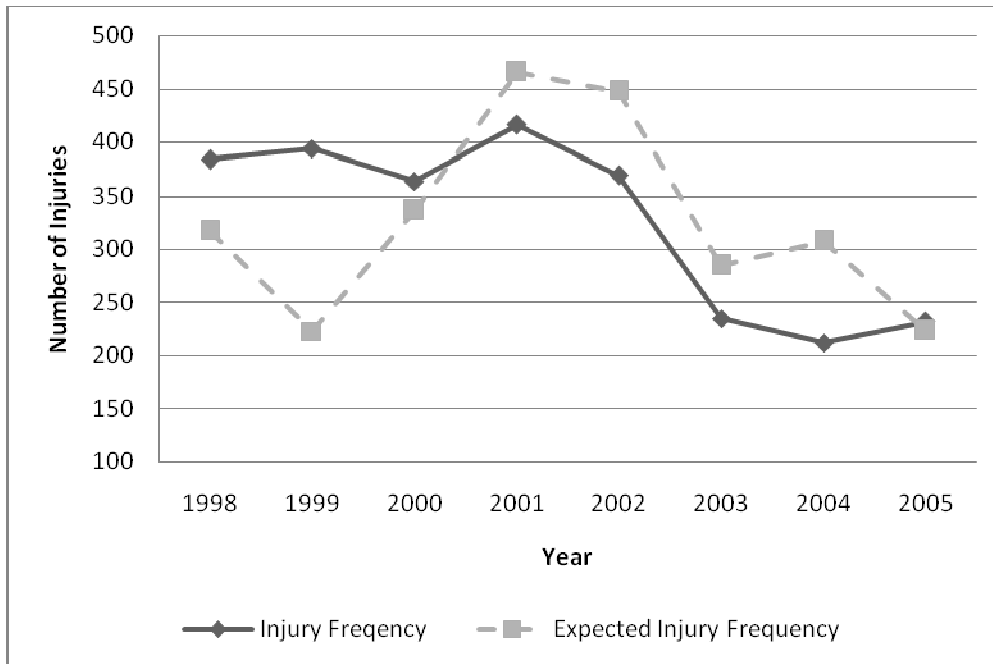


Figure 6. Actual Injury Frequency Compared to Expected Injury Frequency

Injury Severity

Injury severity was then evaluated over the ten year time period. The mean AIS score for the entire ten years was 1.33 ± 0.493 . The AIS scale ranges from 1 (minor) to 6 (maximal) with a score of 3 or higher considered severe. This would classify the injury severity over the ten years as between minor (AIS = 1) and moderate (AIS = 2). No injuries with an AIS score of 5 or 6 were reported, and only two injuries were reported with an AIS score of 4. Minor injuries (AIS = 1) were present in greater numbers than expected, as determined by the Chi-square Goodness of Fit test, while serious injuries (AIS = 3) and severe injuries (AIS = 4) were fewer in number than expected. Table 5 contains the injury frequencies for each injury severity category.

Evaluation of injury severity by year showed no significant differences in AIS score over the ten year period ($P > 0.01$). Minor variation existed among the AIS scores over the ten years; however, the magnitude of variation was too small to be statistically

significant. Figure 7 shows the AIS scores and illustrates the similarities over the ten year period.

Table 5. Injury Severity by AIS Category

AIS Score	Number of Injuries	Percentage of Injuries
Minor (AIS = 1)	2,112*	68.11
Moderate (AIS = 2)	959*	30.93
Serious (AIS = 3)	28*	0.90
Severe (AIS = 4)	2*	0.06
Critical (AIS = 5)	NA	0.00
Maximal (AIS = 6)	NA	0.00
Total	3,101	100.00

Abbreviation: NA, Not Available

* Significant ($P \leq 0.01$)

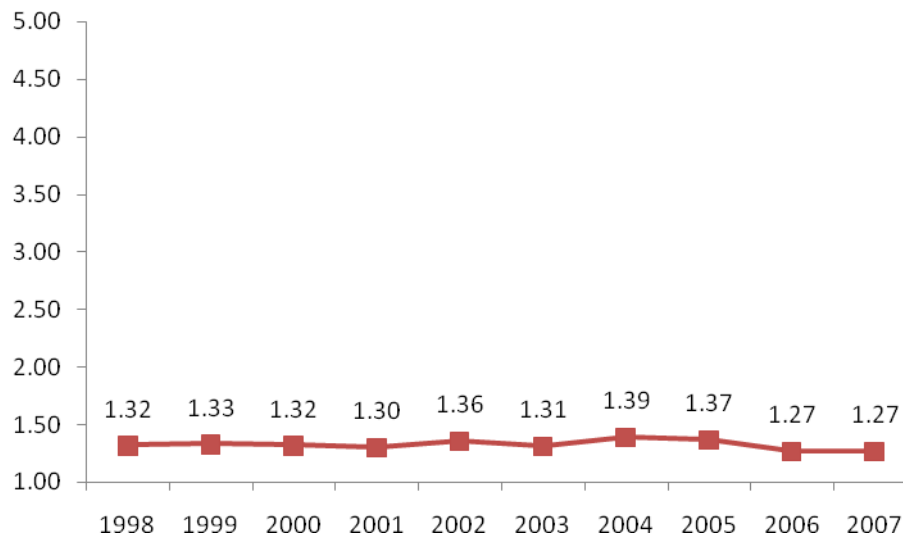


Figure 7. Injury Severity by Year

Body Segment

Next, injury frequencies for the various body segments were evaluated. Initial analysis was completed for the original body segment groupings, which included head, face, neck, thorax, abdomen, spine, upper extremity, and lower extremity. The analysis revealed that the upper extremity and lower extremities had significantly more injuries than expected ($P \leq 0.01$). The neck category was small, having only 12 cases; therefore, in this analysis, the head, face, and neck categories were combined into one large category. The combined head/face/neck category also contained more than the expected number of injuries ($P \leq 0.01$); however, all other body segment categories had fewer than the expected number. Table 6 shows the observed and the expected frequencies per body segment. Table 7 is similar to Table 6 except that combined body segments are used.

Table 6. Number of Injuries by Body Segment*

Body Segment	Observed N	Expected N
Head	247	387.6
Face	277	387.6
Neck	12	387.6
Thorax	189	387.6
Abdomen	63	387.6
Spine	113	387.6
Upper extremity	1,510	387.6
Lower extremity	690	387.6
Total	3,101	3,101.0

* All body segments were significant ($P \leq 0.01$)

Table 7. Number of Injuries by Combined Body Segment*

Body Segment	Observed N	Expected N
Head, face & neck	536	516.8
Thorax	189	516.8
Abdomen	63	516.8
Spine	113	516.8
Upper extremity	1,510	516.8
Lower extremity	690	516.8
Total	3,101	3,101.0

* All body segments were significant ($P \leq 0.01$)

The pattern in injuries to the various body segments was examined to see if it was consistent across the ten years of mountain biking injury data. Only one finding was statistically significant ($P \leq 0.01$) which was the face injuries were discovered to be fewer in number than expected in 2003. All other results were as expected. A final analysis was performed with years combined into two year groupings and by combined body segments.

Injury Type

After the evaluation by body segment was completed, injury frequencies were evaluated across injury types. Significant differences existed in the number of injuries across injury types ($P \leq 0.01$). Initial analysis was performed on the following categories: fracture, concussion, sprain/strain, dislocation, abrasion/contusion, laceration, internal/visceral, and other. Analysis revealed a higher than expected number of fractures, abrasions/contusions, lacerations, and other injuries, while concussions, sprains/strains, dislocations, and internal/visceral injuries were present in fewer than expected numbers ($P \leq 0.01$). Table 8 shows the observed and expected values for each injury type.

Table 8. Number of Injuries by Injury Type*

Injury Type	Observed N	Expected N
Fracture	880	387.6
Concussion	187	387.6
Sprain/strain	43	387.6
Dislocation	175	387.6
Abrasion/contusion	705	387.6
Laceration	566	387.6
Internal/visceral	46	387.6
Other	499	387.6
Total	3,101	3,101.0

* All injury types were significant ($P \leq 0.01$)

All injury type categories had a sufficient number of cases for an adequate Chi-square analysis; however, combining similar categories increased the ability to meet the requirements for further Chi-square analyses. A new category called soft tissue was created by combining the sprain/strain, abrasion/contusion, and laceration categories. Additionally, the internal/visceral category was combined with the “other” category. Analysis presented a greater than expected number of injuries in the soft tissue injuries and fractures while the concussion, dislocation, and internal/visceral/other categories had fewer than expected injuries ($P \leq 0.01$). Table 9 shows the values, observed and expected, for combined injury types.

Table 9. Number of Injuries by Combined Injury Type*

Injury Type	Observed N	Expected N
Fracture	880	620.2
Concussion	187	620.2
Soft tissue	1,314	620.2
Dislocation	175	620.2
Internal/visceral and other	545	620.2
Total	3,101	3,101.0

* All injury types were significant ($P \leq 0.01$)

The pattern of injuries by injury type was examined by year over the ten year period to determine if there were any variations in injury trends. The differences were significant ($P \leq 0.01$) when evaluated each year by the non-combined categories. Sprains/strains were present in greater than expected numbers in 2007, while other injuries were present in fewer than expected numbers for the same year. Other body segments would have differed significant had an alpha of 0.05 been selected; however, this study relied on a P -value of 0.01 to minimize the risk of Type I error due to the large sample size. This information is located in Table 10 with significant values denoted. Injury types were combined, as described previously. Differences were found in 1998 and 2007 ($P \leq 0.01$). In 1998 concussions were discovered to be fewer than expected. In 2007 soft tissue injuries were more common than expected, while internal/visceral/other injuries were less common than expected. These data are presented in Table 11. A final analysis was performed with years grouped into two year groupings and injury typed combined; however, no significant differences were present ($P > 0.01$).

Table 10. Number of Injuries by Injury Type and Year

Injury Type	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total
Fracture	113	116	95	111	113	73	64	63	70	62	880
Concussion	11	24	24	30	22	13	12	17	19	15	187
Sprain/strain	0	0	0	0	0	0	0	0	0	43*	43
Dislocation	30	16	24	20	20	10	15	14	14	12	175
Abrasion/contusion	79	96	77	96	85	66	44	39	59	64	705
Laceration	84	73	76	76	57	34	39	49	44	34	566
Internal/visceral	3	3	7	7	4	2	2	4	7	7	46
Other	64	66	61	76	68	37	36	46	37	8*	499
Total	384	394	364	416	369	235	212	232	250	245	3,101

* Significant ($P \leq 0.01$)

Table 11. Number of Injuries by Combined Injury Type and Year

Injury Type	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total
Fracture	113	116	95	111	113	73	64	63	70	62	880
Concussion	11*	24	24	30	22	13	12	17	19	15	187
Soft tissue	163	169	153	172	142	100	83	88	103	141*	1,314
Dislocation	30	16	24	20	20	10	15	14	14	12	175
Internal/visceral/other	67	69	68	83	72	39	38	50	44	15*	545
Total	384	394	364	416	369	235	212	232	250	245	3,101

* Significant ($P \leq 0.01$)

Trends in Injuries

ANOVA analysis of injury severity by combined body segment revealed a significant difference between body segments ($P \leq 0.01$). Post-hoc tests were performed using Tukey's HSD. The Tukey's analysis showed that the neck and face were significantly lower than the spine, head, abdomen, and upper extremity. The researcher found three different subsets of AIS scores. The first subset contained the neck, face, thorax, lower extremity, spine, and head. The second subset was comprised of the thorax, lower extremity, spine, head, and abdomen, while the third subset was made up of the spine, head, abdomen, and upper extremity. Each subset differed significantly from the other subsets ($P \leq 0.01$). The upper extremity differed significantly from all other body segments except the abdomen, while the face differed significantly from the head, abdomen, upper and lower extremities. Table 12 contains the ANOVA table for injury severity by body segment, while Table 13 shows the AIS score for each body segment.

Table 12. ANOVA Table for AIS Score by Body Segment

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	91.017	7	13.002	60.767	0.000
Within Groups	661.820	3093	.214		
Total	752.837	3100			

Table 13. Injury Severity by Body Segment

Body Segment	AIS Score \pm SD
Neck	1.00 ^a \pm 0.000
Face	1.03 ^a \pm 0.178
Thorax	1.14 ^{a,b} \pm 0.360
Lower extremity	1.20 ^{a,b} \pm 0.466
Spine	1.21 ^{a,b,c} \pm 0.411
Head	1.22 ^{a,b,c} \pm 0.495
Abdomen	1.35 ^{b,c} \pm 0.600
Upper extremity	1.50 ^c \pm 0.500

^{a,b,c} Means with the same letter are not significantly different ($P \leq 0.01$)

Combined body segments were also evaluated using ANOVA to determine if differences in AIS scores existed. The upper extremity was significantly different from all body segments except the abdomen ($P \leq 0.01$). The only other statistically significant difference was between the head, face, and neck category and the abdomen. The ANOVA table for this analysis is found in Table 14. The data are presented in Table 15.

Table 14. ANOVA Table for AIS Score by Combined Body Segment

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	86.324	5	17.265	80.170	0.000
Within Groups	666.513	3095	.215		
Total	752.837	3100			

Table 15. Injury Severity by Combined Body Segment

Body Segment	AIS Score \pm SD
Head, face & neck	1.12 ^a \pm 0.371
Thorax	1.14 ^a \pm 0.360
Lower extremity	1.20 ^{a,b} \pm 0.466
Spine	1.21 ^{a,b} \pm 0.411
Abdomen	1.35 ^{b,c} \pm 0.600
Upper extremity	1.50 ^c \pm 0.500

^{a,b,c} Means with the same letter are not significantly different ($P \leq 0.01$)

Significant differences were discovered between injury types in AIS score when injury severity and injury type were compared using ANOVA ($P \leq 0.01$) and followed by Tukey's HSD. This revealed that fractures and dislocations had significantly higher AIS scores than other injury types ($P \leq 0.01$) while sprains/strains, abrasions/contusions, lacerations, and "other" injuries had significantly lower AIS scores than other injury types ($P \leq 0.01$). Concussions were found to be significantly different from all other injury types. Internal/visceral injuries differed from all injury types except dislocations and fractures. The ANOVA table is Table 16, and the injury severity scores for all injury types are listed in Table 17.

Table 16. ANOVA Table for AIS Score by Injury Type

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	524.848	7	74.978	1017.190	0.000
Within Groups	227.989	3093	.074		
Total	752.837	3100			

Table 17. Injury Severity by Injury Type

Injury Type	AIS Score \pm SD
Sprain/strain	1.00 ^a \pm 0.000
Abrasion/contusion	1.00 ^a \pm 0.038
Laceration	1.01 ^a \pm 0.084
Other	1.01 ^a \pm 0.118
Concussion	1.22 \pm 0.428
Internal/visceral	1.76 ^b \pm 0.794
Dislocation	1.86 ^{b,c} \pm 0.351
Fracture	1.89 ^c \pm 0.388

^{a,b,c} Means with the same letter are not significantly different ($P \leq 0.01$)

Injury types were combined, and analysis revealed that concussion differed significantly from all other injury types ($P \leq 0.01$). Soft tissue injuries differed from all injury types other than internal/visceral/other, while internal/visceral/other were significantly different from all other injury types excluding soft tissue ($P \leq 0.01$). Table 18 contains the ANOVA table for this analysis. The data are located in Table 19, which shows the subsets of injury types based on injury severity.

Table 18. ANOVA Table for AIS Score by Combined Injury Type

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	501.346	4	125.336	1542.961	0.000
Within Groups	251.491	3096	.081		
Total	752.837	3100			

Table 19. Injury Severity by Combined Injury Type

Injury Type	AIS Score \pm SD
Soft tissue	1.00 \pm 0.062
Internal/visceral and other	1.08 \pm 0.329
Concussion	1.22 \pm 0.428
Dislocation	1.86 ^a \pm 0.351
Fracture	1.89 ^a \pm 0.388

^{a,b,c} Means with the same letter are not significantly different
($P \leq 0.01$)

Sex Related Hypotheses

Injury Frequency

Following examination of the general hypotheses, the researcher assessed the sex related hypotheses. The first sex related hypothesis to be addressed related to differences in injury frequency between sexes. The injury frequency was higher than expected among males and lower than expected among females. Males comprised 83.55% of the total injuries ($P \leq 0.01$). Figure 12 illustrates the differences in injury distribution by sex. Once females were found to represent significantly fewer injuries, differences in ages of the sexes were evaluated using an independent samples T-test. Levene's Test for Equality of Variances was not significant, and the researcher proceeded with the T-test. Females were found to be older than males by about two years (31.00 compared to 29.28 for males; $P \leq 0.01$).

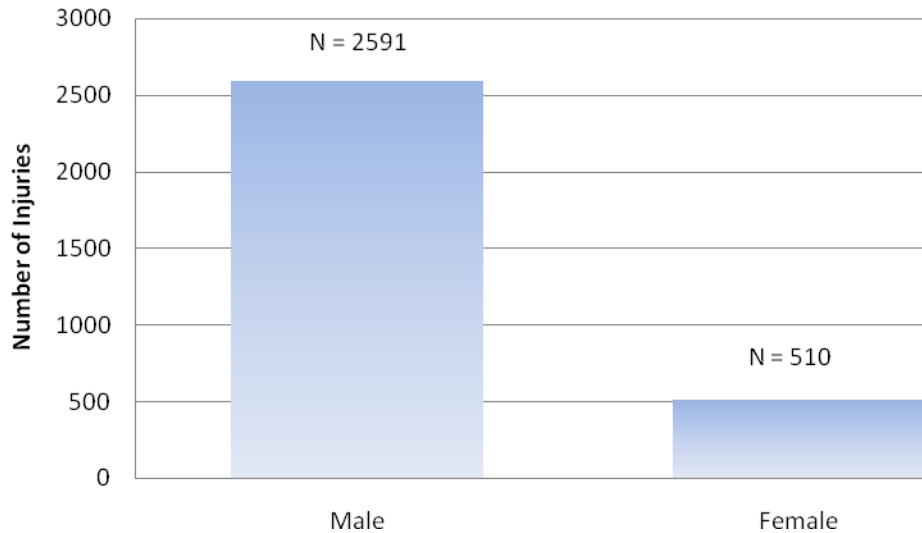


Figure 7. Distribution of Injuries by Sex

Injury Severity

Next, injury severity was compared between sexes. Males had an average AIS score of 1.34 (SD = 0.496), while females average AIS score was 1.29 (SD = 0.474). Levene’s Test for Equality of Variances was significant ($P \leq 0.01$), indicating that an independent samples T-test was not appropriate for this analysis. A Mann-Whitney analysis was performed instead. The Z-score was found to be -2.184 with a P -value of 0.029. Since the current study relied on an alpha of 0.01, these differences were not considered to be statistically significant.

Body Segment

Body segments were evaluated to determine whether or not male and female mountain bikers follow similar injury patterns. Differences in injury patterns were not statistically significant ($P = 0.025$). Table 20 illustrates the similarities in injury patterns between sexes.

Table 20. Number of Injuries by Sex and Combined Body Segment

Body Segment	Males		Females	
	Frequency	Percentage	Frequency	Percentage
Head, face & neck	446	17.21	90	17.65
Thorax	161	6.21	28	5.49
Abdomen	46	1.78	17	3.33
Spine	99	3.82	14	2.75
Upper extremity	1,282	49.48	228	44.71
Lower extremity	557	21.50	133	26.08

Injury Type

Likewise, injury type was evaluated for sex related differences. No significant differences were found but were not statistically significant ($P = 0.012$). Table 21 shows the similarities between sexes in injury type.

Table 21. Number of Injuries by Sex and Combined Injury Type

Injury Type	Males		Females	
	Frequency	Percentage	Frequency	Percentage
Fracture	747	28.83	133	26.08
Concussion	152	5.87	35	6.86
Soft tissue	1,069	41.26	245	48.04
Dislocation	157	6.06	18	3.53
Internal/visceral and other	466	17.99	79	15.49
Total	2,591	100.00	510	100.00

Trends Over Time

To effectively evaluate sex differences in injury frequency trends, years were grouped into two year categories. This provided fewer groups and increased the likelihood that the criteria for Chi-square analysis would be met. The researcher found significant differences in injury frequencies between males and females for the five two-year groupings ($P \leq 0.01$); however, the only group that differed from the expected values was the number of injuries among females for the years 2002-2003, when fewer

than the expected number of injuries were present. Table 22 shows the number of injuries by two year categories for each sex.

Table 22. Injury Frequency by Sex Over Time

	Number of Injuries (%)				
	1998-1999	2000-2001	2002-2003	2004-2005	2006-2007
Male	625 (80.33)	643 (82.44)	531 (87.91)	377 (84.91)	415 (83.84)
Female	153 (19.67)	137 (17.56)	73 (12.09)*	67 (15.09)	80 (16.16)

* Significantly different from the expected value ($P \leq 0.01$)

Although injury severity did not differ between sexes when all data were examined, injury severity between sexes by year was evaluated using ANOVA to determine whether or not differences existed over time. No year had a significant difference in the injury severity pattern between sexes ($P = 0.392$). Table 23 contains the ANOVA table for this analysis. Years were then combined into two year groupings and reevaluated; again, no significant differences were found ($P = 0.163$).

Table 23. ANOVA Table for Injury Severity by Sex Over Time

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4.866 ^a	19	0.256	1.055	0.392
Intercept	2,628.831	1	2,628.831	1,0828.537	0.000
year	2.687	9	0.299	1.230	0.271
sex	.856	1	0.856	3.525	0.061
year *	1.235	9	0.137	0.565	0.827
sex					
Error	747.971	3081	0.243		
Total	6,232.000	3101			
Corrected Total	752.837	3100			

Evaluation of differences in body segment injured and in injury type by sex over time was not conducted due to the small number of injuries in some categories among females. Fewer than five injuries were found in several categories even when the body segments and years were combined. The same was true for data related to injury type; thus, no analyses were conducted.

Age Related Hypotheses

Injury Frequency

The initial age related evaluation was designed to determine whether differences existed in injury frequencies by age group. Ages were combined into 10 year groups beginning with age 5. All individuals over the age of 65 were grouped together. The researcher performed this step to increase the number of subjects in each group when compared to each age as its own category. This combination increased the number of cases such that the criteria for the Chi-square analysis were more likely to be met. Differences in frequency of injury by age group were evaluated using a Chi-square Goodness of Fit test. Significant differences were found among all age categories ($P \leq 0.01$); however, the 5 to 14 and all groups over 45 presented fewer than the expected number of injuries while the 15 to 44 age groups presented greater than the expected number of injuries. The differences between age groups are listed in Table 24.

Table 24. Injury Frequency by Age Group*

Age Group	Observed	Expected
5 to 14	432	443
15 to 24	733	443
25 to 34	895	443
35 to 44	640	443
45 to 54	290	443
55 to 64	95	443
65 and older	16	443
Total	3,101	3,101

* All groups significant ($P \leq 0.01$)

Injury Severity

Injury severity by age was evaluated using a One-Way ANOVA and revealed significant differences ($P \leq 0.01$). However, analysis by individual age contained too few subjects in some categories to allow a post hoc analysis. Ages were grouped to increase the number of subjects per category. Re-analysis found significant differences in injury severity by age category ($P \leq 0.01$). The 45 to 54 year old group had a different AIS score than the 15 to 24 and the 25 to 34 year old group ($P \leq 0.01$). Table 25 contains the ANOVA table for this analysis, while Table 26 shows the variations in AIS score by age category.

Table 25. ANOVA Table for AIS Score by Age

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.938	6	.823	3.404	0.002
Within Groups	747.900	3094	.242		
Total	752.837	3100			

Table 26. Injury Severity by Age Group

Age Group	AIS Score \pm SD
5 to 14	1.34 \pm 0.492
15 to 24	1.30 \pm 0.484
25 to 34	1.31 \pm 0.472
35 to 44	1.32 \pm 0.481
45 to 54	1.44* \pm 0.563
55 to 64	1.39 \pm 0.551
65 and older	1.31 \pm 0.602

* Differed significantly from 15 to 24 and 25 to 34 age groups ($P \leq 0.01$)

Body Segment

Next, the body segment injured was evaluated across age categories. Differences found between several age groups were significant ($P \leq 0.01$); however, several body segment groups in the 55 to 65 group and the 65 and older age group contained fewer than 5 subjects. The results of the age related body segment analysis should be interpreted carefully as a result. The 5 to 14 age group contained more than the expected number of injuries in the head, face, and neck category (105 with 74.7 expected) and fewer than the expected number in the thorax category (7 with 26.3 expected). Slight differences were found in the 15 to 24 age group with fewer than the expected number of thorax injuries and a higher number of abdominal injuries than expected; however, these failed to reach the criteria of statistical significance ($P \leq 0.01$). Additionally, the 35 to 44 age group which had more than the expected number of thorax injuries (64 with 39.0 expected) ($P \leq 0.01$). Table 27 shows the injury frequency by age group compared to expected values. The differences in body segment injured across age group were significant; however, most of them are small. Thus, although differences exist, one should be cautious in interpreting these data.

Table 27. Distribution of Injuries by Combined Body Segment and Age

Age Group	Body Segment (Expected)						N
	Head, Face & Neck	Thorax	Abdomen	Spine	Upper Extremity	Lower Extremity	
5 to 14	105* (74.7)	7* (26.3)	13 (8.8)	9 (15.7)	202 (210.4)	96 (96.1)	432
15 to 24	141 (126.7)	31 (44.7)	24 (14.9)	23 (26.7)	341 (356.9)	173 (163.1)	733
25 to 34	130 (154.7)	47 (54.5)	12 (18.2)	34 (32.6)	465 (435.8)	207 (199.1)	895
35 to 44	97 (110.6)	64* (39.0)	8 (13.0)	27 (23.3)	307 (311.6)	137 (142.4)	640
45 to 54	40 (50.1)	30 (17.7)	4 (5.9)	13 (10.6)	147 (141.2)	56 (64.5)	290
55 to 64	18 (16.4)	8 (5.8)	1 (1.9)	7 (3.5)	41 (46.3)	20 (21.1)	95
65 and older	5 (2.8)	2 (1.0)	1 (0.3)	0 (0.6)	7 (7.8)	1 (3.6)	16

*Significantly different from expected ($P \leq 0.01$)

Injury Type

Injury type was evaluated across age categories. Significant differences were found ($P \leq 0.01$) in the 5 to 14 age group. The 5 to 14 age group contained greater than the expected number of concussions (52 with 26.1 expected) but fewer than the expected number of dislocations (4 with 24.4 expected). No other age groups differed significantly from the expected number of injuries. Table 28 shows the injury frequency by age group for combined injury type along with the expected values for each.

Table 28. Distribution of Injuries by Combined Injury Type and Age

Age Group	Injury Type (Expected)					N
	Fracture	Concussion	Soft Tissue	Dislocation	Internal/Visceral and Other	
5 to 14	134* (122.6)	52* (26.1)	172 (183.1)	4* (24.4)	70 (75.9)	432
15 to 24	185 (208.0)	48 (44.2)	328 (310.6)	37 (41.4)	135 (128.8)	733
25 to 34	241 (254.0)	36 (54.0)	407 (379.2)	62 (50.5)	149 (157.3)	895
35 to 44	186 (181.6)	32 (38.6)	252 (271.2)	41 (36.1)	129 (112.5)	640
45 to 54	98 (82.3)	12 (17.5)	111 (122.9)	25 (16.4)	44 (51.0)	290
55 to 64	34 (27.0)	5 (5.7)	37 (40.3)	5 (5.4)	14 (16.7)	95
65 and older	2 (4.5)	2 (1.0)	7 (6.8)	1 (0.9)	4 (2.8)	16

* Significantly different from expected ($P \leq 0.01$)

Trends Over Time

Next, trends in injury frequency over time were evaluated by age using ANOVA and Tukey HSD post hoc test. The mean age of the injured individuals was 29.56 ± 12.76 years. The minimum age injured was 5 years, while the maximum age was 97 years. The mean age changed over the ten years of the study ($P \leq 0.01$). The years of 1998, 1999, and 2000 had a younger mean age than 2006 and 2007. For example, the mean age in 1998 was 4.126 years younger than in 2006 and 4.962 years younger than in 2007. Years 2006 and 2007 had mean ages that were significantly older than 1998, 1999, and 2000. The mean age for 2007 was also significantly older than in 2001. The mean age changed from a low of 27.48 ± 12.529 in 1999 to a high of 33.00 ± 12.379 in 2007. Table 29 is the ANOVA table for the age by year analysis, while Table 30 shows the average age by year with statistically significant differences denoted. Figure 13 represents the average age of injured persons each year, showing that age increased throughout the study duration.

Table 28. ANOVA Table for Age by Year

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9265.521	9	1029.502	6.420	0.000
Within Groups	495668.271	3091	160.359		
Total	504933.792	3100			

Table 29. Average Age of Injured Persons by Year

Year	Average Age	Standard Deviation
1998	28.03 ^a	13.204
1999	27.48 ^a	12.529
2000	28.33 ^a	13.129
2001	28.53 ^{a,b}	12.513
2002	30.14 ^{a,b}	13.077
2003	29.30 ^{a,b,c}	12.005
2004	30.83 ^{a,b,c}	10.986
2005	31.18 ^{a,b,c}	12.534
2006	32.16 ^{b,c}	13.271
2007	33.00 ^c	12.379
Overall	29.56 ^c	12.763

^{a,b,c} Means with the same letter are not significantly different ($P \leq 0.01$)

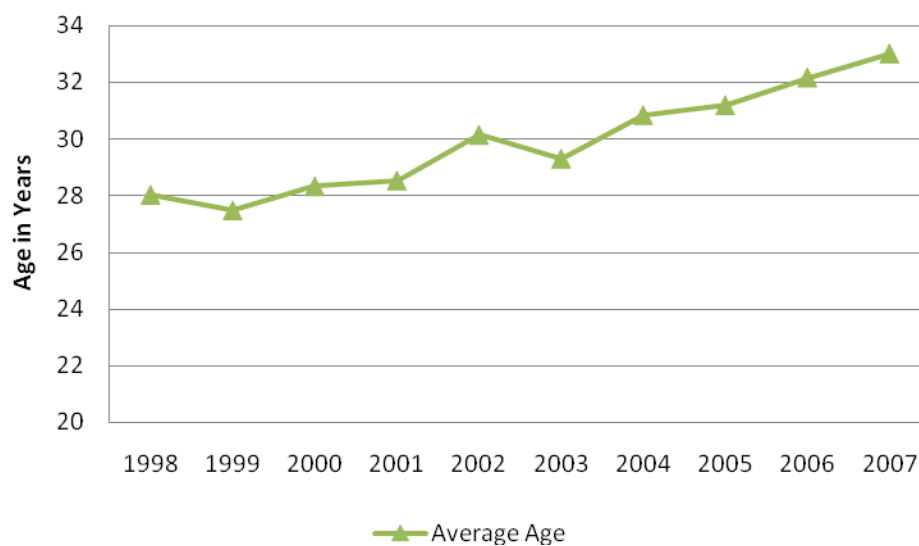


Figure 8. Average Age of Injured Persons by Year

Further analysis of injury trends was conducted to uncover age related trends in injury severity, body segment injured, and injury type. The first analysis was of injury severity trends by year across age. No significant trends in injury severity and age over the time of the study. The criteria for a Chi-square analysis were not met when age differences per body segment injured over the ten years were evaluated since more than

20% of the cells contained less than 5 cases. Likewise, combining years into two year periods failed to meet the criteria for Chi-square. Therefore, no analysis of the data was conducted. The criteria for Chi-square analysis were not met in relation to injury type differences in age groups over time. Since too few data points were present, no analysis was conducted.

CHAPTER V

DISCUSSION

General Findings

The NEISS database is intended to be a representative sample of injuries nationwide. The argument could be made that the database is not representative of mountain bike injuries because of the location of hospitals in the sample compared to the location of popular mountain bike trails. Many popular trails are found in rural locations while many of the hospitals are closer to dense population centers. This could mean that the database misses many mountain bike related injuries because they are not reported to hospitals included in the sample.

Trail usage is dependent on the population density of more urban settings. Trails may be perceived to be a rural phenomenon. Nonetheless, trails are present in New York City, Seattle, Los Angeles, Phoenix, and other urban centers. Ray's Mountain Bike Park is situated in Cleveland, and plans exist to build an indoor mountain bike park in Orlando. The most well known trails may be more remote, as in Moab, Durango, Whistler, and the North Shore, but it is likely that the most commonly ridden trails are closer to major urban settings. If urban trails are ridden more commonly, they would likely be the sites of more frequent injuries. Thus, the disparity in hospital distribution should not impact the representation of mountain bike injuries.

Injury Frequency

Injury frequency varied over time in the current study. The initial evaluation

revealed a high injury frequency in 2001 with 13.4% of all injuries; however, when compared to participation data, the year 2001 experienced fewer than the expected number of injuries. The year 1999 had a high injury frequency related to mountain biking participation. A downward trend in injury frequency began in 2002, with the lowest injury frequency found in 2004; however, the year 2005 exhibited an increased injury frequency over the expected values. The current study did not create or evaluate injury rates; therefore, comparison to injury rates in previous research will be difficult.

Only one study evaluated trends over time. Kim and colleagues found that injury frequency tripled in the North Shore trails area during the ten year period from 1992 to 2002. They found that injury frequency tripled over this ten year period.⁶⁷ The current study did not find this same increase in injury frequency. The difference could be explained by examining the time periods studied and trends in technology and riding styles during the two time periods. Additionally, differences in location and types of riders could explain differences in findings of the two studies.

The current study compared injury frequencies to participation data and found a high number of injuries in 1999 with a downward trend beginning in 2002. The earliest study was from 1993 when Chow et al. performed a survey-based study in which 84% of participants reported suffering a mountain bike related injury.¹⁹ In 1994, Kronisch and Ruben reported that 85.7% of survey respondents sustained an injury.²⁵ Grooten et al. conducted the only other survey-based study and they discovered that 75% of respondents reported an injury. Based on these studies, mountain bike related injuries would seem to be occurring less frequently. Reasons for the frequency pattern found in

the current study are probably tied to participation trends. Participation has declined since 2001 which could be directly connected to the decline in injuries.

Injury Severity

The current study utilized the AIS score to determine injury severity. The mean AIS score was 1.33, with 68% of injuries being classified as minor. Of the remaining injuries, 31% were moderate and less than 1% serious or severe. Critical and maximal injuries were not represented. The absence of the most severe injuries could be related to the data collection method. The NEISS database is comprised of data collected during a patient's time in an emergency room but not during any follow-up medical care. Some injuries classified as serious (AIS = 3) or severe (AIS = 4) could have developed into critical (AIS = 5) or even maximal (AIS = 6) injuries, had hospital staff reported follow-up information to the database. Several of these cases required hospital admission; follow-up information could have changed in the injury severity score. The absence of the most severe injuries lead to a relatively low injury severity score.

Kim et al. found that the number of injuries with an AIS score of 3 or greater increased by 4 to 5 times during the ten year duration of their study.⁶⁷ Additionally, only one fatality was reported during the ten years leading up to 2002.⁶⁷ The current study found no injuries with an AIS score of greater than 4 and no reported fatalities. Kim and colleagues reported an average AIS for the head, neck, abdomen, pelvis, and chest injuries of 3, an average AIS for facial injuries of 2, and an AIS for external injuries of 1.⁶⁷

The low injury severity found in the current study is similar to the injury severity reported by Kronisch et al. for injuries caused by a fall to the side. They reported a Mean

Injury Severity Score (MISS) of 1.3 and found that mountain bikers who fell forward over the handlebars sustained more serious injuries than other injury mechanisms (MISS = 3.0).¹⁶ Kronisch and colleagues reported MISS rather than AIS.¹⁶ MISS is simply the average of the AIS scores for an individual with multiple injuries.¹⁶ The researcher of the current study only evaluated the most severe injury sustained where individuals sustained multiple injuries. Although one study relied on the mean and one relied on the highest AIS score, both studies found a similar injury severity associated with mountain biking.

Chow and Kronisch used a different scale, but also found a low injury severity. They reported that forward falls resulted in an Injury Severity Score (ISS) of 3.4, which differed significantly from the ISS of 1.7 from sideward falls (scores can range from 1 to 75).¹³ The ISS score is calculated by using the AIS score for different body segments whereby the three highest AIS scores are squared and then summed.^{126,131} The ISS has not been assigned the same type of severity categories as the AIS score, making a direct comparison between the two scales difficult. Nonetheless, scores of 3.4 and below are low on a scale of 1 to 75 as is a score of 1.33 on a scale of 1 to 6. In spite of differences in the two scales, both Chow and the current study indicate low injury severities related to mountain biking.¹³ Such low injury severities, even when varying scales were used, reveal that mountain biking has been a relatively safe sport.

The majority of injuries found in the current study were minor. Several studies did not report injury severity scores but classified injuries based on verbal descriptions as minor or severe. Chow, Bracker, and Patrick reported that 69.8% of injuries were mild and self-treatable with only 4.4% reported being admitted to a hospital while only 26% reported seeing a physician for their injuries, either in the office or in an emergency

room.¹⁹ Gaulrapp, Weber, and Rosemeyer found that 75% of injuries in their study met their definition for minimal severity; only 10% met the definition for severe.¹⁴ Only 22.6% of the mountain bikers in another study reported significant injuries.²⁵ Kronisch and Pfeiffer found a high number of mild or minor injuries.¹⁷ In general, studies that did not calculate injury severity also found a low degree of injury severity based on their individual classification methods.

The current study found a low injury severity (AIS = 1.33). This agrees with the majority of current research on mountain bike injuries. The body of research indicates that the risk of serious injury is low for this sport. In other words, mountain biking is a relatively safe sport even though the sport has developed more dangerous types of mountain biking with the rise in freeride and trials. Either trials and freeride are not as dangerous as perceived, or the casual, recreational rider does not frequently partake in these types of mountain biking.

Body Segment

The current study found that upper extremity injuries comprised 48.7% of all injuries followed by lower extremity injuries (22.3%) so that extremity injuries account for 71% of all injuries. Head, face, and neck injuries represented 17% of injuries while the thorax (6%), spine (4%), and abdomen (2%) comprised much smaller portions of the total injuries. Chow reported a higher percentage of extremity injuries than the current study as 90% of riders suffered extremity injuries.¹⁹ Chow also found trunk injuries present in 37% of riders and head and neck injuries present in 12% of injured individuals.¹⁹ The numbers reported by Chow seem contradictory and are higher than those found in the current study; however, many of their survey respondents reported

extremity injuries along with other types of injuries.¹⁹ Head injuries of 12.2%⁶⁷ align closely with the results of Chow et al. while the current study found a much lower percentage of head, face, and neck injuries. While Chow studied competitive mountain bikers, the current study evaluated any injury presented to an emergency room of NEISS hospitals. Competitive riders may take more risks than the average rider and be at greater risk of head, face, and neck injuries.

The current study discovered percentages of upper extremity injuries (48.7%) similar to other studies. Gaulrapp and colleagues found 45.8%,¹⁴ Jeys et al. reported 46%,²⁰ Kim et al. discovered 46.5%,⁶⁷ and Kronisch and colleagues showed 43.2%.¹⁵ In contrast, Kronisch reported fewer upper extremity injuries (33.9%)¹⁶ while Rivara found a greater percentage of upper extremity injuries (56.7%).²³ The high number of upper extremity injuries in all studies could be related to the rider's instinct to reach out in order to break a fall. This seems to hold true for competitive riders as well as more recreational riders.

The combination of upper and lower extremity injuries found in the current study (71%) remains lower than that reported by others because of fewer lower extremity injuries (22.3%) in the current study. Gaulrapp et al. reported that the lower extremity comprised 38.8% of all injuries with the total of extremity injuries being almost 85%.¹⁴ Kronisch, Pfeiffer, and Chow found that lower extremity injuries (37.1%) represented a greater portion of the whole than did the current study.¹⁶ Rivara and colleagues reported an even higher percentage of lower extremity injuries (42.5%) with extremity injuries representing about 99% of all injuries.²³ In contrast, Kim et al. categorized extremity injuries as "orthopedic" injuries which comprised 46.5% of the total injuries meaning the

percentages attributable to the upper and lower extremity were significantly lower than those of the current study.⁶⁷ Similar to the current study, Kronisch et al. found upper extremity injuries (43.2%) to be the most common followed by lower extremity injuries (27.3%) making extremity injuries 70.5% of the whole.¹⁵ The current study found a high number of extremity injuries compared to other research; however, the lower extremity injuries were less represented in the current study than in other research. Many of the studies that reported more lower extremity injuries were conducted at race settings. Perhaps competitive mountain bikers use their feet more in turning or to break a fall than the non-competitive rider.

The injury mechanism was not known for injuries in the current study. However, the high number of upper extremity injuries is likely due to the tendency to reach out to break the fall. In a forward fall over the handlebars, the rider's tendency is often to reach down and out to protect the head. In a sideways fall, the rider often stretches the arm out to try to catch him or herself. Thus, the high number of upper extremity injuries was expected.

The upper extremity yielded the highest AIS score of 1.5; all other body segments had lower scores (abdomen = 1.35, spine = 1.21, lower extremity = 1.2, thorax = 1.14, and head, face and neck = 1.12). Kim et al. utilized different body segment categories, but reported higher injury severity scores for the head, neck, abdomen, pelvis and chest (AIS = 3), and the face (AIS = 2) while reporting a low score for external injuries (AIS = 1).⁶⁷ External injuries were not classified as a body segment in the current study. In general, the current study reported lower injury severities than those reported by Kim, Differences between the current study and Kim could be related to the differences in

geographical area studied and the type of riding by participants in those areas. The current study evaluated injuries nationwide while Kim focused on the North Shore area, which is well-known for freeride style mountain biking.

The current finding of AIS score for head, face and neck of 1.12 is somewhat surprising since both severe (AIS = 4) injuries included in this study were head injuries. However, many head and face injuries were lacerations or contusions, which have a low AIS score. The neck category exclusively contained AIS of 1 injuries as the spine is not included in this body segment. The low severity for head, face, and neck may indicate that riders did not commonly fall forward over the handlebars, as this type of a fall results in more severe injury to these body segments.

The finding of higher injury severity for the upper extremity is understandable. A high number of fractures were reported for the upper extremity. Fractures generally received an AIS score of 2. Exceptions include femur fractures (AIS of 3) and fingers, toes, and ribs (AIS 1). Additionally, most dislocations were coded as AIS of 2. The large number of fractures and dislocations increased the AIS score for the upper extremity over other body segment. Therefore, those who work with mountain bikers should be prepared to treat upper extremity injuries, especially fractures.

Injury Type

The highest proportion of injuries was soft tissue injuries at 42%. The remaining categories presented as follows: fractures (28%), internal/visceral/other (18%), dislocation (6%), and concussion (6%). The soft tissue category resulted from the combination of several other categories: abrasions/contusions (23%), lacerations (18%), and strains/sprains (1%). Chow and Kronisch reported strains and sprained to comprise

11.0% of injuries.¹³ These results differ from those of Gaulrapp and colleagues, who reported soft tissue injuries, such as lacerations, wounds, and contusions, comprised 75.4% of total injuries.¹⁴ They discovered an additional 9.9% of injuries were joint related, sprains, ligament tears, and dislocations, while fractures only represented 5.5% of injuries.¹⁴ Jeys and colleagues found that 45% of injuries were fractures.²⁰ In comparison, they found a much higher percentage of strains and sprains and a much lower percentage of fractures than the current study. The current study only found soft tissue injuries to outnumber fractures when the abrasion/contusion, laceration, and strain/sprain categories were combined.

The presence of fewer soft tissue injuries could be related to the use of emergency room data in the current study. Injured individuals probably do not seek such treatment for scrapes and abrasions unless they are serious enough to warrant stitches or the injured person suspects a fracture. The low number of these injuries in the current study does not mean they do not exist, as other research has shown them to occur as the majority of injuries. The lack of strains and sprains in the current study may be explained in the same manner. Injured individuals may not go to the emergency room for a strain or a sprain unless they really suspect a more serious underlying injury.

The current study was consistent with other research as Kronisch and Rubin reported fractures at 26% of traumatic injuries.²⁵ Approximately 65% of their survey respondents reported less significant injuries, primarily abrasions (reported by 65.3% of respondents), contusions (52.1%), and lacerations (41.5%).²⁵ Rivara and colleagues likewise found fractures to represent 25.2% of injuries with the majority of injuries being soft tissue type injuries (abrasions 45.7%, lacerations 40.2%, and contusions 26.8%).²³

The current study found a similar percentage of fractures as both of these studies but revealed a lower number of soft tissue injuries than Kronisch and Rubin. Fractures are the most common injury when soft tissue injuries are not considered, as revealed by the current research and other studies. Fractures were likely common in the current study because of the use of emergency room data.

In contrast, several studies revealed a much lower percentage of fractures than the current study. Kronisch et al. found fractures made up 11.4% of total injuries, as did contusions and lacerations.¹⁶ They discovered abrasions to be the most common (50.0%),¹⁵ which contrasts with the 23% of injuries attributed to abrasions and contusions in the current study. Kronisch et al, in another study, found abrasions to be the most common (56.4% of injuries) leaving fractures to comprise 9.7% while concussions and soft tissue injuries (sprains, lacerations, and contusions) each comprised 6.5% of the total number of injuries.¹⁶ When compared to the current study, Kronisch found a higher percentage of sprains and concussions but a lower percentage of lacerations and contusions. Pfeiffer also reported a high proportion of wounds and bruises with a small number of fractures.¹⁸ Studies designed in such as way that soft tissue injuries were assessed consistently found that soft tissue injuries outnumbered fractures.

Differences in the pattern of injury type between the current study and other research may be explained by evaluating data collection methods. The current study found a high number of fractures compared to other studies. The combined grouping of lacerations, abrasions/contusions, and sprains/strains caused them to outnumber fractures. Data obtained through the NEISS database excludes the most minor injuries such as abrasions, contusions, and small lacerations as injured persons may not seek medical

attention in an emergency room unless a moderately severe injury is suspected. Kronisch and his colleagues conducted their work at races where all injuries were reported.^{15, 16, 24} Gaulrapp and Pfeiffer utilized survey data which asked about all types of injuries.¹⁴ These methods of data collection gathered more information about soft tissue injuries than the methodology used in the current study and by Jeys et al. Studies that relied on information from hospital emergency rooms found a high proportion of fractures, as found by Jeys et al.²⁰ and the current study.

Another possible explanation for differences in injury type patterns might be the type of mountain bike rider in the studies. Kronisch and Pfeiffer tended to rely on elite athletes at national races.^{15, 16, 18, 24} On the other hand, Jeys et al.²⁰ and the current study did not distinguish skill level of the rider. Differences in rider type may relate to the variations in injury type patterns found by different researchers. Soft tissue injuries, although not common in the current study, are relatively frequent as well. Therefore, individuals providing medical treatment at race settings should be prepared for a high number of skin related injuries.

Mountain bikers are likely to suffer fractures in the current study. Medical professionals in areas popular for mountain biking should be prepared to treat a high number of fractures. Mountain bikers would be wise to carry a first aid kit with sufficient materials to treat soft tissue wounds. Participation in first aid training might also be wise for mountain bikers. Additionally, keeping splinting materials nearby would be wise for mountain bikers in order to protect a fractured body part until the injured person can get medical care.

Trends in Injuries

The current study also considered injury severity by injury type and found fractures (AIS = 1.89) and dislocations (AIS = 1.86) to be the most severe injury types. In comparison, soft tissue injuries average an AIS score of 1 with internal/visceral/other and concussion being slightly higher (AIS score of 1.08 and 1.22 respectively). The finding of injury severity scores approaching 2 for fractures and dislocation failed to surprise the researcher because the majority of such injuries were coded as an injury severity of 2, according to the 2005 AAAM guidelines.²⁷ In fact, the only fractures and dislocations to receive a lower score were injuries to the phalanges. Six femur fractures were included in the data; these were coded as a 3 according to the AAAM guidelines.²⁷ Finger and toe injuries were sufficiently frequent to reduce the mean AIS score for fractures and dislocations below 2 in spite of the presence of femur fractures. While trends existed, they did not differ from the expected pattern of injury severity by injury type. Fractures were the most severe but they are not considered serious or life-threatening. Nonetheless, several serious fractures were present in the current study. Medical practitioners treating mountain bike injuries should be prepared to handle serious fractures, such as femur fractures.

The researcher was somewhat surprised to find a low AIS score (1.08) for internal/visceral/other injuries; likely this is related to the inclusion of the “other” injuries. The internal/visceral category included internal abdominal bruising and damage to internal organs which were coded higher than an AIS score of 1. Several of the cases were scored as AIS of 3; however, this category also included the “other” category of injuries, meaning that injuries due to foreign bodies in the skin, such as cactus, were also

included. Enough minor injuries of the other category were contained in this study to lower the expected AIS score for this injury type. Therefore, mountain bikers should not discount the risk of severe internal/visceral type injuries, and medical practitioners should be prepared to treat such injuries even though they are relatively infrequent.

Sex Related Findings

General Findings

The current study found that males accounted for 83.55% (n = 2591) of the total injuries while females represented the remaining 16.45% (n = 510). These findings are almost identical to Jeys et al. who reported that 83% of injuries occurred among males.²⁰ Kloss et al. revealed a lower percentage of injuries among males (71.43%)⁸¹ while Rivara found a higher percentage (86.6%).²³ Jacobson et al. reported that males accounted for 3.5 times the number of cycling injuries of females, which is significantly lower than the current study, but did not specify the differences for mountain biking compared to road cycling.⁵⁴ In spite of differences in the actual percentage, all research to date has revealed a much higher frequency of injury among males than females. The differences in injury frequencies between sexes are likely tied to differences in participation rates.

The current study revealed that females injured as a result of mountain biking were almost 2 years older than injured males (31.00 years for females compared to 29.28 years for males). Most researchers did not report average age by sex;^{13, 14, 19, 26} however, Pfeiffer discovered that females were about 2.5 years older than the males.¹⁸ Similarly, Kronisch reported injured females to be 30.8 years old while their male counterparts were 28.4 years old.²⁴ The current study found age related patterns among sexes that confirm results of previous research. Females may not begin mountain biking as early as males,

which could lead to age differences among injured riders. Age differences could translate into differences in injury patterns; although, this did not seem to be the case in the current study.

Injury Severity

Injury severity did not differ significantly between sexes in the current study; however, no research published to date was found that compared injury severity scores between sexes. Kronisch et al. did not report the information because no significant differences existed.¹⁵ Kronisch and colleagues revealed that females were more likely to fall forward over the handlebars during cross-country mountain biking than their male counterparts.¹⁶ Such falls result in more severe injuries regardless of the sex of the rider.²³ Kronisch et al. reported that females were not only more likely to sustain an injury but also more likely to suffer a fracture than their male counterparts.²⁴ These studies indicate that females are more likely to be injured and to sustain more severe injuries than males. However, the current study does not agree with this research as no statistically significant differences were found in injury severity between sexes.

The lack of differences in injury severity between sexes could relate to riding strategies. Females may ride more cautiously than males. Females may not attempt to ride the most difficult trail sections. They may not ride outside their ability as often as males. Females do not seem to participate in the more dangerous aspects of the sport, such as freeride, very commonly.

Body Segment

Both sexes experienced similar patterns in terms of body segment injured. Pfeiffer reported significant differences in body segment injured by sex: females experienced

fewer lower extremity injuries (39.6% versus 53.16% among males) and greater numbers of upper extremity injuries (39.6% opposed to 33.2% for males).¹⁸ Additionally, Pfeiffer revealed females to be more susceptible to low back (16.5% compared to 3.8%) and face/dental injuries (3.3% versus 0.96%).¹⁸ The current study did not reveal statistically significant differences in body segment injured by each sex. The pattern found in the current study varies from that of Pfeiffer.

The variation in these two studies is likely related to subject selection. Pfeiffer studied injured individuals at race settings. It is likely that differences in rider characteristics are greater at the competitive level than at the recreational level. The current study included more recreational riders than Pfeiffer because of the nature of data in the NEISS database. Based on the results of the current study, medical practitioners should expect to treat similar body segments for both sexes injured during mountain biking.

Injury Type

Statistically, no differences existed between sexes in the type of injury based on an alpha level of 0.01; however, these differences proved extremely close to being statistically significant ($p = 0.012$). Soft tissue injuries (48% for females and 41% for males) were found to be more numerous than fractures (26% in females and 29% in males). The statistically similar number of fractures for both sexes differs from Kronisch and colleagues' findings who reported a higher percentage of fractures among females mountain bikers (45.5% compared to 21.1%).²⁴ This translated to a 4.17 times increased risk of fracture for females.²⁴ In contrast, Pfeiffer discovered a much lower percentage of fractures among both males and females (4.3% and 4.4%, respectively) than the current

study.¹⁸ The low number of fractures resulted from a higher number of soft tissue injuries with females sustaining more wounds and bruises in Pfeiffer's study (68.2% versus 58.1% for males).¹⁸

The differences in injury frequency between sexes are likely related to differences in participation rates between sexes. The current study found no statistically significant differences in injury severity, body segment injured, or injury type between sexes while other researchers did not find such similarities between sexes. This is likely related to differences in sample selection between the current study and other research. Kronisch and Pfeiffer relied on race participants for their subject pool while the current study used data collected from emergency room settings. Competitive riders may have different injury characteristics than the recreational rider. It is possible that these sex differences are only revealed when riders compete. Competitive females may ride more aggressively than the casual rider, leading to a higher risk of fractures among females. It may also be likely that years of experience affect variation in injury patterns between sexes. Recreational males and females may have more similar years of experience than competitive riders. These variations could explain the differences in injury patterns between sexes found in other studies compared to the current study.

Trends Over Time

Females suffered fewer injuries than expected in 2002-2003 while experiencing slightly more injuries than expected in 1998-1999. These data were not compared to participation data as that data was not available at the time of analysis. Significant differences in body segment injured and injury type were not found over time between the two sexes, primarily because not enough data points were present in some categories

to allow an appropriate analysis. In the end, trends over time were not evaluated or were only minimally significant.

Age Related Findings

General Findings

The average age of all injured persons in the current study was 29.56 ± 12.763 with a range of 5 to 96. Some injuries were included in the NEISS database for subjects younger than 5 years of age; however, the researchers believed the likelihood of such young individuals actually riding a bike that could be considered a mountain bike was too small for inclusion in the study. The 5 year old patients were included because several of the injury descriptions specified that they were injured in a mountain bike race.

Additionally, the NEISS database contained one subject with an age of 120. Researchers believed this age to be a typographical error and excluded the case, having no way of knowing the injured person's actual age.

The age group sustaining the most injuries in the current study was the 25 to 34 year old group (29% of all injuries), followed by 15 to 24 year olds (24%) and 35 to 44 year olds (21%). Five to 14 year olds represented 14% of all injuries with 45 to 54 year olds comprising 9%. The remaining categories accounted for 3% and less than 1% (55 to 64 and 65 and older respectively).

The current study differs from results reported by other researchers. Jacobson, Blizzard, and Dwyer found that children under the age of 15 represented 67.9% of hospitalizations related to biking in Tasmania; well over half of these were mountain biking injuries rather than road biking injuries.⁵⁴ Jeys and colleagues reported an average age of 22.5 among injured mountain bikers in rural England.²⁰ Kloss, et al. reported an

average age of 34.01.⁸¹ Rivara et al. found that 73.2% of injured mountain bikers were between the ages of 20 and 39.²³ The mean age of injured riders in the current study is similar to that found by Kloss and Rivara. Interestingly, Kloss's study was conducted in 2006 while Jeys and colleagues' was in 2001, Rivara's in 1997, and Jacobson's in 1998. A pattern emerges related to the average age found in these studies as the average age increases with the year in which the study was conducted. The current study indicates that injured riders are getting older as the average age increased during the study from a low in 1999 of 27.48 to a high in 2007 of 33.

However, Pfeiffer reported an average age of 29.16 in 1994¹⁸ while Kronisch et al. found an average age of 28.97 in 2002.²⁴ Both studied competitive mountain bikers, but the average age of the current study aligns more closely with their results. In contrast to the current study, Chow reported an average age of 36.2 in 1993.¹⁹ This also contradicts the pattern that injured mountain bikers are getting older. Nonetheless, the average age in the current study is similar enough to that found by other researchers to be an expected result of the current study.

The increase in age over time found in the current study could be related to a lack of recruitment of new younger riders. Perhaps existing riders continue in the sport, but few new riders have been joining them. Another possible explanation could be that the older riders are attempting new skills with the increased popularity of more dangerous aspects of the sport. They may not have the capability to successfully complete the skill and sustain injury.

Injury Severity

The current study found significant differences in injury severity between age groups. The 45 to 54 age group experienced a significantly higher average AIS score than both the 15 to 24 and 25 to 34 year old age groups. Differences between all other age groupings were not statistically significant. No other research was found to have evaluated injury severity by age; however, Kloss et al. considered age (specifically being younger than 14 years old or older than 70) to be a risk factor for sustaining a mountain bike injury.⁸¹

The high injury severity for the 45 to 54 year old age group surprised the researcher for the current study. The expected result was for riders in their teens or early twenties to have the highest injury severity because of a perceived lack of risk aversion. Riders in older age groups may experience higher injury severities because they pick up the sport later in life and have fewer years of experience. Another possible explanation for this unexpected result could be that this age group has begun to lose muscle strength. Decreased upper body strength may place riders at a greater risk of forward falls, and therefore, at greater risk for more severe injuries. A complication to this though is older age group riders may be more aware of their own limitations and either stop riding mountain bikes or ride more carefully. Combined with the potential decline in upper body strength, this age group may be more likely to ride mountain bikes as “weekend warriors” without enough physical conditioning to prepare them adequately for the rigors of mountain biking.

Body Segment, Injury Type, and Trends

Trends in body segment injured as well as injury type were examined for all age groups. Too few data points were present in some age categories to meet the criteria for statistical analyses. Future evaluation of these trends could be completed with more years of data to increase the number of data points.

The major age related findings of the current study were the average age of injured individuals and the injury severity of the various age groups. The average age was found to be 29.56 ± 12.763 ; however, age was shown to increase over the ten years of the study. The increasing age of injured riders might be related to participation data. Participation in the sport has declined since the early 2000s. The decline may be connected to a lack of recruitment of younger riders. It is also possible that some of the more extreme aspects of the sport have scared away new recreational riders because many see the sport as too dangerous.

Summary

The current study purposed to create a comprehensive picture of mountain bike related injuries while determining whether or not trends in injury patterns exist between 1998 and 2007. The study found a predominance of injuries among males (83.55%), with the average age of injured persons of 29.56 years \pm 12.76. Overall, the severity of injuries from mountain biking was low with an average AIS score of 1.33 ± 0.493 . The upper extremity was the most commonly injured body segment while fractures were the most common injury type. No sex differences in injury severity were present.

Trends discovered include the injury frequency pattern and the age of injured persons. The frequency of injuries peaked in 1999 with a dropping off of injury

frequency beginning in 2002 likely related to participation trends. A small spike was present at the end of the years evaluated, which could be simply a spike or could be the beginning of an upward trend in injury frequency. The average age of injured persons was found to increase from a low in 1999 to a high in 2007. No other trends were noted; however, the current study relied on a stringent statistical significance level with a selected alpha of 0.01. This was chosen to minimize the risk of Type I error; however, several trends would have been statistically significant if a lower statistical significance level had been chosen. Overall, injury severity did not increase over the ten years of the study, which indicates that mountain biking has been, and continues to be, a relatively safe sport.

The current study confirmed many of the findings of previous studies, such as injury frequency, injury severity, body segment injured, and frequency of injuries among males. It also contradicted findings of research in other areas, such as injury severity differences between sexes and age related patterns. This study creates a picture of mountain bike injuries in a time of transition in mountain bike trends, especially as freeride and trials riding become more popular. Understanding injury patterns may be helpful in encouraging more females to become involved in the sport while helping to prevent, or at least reduce the risk, of injuries. This understanding may also be useful for medical practitioners in popular mountain bike areas to ensure they are optimally prepared to treat such injuries.

Considerations for Future Research

Several considerations will be important for future research. First, researchers should continue to examine trends in injury frequency. The current study found a drop in

frequency following 2002 with a small spike in 2005. Researchers should consider whether or not the increase in injury frequency in 2005 is simply a spike or rather the beginning of a trend of increased injury frequency.

Further researcher should calculate injury rates for mountain biking injuries. This would allow for better comparison against the existing data. The most recent injury rates in research were calculated in 2001. More current assessment of the risk associated with mountain biking would be helpful in evaluating injury trends in the sport. This assessment should to be consistent with the most common injury rate calculations used in mountain bike related research to allow better comparisons between studies.

Another task for researchers in the future involves evaluating injury rates by sex and by age. Kronisch created injury rates by sex in 1996,¹⁶ but a current evaluation would help create a more complete understanding of current mountain bike injuries. Injury rates by age would provide valuable information about the relative risk of the sport of mountain biking.

Additionally, future research could examine the timeline of technological advances in mountain biking equipment and technology in relation to injury patterns and trends. This would assist in determining whether or not adjustments and advancements to equipment parallel patterns in injury frequency and severity. Such research might help explain the spike in injury frequency found in 1999 compared to participation data. Nehoda et al. reported on central liver hematomas that were caused by a particular type of bar end that was on the market prior to 2001. Such injuries likely resulted in the removal of this bar end from the market.⁷⁴ Similarly, Patel pointed to clipless pedals as a cause of injury in 2004. Clipless pedals remain common; however, safer designs might be

warranted if future research points to a high level of injury from such equipment.⁵⁵

Researchers might find other connections to faulty or poorly designed equipment.

Follow-up studies might examine the month in which injuries occurred. One would expect that more injuries would occur during the summer months than during the winter months as weather is more conducive to mountain biking during the summer. Does the NEISS data support this hypothesis? Another question to consider would relate to injury severity. Does injury severity differ by month? This could provide valuable information to riders in terms of deciding which time of year to ride as well as to medical practitioners as to when to be alert to the greatest number and most severe injuries.

Future research should re-examine the current data and assign ISS scores when considering injury severity. Many injured individuals in the current study sustained multiple injuries; however, only the most severe injury was reported. A reevaluation of the current data using the ISS scores might provide a more complete picture of injury severity and would provide a better basis for comparison to other research in this area.

Follow-up studies might examine the relationship between upper body strength and the tendency to fall forward over the handlebars. Kronisch, Pfeiffer, and Chow found that females were more susceptible to such falls than are males.¹⁶ A likely explanation for this could be differences in upper body strength. If this proves to be the case, injury prevention strategies would include upper body resistance training programs.

Researchers could continue to examine age related patterns in mountain bike injuries. No explanation currently exists for the higher injury severity discovered among 45 to 54 year olds. Further examination of this finding might result in a better understanding of its cause.

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APPENDICES

APPENDIX A

E-MAIL COMMUNICATION REGARDING USA CYCLING MEMBERSHIP
NUMBERS

From: "Luther, Lindsey" <lluther@usacycling.org>
To: "Gina Kraft" <Gina.Kraft@okbu.edu>
Date: 6/21/2007 4:35 PM
Subject: RE: mountain biking membership

Hi Gina,
I am reflecting the most recent number for Mountain biking members in our Organization is 11,303 I hope this helps.

Lindsey Luther
Member Service Representative
USA Cycling
1 Olympic Plaza
Colorado Springs, CO 80909
PH 719-866-4581
FAX 719-866-3350
lluther@usacycling.org
-----Original Message-----
From: Gina Kraft [mailto:Gina.Kraft@okbu.edu]
Sent: Thursday, June 21, 2007 2:59 PM
To: Luther, Lindsey
Subject: mountain biking membership

Lindsey,

I am currently working on my dissertation at Oklahoma State University on mountain biking injuries. I am trying to determine participation rates in the sport of mountain biking. Is there any way to get membership numbers for mountain biking from USA Cycling? I have searched usacycling.org and have not found the information I am looking for. If you could assist me by pointing me to the right person to contact for this information, I would be extremely grateful.

Thank you for any assistance you are able to provide!

Gina

><> ><> ><> ><> ><> ><> ><>
Gina L. Kraft
Kinesiology & Leisure Studies
Oklahoma Baptist University
Box 61235
500 W. University
Shawnee, OK 74804
(405) 878-2137

APPENDIX B
DATA TABLE

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
828020	2000	8/5/2000	1	2	1	8	1	60	88	5033
980902105	1998	8/29/1998	1	8	1	8	1	57	93	5033
60860383	2006	8/26/2006	1	2	1	10	1	57	76	5033
20438408	2002	4/14/2002	1	7	1	12	1	57	92	5033
11026942	2001	10/4/2001	1	7	1	13	1	57	92	5033
980907621	1998	8/10/1998	1	7	1	13	1	57	92	5033
20958622	2002	9/15/2002	1	8	1	13	1	57	93	5033
729017	2000	7/5/2000	1	2	1	14	1	60	88	5033
50837991	2005	8/13/2005	1	7	1	14	1	57	92	5033
721463	2000	6/27/2000	1	7	1	14	1	57	92	5033
405444	2000	4/2/2000	1	8	1	14	1	57	93	5033
30622480	2003	5/16/2003	1	2	1	15	1	57	76	5033
20912367	2002	8/31/2002	1	2	1	15	1	57	76	5033
10862307	2001	7/27/2001	1	2	1	15	1	60	88	5033
30435447	2003	3/15/2003	1	7	1	15	1	57	92	5033
70705215	2007	6/24/2007	1	2	1	16	1	57	76	5033
40634288	2004	6/10/2004	1	7	1	16	1	57	34	5033
990404574	1999	4/4/1999	1	7	1	16	1	57	92	5033
980906230	1998	9/5/1998	1	8	1	16	1	57	93	5033
30310647	2003	2/2/2003	1	2	1	18	1	57	76	5033
990712836	1999	6/29/1999	1	2	1	18	1	57	76	5033
61039751	2006	10/10/2006	1	7	1	18	1	57	92	5033
30927758	2003	9/1/2003	1	2	1	19	1	60	88	5033
70105280	2006	12/16/2006	1	7	1	19	1	57	92	5033
10739141	2001	7/14/2001	1	7	1	19	1	57	92	5033
990609713	1999	6/7/1999	1	2	1	20	1	57	76	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980905767	1998	8/13/1998	1	2	1	21	1	57	76	5033
980933289	1998	8/29/1998	1	2	1	23	1	57	76	5033
41214647	2004	11/30/2004	1	4	1	23	1	57	31	5033
980819326	1998	8/12/1998	1	4	1	23	1	57	31	5033
20834127	2002	8/15/2002	1	7	1	23	1	57	92	5033
10613610	2001	6/4/2001	1	8	1	23	1	57	93	5033
40714875	2004	7/4/2004	1	2	1	24	1	57	76	5033
70716976	2007	7/1/2007	1	7	1	24	1	57	92	5033
61231453	2006	12/17/2006	1	7	1	25	1	57	92	5033
10721565	2001	7/8/2001	1	7	1	25	1	57	92	5033
50723799	2005	6/12/2005	1	2	1	26	1	57	76	5033
50530886	2005	5/2/2005	1	2	1	26	1	57	76	5033
70511120	2007	4/14/2007	1	2	1	27	1	57	76	5033
991018773	1999	10/14/1999	1	7	1	27	1	57	92	5033
20327965	2002	2/12/2002	1	2	1	28	1	57	76	5033
928732	2000	9/3/2000	1	7	1	28	1	57	92	5033
409760	2000	4/8/2000	1	8	1	28	1	57	93	5033
30726507	2003	6/30/2003	1	7	1	29	1	57	92	5033
10628602	2001	6/11/2001	1	7	1	29	1	57	92	5033
991029134	1999	10/24/1999	1	7	1	29	1	57	92	5033
980709997	1998	7/6/1998	1	7	1	29	1	57	92	5033
10927022	2001	9/4/2001	1	2	1	30	1	60	88	5033
70126807	2006	12/31/2006	1	7	1	30	1	57	92	5033
40125562	2003	9/20/2003	1	7	1	30	1	57	30	5033
981213669	1998	7/19/1998	1	7	1	30	1	57	92	5033
30720943	2003	7/9/2003	1	7	1	31	1	57	92	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10637050	2001	6/18/2001	1	7	1	31	1	57	92	5033
10554191	2001	5/26/2001	1	2	1	32	1	57	76	5033
40323203	2004	2/23/2004	1	7	1	32	1	57	92	5033
10623042	2001	6/10/2001	1	7	1	32	1	57	92	5033
11004878	2001	9/27/2001	1	7	1	32	1	57	92	5033
991122421	1999	11/7/1999	1	4	1	33	1	57	31	5033
60604157	2006	5/25/2006	1	7	1	33	1	57	92	5033
71248939	2007	12/23/2007	1	4	1	34	1	57	31	5033
20315496	2002	3/3/2002	1	4	1	34	1	57	31	5033
51155860	2005	11/27/2005	1	7	1	34	1	57	92	5033
30804816	2003	7/28/2003	1	4	1	35	1	57	31	5033
71044106	2007	10/2/2007	1	2	1	36	1	57	76	5033
990525001	1999	5/13/1999	1	7	1	36	1	57	92	5033
20943124	2002	9/15/2002	1	2	1	37	1	57	76	5033
20927042	2002	9/8/2002	1	7	1	37	1	57	92	5033
10862295	2001	7/29/2001	1	7	1	37	1	57	92	5033
70508108	2007	4/30/2007	1	4	1	38	1	57	31	5033
41135384	2004	11/14/2004	1	4	1	38	1	57	31	5033
61211847	2006	12/4/2006	1	4	1	39	1	57		5033
61201273	2006	11/27/2006	1	4	1	39	1	57	31	5033
50830374	2005	8/8/2005	1	4	1	39	1	57	31	5033
980914545	1998	8/30/1998	1	4	1	39	1	57	31	5033
30426494	2003	4/12/2003	1	7	1	39	1	57	92	5033
638003	2000	6/10/2000	1	7	1	39	1	57	30	5033
30535183	2003	4/21/2003	1	2	1	40	1	57	76	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
981217372	1998	12/12/1998	1	7	1	40	1	57	92	5033
981119799	1998	11/17/1998	1	2	1	41	1	53	76	5033
21100104	2002	10/20/2002	1	4	1	41	1	57	31	5033
126107	2000	1/16/2000	1	2	1	42	1	57	76	5033
10927013	2001	9/3/2001	1	4	1	42	1	57	31	5033
70848978	2007	7/26/2007	1	7	1	42	1	57	92	5033
10602176	2001	5/20/2001	1	7	1	42	1	57	92	5033
61143318	2006	11/11/2006	1	4	1	43	1	57	31	5033
991122564	1999	11/15/1999	1	4	1	44	1	57	31	5033
70920128	2007	9/6/2007	1	7	1	44	1	57	92	5033
11227601	2001	12/6/2001	1	7	1	44	1	57	92	5033
20737118	2002	7/16/2002	1	7	1	45	1	57	92	5033
813936	2000	7/27/2000	1	7	1	45	1	57	92	5033
707484	2000	6/24/2000	1	4	1	46	1	57	31	5033
70909706	2007	8/16/2007	1	7	1	46	1	57	92	5033
30653178	2003	6/22/2003	1	4	1	48	1	57	31	5033
10852030	2001	8/22/2001	1	4	1	50	1	57	31	5033
61233946	2006	12/18/2006	1	4	1	56	1	57	31	5033
50900836	2005	8/28/2005	1	7	1	59	1	57	92	5033
60118944	2006	1/5/2006	1	4	1	60	1	57		5033
20245448	2002	2/25/2002	1	4	1	60	1	57	31	5033
906648	2000	9/3/2000	1	4	1	62	1	57	31	5033
20856175	2002	8/23/2002	1	2	1	21	2	60	88	5033
10427375	2001	4/11/2001	1	4	1	23	2	57	31	5033
980830458	1998	8/25/1998	1	2	1	24	2	57	76	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980114832	1998	1/9/1998	1	2	1	27	2	60	88	5033
981224217	1998	12/25/1998	1	2	1	29	2	57	76	5033
70860074	2007	8/25/2007	1	4	1	33	2	57	31	5033
991018496	1999	10/9/1999	1	4	1	35	2	57	31	5033
31101141	2003	10/10/2003	1	7	1	35	2	57	92	5033
20406200	2002	4/1/2002	1	7	1	35	2	57	92	5033
30109056	2003	1/1/2003	1	7	1	36	2	57	92	5033
11211365	2001	12/6/2001	1	4	1	43	2	57	31	5033
30338113	2003	3/14/2003	1	7	1	46	2	57	33	5033
10837200	2001	8/13/2001	1	4	1	49	2	57	31	5033
990908529	1999	9/6/1999	1	4	1	50	2	57	31	5033
808283	2000	8/2/2000	1	7	1	51	2	57	92	5033
980819307	1998	8/9/1998	1	7	1	51	2	57	92	5033
980620084	1998	6/13/1998	1	2	1	53	2	57	76	5033
980402647	1998	3/29/1998	1	8	1	54	2	57	93	5033
11044774	2001	10/20/2001	1	7	1	55	2	57	92	5033
70612405	2007	6/1/2007	1	4	1	57	2	57	31	5033
10444719	2001	4/17/2001	1	1	2	5	1	52	75	5033
1101751	2000	10/21/2000	1	1	2	7	1	62	75	5033
71059707	2007	7/14/2007	1	1	2	8	1	52	75	5033
721762	2000	7/2/2000	1	1	2	9	1	62	75	5033
70937323	2007	5/3/2007	1	1	2	10	1	62	75	5033
20644518	2002	6/19/2002	1	1	2	11	1	52	75	5033
10850038	2001	8/24/2001	1	1	2	11	1	62	75	5033
20123090	2001	12/27/2001	1	1	2	11	1	52	75	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
804825	2000	7/17/2000	1	1	2	11	1	52	75	5033
990511490	1999	5/7/1999	1	1	2	11	1	62	75	5033
60401571	2006	3/30/2006	1	1	2	12	1	62	75	5033
20912261	2002	8/31/2002	1	1	2	12	1	62	75	5033
21222167	2002	11/27/2002	1	1	2	12	1	52	75	5033
10933869	2001	9/8/2001	1	1	2	12	1	52	75	5033
20128234	2001	12/29/2001	1	1	2	12	1	62	75	5033
990921195	1999	8/26/1999	1	1	2	12	1	52	75	5033
60820211	2006	8/6/2006	1	1	2	13	1	52	75	5033
30322537	2003	3/9/2003	1	1	2	13	1	52	75	5033
20752606	2002	7/23/2002	1	1	2	13	1	62	75	5033
10843903	2001	8/18/2001	1	1	2	13	1	62	75	5033
981000268	1998	9/2/1998	1	1	2	13	1	62	75	5033
60507483	2006	4/29/2006	1	1	2	14	1	62	75	5033
40907159	2004	8/16/2004	1	1	2	14	1	52	75	5033
41007455	2004	10/3/2004	1	1	2	14	1	52	75	5033
30533747	2003	4/29/2003	1	1	2	14	1	62	75	5033
40506461	2003	7/23/2003	1	1	2	14	1	52	75	5033
20816238	2002	8/6/2002	1	1	2	14	1	62	75	5033
20939027	2002	9/10/2002	1	1	2	14	1	52	75	5033
10440586	2001	4/21/2001	1	1	2	14	1	62	75	5033
10611705	2001	6/5/2001	1	1	2	14	1	62	75	5033
724466	2000	6/27/2000	1	1	2	14	1	52	75	5033
827850	2000	7/25/2000	1	1	2	14	1	52	75	5033
837456	2000	8/18/2000	1	1	2	14	1	52	75	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
1050014	2000	10/12/2000	1	1	2	14	1	52	75	5033
990412883	1999	4/12/1999	1	1	2	14	1	52	75	5033
990609250	1999	6/3/1999	1	1	2	14	1	62	75	5033
990616480	1999	6/10/1999	1	1	2	14	1	62	75	5033
990819685	1999	8/13/1999	1	1	2	14	1	52	75	5033
980710053	1998	7/6/1998	1	1	2	14	1	52	75	5033
70734167	2007	7/11/2007	1	1	2	15	1	52	75	5033
51202579	2005	11/26/2005	1	1	2	15	1	62	75	5033
20850373	2002	8/21/2002	1	1	2	15	1	62	75	5033
10703334	2001	6/21/2001	1	1	2	15	1	52	75	5033
20128223	2001	12/29/2001	1	1	2	15	1	52	75	5033
717187	2000	7/1/2000	1	1	2	15	1	62	75	5033
732916	2000	7/13/2000	1	1	2	15	1	62	75	5033
990815542	1999	8/11/1999	1	1	2	15	1	62	75	5033
991102629	1999	10/23/1999	1	1	2	15	1	52	75	5033
990106717	1998	12/27/1998	1	1	2	15	1	62	75	5033
60829945	2006	8/13/2006	1	1	2	16	1	52		5033
30713492	2003	7/5/2003	1	1	2	16	1	52	75	5033
20537434	2002	5/12/2002	1	1	2	16	1	52	75	5033
824903	2000	8/5/2000	1	1	2	16	1	62	75	5033
990222962	1999	2/17/1999	1	1	2	16	1	62	75	5033
980731195	1998	7/16/1998	1	1	2	16	1	62	75	5033
60611580	2006	6/3/2006	1	1	2	17	1	62	75	5033
31006384	2003	9/30/2003	1	1	2	17	1	52	75	5033
30141191	2003	1/25/2003	1	1	2	17	1	52	75	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10732402	2001	7/11/2001	1	1	2	17	1	52	75	5033
301577	2000	2/18/2000	1	1	2	17	1	62	75	5033
990704171	1999	6/26/1999	1	1	2	17	1	62	75	5033
60713351	2006	7/3/2006	1	1	2	18	1	62		5033
50544487	2005	5/21/2005	1	1	2	18	1	62	75	5033
51045138	2005	9/28/2005	1	1	2	19	1	62	75	5033
980611869	1998	6/3/1998	1	1	2	19	1	62	75	5033
40660179	2004	6/27/2004	1	1	2	20	1	62	75	5033
30741816	2003	7/15/2003	1	1	2	20	1	52	75	5033
20648387	2002	6/20/2002	1	1	2	20	1	62	75	5033
980113465	1998	1/14/1998	1	1	2	20	1	62	75	5033
60909433	2006	9/3/2006	1	1	2	21	1	52	75	5033
50752893	2005	7/24/2005	1	1	2	21	1	62	75	5033
10827728	2001	8/13/2001	1	1	2	22	1	62	75	5033
11206695	2001	12/3/2001	1	1	2	22	1	62	75	5033
991008500	1999	10/1/1999	1	1	2	22	1	62	75	5033
11152560	2001	11/28/2001	1	1	2	23	1	62	75	5033
990819357	1999	8/14/1999	1	1	2	23	1	52	75	5033
40756068	2004	7/27/2004	1	1	2	24	1	52	75	5033
991006062	1999	10/2/1999	1	1	2	24	1	62	75	5033
70529575	2007	5/5/2007	1	1	2	25	1	62	75	5033
40661182	2004	6/16/2004	1	1	2	25	1	52	75	5033
10755407	2001	7/2/2001	1	1	2	26	1	62	75	5033
990924082	1999	9/18/1999	1	1	2	26	1	62	75	5033
50444677	2005	4/23/2005	1	1	2	27	1	62	75	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
41006412	2004	10/3/2004	1	1	2	27	1	62	75	5033
990814913	1999	7/31/1999	1	1	2	27	1	52	75	5033
30239467	2003	2/22/2003	1	1	2	28	1	52	75	5033
21027428	2002	10/8/2002	1	1	2	28	1	62	75	5033
10629502	2001	6/12/2001	1	1	2	28	1	62	75	5033
203158	2000	1/30/2000	1	1	2	28	1	62	75	5033
308270	2000	3/6/2000	1	1	2	28	1	62	75	5033
60531337	2006	5/14/2006	1	1	2	29	1	52	75	5033
30802921	2003	7/31/2003	1	1	2	29	1	52	75	5033
61211885	2006	12/4/2006	1	1	2	31	1	52	75	5033
10860227	2001	7/16/2001	1	1	2	32	1	62	75	5033
50115002	2005	1/5/2005	1	1	2	34	1	62	75	5033
511521	2000	5/6/2000	1	1	2	34	1	62	75	5033
990801606	1999	7/19/1999	1	1	2	34	1	62	75	5033
20807805	2002	7/31/2002	1	1	2	35	1	52	75	5033
60941723	2006	9/3/2006	1	1	2	36	1	62	75	5033
1142462	2000	11/26/2000	1	1	2	36	1	62	75	5033
80115283	2007	12/25/2007	1	1	2	37	1	52	75	5033
60862186	2006	8/17/2006	1	1	2	37	1	62	75	5033
20560966	2002	5/27/2002	1	1	2	37	1	62	75	5033
50652333	2005	6/22/2005	1	1	2	38	1	62	75	5033
21001022	2002	9/21/2002	1	1	2	38	1	62	75	5033
530121	2000	4/29/2000	1	1	2	38	1	52	75	5033
70216129	2007	2/7/2007	1	1	2	40	1	52	75	5033
70565708	2007	5/24/2007	1	1	2	40	1	52	75	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
50438019	2005	4/19/2005	1	1	2	41	1	62	75	5033
30750879	2003	7/19/2003	1	1	2	41	1	52	75	5033
40346653	2004	3/15/2004	1	1	2	42	1	52	75	5033
652697	2000	6/25/2000	1	1	2	43	1	62	75	5033
990621085	1999	6/15/1999	1	1	2	43	1	52	75	5033
60333309	2006	3/18/2006	1	1	2	44	1	62	75	5033
60808744	2006	7/29/2006	1	1	2	44	1	62	75	5033
1029740	2000	8/17/2000	1	1	2	45	1	52	75	5033
50759080	2005	7/24/2005	1	1	2	48	1	62	75	5033
10846346	2001	8/5/2001	1	1	2	51	1	52	75	5033
20758697	2002	7/24/2002	1	1	2	52	1	52	75	5033
990904519	1999	8/21/1999	1	1	2	53	1	62	75	5033
981203162	1998	11/30/1998	1	1	2	57	1	62	75	5033
50446656	2005	3/30/2005	1	1	2	65	1	62	75	5033
71057003	2007	10/21/2007	1	1	2	69	1	62	75	5033
11128766	2001	9/13/2001	1	1	2	7	2	62	75	5033
514448	2000	4/16/2000	1	1	2	9	2	62	75	5033
11052962	2001	10/14/2001	1	1	2	11	2	62	75	5033
11037087	2001	10/11/2001	1	1	2	12	2	52	75	5033
980913144	1998	8/24/1998	1	1	2	12	2	53	75	5033
20755838	2002	7/24/2002	1	1	2	15	2	62	75	5033
21111083	2002	11/5/2002	1	1	2	18	2	62	75	5033
10851932	2001	8/15/2001	1	1	2	19	2	52	75	5033
10915333	2001	9/4/2001	1	1	2	24	2	62	75	5033
980830233	1998	8/26/1998	1	1	2	25	2	52	75	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
40115500	2004	1/10/2004	1	1	2	26	2	62	75	5033
70724106	2007	6/30/2007	1	1	2	27	2	52	75	5033
10436282	2001	4/7/2001	1	1	2	27	2	52	75	5033
60811504	2006	7/20/2006	1	1	2	28	2	52	75	5033
10425073	2001	4/14/2001	1	1	2	30	2	62	75	5033
10902585	2001	8/29/2001	1	1	2	32	2	62	75	5033
20900351	2002	8/28/2002	1	1	2	34	2	52	75	5033
70721333	2007	6/16/2007	1	1	2	36	2	62	75	5033
981012382	1998	10/10/1998	1	1	2	36	2	52	75	5033
70547845	2007	5/10/2007	1	1	2	41	2	62	75	5033
990629435	1999	6/15/1999	1	1	2	41	2	52	75	5033
80120964	2007	12/30/2007	1	1	2	44	2	62	75	5033
50717919	2005	6/19/2005	1	1	2	44	2	62	75	5033
822826	2000	8/9/2000	1	1	2	57	2	62	75	5033
70759085	2007	7/15/2007	1	7	3	9	1	64	30	5033
71214545	2007	11/22/2007	1	8	3	13	1	64	37	5033
70732219	2007	6/24/2007	1	3	3	15	1	64	89	5033
70850630	2007	8/3/2007	1	7	3	16	1	64	30	5033
70945195	2007	9/19/2007	1	7	3	17	1	64	34	5033
70837539	2007	8/16/2007	1	7	3	19	1	64	30	5033
70959480	2007	9/3/2007	1	8	3	21	1	64	35	5033
70505691	2007	4/29/2007	1	8	3	21	1	64	37	5033
70529940	2007	4/26/2007	1	8	3	21	1	64	37	5033
70440094	2007	4/9/2007	1	8	3	22	1	64	37	5033
70759172	2007	7/17/2007	1	8	3	23	1	64	37	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
70207888	2007	2/3/2007	1	3	3	24	1	64	89	5033
70421098	2007	4/3/2007	1	8	3	24	1	64	35	5033
71235767	2007	12/24/2007	1	8	3	26	1	64	83	5033
70829914	2007	8/12/2007	1	7	3	27	1	64	30	5033
70902226	2007	8/29/2007	1	7	3	32	1	64	30	5033
70819159	2007	8/8/2007	1	7	3	32	1	64	30	5033
70844533	2007	8/19/2007	1	8	3	32	1	64	82	5033
70834496	2007	8/4/2007	1	7	3	33	1	64	30	5033
71038647	2007	10/14/2007	1	8	3	34	1	64	79	5033
71130405	2007	11/5/2007	1	7	3	36	1	64	30	5033
71115611	2007	10/4/2007	1	7	3	36	1	64	82	5033
71050769	2007	10/18/2007	1	7	3	37	1	64	34	5033
70824397	2007	8/3/2007	1	7	3	37	1	64	30	5033
70711507	2007	7/3/2007	1	7	3	39	1	64	30	5033
70337285	2007	3/16/2007	1	7	3	39	1	64	30	5033
70314551	2007	3/3/2007	1	8	3	39	1	64	79	5033
70907889	2007	6/30/2007	1	7	3	43	1	64	34	5033
70562918	2007	5/26/2007	1	7	3	43	1	64	30	5033
70345301	2007	3/12/2007	1	6	3	47	1	64	79	5033
70815736	2007	8/3/2007	1	7	3	48	1	64	30	5033
70915063	2007	9/5/2007	1	7	3	51	1	64	30	5033
70530146	2007	5/3/2007	1	3	3	52	1	64	89	5033
71009166	2007	9/23/2007	1	7	3	55	1	64	30	5033
70823222	2007	8/3/2007	1	7	3	56	1	64	30	5033
70837528	2007	8/14/2007	1	8	3	13	2	64	35	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
70861212	2007	8/26/2007	1	7	3	22	2	64	34	5033
70837529	2007	8/14/2007	1	8	3	22	2	64	36	5033
70902644	2007	8/30/2007	1	3	3	37	2	64	89	5033
70711795	2007	7/4/2007	1	6	3	38	2	64	79	5033
71061201	2007	10/25/2007	1	7	3	43	2	64	30	5033
70563002	2007	4/27/2007	1	7	3	44	2	64	92	5033
70948447	2007	9/21/2007	1	7	3	58	2	64	30	5033
20855820	2002	8/22/2002	1	7	4	20	1	55	92	5033
981000936	1998	9/13/1998	1	7	4	22	1	55	92	5033
21015602	2002	10/5/2002	1	7	4	26	1	55	92	5033
70811927	2007	8/5/2007	1	7	4	27	1	55	92	5033
70446810	2007	4/23/2007	1	7	4	28	1	55	92	5033
40122999	2004	1/10/2004	1	7	4	31	1	55	92	5033
40125664	2003	10/4/2003	1	7	4	31	1	55	92	5033
980902938	1998	8/15/1998	1	7	4	33	1	55	92	5033
981021585	1998	10/9/1998	1	7	4	33	1	55	92	5033
981013291	1998	10/11/1998	1	7	4	35	1	55	92	5033
981028475	1998	10/24/1998	1	7	4	35	1	55	92	5033
70761503	2007	7/27/2007	1	7	4	38	1	55	92	5033
30836951	2003	8/15/2003	1	7	4	38	1	55	92	5033
10231026	2001	2/18/2001	1	7	4	39	1	55	92	5033
40928755	2004	9/12/2004	1	7	4	40	1	55	30	5033
70609841	2007	6/2/2007	1	7	4	41	1	55	92	5033
60236472	2006	2/22/2006	1	7	4	41	1	55		5033
10616469	2001	6/6/2001	1	7	4	46	1	55	92	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
30442906	2003	4/18/2003	1	7	4	47	1	55	92	5033
20834397	2002	8/15/2002	1	7	4	58	1	55	92	5033
107524	2000	1/4/2000	1	7	4	22	2	55	92	5033
50532880	2005	5/14/2005	1	7	4	26	2	55	92	5033
980116122	1998	1/16/1998	1	7	4	31	2	55	92	5033
980610192	1998	6/6/1998	1	7	4	40	2	55	92	5033
60544380	2006	5/18/2006	1	7	4	50	2	55	92	5033
50112874	2004	12/31/2004	1	7	5	5	1	53	32	5033
50847056	2005	7/25/2005	1	8	5	5	1	53	37	5033
711160	2000	7/3/2000	1	2	5	6	1	53	76	5033
71150200	2007	11/18/2007	1	8	5	7	1	53	36	5033
10647609	2001	6/18/2001	1	8	5	7	1	53	35	5033
51145324	2005	11/20/2005	1	2	5	8	1	53	76	5033
990709934	1999	6/29/1999	1	7	5	8	1	53	84	5033
40932776	2004	9/11/2004	1	7	5	9	1	53	34	5033
619806	2000	6/9/2000	1	7	5	9	1	53	30	5033
980913146	1998	8/24/1998	1	7	5	9	1	53	34	5033
70409189	2007	3/28/2007	1	8	5	9	1	62	79	5033
30625507	2003	4/27/2003	1	8	5	9	1	53	79	5033
20952717	2002	9/15/2002	1	8	5	9	1	53	35	5033
990832442	1999	8/17/1999	1	8	5	9	1	53	35	5033
10420050	2001	4/8/2001	1	7	5	10	1	53	30	5033
10741603	2001	7/15/2001	1	7	5	10	1	53	82	5033
1215717	2000	12/10/2000	1	7	5	10	1	53	30	5033
631200	2000	6/4/2000	1	8	5	10	1	53	35	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
707492	2000	6/25/2000	1	8	5	10	1	53	35	5033
990322412	1999	3/21/1999	1	8	5	10	1	53	35	5033
980907626	1998	8/11/1998	1	8	5	10	1	53	31	5033
10739563	2001	7/14/2001	1	2	5	11	1	53	76	5033
526906	2000	5/14/2000	1	4	5	11	1	53	31	5033
10557917	2001	5/24/2001	1	6	5	11	1	53	79	5033
10440235	2001	4/8/2001	1	8	5	11	1	53	35	5033
10633199	2001	6/10/2001	1	8	5	11	1	53	35	5033
11209281	2001	12/1/2001	1	8	5	11	1	58	81	5033
980800155	1998	7/29/1998	1	8	5	11	1	53	36	5033
20650519	2002	6/22/2002	1	1	5	12	1	53	75	5033
10912790	2001	9/2/2001	1	2	5	12	1	53	76	5033
981226629	1998	12/27/1998	1	2	5	12	1	53	76	5033
980819953	1998	8/16/1998	1	4	5	12	1	53	31	5033
70516555	2007	5/4/2007	1	5	5	12	1	53	79	5033
1011734	2000	9/24/2000	1	5	5	12	1	53	79	5033
50116644	2004	12/28/2004	1	7	5	12	1	53	32	5033
31100067	2003	10/20/2003	1	7	5	12	1	53	32	5033
20942352	2002	9/13/2002	1	7	5	12	1	71	32	5033
20617264	2002	6/4/2002	1	7	5	12	1	53	92	5033
10950110	2001	9/8/2001	1	7	5	12	1	53	32	5033
540638	2000	5/23/2000	1	7	5	12	1	53	32	5033
1012553	2000	10/4/2000	1	7	5	12	1	53	30	5033
980905520	1998	7/16/1998	1	7	5	12	1	53	30	5033
990106698	1998	12/28/1998	1	7	5	12	1	53	92	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10742913	2001	7/15/2001	1	8	5	12	1	53	35	5033
990906400	1999	8/28/1999	1	8	5	12	1	53	79	5033
980903800	1998	8/30/1998	1	8	5	12	1	53	36	5033
50616063	2005	5/16/2005	1	1	5	13	1	53	75	5033
50544162	2005	5/17/2005	1	2	5	13	1	53	76	5033
50235191	2005	1/28/2005	1	2	5	13	1	53	76	5033
990719506	1999	7/10/1999	1	2	5	13	1	53	76	5033
30117963	2002	12/27/2002	1	3	5	13	1	53	89	5033
990424699	1999	4/10/1999	1	3	5	13	1	53	89	5033
10451158	2001	4/27/2001	1	4	5	13	1	53	31	5033
11043506	2001	9/29/2001	1	5	5	13	1	58	79	5033
30804560	2003	8/1/2003	1	6	5	13	1	53	89	5033
50616000	2005	5/12/2005	1	7	5	13	1	53	82	5033
30630325	2003	6/13/2003	1	7	5	13	1	53	92	5033
21109409	2002	10/11/2002	1	7	5	13	1	53	30	5033
990613142	1999	5/22/1999	1	7	5	13	1	53	33	5033
991017015	1999	8/11/1999	1	7	5	13	1	53	82	5033
410820	2000	3/13/2000	1	8	5	13	1	53	37	5033
20822069	2002	8/4/2002	1	1	5	14	1	53	76	5033
20541729	2002	5/19/2002	1	4	5	14	1	53	31	5033
990500086	1999	4/27/1999	1	4	5	14	1	53	31	5033
30635417	2003	6/12/2003	1	7	5	14	1	59	32	5033
10709428	2001	6/30/2001	1	7	5	14	1	53	84	5033
990309191	1999	3/7/1999	1	7	5	14	1	53	82	5033
990407399	1999	4/5/1999	1	7	5	14	1	53	82	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
990605074	1999	5/22/1999	1	7	5	14	1	53	30	5033
991009540	1999	10/5/1999	1	7	5	14	1	53	30	5033
980730533	1998	7/26/1998	1	7	5	14	1	53	82	5033
60744777	2006	7/13/2006	1	8	5	14	1	53	35	5033
10618438	2001	5/20/2001	1	8	5	14	1	53	79	5033
10547626	2001	5/22/2001	1	8	5	14	1	53	79	5033
10647629	2001	6/18/2001	1	8	5	14	1	53	35	5033
10843756	2001	8/18/2001	1	8	5	14	1	53	35	5033
990520706	1999	5/15/1999	1	8	5	14	1	58	79	5033
990521256	1999	5/16/1999	1	8	5	14	1	53	35	5033
990613380	1999	6/5/1999	1	8	5	14	1	53	81	5033
10330498	2001	3/12/2001	1	1	5	15	1	53	75	5033
990518657	1999	5/13/1999	1	1	5	15	1	53	75	5033
10616371	2001	6/7/2001	1	2	5	15	1	53	76	5033
10432195	2001	4/12/2001	1	4	5	15	1	53	31	5033
50140889	2004	12/26/2004	1	5	5	15	1	53	79	5033
30507418	2003	4/15/2003	1	5	5	15	1	53	79	5033
61027959	2006	10/11/2006	1	7	5	15	1	53	30	5033
40542689	2004	5/23/2004	1	7	5	15	1	57	92	5033
30700824	2003	6/28/2003	1	7	5	15	1	53	33	5033
20919174	2002	8/10/2002	1	7	5	15	1	53	30	5033
521491	2000	5/3/2000	1	7	5	15	1	53	82	5033
611158	2000	5/23/2000	1	7	5	15	1	53	34	5033
990631991	1999	6/25/1999	1	7	5	15	1	53	30	5033
980907622	1998	8/10/1998	1	7	5	15	1	53	80	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
981022124	1998	10/18/1998	1	7	5	15	1	53	33	5033
61010396	2006	9/28/2006	1	8	5	15	1	58	81	5033
990626720	1999	6/21/1999	1	8	5	15	1	53	79	5033
990826689	1999	8/22/1999	1	8	5	15	1	53	36	5033
991101082	1999	10/21/1999	1	8	5	15	1	53	37	5033
512625	2000	5/6/2000	1	1	5	16	1	53	75	5033
991005632	1999	10/4/1999	1	4	5	16	1	53	31	5033
980726233	1998	7/17/1998	1	4	5	16	1	53	31	5033
21224453	2002	12/3/2002	1	7	5	16	1	53	32	5033
20937664	2002	9/13/2002	1	7	5	16	1	53	33	5033
990716966	1999	6/29/1999	1	7	5	16	1	53	84	5033
60421267	2006	4/7/2006	1	8	5	16	1	53	35	5033
30719175	2003	6/11/2003	1	8	5	16	1	53	35	5033
21022541	2002	9/26/2002	1	8	5	16	1	58	35	5033
538562	2000	5/7/2000	1	8	5	16	1	53	79	5033
980800137	1998	7/26/1998	1	8	5	16	1	53	36	5033
609103	2000	5/28/2000	1	1	5	17	1	58	75	5033
981102215	1998	10/31/1998	1	2	5	17	1	53	76	5033
990501704	1999	4/26/1999	1	3	5	17	1	53	89	5033
70913237	2007	8/31/2007	1	4	5	17	1	53	31	5033
1047084	2000	10/19/2000	1	4	5	17	1	53	31	5033
990120613	1998	8/25/1998	1	4	5	17	1	53	31	5033
981228072	1998	12/29/1998	1	4	5	17	1	53	31	5033
70916343	2007	9/3/2007	1	7	5	17	1	53	80	5033
50643315	2005	6/18/2005	1	7	5	17	1	53	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
30954546	2003	9/19/2003	1	7	5	17	1	53	30	5033
31008619	2003	7/29/2003	1	7	5	17	1	53	32	5033
20441756	2002	4/15/2002	1	7	5	17	1	53	82	5033
20644517	2002	6/18/2002	1	7	5	17	1	53	32	5033
10931751	2001	8/25/2001	1	7	5	17	1	53	92	5033
990514887	1999	4/21/1999	1	7	5	17	1	53	30	5033
990514278	1999	5/11/1999	1	7	5	17	1	53	30	5033
990707837	1999	7/6/1999	1	7	5	17	1	53	30	5033
990812680	1999	8/7/1999	1	7	5	17	1	53	32	5033
991001922	1999	9/19/1999	1	7	5	17	1	53	33	5033
30232465	2003	2/15/2003	1	8	5	17	1	53	35	5033
980704137	1998	7/4/1998	1	8	5	17	1	53	83	5033
50548634	2005	5/23/2005	1	1	5	18	1	53	75	5033
30907673	2003	7/10/2003	1	1	5	18	1	53	75	5033
981202160	1998	11/22/1998	1	1	5	18	1	53	75	5033
11145172	2001	11/25/2001	1	2	5	18	1	53	76	5033
990820874	1999	8/13/1999	1	2	5	18	1	53	88	5033
60922525	2006	8/9/2006	1	4	5	18	1	53	31	5033
50709518	2005	7/3/2005	1	7	5	18	1	53	32	5033
10530459	2001	5/11/2001	1	7	5	18	1	53	30	5033
603207	2000	5/30/2000	1	7	5	18	1	53	92	5033
71009733	2007	9/30/2007	1	8	5	18	1	53	79	5033
60551256	2006	5/15/2006	1	8	5	18	1	53	79	5033
842205	2000	8/19/2000	1	6	5	19	1	53	79	5033
50924823	2005	8/23/2005	1	7	5	19	1	53	32	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980911776	1998	9/4/1998	1	7	5	19	1	53	82	5033
60652290	2006	6/15/2006	1	4	5	20	1	53	31	5033
40753835	2004	7/26/2004	1	4	5	20	1	53	31	5033
21048415	2002	10/22/2002	1	4	5	20	1	53	31	5033
991122113	1999	11/19/1999	1	5	5	20	1	53	79	5033
20240069	2002	2/10/2002	1	7	5	20	1	53	33	5033
20211576	2002	1/30/2002	1	7	5	20	1	53	34	5033
990608122	1999	6/1/1999	1	7	5	20	1	53	80	5033
991112508	1999	11/7/1999	1	7	5	20	1	53	32	5033
70913742	2007	8/27/2007	1	8	5	20	1	53	35	5033
70567129	2007	5/17/2007	1	8	5	20	1	53	35	5033
40505469	2004	4/29/2004	1	8	5	20	1	53	35	5033
20231701	2002	2/17/2002	1	8	5	20	1	53	35	5033
980617456	1998	6/12/1998	1	8	5	20	1	53	79	5033
70752917	2007	7/19/2007	1	4	5	21	1	53	31	5033
30746450	2003	5/30/2003	1	7	5	21	1	53	80	5033
10609266	2001	5/30/2001	1	7	5	21	1	53	30	5033
1103129	2000	10/23/2000	1	7	5	21	1	53	82	5033
31115823	2003	11/4/2003	1	8	5	21	1	53	35	5033
71148739	2007	11/25/2007	1	1	5	22	1	53	75	5033
50323842	2005	3/11/2005	1	2	5	22	1	53	76	5033
40917897	2004	9/4/2004	1	2	5	22	1	53	76	5033
980902434	1998	8/25/1998	1	2	5	22	1	53	79	5033
21050390	2002	10/20/2002	1	4	5	22	1	53	31	5033
980612022	1998	6/1/1998	1	5	5	22	1	53	79	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
70912748	2007	9/3/2007	1	7	5	22	1	53	30	5033
70748991	2007	7/11/2007	1	7	5	22	1	53	82	5033
50526377	2005	5/12/2005	1	7	5	22	1	53	92	5033
50856802	2005	8/1/2005	1	7	5	22	1	53	82	5033
40535502	2004	5/17/2004	1	7	5	22	1	53	30	5033
20907187	2002	8/24/2002	1	7	5	22	1	53	30	5033
10217781	2001	2/10/2001	1	7	5	22	1	53	30	5033
425584	2000	4/22/2000	1	7	5	22	1	53	30	5033
605750	2000	5/31/2000	1	7	5	22	1	53	36	5033
60635941	2006	6/13/2006	1	8	5	22	1	53	35	5033
20949177	2002	9/22/2002	1	8	5	22	1	53	37	5033
650988	2000	6/27/2000	1	8	5	22	1	53	79	5033
990808866	1999	8/4/1999	1	8	5	22	1	53	79	5033
980420403	1998	3/28/1998	1	8	5	22	1	53	35	5033
980621223	1998	6/16/1998	1	8	5	22	1	53	35	5033
10511186	2001	5/3/2001	1	2	5	23	1	53	76	5033
405906	2000	4/2/2000	1	2	5	23	1	53	76	5033
742595	2000	7/13/2000	1	2	5	23	1	53	76	5033
70610599	2007	5/29/2007	1	4	5	23	1	53	31	5033
51106070	2005	10/24/2005	1	4	5	23	1	53	31	5033
40754263	2004	7/20/2004	1	4	5	23	1	53	31	5033
30745015	2003	7/18/2003	1	4	5	23	1	53	31	5033
21018137	2002	10/7/2002	1	4	5	23	1	53	31	5033
11235392	2001	12/17/2001	1	4	5	23	1	53	31	5033
991020541	1999	10/16/1999	1	4	5	23	1	53	31	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
945992	2000	9/24/2000	1	5	5	23	1	53	79	5033
990407251	1999	4/3/1999	1	5	5	23	1	53	31	5033
70760990	2007	7/23/2007	1	7	5	23	1	53	32	5033
60818977	2006	7/27/2006	1	7	5	23	1	53	32	5033
60440989	2006	4/21/2006	1	7	5	23	1	53	87	5033
21218893	2002	12/7/2002	1	7	5	23	1	53	82	5033
11017633	2001	9/30/2001	1	7	5	23	1	53	30	5033
841062	2000	8/19/2000	1	7	5	23	1	53	30	5033
991022312	1999	10/17/1999	1	7	5	23	1	53	82	5033
981024485	1998	10/14/1998	1	7	5	23	1	53	82	5033
40142831	2004	1/19/2004	1	8	5	23	1	64	35	5033
20839408	2002	8/11/2002	1	8	5	23	1	53	35	5033
30106489	2002	8/21/2002	1	8	5	23	1	53	35	5033
10444630	2001	4/8/2001	1	8	5	23	1	53	93	5033
990906042	1999	8/28/1999	1	8	5	23	1	53	79	5033
990202447	1999	1/29/1999	1	3	5	24	1	53	89	5033
990602399	1999	5/29/1999	1	4	5	24	1	53	31	5033
50723817	2005	6/13/2005	1	5	5	24	1	53	79	5033
990800333	1999	7/20/1999	1	5	5	24	1	53	84	5033
980722761	1998	7/16/1998	1	5	5	24	1	53	79	5033
40945653	2004	9/15/2004	1	6	5	24	1	53	79	5033
40352828	2004	3/26/2004	1	7	5	24	1	53	32	5033
20444896	2002	4/16/2002	1	7	5	24	1	53	33	5033
21009819	2002	9/23/2002	1	7	5	24	1	64	30	5033
990505422	1999	5/3/1999	1	7	5	24	1	53	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980421727	1998	4/20/1998	1	7	5	24	1	53	30	5033
50954421	2005	8/31/2005	1	8	5	24	1	53	35	5033
30902936	2003	8/27/2003	1	8	5	24	1	53	79	5033
70603863	2007	5/27/2007	1	1	5	25	1	58	76	5033
991119331	1999	11/16/1999	1	4	5	25	1	53	31	5033
30705418	2003	6/30/2003	1	5	5	25	1	53	31	5033
10326942	2001	3/13/2001	1	5	5	25	1	53	79	5033
50904107	2005	8/29/2005	1	7	5	25	1	53	82	5033
40708538	2004	7/3/2004	1	7	5	25	1	53	30	5033
40621964	2004	6/8/2004	1	7	5	25	1	53	33	5033
20610826	2002	6/3/2002	1	7	5	25	1	53	30	5033
990215422	1999	2/8/1999	1	7	5	25	1	53	30	5033
990705554	1999	7/3/1999	1	7	5	25	1	53	30	5033
980302139	1998	2/27/1998	1	7	5	25	1	53	82	5033
60630618	2006	5/23/2006	1	8	5	25	1	58	36	5033
30721664	2003	7/8/2003	1	8	5	25	1	53	83	5033
10617126	2001	6/7/2001	1	8	5	25	1	53	79	5033
10913239	2001	7/15/2001	1	8	5	25	1	53	35	5033
10752288	2001	7/22/2001	1	8	5	25	1	53	36	5033
1001696	2000	9/28/2000	1	8	5	25	1	53	36	5033
20325219	2002	3/13/2002	1	4	5	26	1	53	31	5033
10817866	2001	8/5/2001	1	4	5	26	1	53	31	5033
30958439	2003	9/25/2003	1	7	5	26	1	53	32	5033
20451061	2002	4/21/2002	1	7	5	26	1	53	32	5033
980618862	1998	6/7/1998	1	7	5	26	1	53	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980909782	1998	9/7/1998	1	7	5	26	1	53	82	5033
70818025	2007	7/30/2007	1	8	5	26	1	53	35	5033
30639421	2003	6/12/2003	1	1	5	27	1	53	75	5033
50805112	2005	7/27/2005	1	2	5	27	1	53	76	5033
10719155	2001	7/5/2001	1	2	5	27	1	53	76	5033
945592	2000	9/9/2000	1	2	5	27	1	53	76	5033
61104806	2006	10/13/2006	1	4	5	27	1	53	31	5033
70400967	2007	3/27/2007	1	7	5	27	1	53	36	1871
40534513	2004	5/14/2004	1	7	5	27	1	53	34	5033
30453784	2003	4/21/2003	1	7	5	27	1	53	30	5033
10649235	2001	6/25/2001	1	7	5	27	1	53	30	5033
616352	2000	6/3/2000	1	7	5	27	1	53	82	5033
990408748	1999	3/15/1999	1	7	5	27	1	53	30	5033
990428354	1999	4/22/1999	1	7	5	27	1	53	34	5033
980500555	1998	4/29/1998	1	7	5	27	1	53	82	5033
980628607	1998	5/27/1998	1	7	5	27	1	53	30	5033
60907178	2006	9/1/2006	1	8	5	27	1	53		5033
41111677	2004	10/21/2004	1	8	5	27	1	53	79	5033
20724374	2002	7/5/2002	1	8	5	27	1	53	93	5033
10801280	2001	7/30/2001	1	8	5	27	1	53	36	5033
30714000	2003	6/23/2003	1	1	5	28	1	53	75	5033
40740940	2004	7/21/2004	1	2	5	28	1	53	76	5033
10426142	2001	4/14/2001	1	2	5	28	1	53	76	5033
1131238	2000	11/15/2000	1	2	5	28	1	58	76	5033
990901928	1999	8/23/1999	1	2	5	28	1	53	76	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
991028639	1999	10/24/1999	1	2	5	28	1	53	82	5033
70732444	2007	7/13/2007	1	4	5	28	1	53	31	5033
60508734	2006	4/28/2006	1	4	5	28	1	53	31	5033
20602565	2002	6/1/2002	1	4	5	28	1	53	31	5033
830661	2000	8/10/2000	1	4	5	28	1	53	31	5033
840512	2000	8/13/2000	1	4	5	28	1	53	31	5033
60940506	2006	9/7/2006	1	5	5	28	1	53	79	5033
61128735	2006	11/11/2006	1	7	5	28	1	58	80	5033
40515419	2004	5/4/2004	1	7	5	28	1	53	30	5033
40513008	2004	5/4/2004	1	7	5	28	1	53	80	5033
40105602	2004	1/4/2004	1	7	5	28	1	72	92	5033
40645778	2004	6/20/2004	1	7	5	28	1	53	30	5033
20733244	2002	7/7/2002	1	7	5	28	1	53	82	5033
10835117	2001	8/12/2001	1	7	5	28	1	53	32	5033
515659	2000	4/26/2000	1	7	5	28	1	53	30	5033
602955	2000	5/28/2000	1	7	5	28	1	53	30	5033
990513647	1999	5/10/1999	1	7	5	28	1	53	30	5033
990527277	1999	5/23/1999	1	7	5	28	1	53	30	5033
990723553	1999	7/17/1999	1	7	5	28	1	53	30	5033
990817988	1999	8/14/1999	1	7	5	28	1	53	32	5033
980621786	1998	6/8/1998	1	7	5	28	1	53	82	5033
980618154	1998	6/13/1998	1	7	5	28	1	53	32	5033
980725091	1998	7/22/1998	1	7	5	28	1	53	30	5033
70503885	2007	4/29/2007	1	8	5	28	1	53	83	5033
980912576	1998	7/17/1998	1	8	5	28	1	53	83	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
532347	2000	5/9/2000	1	2	5	29	1	53	76	5033
70420084	2007	3/28/2007	1	4	5	29	1	53	31	5033
31108351	2003	10/29/2003	1	4	5	29	1	53	31	5033
20628092	2002	6/10/2002	1	4	5	29	1	53	31	5033
10644415	2001	6/20/2001	1	4	5	29	1	53	31	5033
10847811	2001	8/20/2001	1	4	5	29	1	53	31	5033
618295	2000	6/3/2000	1	4	5	29	1	53	31	5033
980620020	1998	6/15/1998	1	4	5	29	1	53	31	5033
61219129	2006	12/5/2006	1	7	5	29	1	53	30	5033
40814942	2004	7/31/2004	1	7	5	29	1	53	32	5033
30433299	2003	4/16/2003	1	7	5	29	1	53	32	5033
30937266	2003	6/28/2003	1	7	5	29	1	53	30	5033
20726007	2002	6/26/2002	1	7	5	29	1	59	80	5033
204304	2000	1/17/2000	1	7	5	29	1	53	33	5033
990619575	1999	6/14/1999	1	7	5	29	1	53	30	5033
990727187	1999	7/20/1999	1	7	5	29	1	53	30	5033
20149302	2002	1/26/2002	1	8	5	29	1	53	37	5033
409047	2000	4/3/2000	1	8	5	29	1	53	79	5033
11003926	2001	9/29/2001	1	1	5	30	1	53	75	5033
980322432	1998	3/23/1998	1	2	5	30	1	53	75	5033
10539038	2001	5/13/2001	1	4	5	30	1	53	31	5033
10813724	2001	7/28/2001	1	4	5	30	1	53	31	5033
70626644	2007	6/12/2007	1	7	5	30	1	53	30	5033
60841917	2006	8/6/2006	1	7	5	30	1	53	30	5033
30749115	2003	7/4/2003	1	7	5	30	1	53	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10614448	2001	6/6/2001	1	7	5	30	1	53	30	5033
11051081	2001	8/20/2001	1	7	5	30	1	53	82	5033
11048544	2001	10/16/2001	1	7	5	30	1	53	32	5033
71034581	2007	10/11/2007	1	8	5	30	1	53	81	5033
51211224	2005	11/17/2005	1	8	5	30	1	53	35	5033
20712927	2002	7/5/2002	1	8	5	30	1	53	36	5033
803952	2000	7/28/2000	1	8	5	30	1	53	35	5033
980424336	1998	4/24/1998	1	8	5	30	1	56	35	5033
980520552	1998	5/13/1998	1	8	5	30	1	58	35	5033
980701712	1998	6/21/1998	1	8	5	30	1	53	36	5033
60231621	2006	2/6/2006	1	4	5	31	1	53	31	5033
40331505	2004	3/15/2004	1	4	5	31	1	53	31	5033
30448766	2003	4/22/2003	1	4	5	31	1	53	31	5033
1001958	2000	9/23/2000	1	4	5	31	1	71	31	5033
70902826	2007	8/30/2007	1	7	5	31	1	53	30	5033
40231004	2004	2/15/2004	1	7	5	31	1	53	30	5033
20940719	2002	9/16/2002	1	7	5	31	1	53	30	5033
20819892	2002	8/8/2002	1	7	5	31	1	53	30	5033
10610640	2001	5/24/2001	1	7	5	31	1	53	32	5033
10762682	2001	7/29/2001	1	7	5	31	1	53	82	5033
11131303	2001	11/16/2001	1	7	5	31	1	53	30	5033
990911872	1999	8/3/1999	1	7	5	31	1	53	33	5033
60706200	2006	6/22/2006	1	8	5	31	1	53		5033
30650532	2003	6/16/2003	1	8	5	31	1	53	36	5033
30703754	2003	6/8/2003	1	8	5	31	1	53	79	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
20634003	2002	6/16/2002	1	8	5	31	1	53	35	5033
936604	2000	9/9/2000	1	8	5	31	1	58	79	5033
412806	2000	4/1/2000	1	2	5	32	1	53	76	5033
50743746	2005	7/19/2005	1	4	5	32	1	53	31	5033
30906741	2003	8/23/2003	1	4	5	32	1	53	31	5033
20811931	2002	8/4/2002	1	4	5	32	1	53	31	5033
980933339	1998	9/21/1998	1	4	5	32	1	53	31	5033
61213964	2006	11/27/2006	1	7	5	32	1	58	33	5033
50705226	2005	7/1/2005	1	7	5	32	1	53	82	5033
50923739	2005	9/10/2005	1	7	5	32	1	53	92	5033
70507526	2007	4/28/2007	1	8	5	32	1	53	36	5033
60323737	2006	3/4/2006	1	8	5	32	1	53	79	5033
20616006	2002	6/6/2002	1	8	5	32	1	53	36	5033
20947944	2002	9/22/2002	1	8	5	32	1	53	35	5033
10501116	2001	4/17/2001	1	8	5	32	1	53	79	5033
10811395	2001	8/6/2001	1	8	5	32	1	53	35	5033
10857000	2001	8/26/2001	1	8	5	32	1	58	36	5033
638522	2000	6/14/2000	1	8	5	32	1	53	79	5033
723930	2000	6/25/2000	1	8	5	32	1	53	35	5033
20832002	2002	8/8/2002	1	2	5	33	1	53	76	5033
990913826	1999	6/28/1999	1	2	5	33	1	71	85	5033
20415088	2002	4/7/2002	1	4	5	33	1	53	31	5033
10612083	2001	5/25/2001	1	4	5	33	1	53	31	5033
981127356	1998	11/22/1998	1	4	5	33	1	53	31	5033
61234612	2006	12/18/2006	1	7	5	33	1	53	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
50841319	2005	8/16/2005	1	7	5	33	1	53	30	5033
21003727	2002	9/22/2002	1	7	5	33	1	53	82	5033
815131	2000	8/7/2000	1	7	5	33	1	53	34	5033
70947503	2007	9/19/2007	1	8	5	33	1	53	81	5033
60849657	2006	8/21/2006	1	8	5	33	1	53	81	5033
20837110	2002	8/14/2002	1	8	5	33	1	53	35	5033
20623225	2002	6/2/2002	1	8	5	33	1	53	36	5033
990922874	1999	9/3/1999	1	8	5	33	1	53	81	5033
30953441	2003	9/9/2003	1	2	5	34	1	59	76	5033
10621506	2001	5/25/2001	1	2	5	34	1	53	76	5033
990528754	1999	5/21/1999	1	2	5	34	1	53	76	5033
50505678	2005	4/14/2005	1	4	5	34	1	53	31	5033
50224742	2005	2/14/2005	1	4	5	34	1	53	31	5033
30908480	2003	9/1/2003	1	6	5	34	1	53	31	5033
71005021	2007	9/23/2007	1	7	5	34	1	53	82	5033
70640267	2007	6/20/2007	1	7	5	34	1	53	30	5033
60718296	2006	7/5/2006	1	7	5	34	1	53	32	5033
61028021	2006	10/7/2006	1	7	5	34	1	53		5033
30937345	2003	6/29/2003	1	7	5	34	1	53	30	5033
10402288	2001	3/25/2001	1	7	5	34	1	53	84	5033
10941117	2001	9/16/2001	1	7	5	34	1	53	30	5033
915039	2000	8/31/2000	1	7	5	34	1	53	30	5033
919115	2000	9/8/2000	1	7	5	34	1	53	32	5033
990505843	1999	5/2/1999	1	7	5	34	1	53	30	5033
990812260	1999	7/18/1999	1	7	5	34	1	53	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
40820411	2004	8/5/2004	1	8	5	34	1	53	79	5033
30412210	2003	4/1/2003	1	8	5	34	1	53	79	5033
50864358	2005	8/6/2005	1	2	5	35	1	53	76	5033
51040967	2005	9/23/2005	1	2	5	35	1	53	76	5033
60717017	2006	7/5/2006	1	7	5	35	1	53	30	5033
10433615	2001	4/15/2001	1	7	5	35	1	53	82	5033
322175	2000	3/10/2000	1	7	5	35	1	53	30	5033
990619797	1999	6/1/1999	1	7	5	35	1	53	30	5033
990727973	1999	7/22/1999	1	7	5	35	1	53	30	5033
20836623	2002	7/19/2002	1	8	5	35	1	53	79	5033
70566394	2007	5/27/2007	1	2	5	36	1	53	76	5033
70809306	2007	7/24/2007	1	4	5	36	1	53	31	5033
70753151	2007	7/12/2007	1	4	5	36	1	53	31	5033
70120396	2007	1/6/2007	1	4	5	36	1	53	31	5033
60905134	2006	8/30/2006	1	4	5	36	1	53	31	5033
61215118	2006	12/8/2006	1	4	5	36	1	53	31	5033
30708892	2003	6/29/2003	1	4	5	36	1	53	31	5033
21046261	2002	9/26/2002	1	4	5	36	1	53	31	5033
30704117	2003	6/28/2003	1	7	5	36	1	58	80	5033
30841933	2003	7/13/2003	1	7	5	36	1	53	30	5033
10238402	2001	2/16/2001	1	7	5	36	1	53	33	5033
21224486	2002	11/23/2002	1	8	5	36	1	53	79	5033
980305729	1998	3/1/1998	1	8	5	36	1	58	84	5033
980607862	1998	6/3/1998	1	8	5	36	1	58	81	5033
61110388	2006	10/16/2006	1	4	5	37	1	53	31	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
30814024	2003	8/6/2003	1	4	5	37	1	53	31	5033
980403542	1998	4/1/1998	1	4	5	37	1	53	31	5033
70823262	2007	7/24/2007	1	5	5	37	1	53	79	5033
50341056	2005	3/20/2005	1	7	5	37	1	53	33	5033
40931091	2004	9/13/2004	1	7	5	37	1	53	30	5033
41046002	2004	10/13/2004	1	7	5	37	1	58	32	5033
30638179	2003	6/11/2003	1	7	5	37	1	53	30	5033
10424863	2001	4/10/2001	1	7	5	37	1	53	32	5033
10600973	2001	5/28/2001	1	7	5	37	1	53	34	5033
30714981	2003	7/2/2003	1	8	5	37	1	53	83	5033
21212104	2002	11/26/2002	1	8	5	37	1	71	36	5033
20546661	2002	5/20/2002	1	8	5	37	1	53	36	5033
1238631	2000	12/17/2000	1	8	5	37	1	53	35	5033
980425111	1998	4/25/1998	1	8	5	37	1	53	81	5033
71245336	2007	12/16/2007	1	2	5	38	1	53	76	5033
60946003	2006	9/18/2006	1	4	5	38	1	53	31	5033
60530764	2006	5/13/2006	1	7	5	38	1	53		5033
30203540	2003	1/30/2003	1	7	5	38	1	64	37	5033
20421309	2002	4/7/2002	1	7	5	38	1	53	82	5033
10746236	2001	7/22/2001	1	7	5	38	1	53	80	5033
11124215	2001	11/12/2001	1	7	5	38	1	53	32	5033
855262	2000	8/24/2000	1	7	5	38	1	53	80	5033
991004595	1999	9/30/1999	1	7	5	38	1	71	32	5033
71218346	2007	12/9/2007	1	8	5	38	1	53	83	5033
70947362	2007	9/17/2007	1	8	5	38	1	53	79	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
61209364	2006	12/4/2006	1	8	5	38	1	53	81	5033
40522962	2004	5/11/2004	1	8	5	38	1	53	79	5033
20639815	2002	6/16/2002	1	8	5	38	1	57	34	5033
20606381	2002	5/31/2002	1	8	5	38	1	53	81	5033
60427029	2006	4/16/2006	1	1	5	39	1	53		5033
70210994	2007	2/3/2007	1	4	5	39	1	53	31	5033
30750871	2003	7/19/2003	1	4	5	39	1	53	31	5033
30618400	2003	6/8/2003	1	4	5	39	1	53	31	5033
21223999	2002	12/1/2002	1	4	5	39	1	64	30	5033
41148301	2004	11/9/2004	1	7	5	39	1	53	82	5033
21010323	2002	9/21/2002	1	7	5	39	1	53	30	5033
990824670	1999	8/5/1999	1	7	5	39	1	71	82	5033
980522494	1998	5/14/1998	1	7	5	39	1	53	34	5033
70557572	2007	5/22/2007	1	8	5	39	1	53	37	5033
60433516	2006	4/18/2006	1	8	5	39	1	53	35	5033
21206606	2002	11/28/2002	1	8	5	39	1	59	76	5033
990831515	1999	8/15/1999	1	8	5	39	1	53	37	5033
30757993	2003	7/28/2003	1	1	5	40	1	53	75	5033
980712294	1998	6/26/1998	1	2	5	40	1	53	76	5033
70934214	2007	8/26/2007	1	4	5	40	1	53	31	5033
71052677	2007	10/21/2007	1	4	5	40	1	53	31	5033
990917824	1999	9/14/1999	1	4	5	40	1	53	31	5033
980916850	1998	8/19/1998	1	5	5	40	1	53	79	5033
20947077	2002	9/1/2002	1	6	5	40	1	53	89	5033
71061998	2007	10/27/2007	1	7	5	40	1	53	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
31008641	2003	7/30/2003	1	7	5	40	1	53	35	5033
20909618	2002	9/1/2002	1	7	5	40	1	53	32	5033
830522	2000	8/11/2000	1	7	5	40	1	53	84	5033
70603529	2007	5/28/2007	1	8	5	40	1	58	79	5033
60347691	2006	3/15/2006	1	8	5	40	1	53	36	5033
60655420	2006	6/26/2006	1	8	5	40	1	53	35	5033
20443983	2002	3/9/2002	1	8	5	40	1	58	81	5033
30845320	2003	8/25/2003	1	4	5	41	1	53	31	5033
20439590	2002	4/18/2002	1	4	5	41	1	53	31	5033
10739985	2001	6/12/2001	1	7	5	41	1	53	92	5033
990801631	1999	7/21/1999	1	7	5	41	1	53	84	5033
990811548	1999	8/1/1999	1	7	5	41	1	53	34	5033
981216076	1998	12/6/1998	1	7	5	41	1	53	32	5033
70817910	2007	8/7/2007	1	8	5	41	1	53	37	5033
60440055	2006	4/21/2006	1	8	5	41	1	53	36	5033
50649840	2005	5/28/2005	1	8	5	41	1	53	36	5033
51148127	2005	11/16/2005	1	8	5	41	1	53	35	5033
980904350	1998	3/21/1998	1	8	5	41	1	53	79	5033
10911732	2001	9/1/2001	1	4	5	42	1	53	31	5033
980824348	1998	8/22/1998	1	4	5	42	1	53	31	5033
30230205	2003	2/16/2003	1	7	5	42	1	53	30	5033
30946952	2003	6/29/2003	1	8	5	42	1	59	35	5033
40860523	2004	8/1/2004	1	2	5	43	1	59	76	5033
20852171	2002	7/28/2002	1	3	5	43	1	53	89	5033
980908119	1998	9/2/1998	1	4	5	43	1	53	31	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
41052321	2004	10/26/2004	1	6	5	43	1	53	79	5033
70921194	2007	6/1/2007	1	7	5	43	1	53	34	5033
20733278	2002	7/9/2002	1	7	5	43	1	53	34	5033
10555392	2001	5/26/2001	1	7	5	43	1	53	82	5033
70337773	2007	3/4/2007	1	8	5	43	1	71	35	5033
30802941	2003	7/31/2003	1	8	5	43	1	53	35	5033
990428193	1999	4/14/1999	1	1	5	44	1	53	75	5033
60525058	2006	4/17/2006	1	4	5	44	1	53		5033
214871	2000	2/12/2000	1	4	5	44	1	53	31	5033
40539319	2004	5/3/2004	1	7	5	44	1	53	33	5033
21202611	2002	11/29/2002	1	7	5	44	1	53	33	5033
11229400	2001	12/16/2001	1	7	5	44	1	53	30	5033
610501	2000	6/3/2000	1	7	5	44	1	53	82	5033
60624521	2006	6/10/2006	1	8	5	44	1	53	83	5033
40514539	2004	5/2/2004	1	8	5	44	1	53	35	5033
981216469	1998	12/5/1998	1	8	5	44	1	53	37	5033
30137697	2002	9/3/2002	1	4	5	45	1	64	31	5033
70650425	2007	5/31/2007	1	7	5	45	1	53	30	5033
30933958	2003	9/10/2003	1	7	5	45	1	53	30	5033
10939272	2001	9/7/2001	1	7	5	45	1	53	32	5033
616777	2000	5/30/2000	1	7	5	45	1	53	30	5033
990710514	1999	7/4/1999	1	7	5	45	1	53	92	5033
30408406	2003	3/30/2003	1	8	5	45	1	53	79	5033
20602087	2002	5/30/2002	1	8	5	45	1	53	81	5033
10700572	2001	6/25/2001	1	8	5	45	1	71	31	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
70109849	2006	12/26/2006	1	2	5	46	1	62	75	5033
70724165	2007	7/8/2007	1	4	5	46	1	53	31	5033
71009177	2007	9/22/2007	1	4	5	46	1	53	31	5033
31021319	2003	7/22/2003	1	4	5	46	1	53	31	5033
20735891	2002	7/14/2002	1	4	5	46	1	53	31	5033
750289	2000	7/25/2000	1	6	5	46	1	53	79	5033
50448143	2005	4/21/2005	1	8	5	46	1	53	79	5033
20741479	2002	7/18/2002	1	8	5	46	1	53	35	5033
50924659	2005	9/12/2005	1	4	5	47	1	71	31	5033
20612109	2002	6/5/2002	1	4	5	47	1	53	31	5033
980817840	1998	8/14/1998	1	7	5	47	1	53	32	5033
70119501	2007	1/6/2007	1	8	5	47	1	58	36	5033
20645551	2002	6/5/2002	1	8	5	47	1	53	30	5033
10133074	2000	11/19/2000	1	8	5	47	1	53	81	5033
71216369	2007	12/8/2007	1	2	5	48	1	53	76	5033
61204223	2006	12/2/2006	1	4	5	48	1	53		5033
990712288	1999	6/29/1999	1	4	5	48	1	53	31	5033
1112034	2000	11/1/2000	1	8	5	48	1	53	81	5033
71019346	2007	9/24/2007	1	2	5	49	1	53	76	5033
61239577	2006	12/18/2006	1	4	5	49	1	53	31	5033
980930364	1998	9/20/1998	1	7	5	49	1	53	80	5033
10520289	2001	5/5/2001	1	8	5	49	1	71	81	5033
980611544	1998	6/6/1998	1	2	5	50	1	53	76	5033
30218588	2003	2/3/2003	1	4	5	50	1	53	31	5033
11041907	2001	10/15/2001	1	4	5	50	1	53	31	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
11234618	2001	12/15/2001	1	4	5	50	1	64	31	5033
20318962	2002	3/7/2002	1	2	5	51	1	53	76	5033
704647	2000	6/30/2000	1	4	5	51	1	53	31	5033
980420122	1998	4/18/1998	1	7	5	51	1	53	30	5033
980903793	1998	8/29/1998	1	8	5	51	1	53	35	5033
60426114	2006	4/12/2006	1	8	5	52	1	53	35	5033
60638571	2006	6/11/2006	1	7	5	53	1	53	32	5033
990800368	1999	7/25/1999	1	7	5	54	1	53	33	5033
980702009	1998	6/27/1998	1	8	5	54	1	53	84	5033
50709981	2005	6/25/2005	1	4	5	55	1	53	31	5033
30744998	2003	7/17/2003	1	7	5	55	1	53	30	5033
40727568	2004	7/6/2004	1	8	5	55	1	53	36	5033
70314960	2007	2/10/2007	1	5	5	58	1	53	79	5033
980828464	1998	8/24/1998	1	8	5	58	1	71	36	5033
60204509	2006	1/31/2006	1	8	5	59	1	53	79	5033
30127719	2003	1/15/2003	1	4	5	62	1	53	31	5033
70721377	2007	7/9/2007	1	7	5	62	1	53	33	5033
50806480	2005	7/23/2005	1	1	5	64	1	53	75	5033
20444920	2002	4/10/2002	1	1	5	65	1	59	76	5033
10642599	2001	6/19/2001	1	2	5	69	1	53	76	5033
990728550	1999	7/12/1999	1	7	5	69	1	53	33	5033
20231837	2002	2/19/2002	1	7	5	73	1	53	30	5033
990717044	1999	7/3/1999	1	8	5	5	2	53	37	5033
324205	2000	3/22/2000	1	2	5	7	2	53	76	5033
749295	2000	7/23/2000	1	2	5	8	2	59	76	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
990907208	1999	9/5/1999	1	3	5	8	2	53	89	5033
10522537	2001	5/9/2001	1	7	5	8	2	53	82	5033
990919290	1999	8/9/1999	1	7	5	8	2	53	30	5033
70733398	2007	7/11/2007	1	5	5	9	2	71	79	5033
30959499	2003	9/14/2003	1	7	5	9	2	53	32	5033
20801664	2002	7/6/2002	1	7	5	9	2	53	32	5033
30412301	2003	4/3/2003	1	8	5	9	2	53	37	5033
744300	2000	7/21/2000	1	8	5	9	2	53	36	5033
20860522	2002	8/28/2002	1	7	5	10	2	53	30	5033
20723305	2002	6/18/2002	1	7	5	10	2	53	30	5033
60209724	2006	1/29/2006	1	8	5	10	2	53	35	1865
60709866	2006	7/2/2006	1	2	5	11	2	53		5033
10724855	2001	7/8/2001	1	8	5	11	2	53	84	5033
990106713	1998	12/27/1998	1	8	5	11	2	53	35	5033
707501	2000	6/25/2000	1	1	5	13	2	53	75	5033
990816224	1999	7/31/1999	1	5	5	13	2	53	79	5033
60812845	2006	8/3/2006	1	6	5	13	2	53	79	5033
10535019	2001	5/12/2001	1	7	5	13	2	53	30	5033
11023972	2001	10/9/2001	1	8	5	13	2	53	83	5033
842173	2000	8/18/2000	1	8	5	13	2	53	81	5033
990832441	1999	8/17/1999	1	8	5	13	2	53	35	5033
980427181	1998	4/26/1998	1	8	5	13	2	53	79	5033
50713070	2005	7/2/2005	1	2	5	14	2	53	76	5033
10762675	2001	7/29/2001	1	7	5	14	2	53	32	5033
817733	2000	8/4/2000	1	7	5	14	2	53	31	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980731830	1998	7/23/1998	1	7	5	14	2	53	82	5033
714316	2000	6/28/2000	1	8	5	14	2	53	35	5033
991030271	1999	10/15/1999	1	8	5	14	2	53	81	5033
60724038	2006	7/11/2006	1	8	5	15	2	53	83	5033
20741352	2002	7/14/2002	1	8	5	15	2	53	35	5033
20123072	2001	12/27/2001	1	5	5	16	2	53	79	5033
60817609	2006	7/29/2006	1	7	5	16	2	53	33	5033
70757199	2007	7/11/2007	1	8	5	16	2	53	37	5033
990932825	1999	9/24/1999	1	2	5	17	2	53	88	1937
50528265	2005	5/7/2005	1	4	5	17	2	53	31	5033
41115374	2004	11/4/2004	1	7	5	17	2	53	82	5033
10322123	2001	3/11/2001	1	7	5	18	2	53	32	5033
11029446	2001	10/2/2001	1	8	5	18	2	53	36	5033
980707822	1998	7/7/1998	1	5	5	19	2	53	31	5033
10719136	2001	7/2/2001	1	2	5	20	2	53	84	5033
981102999	1998	10/18/1998	1	8	5	20	2	53	79	5033
990621068	1999	6/15/1999	1	7	5	21	2	53	30	5033
980303447	1998	3/1/1998	1	8	5	21	2	53	79	5033
980630083	1998	6/25/1998	1	2	5	22	2	53	76	5033
31005004	2003	9/27/2003	1	5	5	22	2	53	38	5033
30830954	2003	8/17/2003	1	7	5	23	2	53	80	5033
20958989	2002	9/15/2002	1	7	5	23	2	64	89	5033
417501	2000	4/16/2000	1	7	5	23	2	53	32	5033
990907719	1999	8/24/1999	1	7	5	23	2	53	82	5033
40908891	2004	8/24/2004	1	8	5	23	2	53	83	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980207908	1998	2/8/1998	1	8	5	23	2	53	35	5033
70745607	2007	7/17/2007	1	7	5	24	2	53	82	5033
533391	2000	5/21/2000	1	7	5	24	2	53	30	5033
905158	2000	8/27/2000	1	8	5	24	2	53	36	5033
990622330	1999	6/15/1999	1	8	5	24	2	53	36	5033
50622168	2005	6/10/2005	1	1	5	25	2	53	75	5033
40850620	2004	8/23/2004	1	4	5	25	2	53	31	5033
519056	2000	5/4/2000	1	7	5	25	2	53	92	5033
913783	2000	9/5/2000	1	7	5	25	2	53	30	5033
10744313	2001	7/15/2001	1	4	5	26	2	53	31	5033
60214212	2006	1/29/2006	1	5	5	26	2	53		5033
71020389	2007	10/3/2007	1	7	5	26	2	53	32	5033
990528029	1999	5/24/1999	1	7	5	26	2	53	30	5033
980516263	1998	5/14/1998	1	7	5	26	2	53	30	5033
40139268	2004	1/24/2004	1	8	5	26	2	53	36	5033
990800334	1999	7/20/1999	1	8	5	26	2	53	35	5033
980625511	1998	6/20/1998	1	8	5	26	2	53	35	5033
40736812	2004	7/12/2004	1	2	5	27	2	53	76	5033
50307171	2005	2/22/2005	1	1	5	28	2	53	75	5033
10538129	2001	5/13/2001	1	4	5	28	2	53	31	5033
61208353	2006	12/3/2006	1	5	5	28	2	53	79	5033
10744912	2001	7/7/2001	1	7	5	28	2	53	32	5033
70545825	2007	5/19/2007	1	8	5	28	2	53	35	5033
60905977	2006	8/27/2006	1	8	5	28	2	53		5033
10510247	2001	4/29/2001	1	4	5	29	2	53	31	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
70555393	2007	5/16/2007	1	7	5	29	2	53	82	5033
40527842	2004	5/13/2004	1	7	5	29	2	53	30	5033
990816697	1999	8/11/1999	1	7	5	29	2	53	30	5033
543472	2000	5/26/2000	1	8	5	30	2	53	83	5033
628365	2000	6/11/2000	1	8	5	30	2	53	36	5033
980903806	1998	8/31/1998	1	4	5	31	2	53	31	5033
70535237	2007	5/12/2007	1	7	5	31	2	64	30	5033
60419502	2006	4/1/2006	1	7	5	31	2	53	30	5033
60906400	2006	9/3/2006	1	8	5	31	2	53	79	5033
980405845	1998	3/29/1998	1	7	5	32	2	53	92	5033
60657729	2006	6/10/2006	1	8	5	32	2	53		5033
40655566	2004	6/19/2004	1	8	5	32	2	53	35	5033
324753	2000	3/5/2000	1	8	5	32	2	53	35	5033
990800369	1999	7/25/1999	1	8	5	32	2	53	35	5033
980716925	1998	7/7/1998	1	2	5	33	2	53	76	5033
40423044	2004	3/22/2004	1	5	5	33	2	53	38	5033
10651688	2001	6/26/2001	1	7	5	33	2	53	80	5033
20523080	2002	5/10/2002	1	8	5	33	2	53	35	5033
980805823	1998	7/26/1998	1	2	5	34	2	53	76	5033
70509413	2007	4/30/2007	1	4	5	34	2	53	31	5033
990630074	1999	5/9/1999	1	4	5	34	2	53	84	5033
10310782	2001	3/5/2001	1	7	5	34	2	53	33	5033
990818772	1999	8/8/1999	1	7	5	34	2	53	32	5033
10520606	2001	5/1/2001	1	8	5	34	2	53	35	5033
980702019	1998	6/29/1998	1	8	5	34	2	53	79	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
30646116	2003	6/22/2003	1	4	5	36	2	53	31	5033
30636322	2003	6/15/2003	1	4	5	36	2	53	31	5033
106757	2000	1/3/2000	1	4	5	36	2	53	31	5033
70727891	2007	7/5/2007	1	7	5	36	2	53	33	5033
20706794	2002	6/28/2002	1	7	5	36	2	53	79	5033
711144	2000	7/2/2000	1	7	5	36	2	53	30	5033
10428445	2001	4/13/2001	1	8	5	37	2	59	35	5033
21205470	2002	8/10/2002	1	1	5	38	2	64	89	5033
991104689	1999	10/31/1999	1	7	5	38	2	71	30	5033
990912319	1999	9/9/1999	1	8	5	38	2	53	35	5033
60548213	2006	4/25/2006	1	4	5	39	2	53	31	5033
10545745	2001	5/18/2001	1	4	5	39	2	53	31	5033
11060529	2001	10/21/2001	1	8	5	39	2	53	79	5033
30930429	2003	8/21/2003	1	4	5	40	2	53	31	5033
60721119	2006	7/10/2006	1	7	5	40	2	53	32	5033
40722957	2004	7/11/2004	1	7	5	40	2	53	32	5033
980807845	1998	8/8/1998	1	7	5	40	2	53	30	5033
30317111	2003	3/10/2003	1	8	5	42	2	53	35	5033
990525466	1999	5/20/1999	1	8	5	42	2	53	79	5033
10840333	2001	8/19/2001	1	6	5	43	2	53	79	5033
30439079	2003	4/21/2003	1	4	5	44	2	53	31	5033
10805932	2001	7/20/2001	1	7	5	44	2	53	30	5033
904695	2000	8/29/2000	1	7	5	45	2	53	30	5033
990735133	1999	7/18/1999	1	7	5	45	2	53	92	5033
980601846	1998	5/26/1998	1	7	5	45	2	53	34	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10605877	2001	5/13/2001	1	4	5	46	2	53	31	5033
20750904	2002	7/14/2002	1	7	5	46	2	53	82	5033
990118918	1999	1/18/1999	1	8	5	47	2	58	81	5033
70420549	2007	3/31/2007	1	7	5	48	2	53	34	5033
990723384	1999	7/9/1999	1	4	5	50	2	53	31	5033
30707342	2003	6/21/2003	1	7	5	50	2	53	30	5033
815449	2000	8/5/2000	1	8	5	50	2	53	36	5033
70708377	2007	6/30/2007	1	7	5	56	2	53	32	5033
50923653	2005	9/9/2005	1	8	5	56	2	53	81	5033
30819725	2003	8/8/2003	1	1	5	57	2	53	75	5033
20735896	2002	7/14/2002	1	7	5	57	2	53	30	5033
10818610	2001	8/1/2001	1	2	6	5	1	59	76	5033
990409370	1999	4/7/1999	1	2	6	5	1	59	76	5033
980830393	1998	8/27/1998	1	2	6	5	1	59	76	5033
10511546	2001	4/28/2001	1	2	6	6	1	59	76	5033
990516797	1999	4/27/1999	1	2	6	6	1	59	76	5033
980804152	1998	8/2/1998	1	2	6	6	1	59	88	5033
11028275	2001	10/10/2001	1	2	6	7	1	59	76	5033
980622755	1998	6/19/1998	1	1	6	8	1	59	75	5033
20856401	2002	8/23/2002	1	2	6	8	1	60	88	5033
990709956	1999	7/3/1999	1	8	6	8	1	59	35	5033
20921546	2002	8/19/2002	1	1	6	10	1	59	75	5033
51125756	2005	11/13/2005	1	2	6	10	1	59	88	5033
981123143	1998	11/1/1998	1	8	6	10	1	59	36	5033
980702359	1998	6/25/1998	1	1	6	11	1	59	75	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
70806084	2007	7/27/2007	1	2	6	11	1	59	88	5033
11047113	2001	9/23/2001	1	7	6	11	1	59	32	5033
990906382	1999	8/30/1999	1	7	6	11	1	59	33	5033
40914689	2004	9/6/2004	1	8	6	11	1	59	35	5033
30907617	2003	7/6/2003	1	8	6	11	1	59	36	5033
30739026	2003	7/6/2003	1	8	6	11	1	59	35	5033
980612086	1998	6/2/1998	1	8	6	11	1	59	36	5033
10943847	2001	9/21/2001	1	2	6	12	1	59	76	5033
610099	2000	6/6/2000	1	2	6	12	1	53	35	5033
990921127	1999	8/23/1999	1	2	6	12	1	59	76	5033
990927229	1999	9/20/1999	1	2	6	12	1	59	76	5033
980630547	1998	6/22/1998	1	2	6	12	1	59	76	5033
71152839	2007	11/25/2007	1	8	6	12	1	59	36	5033
20556858	2002	5/28/2002	1	8	6	12	1	59	35	5033
10551831	2001	5/22/2001	1	8	6	12	1	59	36	5033
990823928	1999	8/17/1999	1	8	6	12	1	53	35	5033
70838954	2007	8/18/2007	1	2	6	13	1	59	76	5033
61007531	2006	9/17/2006	1	2	6	13	1	59	88	5033
40631929	2004	6/12/2004	1	2	6	13	1	59	76	5033
632956	2000	6/17/2000	1	2	6	13	1	59	88	5033
990520721	1999	5/15/1999	1	2	6	13	1	59	88	5033
322042	2000	3/20/2000	1	7	6	13	1	59	32	5033
30812640	2003	7/25/2003	1	8	6	13	1	59	36	5033
20756993	2002	7/26/2002	1	8	6	13	1	59	36	5033
808289	2000	8/2/2000	1	8	6	13	1	59	36	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10827273	2001	8/6/2001	1	1	6	14	1	59	75	5033
20834860	2002	8/4/2002	1	2	6	14	1	59	88	5033
990709945	1999	7/1/1999	1	2	6	14	1	59	76	5033
980810850	1998	8/8/1998	1	2	6	14	1	59	76	5033
60825475	2006	8/5/2006	1	7	6	14	1	59	32	5033
980802650	1998	8/1/1998	1	7	6	14	1	59	32	5033
30227978	2003	2/1/2003	1	8	6	14	1	59	36	5033
319371	2000	3/18/2000	1	8	6	14	1	59	36	5033
543430	2000	5/24/2000	1	8	6	14	1	59	36	5033
907255	2000	9/2/2000	1	8	6	14	1	59	36	5033
980903802	1998	8/30/1998	1	8	6	14	1	59	36	5033
10234803	2001	2/19/2001	1	1	6	15	1	59	75	5033
1111275	2000	11/2/2000	1	2	6	15	1	59	76	5033
990107288	1999	1/9/1999	1	2	6	15	1	59	75	5033
990803148	1999	7/20/1999	1	2	6	15	1	59	88	5033
991017762	1999	10/13/1999	1	2	6	15	1	59	88	5033
60925456	2006	8/27/2006	1	7	6	15	1	59	33	5033
30809264	2003	7/4/2003	1	7	6	15	1	59	32	5033
71146365	2007	11/25/2007	1	8	6	15	1	59	81	5033
50451409	2005	4/19/2005	1	8	6	15	1	59	36	5033
11144851	2001	11/25/2001	1	8	6	15	1	59	35	5033
609065	2000	5/27/2000	1	8	6	15	1	59	35	5033
827000	2000	7/23/2000	1	8	6	15	1	59	79	5033
60648601	2006	6/22/2006	1	2	6	16	1	59	94	5033
60863977	2006	8/25/2006	1	2	6	16	1	59	76	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
20516542	2002	5/5/2002	1	2	6	16	1	59	76	5033
980415739	1998	3/29/1998	1	2	6	16	1	59	76	5033
990427008	1999	4/15/1999	1	7	6	16	1	59	33	5033
990909797	1999	9/6/1999	1	7	6	16	1	59	32	5033
60810084	2006	8/1/2006	1	8	6	16	1	59	81	5033
30350058	2003	3/21/2003	1	8	6	16	1	59	36	5033
30534524	2003	5/10/2003	1	8	6	16	1	59	35	5033
20554673	2002	5/27/2002	1	8	6	16	1	59	36	5033
642783	2000	6/22/2000	1	8	6	16	1	59	35	5033
914049	2000	7/13/2000	1	8	6	16	1	59	36	5033
990816547	1999	8/10/1999	1	8	6	16	1	59	88	5033
50943313	2005	9/5/2005	1	1	6	17	1	59	75	5033
980505649	1998	5/3/1998	1	1	6	17	1	59	76	5033
60902700	2006	9/2/2006	1	7	6	17	1	59	32	5033
990300190	1999	2/25/1999	1	7	6	17	1	59	82	5033
990723603	1999	7/18/1999	1	7	6	17	1	59	82	5033
50657367	2005	6/22/2005	1	8	6	17	1	59	35	5033
40860525	2004	8/1/2004	1	8	6	17	1	59	36	5033
30854316	2003	7/26/2003	1	8	6	17	1	59	35	5033
20752519	2002	6/13/2002	1	8	6	17	1	59	35	5033
60821604	2006	8/2/2006	1	2	6	18	1	59	76	5033
60546286	2006	5/2/2006	1	2	6	18	1	59	76	5033
21027232	2002	10/10/2002	1	2	6	18	1	59	88	5033
990615529	1999	6/13/1999	1	2	6	18	1	59	76	5033
980613005	1998	6/9/1998	1	2	6	18	1	59	88	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
51023010	2005	9/8/2005	1	7	6	18	1	59	33	5033
10723033	2001	7/4/2001	1	7	6	18	1	59	32	5033
10754388	2001	7/24/2001	1	7	6	18	1	59	32	5033
990913993	1999	9/9/1999	1	7	6	18	1	59	33	5033
11042690	2001	10/15/2001	1	8	6	18	1	59	36	5033
981113161	1998	7/20/1998	1	8	6	18	1	59	37	5033
50614353	2005	6/3/2005	1	1	6	19	1	59	75	5033
10811214	2001	8/3/2001	1	2	6	19	1	59	76	5033
10834780	2001	8/12/2001	1	2	6	19	1	59	76	5033
10853403	2001	8/26/2001	1	2	6	19	1	59	76	5033
756099	2000	7/4/2000	1	2	6	19	1	57	76	5033
980424362	1998	4/23/1998	1	2	6	19	1	59	88	5033
980602043	1998	5/29/1998	1	2	6	19	1	59	88	5033
980827186	1998	8/18/1998	1	2	6	19	1	59	76	5033
50444915	2005	4/19/2005	1	7	6	19	1	59	33	5033
70845265	2007	8/6/2007	1	8	6	19	1	59	36	5033
30548961	2003	5/23/2003	1	8	6	19	1	59	35	5033
10803825	2001	7/29/2001	1	8	6	19	1	59	36	5033
625814	2000	6/13/2000	1	8	6	19	1	59	36	5033
1001683	2000	9/28/2000	1	8	6	19	1	59	35	5033
980517004	1998	5/16/1998	1	8	6	19	1	59	36	5033
40501544	2004	4/29/2004	1	2	6	20	1	59	76	5033
20648285	2002	6/23/2002	1	2	6	20	1	59	76	5033
11034586	2001	8/1/2001	1	2	6	20	1	59	88	5033
726665	2000	7/15/2000	1	2	6	20	1	59	76	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980706576	1998	7/2/1998	1	2	6	20	1	53	84	5033
70715270	2007	7/2/2007	1	7	6	20	1	59	82	5033
980908120	1998	9/2/1998	1	7	6	20	1	59	80	5033
11142372	2001	11/15/2001	1	8	6	20	1	59	35	5033
20606062	2002	5/28/2002	1	4	6	21	1	63	31	5033
10719120	2001	6/27/2001	1	5	6	21	1	59	79	5033
70603864	2007	5/27/2007	1	7	6	21	1	59	82	5033
50518394	2005	4/5/2005	1	7	6	21	1	59	33	1894
40551442	2004	5/23/2004	1	7	6	21	1	59	82	5033
10828402	2001	8/13/2001	1	7	6	21	1	59	80	5033
50841430	2005	8/16/2005	1	8	6	21	1	59	36	5033
40842174	2004	7/16/2004	1	8	6	21	1	59	35	5033
20922044	2002	9/7/2002	1	8	6	21	1	59	36	5033
10811371	2001	8/5/2001	1	8	6	21	1	59	35	5033
620812	2000	6/5/2000	1	8	6	21	1	59	35	5033
980223189	1998	2/25/1998	1	8	6	21	1	59	35	5033
980419001	1998	4/18/1998	1	8	6	21	1	59	35	5033
70535935	2007	5/15/2007	1	2	6	22	1	59	76	5033
60514752	2006	4/21/2006	1	2	6	22	1	59	76	5033
20555411	2002	5/18/2002	1	2	6	22	1	59	88	5033
20719863	2002	7/5/2002	1	2	6	22	1	59	76	5033
842846	2000	8/20/2000	1	2	6	22	1	59	76	5033
41013875	2004	10/5/2004	1	7	6	22	1	59	92	5033
20948049	2002	9/23/2002	1	7	6	22	1	72	82	5033
10813884	2001	7/10/2001	1	7	6	22	1	72	33	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
990806986	1999	8/1/1999	1	7	6	22	1	63	33	5033
981029890	1998	6/21/1998	1	7	6	22	1	59	33	5033
50524386	2005	5/7/2005	1	8	6	22	1	59	36	5033
20130369	2002	1/12/2002	1	8	6	22	1	59	35	5033
70803902	2007	7/29/2007	1	1	6	23	1	59	75	5033
61133233	2006	11/4/2006	1	2	6	23	1	59	76	5033
20955473	2002	9/26/2002	1	2	6	23	1	59	76	5033
10526259	2001	5/9/2001	1	2	6	23	1	59	76	5033
10935857	2001	8/24/2001	1	2	6	23	1	59	75	5033
505727	2000	4/17/2000	1	2	6	23	1	59	76	5033
980719018	1998	7/10/1998	1	2	6	23	1	59	76	5033
325741	2000	3/26/2000	1	7	6	23	1	59	33	5033
741971	2000	7/9/2000	1	7	6	23	1	59	33	5033
991029915	1999	10/22/1999	1	7	6	23	1	59	33	5033
70724535	2007	7/10/2007	1	8	6	23	1	59	36	5033
60933943	2006	9/4/2006	1	8	6	23	1	59	36	5033
31139184	2003	11/22/2003	1	8	6	23	1	59	81	5033
30845528	2003	8/5/2003	1	8	6	23	1	59	35	5033
980721327	1998	7/5/1998	1	8	6	23	1	59	35	5033
990705462	1999	6/29/1999	1	1	6	24	1	59	75	5033
60447009	2006	4/11/2006	1	2	6	24	1	59		5033
50816806	2005	7/30/2005	1	2	6	24	1	59	76	5033
40858389	2004	8/28/2004	1	2	6	24	1	59	76	5033
21119411	2002	10/24/2002	1	2	6	24	1	59	76	5033
10340284	2001	3/18/2001	1	2	6	24	1	59	76	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10548796	2001	5/21/2001	1	2	6	24	1	59	76	5033
30908982	2003	7/26/2003	1	4	6	24	1	59	31	5033
71249154	2007	12/26/2007	1	7	6	24	1	59	92	5033
70529549	2007	5/4/2007	1	7	6	24	1	59	33	5033
20762026	2002	7/25/2002	1	7	6	24	1	59	80	5033
311119	2000	3/1/2000	1	7	6	24	1	59	34	5033
802215	2000	7/25/2000	1	7	6	24	1	59	32	5033
60351857	2006	3/23/2006	1	8	6	24	1	59	36	5033
21218841	2002	12/8/2002	1	8	6	24	1	59	35	5033
10428484	2001	4/11/2001	1	8	6	24	1	59	36	5033
10808984	2001	7/30/2001	1	8	6	24	1	53	79	5033
991030694	1999	10/24/1999	1	8	6	24	1	59	35	5033
991122134	1999	11/20/1999	1	8	6	24	1	59	36	5033
980520225	1998	5/18/1998	1	8	6	24	1	59	36	5033
50864381	2005	8/7/2005	1	2	6	25	1	59	88	5033
41140651	2004	11/13/2004	1	2	6	25	1	59	76	5033
20613741	2002	6/3/2002	1	2	6	25	1	59	94	5033
980700002	1998	6/27/1998	1	2	6	25	1	59	76	5033
70241928	2007	2/17/2007	1	7	6	25	1	59	82	5033
50815472	2005	6/20/2005	1	7	6	25	1	59	32	5033
50902675	2005	8/11/2005	1	7	6	25	1	59	92	5033
20919311	2002	9/8/2002	1	7	6	25	1	59	33	5033
990924081	1999	9/18/1999	1	7	6	25	1	59	32	5033
61203752	2006	11/30/2006	1	8	6	25	1	59	36	5033
20426123	2002	4/13/2002	1	8	6	25	1	59	36	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
723767	2000	7/12/2000	1	8	6	25	1	59	35	5033
980819318	1998	8/10/1998	1	8	6	25	1	59	35	5033
50643792	2005	6/19/2005	1	2	6	26	1	59	76	5033
20720939	2002	6/29/2002	1	2	6	26	1	59	76	5033
10852022	2001	8/21/2001	1	2	6	26	1	59	76	5033
608507	2000	6/4/2000	1	2	6	26	1	53	76	5033
934997	2000	9/17/2000	1	2	6	26	1	59	76	5033
990517660	1999	4/26/1999	1	2	6	26	1	59	77	5033
980627243	1998	6/21/1998	1	2	6	26	1	59	76	5033
60639129	2006	6/16/2006	1	7	6	26	1	59		5033
50519843	2005	5/7/2005	1	7	6	26	1	59	82	5033
10801969	2001	4/23/2001	1	7	6	26	1	59	92	5033
719964	2000	7/4/2000	1	7	6	26	1	59	31	5033
814548	2000	8/3/2000	1	7	6	26	1	59	32	5033
842155	2000	8/18/2000	1	7	6	26	1	59	33	5033
990709955	1999	7/3/1999	1	7	6	26	1	59	32	5033
980624280	1998	6/20/1998	1	7	6	26	1	59	32	5033
80101160	2007	12/30/2007	1	8	6	26	1	59	36	5033
61003997	2006	9/17/2006	1	8	6	26	1	59	36	5033
20239956	2002	2/23/2002	1	8	6	26	1	59	36	5033
11204045	2001	11/22/2001	1	8	6	26	1	59	81	5033
902474	2000	8/22/2000	1	8	6	26	1	59	35	5033
10649552	2001	6/17/2001	1	2	6	27	1	59	76	5033
70824582	2007	8/1/2007	1	7	6	27	1	59	82	5033
41117326	2004	11/5/2004	1	7	6	27	1	59	92	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
30908222	2003	9/1/2003	1	7	6	27	1	59	33	5033
543442	2000	5/25/2000	1	7	6	27	1	63	33	5033
990527377	1999	5/22/1999	1	7	6	27	1	59	33	5033
991122145	1999	11/20/1999	1	7	6	27	1	59	92	5033
50448914	2005	4/25/2005	1	8	6	27	1	59	37	5033
40706077	2004	6/23/2004	1	8	6	27	1	59	36	5033
20861873	2002	8/28/2002	1	8	6	27	1	59	81	5033
10636690	2001	6/14/2001	1	8	6	27	1	59	36	5033
990323358	1999	3/16/1999	1	8	6	27	1	59	37	5033
990425157	1999	4/24/1999	1	8	6	27	1	59	35	5033
990914381	1999	9/6/1999	1	8	6	27	1	59	36	5033
991003427	1999	9/18/1999	1	8	6	27	1	59	36	5033
980609664	1998	6/6/1998	1	1	6	28	1	59	75	5033
20521550	2002	4/28/2002	1	2	6	28	1	59	76	5033
980613797	1998	5/27/1998	1	7	6	28	1	59	32	5033
50704033	2005	7/2/2005	1	8	6	28	1	59	37	5033
40517029	2004	5/8/2004	1	8	6	28	1	59	36	5033
30127714	2003	1/15/2003	1	8	6	28	1	59	35	5033
30962314	2003	9/16/2003	1	8	6	28	1	59	36	5033
20221001	2002	2/11/2002	1	8	6	28	1	59	36	5033
20701558	2002	6/2/2002	1	8	6	28	1	59	36	5033
11127289	2001	9/8/2001	1	8	6	28	1	59	35	5033
980903292	1998	8/20/1998	1	8	6	28	1	59	35	5033
70617220	2007	6/7/2007	1	2	6	29	1	59	76	5033
40826052	2004	7/29/2004	1	2	6	29	1	59	76	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
20539324	2002	5/18/2002	1	2	6	29	1	59	76	5033
30210576	2002	9/29/2002	1	2	6	29	1	59	76	5033
10915669	2001	9/3/2001	1	2	6	29	1	59	76	5033
980707117	1998	6/24/1998	1	2	6	29	1	59	76	5033
30212548	2002	10/5/2002	1	3	6	29	1	59	89	5033
20737147	2002	7/15/2002	1	7	6	29	1	59	82	5033
10828454	2001	8/8/2001	1	7	6	29	1	59	82	5033
980621987	1998	5/7/1998	1	7	6	29	1	59	33	5033
70536492	2007	5/8/2007	1	8	6	29	1	63	36	5033
10811330	2001	8/5/2001	1	8	6	29	1	59	36	5033
905946	2000	9/3/2000	1	8	6	29	1	59	35	5033
990808676	1999	8/2/1999	1	8	6	29	1	59	36	5033
980629841	1998	6/21/1998	1	8	6	29	1	59	35	5033
981013202	1998	10/9/1998	1	8	6	29	1	72	36	5033
40805056	2004	7/31/2004	1	1	6	30	1	59	76	5033
20631659	2002	5/16/2002	1	2	6	30	1	59	76	5033
21205601	2002	11/29/2002	1	2	6	30	1	59	76	5033
990902503	1999	8/14/1999	1	2	6	30	1	59	76	5033
980404593	1998	3/28/1998	1	2	6	30	1	59	76	5033
980826346	1998	7/18/1998	1	2	6	30	1	59	88	5033
41107950	2004	10/30/2004	1	7	6	30	1	59	32	5033
632007	2000	6/12/2000	1	7	6	30	1	59	32	5033
990632584	1999	6/20/1999	1	7	6	30	1	59	92	5033
990807640	1999	7/25/1999	1	7	6	30	1	59	33	5033
40655006	2004	6/20/2004	1	8	6	30	1	59	35	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
30304118	2003	3/1/2003	1	8	6	30	1	59	36	5033
10701468	2001	5/12/2001	1	8	6	30	1	59	35	5033
10549188	2001	5/20/2001	1	8	6	30	1	59	37	5033
401662	2000	3/28/2000	1	8	6	30	1	59	35	5033
905134	2000	8/26/2000	1	8	6	30	1	59	36	5033
991004275	1999	10/3/1999	1	8	6	30	1	59	35	5033
50838921	2005	7/4/2005	1	2	6	31	1	59	76	5033
50743599	2005	7/5/2005	1	2	6	31	1	53	76	5033
41055247	2004	10/26/2004	1	2	6	31	1	59	76	5033
980711599	1998	6/28/1998	1	2	6	31	1	59	76	5033
71116677	2007	11/5/2007	1	7	6	31	1	59	82	5033
10139206	2001	1/20/2001	1	7	6	31	1	59	33	5033
623390	2000	6/10/2000	1	7	6	31	1	59	33	5033
20760068	2002	7/27/2002	1	8	6	31	1	59	35	5033
10724826	2001	7/6/2001	1	8	6	31	1	59	79	5033
625484	2000	5/23/2000	1	8	6	31	1	59	35	5033
980706077	1998	7/5/1998	1	8	6	31	1	59	81	5033
41113214	2004	10/24/2004	1	2	6	32	1	59	76	5033
10721175	2001	7/3/2001	1	2	6	32	1	59	76	5033
226854	2000	2/27/2000	1	2	6	32	1	59	76	5033
330461	2000	3/27/2000	1	2	6	32	1	59	76	5033
840018	2000	8/11/2000	1	2	6	32	1	59	76	5033
990918123	1999	8/22/1999	1	2	6	32	1	59	76	5033
50540756	2005	5/8/2005	1	7	6	32	1	59	33	5033
41052013	2004	10/10/2004	1	7	6	32	1	59	92	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
30633762	2003	5/26/2003	1	7	6	32	1	59	32	5033
21135853	2002	8/3/2002	1	7	6	32	1	59	32	5033
991030671	1999	10/22/1999	1	7	6	32	1	59	32	5033
980511967	1998	5/9/1998	1	7	6	32	1	59	32	5033
980726462	1998	7/23/1998	1	7	6	32	1	59	32	5033
61205926	2006	11/25/2006	1	8	6	32	1	59	35	5033
20730806	2002	7/4/2002	1	8	6	32	1	59	36	5033
51107350	2005	10/30/2005	1	2	6	33	1	59	76	5033
40800914	2004	7/23/2004	1	2	6	33	1	59	76	5033
630732	2000	6/10/2000	1	2	6	33	1	59	88	5033
60741644	2006	7/19/2006	1	7	6	33	1	59	32	5033
40224667	2003	9/27/2003	1	7	6	33	1	59	32	5033
20641221	2002	6/13/2002	1	7	6	33	1	59	33	5033
991103214	1999	10/31/1999	1	7	6	33	1	59	32	5033
40661081	2004	6/3/2004	1	8	6	33	1	59	35	5033
11136984	2001	11/18/2001	1	8	6	33	1	59	36	5033
990709183	1999	7/5/1999	1	8	6	33	1	59	36	5033
990911033	1999	9/6/1999	1	8	6	33	1	59	35	5033
10139209	2001	1/20/2001	1	2	6	34	1	59	76	5033
10531261	2001	5/11/2001	1	2	6	34	1	59	76	5033
414038	2000	4/11/2000	1	2	6	34	1	59	88	5033
980104685	1998	1/4/1998	1	2	6	34	1	59	76	5033
60815765	2006	8/6/2006	1	7	6	34	1	59	80	5033
40130036	2004	1/18/2004	1	7	6	34	1	59	32	5033
10617805	2001	6/7/2001	1	7	6	34	1	59	33	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980918862	1998	9/11/1998	1	7	6	34	1	59	33	5033
70711555	2007	6/18/2007	1	8	6	34	1	59	35	5033
61113759	2006	11/5/2006	1	8	6	34	1	59	83	5033
41139717	2004	11/17/2004	1	8	6	34	1	59	36	5033
40634329	2004	6/13/2004	1	8	6	34	1	59	36	5033
10802972	2001	7/29/2001	1	8	6	34	1	59	36	5033
980702016	1998	6/28/1998	1	8	6	34	1	59	36	5033
980804151	1998	8/1/1998	1	8	6	34	1	59	36	5033
50321994	2005	3/5/2005	1	1	6	35	1	59	75	5033
710471	2000	6/25/2000	1	1	6	35	1	59	75	5033
11113859	2001	11/4/2001	1	2	6	35	1	59	76	5033
990927238	1999	9/18/1999	1	2	6	35	1	59	76	5033
980809019	1998	8/9/1998	1	7	6	35	1	59	92	5033
61135727	2006	11/12/2006	1	8	6	35	1	59	35	5033
50902774	2005	8/15/2005	1	8	6	35	1	59	83	5033
40841717	2004	8/9/2004	1	8	6	35	1	59	36	5033
10734020	2001	7/12/2001	1	8	6	35	1	59	36	5033
40705587	2004	6/26/2004	1	2	6	36	1	59	76	5033
10736017	2001	7/12/2001	1	2	6	36	1	59	76	5033
990523981	1999	5/16/1999	1	2	6	36	1	59	76	5033
990905856	1999	8/22/1999	1	2	6	36	1	62	75	5033
60524529	2006	4/30/2006	1	7	6	36	1	63	33	5033
50315887	2005	3/8/2005	1	7	6	36	1	59	33	5033
981122940	1998	11/22/1998	1	7	6	36	1	59	92	5033
50856586	2005	8/21/2005	1	8	6	36	1	59	36	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
30910653	2003	5/15/2003	1	8	6	36	1	59	36	5033
30713041	2003	7/4/2003	1	8	6	36	1	59	36	5033
20303650	2002	2/26/2002	1	8	6	36	1	59	35	5033
10810899	2001	8/5/2001	1	8	6	36	1	59	36	5033
912480	2000	9/2/2000	1	8	6	36	1	59	35	5033
990828598	1999	8/23/1999	1	8	6	36	1	59	36	5033
31040732	2003	10/6/2003	1	1	6	37	1	62	75	5033
50718150	2005	6/23/2005	1	2	6	37	1	59	94	5033
40960257	2004	9/25/2004	1	7	6	37	1	59	33	5033
508726	2000	4/5/2000	1	7	6	37	1	59	82	5033
719330	2000	7/7/2000	1	7	6	37	1	59	33	5033
990828444	1999	8/22/1999	1	7	6	37	1	59	33	5033
71125535	2007	11/4/2007	1	8	6	37	1	59	36	5033
742179	2000	7/20/2000	1	8	6	37	1	59	36	5033
980512684	1998	5/11/1998	1	8	6	37	1	59	81	5033
980918247	1998	9/13/1998	1	8	6	37	1	59	35	5033
981109924	1998	11/3/1998	1	8	6	37	1	63	35	5033
11235230	2001	12/16/2001	1	1	6	38	1	59	75	5033
744968	2000	7/23/2000	1	2	6	38	1	59	76	5033
990805637	1999	7/23/1999	1	2	6	38	1	59	88	5033
10805989	2001	7/24/2001	1	7	6	38	1	59	33	5033
980819327	1998	8/12/1998	1	7	6	38	1	59	33	5033
40424493	2004	4/11/2004	1	8	6	38	1	59	36	5033
40855442	2004	8/24/2004	1	8	6	38	1	59	36	5033
31221759	2003	12/2/2003	1	8	6	38	1	59	81	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
20717594	2002	6/29/2002	1	8	6	38	1	59	35	5033
980819300	1998	8/8/1998	1	8	6	38	1	59	35	5033
70851937	2007	8/10/2007	1	2	6	39	1	59	76	5033
60801039	2006	7/29/2006	1	2	6	39	1	59		5033
50816242	2005	7/30/2005	1	2	6	39	1	59	76	5033
50402830	2005	3/30/2005	1	2	6	39	1	59	88	5033
733237	2000	7/3/2000	1	2	6	39	1	59	76	5033
981202516	1998	11/28/1998	1	2	6	39	1	59	76	5033
20733246	2002	7/7/2002	1	7	6	39	1	59	32	5033
60533711	2006	5/15/2006	1	8	6	39	1	59	37	5033
30903297	2003	8/30/2003	1	8	6	39	1	59	36	5033
20245042	2002	2/22/2002	1	2	6	40	1	59	88	5033
40649923	2004	6/20/2004	1	7	6	40	1	59	32	5033
732654	2000	7/15/2000	1	8	6	40	1	59	81	5033
20514634	2002	4/28/2002	1	6	6	41	1	59	79	5033
70857377	2007	8/26/2007	1	2	6	41	1	59	76	5033
50960814	2005	9/4/2005	1	7	6	41	1	59	32	5033
1149563	2000	11/22/2000	1	1	6	42	1	59	75	5033
607429	2000	5/30/2000	1	2	6	42	1	59	76	5033
743168	2000	7/21/2000	1	2	6	42	1	59	76	5033
924315	2000	9/10/2000	1	2	6	42	1	59	88	5033
70501367	2007	4/26/2007	1	7	6	42	1	63	80	5033
991004597	1999	10/1/1999	1	7	6	42	1	63	32	5033
980819323	1998	8/11/1998	1	7	6	42	1	59	32	5033
60700731	2006	7/1/2006	1	8	6	42	1	59	36	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
40753850	2004	7/26/2004	1	2	6	43	1	59	94	5033
980407067	1998	3/23/1998	1	2	6	43	1	59	76	5033
980510245	1998	4/18/1998	1	2	6	43	1	59	76	5033
980622742	1998	6/14/1998	1	2	6	43	1	59	76	5033
980912094	1998	8/27/1998	1	2	6	43	1	59	76	5033
60710075	2006	7/4/2006	1	7	6	43	1	59		5033
20827412	2002	8/11/2002	1	7	6	43	1	59	32	5033
10934913	2001	9/12/2001	1	7	6	43	1	59	32	5033
60811114	2006	8/5/2006	1	8	6	43	1	59	35	5033
40912886	2004	9/1/2004	1	8	6	43	1	59	36	5033
50755587	2005	7/16/2005	1	2	6	44	1	59	76	5033
20818042	2002	8/6/2002	1	7	6	44	1	59	32	5033
10905404	2001	9/1/2001	1	7	6	44	1	59	82	5033
10943187	2001	9/16/2001	1	7	6	44	1	59	32	5033
830543	2000	8/12/2000	1	7	6	44	1	63	33	5033
1203006	2000	12/2/2000	1	7	6	44	1	59	33	5033
30947053	2003	7/1/2003	1	8	6	44	1	59	81	5033
60823592	2006	7/30/2006	1	2	6	45	1	59	76	5033
50907086	2005	8/22/2005	1	2	6	45	1	59	75	5033
10806010	2001	7/25/2001	1	2	6	45	1	59	76	5033
980702987	1998	7/2/1998	1	2	6	45	1	59	76	5033
70937571	2007	9/2/2007	1	7	6	45	1	59	33	5033
50623344	2005	6/2/2005	1	7	6	45	1	59	92	5033
60114089	2005	12/26/2005	1	7	6	45	1	59	32	5033
830548	2000	8/12/2000	1	7	6	45	1	59	32	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
990827532	1999	8/9/1999	1	8	6	45	1	59	35	5033
80124614	2007	12/2/2007	1	2	6	46	1	59	88	5033
60834221	2006	8/11/2006	1	2	6	46	1	59	76	5033
21134788	2002	11/17/2002	1	2	6	46	1	59	76	5033
711130	2000	7/2/2000	1	2	6	46	1	59	76	5033
980820854	1998	8/14/1998	1	7	6	46	1	72	32	5033
60719221	2006	7/4/2006	1	8	6	46	1	59	36	5033
40417533	2004	4/4/2004	1	8	6	46	1	59	35	5033
637240	2000	6/18/2000	1	8	6	46	1	59	35	5033
70246890	2007	2/25/2007	1	2	6	47	1	59	88	5033
990829079	1999	8/14/1999	1	2	6	47	1	59	76	5033
10851915	2001	8/13/2001	1	7	6	47	1	59	82	5033
980920111	1998	9/16/1998	1	7	6	47	1	59	33	5033
20857536	2002	8/25/2002	1	8	6	47	1	59	35	5033
725589	2000	7/13/2000	1	8	6	47	1	59	36	5033
40542829	2004	5/22/2004	1	7	6	48	1	59	33	5033
10808973	2001	7/29/2001	1	7	6	48	1	59	33	5033
990819360	1999	8/14/1999	1	8	6	48	1	59	36	5033
70757496	2007	7/14/2007	1	2	6	49	1	59	76	5033
21031929	2002	9/22/2002	1	2	6	49	1	59	76	5033
1224739	2000	10/22/2000	1	7	6	49	1	59	30	5033
20733345	2002	7/11/2002	1	8	6	49	1	63	81	5033
980911774	1998	9/4/1998	1	8	6	49	1	59	35	5033
990506695	1999	4/14/1999	1	2	6	50	1	59	76	5033
50324996	2005	3/13/2005	1	7	6	50	1	59	33	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
990713051	1999	7/6/1999	1	8	6	50	1	59	35	5033
31016060	2003	9/21/2003	1	1	6	51	1	59	94	5033
60642091	2006	6/20/2006	1	7	6	51	1	59	92	5033
981013473	1998	10/11/1998	1	7	6	51	1	59	32	5033
60659739	2006	6/16/2006	1	8	6	51	1	59	36	5033
10806011	2001	7/25/2001	1	7	6	52	1	59	82	5033
429860	2000	4/22/2000	1	8	6	52	1	59	36	5033
50864943	2005	8/7/2005	1	7	6	53	1	59	92	5033
30649137	2003	6/22/2003	1	8	6	54	1	59	36	5033
10631510	2001	6/10/2001	1	8	6	54	1	59	36	5033
911544	2000	8/31/2000	1	8	6	54	1	59	36	5033
837444	2000	8/17/2000	1	2	6	55	1	59	76	5033
50902867	2005	8/19/2005	1	8	6	55	1	59	36	5033
20745594	2002	7/20/2002	1	8	6	55	1	59	36	5033
10516784	2001	5/4/2001	1	2	6	56	1	68	85	5033
980518942	1998	5/8/1998	1	7	6	56	1	59	92	5033
70633071	2007	6/3/2007	1	8	6	57	1	59	36	5033
60238094	2006	1/28/2006	1	3	6	58	1	59	89	5033
60839859	2006	8/18/2006	1	7	6	58	1	59	33	5033
60834894	2006	8/15/2006	1	7	6	58	1	59		5033
833476	2000	8/13/2000	1	7	6	58	1	59	92	5033
70909296	2007	9/2/2007	1	8	6	63	1	59	36	5033
10814483	2001	8/3/2001	1	2	6	64	1	59	76	5033
10816871	2001	8/4/2001	1	2	6	64	1	59	76	5033
40813358	2004	7/31/2004	1	7	6	70	1	59	82	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
20733231	2002	7/6/2002	1	2	6	71	1	59	76	5033
610085	2000	6/4/2000	1	7	6	9	2	59	80	5033
990629431	1999	6/14/1999	1	8	6	10	2	59	37	5033
20756983	2002	7/25/2002	1	8	6	11	2	59	81	5033
980908117	1998	9/1/1998	1	8	6	11	2	59	35	5033
755743	2000	7/20/2000	1	2	6	12	2	59	76	5033
980903788	1998	8/28/1998	1	7	6	12	2	59	82	5033
980728819	1998	7/21/1998	1	8	6	13	2	59	35	5033
980706569	1998	7/2/1998	1	8	6	14	2	59	36	5033
30600884	2003	5/25/2003	1	8	6	15	2	59	36	5033
980815141	1998	8/7/1998	1	8	6	17	2	59	81	5033
980910108	1998	9/7/1998	1	8	6	17	2	59	35	5033
980819313	1998	8/10/1998	1	8	6	19	2	59	35	5033
30610010	2003	6/3/2003	1	8	6	20	2	59	37	5033
70518905	2007	4/28/2007	1	7	6	21	2	59	36	5033
990723388	1999	7/9/1999	1	7	6	21	2	59	33	5033
40727994	2004	7/11/2004	1	8	6	21	2	59	81	5033
60811498	2006	7/21/2006	1	7	6	22	2	59	82	5033
990709144	1999	7/4/1999	1	2	6	23	2	59	76	5033
10538270	2001	5/16/2001	1	7	6	23	2	59	33	5033
60708270	2006	7/2/2006	1	8	6	23	2	59	81	5033
10832527	2001	8/11/2001	1	8	6	23	2	59	79	5033
711539	2000	7/7/2000	1	8	6	23	2	63	36	5033
980619865	1998	6/15/1998	1	8	6	23	2	59	76	5033
70730299	2007	7/10/2007	1	5	6	24	2	59	38	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
20733258	2002	7/8/2002	1	8	6	24	2	59	35	5033
990608803	1999	6/5/1999	1	7	6	25	2	59	32	5033
51040837	2005	9/19/2005	1	8	6	25	2	59	36	5033
10851899	2001	8/12/2001	1	8	6	25	2	59	35	5033
980513079	1998	4/26/1998	1	2	6	26	2	59	76	5033
50628756	2005	6/12/2005	1	7	6	26	2	59	82	5033
30648317	2003	6/22/2003	1	8	6	26	2	59	35	5033
1015453	2000	7/30/2000	1	8	6	26	2	59	35	5033
990824671	1999	8/5/1999	1	1	6	27	2	59	75	5033
50939422	2005	9/18/2005	1	2	6	27	2	59	76	5033
10747097	2001	7/19/2001	1	2	6	27	2	59	76	5033
20733253	2002	7/8/2002	1	7	6	27	2	59	32	5033
40954875	2004	9/19/2004	1	8	6	27	2	59	35	5033
990918918	1999	9/4/1999	1	8	6	27	2	59	35	5033
980922875	1998	9/20/1998	1	2	6	28	2	59	76	5033
980919075	1998	8/1/1998	1	7	6	28	2	59	82	5033
981202014	1998	11/29/1998	1	7	6	28	2	59	32	5033
30710860	2003	5/25/2003	1	8	6	28	2	59	36	5033
980223054	1998	2/23/1998	1	2	6	29	2	59	76	5033
535558	2000	5/14/2000	1	8	6	29	2	59	35	5033
40335331	2004	3/18/2004	1	2	6	30	2	59	76	5033
70512211	2007	5/3/2007	1	7	6	30	2	59	33	5033
711148	2000	7/2/2000	1	7	6	30	2	59	30	5033
11010256	2001	10/1/2001	1	8	6	30	2	63	36	5033
991019532	1999	10/16/1999	1	8	6	30	2	59	35	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
990321614	1999	3/20/1999	1	2	6	31	2	59	76	5033
990835865	1999	8/15/1999	1	7	6	31	2	59	32	5033
20322621	2002	3/4/2002	1	8	6	31	2	59	79	5033
990714952	1999	7/11/1999	1	8	6	31	2	59	35	5033
60313257	2006	3/5/2006	1	7	6	32	2	59	32	5033
10832521	2001	8/11/2001	1	8	6	32	2	59	35	5033
10827393	2001	8/8/2001	1	8	6	33	2	72	35	5033
980727217	1998	7/17/1998	1	8	6	33	2	59	35	5033
60822831	2006	8/7/2006	1	7	6	34	2	59	32	5033
50719195	2005	6/26/2005	1	7	6	34	2	59	32	5033
20911577	2002	9/4/2002	1	7	6	34	2	59	33	5033
30747165	2003	7/22/2003	1	8	6	34	2	59	36	5033
990715748	1999	7/10/1999	1	1	6	35	2	63	75	5033
990934804	1999	9/18/1999	1	2	6	35	2	59	76	5033
30500257	2003	4/26/2003	1	5	6	35	2	59	38	5033
10501936	2001	4/29/2001	1	7	6	35	2	59	33	5033
60505421	2006	4/29/2006	1	8	6	35	2	59	35	5033
60701567	2006	7/1/2006	1	2	6	36	2	59	76	5033
50631293	2005	6/12/2005	1	2	6	36	2	59	76	5033
70521494	2007	5/6/2007	1	7	6	36	2	59	80	5033
990517071	1999	5/11/1999	1	8	6	36	2	59	36	5033
990913994	1999	9/9/1999	1	8	6	36	2	59	35	5033
1030109	2000	8/21/2000	1	8	6	37	2	59	31	5033
70720502	2007	7/3/2007	1	2	6	39	2	59	88	5033
30937267	2003	6/28/2003	1	2	6	40	2	59	76	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10822718	2001	8/5/2001	1	7	6	41	2	59	33	5033
10814485	2001	8/3/2001	1	7	6	42	2	59	33	5033
41006234	2004	10/2/2004	1	8	6	42	2	59	36	5033
30534982	2003	5/3/2003	1	2	6	43	2	59	76	5033
980922514	1998	8/16/1998	1	2	6	44	2	59	88	5033
61116977	2006	10/18/2006	1	8	6	44	2	59		5033
50747083	2005	7/17/2005	1	7	6	47	2	59	92	5033
321805	2000	3/21/2000	1	7	6	47	2	59	33	5033
50847607	2005	8/20/2005	1	8	6	47	2	59	36	5033
50704349	2005	6/30/2005	1	2	6	48	2	59	76	5033
990824669	1999	8/5/1999	1	2	6	48	2	59	76	5033
990829074	1999	8/13/1999	1	7	6	51	2	59	32	5033
991030493	1999	10/25/1999	1	8	6	51	2	59	36	5033
50832578	2005	8/13/2005	1	2	6	53	2	59	76	5033
833478	2000	8/13/2000	1	2	6	56	2	59	88	5033
60419865	2006	4/9/2006	1	2	6	57	2	59	88	5033
990918663	1999	9/14/1999	1	8	6	60	2	59	35	5033
833475	2000	8/13/2000	1	2	6	61	2	59	76	5033
51031427	2005	10/1/2005	1	8	6	61	2	59	36	5033
808286	2000	8/2/2000	1	8	6	61	2	59	35	5033
10642610	2001	6/20/2001	1	1	6	63	2	59	75	5033
50835507	2005	8/14/2005	1	2	6	63	2	59	76	5033
980707812	1998	7/3/1998	1	8	6	69	2	59	35	5033
748003	2000	7/20/2000	1	5	7	12	1	53	79	2002
980711806	1998	7/8/1998	1	1	7	14	1	58	75	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
521258	2000	5/5/2000	1	5	7	15	1	71	38	3246
10515591	2001	5/5/2001	1	4	7	16	1	62	31	5033
504515	2000	4/30/2000	1	1	7	17	1	62	75	5033
60603912	2006	5/29/2006	1	5	7	18	1	58	38	5033
10814757	2001	8/5/2001	1	5	7	21	1	53	79	5033
71051479	2007	10/21/2007	1	5	7	24	1	53	79	5033
60332811	2006	3/6/2006	1	5	7	27	1	71	38	5033
991118103	1999	11/12/1999	1	1	7	29	1	62	75	5033
1135750	2000	11/15/2000	1	5	7	29	1	53	38	5033
61116921	2006	11/5/2006	1	5	7	34	1	71	38	5033
51141550	2005	11/1/2005	1	2	7	36	1	53	77	5033
60339450	2005	12/29/2005	1	2	7	36	1	53	77	5033
20104658	2001	12/1/2001	1	5	7	36	1	71	38	5033
70615892	2007	5/8/2007	1	2	7	44	1	56	77	5033
70418561	2007	4/4/2007	1	2	7	47	1	53	77	5033
21133172	2002	11/3/2002	1	5	7	92	1	53	79	5033
417642	2000	4/16/2000	1	5	7	7	2	71	38	5033
980113397	1998	1/14/1998	1	5	7	40	2	53	38	5033
980528445	1998	5/14/1998	1	2	8	5	1	60	88	5033
41111100	2004	10/31/2004	1	7	8	7	1	64	34	5033
990106701	1998	12/28/1998	1	8	8	7	1	64	35	5033
1240790	2000	12/22/2000	1	7	8	8	1	64	34	5033
980609741	1998	6/3/1998	1	7	8	8	1	64	33	5033
50834736	2005	8/14/2005	1	7	8	9	1	64	92	5033
990824972	1999	8/19/1999	1	7	8	9	1	64	37	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
20856386	2002	8/21/2002	1	8	8	9	1	64	35	5033
936735	2000	9/15/2000	1	8	8	9	1	64	83	5033
11034204	2001	10/12/2001	1	7	8	10	1	64	34	5033
980414413	1998	4/5/1998	1	7	8	10	1	64	30	5033
990613132	1999	5/22/1999	1	8	8	10	1	64	35	5033
990809819	1999	7/28/1999	1	8	8	10	1	64	35	5033
990322286	1999	3/21/1999	1	5	8	11	1	71	79	5033
30103009	2002	12/21/2002	1	6	8	11	1	64	89	5033
990311555	1999	2/11/1999	1	6	8	11	1	64	31	5033
21021952	2002	9/10/2002	1	7	8	11	1	64	34	5033
833479	2000	8/13/2000	1	7	8	11	1	64	33	5033
20432070	2002	4/13/2002	1	8	8	11	1	53	36	5033
20323919	2002	3/12/2002	1	8	8	11	1	64	37	5033
981117962	1998	11/12/1998	1	8	8	11	1	64	37	5033
1131843	2000	11/12/2000	1	4	8	12	1	64	31	5033
980718500	1998	7/3/1998	1	6	8	12	1	64	31	5033
30734812	2003	6/28/2003	1	7	8	12	1	64	92	5033
10523078	2001	5/7/2001	1	7	8	12	1	64	30	5033
10843201	2001	8/17/2001	1	7	8	12	1	64	34	5033
422337	2000	4/5/2000	1	7	8	12	1	64	37	5033
1023339	2000	9/30/2000	1	7	8	12	1	64	30	5033
10324980	2000	10/8/2000	1	7	8	12	1	64	34	5033
990605065	1999	5/22/1999	1	7	8	12	1	64	34	5033
30826080	2003	8/9/2003	1	8	8	12	1	59	35	5033
21142235	2002	11/23/2002	1	7	8	13	1	64	34	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
20123080	2001	12/27/2001	1	7	8	13	1	64	33	5033
980105858	1998	1/4/1998	1	7	8	13	1	64	30	5033
980627241	1998	6/21/1998	1	7	8	13	1	64	34	5033
981024484	1998	10/14/1998	1	7	8	13	1	64	34	5033
923315	2000	9/6/2000	1	8	8	13	1	64	35	5033
990405552	1999	4/4/1999	1	8	8	13	1	64	35	5033
980729087	1998	7/24/1998	1	1	8	14	1	71	75	5033
60422705	2006	4/9/2006	1	7	8	14	1	64	82	5033
60610940	2006	6/2/2006	1	7	8	14	1	64	30	5033
50945304	2005	9/18/2005	1	7	8	14	1	64	30	5033
40621638	2004	6/6/2004	1	7	8	14	1	64	30	5033
717110	2000	7/1/2000	1	7	8	14	1	71	82	5033
990309820	1999	3/2/1999	1	7	8	14	1	71	34	5033
990728331	1999	7/21/1999	1	7	8	14	1	64	32	5033
990831023	1999	8/10/1999	1	7	8	14	1	64	34	5033
60905388	2006	9/2/2006	1	8	8	14	1	64	83	5033
30525957	2003	4/25/2003	1	8	8	14	1	64	35	5033
990926350	1999	9/15/1999	1	8	8	14	1	64	37	5033
31117350	2003	11/6/2003	1	6	8	15	1	64	89	5033
20202088	2002	1/26/2002	1	6	8	15	1	64	89	5033
20137890	2002	1/18/2002	1	7	8	15	1	71	32	5033
990818779	1999	8/12/1999	1	7	8	15	1	64	32	5033
990832432	1999	8/16/1999	1	7	8	15	1	64	34	5033
30910748	2003	5/17/2003	1	8	8	15	1	64	35	5033
30138680	2003	1/22/2003	1	8	8	15	1	64	37	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10754994	2001	7/19/2001	1	8	8	15	1	64	35	5033
991105173	1999	9/12/1999	1	8	8	15	1	64	35	5033
50743592	2005	7/5/2005	1	7	8	16	1	64	34	5033
50960634	2005	9/1/2005	1	7	8	16	1	64	30	5033
40748203	2004	7/24/2004	1	7	8	16	1	57	34	5033
41115375	2004	11/4/2004	1	7	8	16	1	64	92	5033
20855807	2002	8/21/2002	1	7	8	16	1	64	34	5033
742576	2000	7/18/2000	1	7	8	16	1	64	34	5033
980619830	1998	6/9/1998	1	7	8	16	1	56	82	5033
21145035	2002	11/12/2002	1	8	8	16	1	64	35	5033
10322640	2001	3/1/2001	1	8	8	16	1	64	35	5033
10764217	2001	7/25/2001	1	8	8	16	1	64	35	5033
991210899	1999	12/5/1999	1	8	8	16	1	64	35	5033
990420344	1999	4/18/1999	1	1	8	17	1	71	75	5033
50851850	2005	7/31/2005	1	6	8	17	1	64	79	5033
981013452	1998	10/8/1998	1	6	8	17	1	64	79	5033
60317802	2006	3/1/2006	1	7	8	17	1	64	30	5033
60123326	2005	12/9/2005	1	7	8	17	1	64	82	5033
40543791	2004	5/10/2004	1	7	8	17	1	64	34	5033
30936779	2003	5/13/2003	1	8	8	17	1	64	35	5033
10507515	2001	5/1/2001	1	8	8	17	1	71	35	5033
11142638	2001	11/22/2001	1	8	8	17	1	64	35	5033
50724767	2005	6/30/2005	1	7	8	18	1	64	30	5033
10642601	2001	6/19/2001	1	7	8	18	1	64	34	5033
810485	2000	8/2/2000	1	7	8	18	1	64	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980315763	1998	3/6/1998	1	7	8	18	1	64	34	5033
980731021	1998	7/27/1998	1	7	8	18	1	64	32	5033
50939775	2005	9/18/2005	1	8	8	18	1	64	37	5033
31138025	2003	11/8/2003	1	8	8	18	1	64	35	5033
10552420	2001	5/24/2001	1	8	8	18	1	64	37	5033
990606607	1999	6/2/1999	1	8	8	18	1	71	35	5033
31030440	2003	10/9/2003	1	6	8	19	1	64	89	5033
30947399	2003	9/21/2003	1	7	8	19	1	56	82	5033
20816768	2002	7/13/2002	1	7	8	19	1	64	34	5033
839724	2000	8/19/2000	1	7	8	19	1	64	34	5033
50146536	2005	1/18/2005	1	8	8	19	1	64	37	5033
40906590	2004	8/15/2004	1	8	8	19	1	64	37	5033
990528719	1999	5/18/1999	1	6	8	20	1	64	79	5033
981118416	1998	11/10/1998	1	6	8	20	1	64	79	5033
10601678	2001	5/27/2001	1	7	8	20	1	64	30	5033
10636919	2001	6/17/2001	1	7	8	20	1	64	82	5033
10763692	2001	7/21/2001	1	7	8	20	1	64	30	5033
1027523	2000	10/14/2000	1	7	8	20	1	64	30	5033
60940510	2006	9/7/2006	1	8	8	20	1	64		5033
20326397	2002	3/10/2002	1	8	8	20	1	71	35	5033
20449114	2002	4/24/2002	1	6	8	21	1	64	79	5033
20824859	2002	8/4/2002	1	6	8	21	1	71	89	5033
40902105	2004	8/29/2004	1	7	8	21	1	64	30	5033
30726512	2003	6/30/2003	1	7	8	21	1	64	34	5033
10723567	2001	7/8/2001	1	7	8	21	1	64	92	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
990727899	1999	7/21/1999	1	7	8	21	1	71	30	5033
71037313	2007	10/8/2007	1	8	8	21	1	71	36	5033
30652020	2003	6/24/2003	1	8	8	21	1	64	37	5033
10763756	2001	7/25/2001	1	8	8	21	1	64	79	5033
11015838	2001	10/6/2001	1	8	8	21	1	64	35	5033
990412044	1999	4/5/1999	1	8	8	21	1	71	35	5033
990912776	1999	8/25/1999	1	4	8	22	1	64	31	5033
50316253	2005	3/8/2005	1	6	8	22	1	64	79	5033
61134896	2006	11/13/2006	1	7	8	22	1	64	30	5033
10627479	2001	6/13/2001	1	7	8	22	1	64	34	5033
990904412	1999	8/30/1999	1	7	8	22	1	64	30	5033
991016702	1999	9/22/1999	1	7	8	22	1	64	34	5033
980826056	1998	8/24/1998	1	7	8	22	1	64	34	5033
21125027	2002	11/11/2002	1	8	8	22	1	64	35	5033
20856786	2002	8/18/2002	1	8	8	22	1	64	37	5033
10448688	2001	4/24/2001	1	8	8	22	1	64	35	5033
980931876	1998	9/27/1998	1	8	8	22	1	64	37	5033
71105146	2007	10/29/2007	1	6	8	23	1	71	79	5033
10817504	2001	8/4/2001	1	6	8	23	1	64	89	5033
60535333	2006	5/9/2006	1	7	8	23	1	64	92	5033
60659128	2006	6/25/2006	1	7	8	23	1	64	34	5033
10514051	2001	5/6/2001	1	7	8	23	1	64	92	5033
990524863	1999	5/20/1999	1	7	8	23	1	64	32	5033
981200051	1998	9/28/1998	1	7	8	23	1	64	92	5033
60500777	2006	4/30/2006	1	8	8	23	1	64		5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
60606173	2006	5/20/2006	1	8	8	23	1	64	35	5033
60217830	2006	2/6/2006	1	8	8	23	1	64	35	5033
50843819	2005	8/19/2005	1	8	8	23	1	64	37	5033
40526293	2004	5/10/2004	1	8	8	23	1	64	37	5033
41019731	2004	10/1/2004	1	8	8	23	1	71	79	5033
30404985	2003	3/28/2003	1	8	8	23	1	64	37	5033
21224396	2002	12/2/2002	1	8	8	23	1	64	35	5033
21105876	2002	11/1/2002	1	8	8	23	1	64	36	5033
10706989	2001	6/30/2001	1	8	8	23	1	64	37	5033
642866	2000	6/20/2000	1	8	8	23	1	64	37	5033
742166	2000	7/18/2000	1	8	8	23	1	64	35	5033
980921474	1998	9/20/1998	1	8	8	23	1	64	83	5033
20802930	2002	7/31/2002	1	2	8	24	1	60	88	5033
20429004	2002	4/12/2002	1	6	8	24	1	64	79	5033
11108765	2001	11/5/2001	1	6	8	24	1	64	89	5033
103558	1999	11/13/1999	1	6	8	24	1	64	79	5033
10412026	2001	4/1/2001	1	7	8	24	1	64	30	5033
10637632	2001	6/10/2001	1	7	8	24	1	64	30	5033
11035715	2001	10/9/2001	1	7	8	24	1	64	31	5033
990308492	1999	3/6/1999	1	7	8	24	1	64	34	5033
990921312	1999	9/8/1999	1	7	8	24	1	64	92	5033
991123223	1999	11/15/1999	1	7	8	24	1	64	92	5033
980709175	1998	7/5/1998	1	7	8	24	1	64	30	5033
980808975	1998	8/8/1998	1	7	8	24	1	64	30	5033
990722809	1999	7/10/1999	1	8	8	24	1	64	37	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
50902821	2005	8/16/2005	1	6	8	25	1	64	89	5033
50106680	2005	1/1/2005	1	7	8	25	1	64	34	5033
50517100	2005	4/27/2005	1	7	8	25	1	64	30	5033
10651522	2001	6/21/2001	1	7	8	25	1	64	82	5033
649010	2000	6/6/2000	1	7	8	25	1	64	30	5033
980407301	1998	4/6/1998	1	7	8	25	1	64	30	5033
980907943	1998	9/4/1998	1	7	8	25	1	64	34	5033
20908262	2002	9/3/2002	1	8	8	25	1	64	37	5033
991006059	1999	10/2/1999	1	8	8	25	1	64	35	5033
980715967	1998	7/11/1998	1	8	8	25	1	71	35	5033
60425147	2006	4/9/2006	1	6	8	26	1	64	31	5033
50336624	2005	3/4/2005	1	7	8	26	1	64	30	5033
540162	2000	5/27/2000	1	7	8	26	1	64	34	5033
822820	2000	8/9/2000	1	7	8	26	1	64	34	5033
980301803	1998	2/28/1998	1	7	8	26	1	64	30	5033
425861	2000	4/17/2000	1	8	8	26	1	64	37	5033
990321113	1999	3/20/1999	1	8	8	26	1	64	37	5033
30102841	2002	12/22/2002	1	6	8	27	1	71	89	5033
1035086	2000	10/16/2000	1	6	8	27	1	71	89	5033
50913882	2005	9/5/2005	1	7	8	27	1	64	30	5033
41146466	2004	11/18/2004	1	7	8	27	1	56	92	5033
31137335	2003	11/16/2003	1	7	8	27	1	71	82	5033
426993	2000	3/24/2000	1	7	8	27	1	64	34	5033
711132	2000	7/2/2000	1	7	8	27	1	64	30	5033
718670	2000	7/4/2000	1	7	8	27	1	71	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
829814	2000	8/14/2000	1	7	8	27	1	64	30	5033
991015906	1999	10/3/1999	1	7	8	27	1	64	34	5033
980719214	1998	7/12/1998	1	7	8	27	1	71	30	5033
981001059	1998	9/27/1998	1	7	8	27	1	64	34	5033
71134526	2007	11/7/2007	1	8	8	27	1	71	35	5033
40724191	2004	6/27/2004	1	8	8	27	1	64	37	5033
30848255	2003	8/9/2003	1	8	8	27	1	64	37	5033
10142636	2001	1/11/2001	1	8	8	27	1	64	35	5033
507091	2000	5/3/2000	1	8	8	27	1	64	35	5033
653437	2000	6/26/2000	1	8	8	27	1	64	35	5033
825851	2000	8/6/2000	1	8	8	27	1	64	35	5033
980518142	1998	4/30/1998	1	8	8	27	1	64	35	5033
981116172	1998	10/31/1998	1	8	8	27	1	64	35	5033
990901605	1999	8/18/1999	1	6	8	28	1	64	79	5033
60801910	2006	7/5/2006	1	7	8	28	1	64	34	5033
51154975	2005	11/25/2005	1	7	8	28	1	64	32	5033
40844025	2004	8/20/2004	1	7	8	28	1	64	30	5033
10721145	2001	7/7/2001	1	7	8	28	1	64	30	5033
11137895	2001	11/12/2001	1	7	8	28	1	64	30	5033
991204296	1999	12/1/1999	1	7	8	28	1	71	82	5033
980729089	1998	7/25/1998	1	7	8	28	1	64	30	5033
981007295	1998	10/5/1998	1	7	8	28	1	71	33	5033
31123992	2003	8/21/2003	1	8	8	28	1	71	83	5033
20504239	2002	1/29/2002	1	8	8	28	1	71	35	5033
31008644	2003	7/30/2003	1	7	8	29	1	71	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
11038079	2001	10/17/2001	1	7	8	29	1	64	34	5033
11233412	2001	12/13/2001	1	7	8	29	1	64	82	5033
990601481	1999	5/30/1999	1	7	8	29	1	64	30	5033
103350	1999	12/20/1999	1	7	8	29	1	64	92	5033
980500123	1998	4/11/1998	1	7	8	29	1	64	34	5033
980622190	1998	6/17/1998	1	7	8	29	1	64	34	5033
980622606	1998	6/18/1998	1	4	8	30	1	71	31	5033
30614737	2003	4/28/2003	1	6	8	30	1	64	89	5033
20455532	2002	4/4/2002	1	6	8	30	1	64	31	5033
10422187	2001	3/26/2001	1	6	8	30	1	64	89	5033
1121294	2000	11/5/2000	1	6	8	30	1	64	89	5033
981027023	1998	10/22/1998	1	7	8	30	1	64	34	5033
50233300	2005	2/18/2005	1	8	8	30	1	64	37	5033
30643078	2003	6/14/2003	1	8	8	30	1	64	35	5033
980628036	1998	6/24/1998	1	8	8	30	1	71	35	5033
536103	2000	5/20/2000	1	4	8	31	1	71	31	5033
40849131	2004	8/22/2004	1	6	8	31	1	64	31	5033
20427285	2002	4/1/2002	1	6	8	31	1	64	79	5033
10622533	2001	6/11/2001	1	6	8	31	1	64	79	5033
60538930	2006	4/22/2006	1	7	8	31	1	71	30	5033
40219328	2004	1/19/2004	1	7	8	31	1	71	82	5033
20624314	2002	6/10/2002	1	7	8	31	1	64	80	5033
21041685	2002	10/12/2002	1	7	8	31	1	64	30	5033
20846455	2002	8/17/2002	1	7	8	31	1	64	34	5033
11062918	2001	10/29/2001	1	7	8	31	1	64	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
40319018	2004	2/22/2004	1	8	8	31	1	71	36	5033
905687	2000	8/27/2000	1	5	8	32	1	64	79	5033
10729852	2001	7/12/2001	1	6	8	32	1	64	89	5033
70927879	2007	9/13/2007	1	7	8	32	1	71	32	5033
20702328	2002	6/24/2002	1	7	8	32	1	64	30	5033
20704521	2002	4/30/2002	1	7	8	32	1	64	30	5033
10748239	2001	7/19/2001	1	7	8	32	1	64	30	5033
980816573	1998	8/15/1998	1	7	8	32	1	64	34	5033
30447723	2003	4/25/2003	1	8	8	32	1	64	79	5033
990923274	1999	9/9/1999	1	1	8	33	1	71	75	5033
50512831	2005	5/5/2005	1	6	8	33	1	64	89	5033
1006820	2000	9/30/2000	1	6	8	33	1	64	79	5033
1200287	2000	11/8/2000	1	6	8	33	1	71	79	5033
10135420	2000	12/24/2000	1	6	8	33	1	64	31	5033
990835903	1999	8/19/1999	1	6	8	33	1	64	89	5033
30308101	2003	1/15/2003	1	7	8	33	1	64	30	5033
20816903	2002	7/15/2002	1	7	8	33	1	71	82	5033
10814484	2001	8/3/2001	1	7	8	33	1	64	30	5033
991221715	1999	12/18/1999	1	7	8	33	1	64	32	5033
50905254	2005	9/2/2005	1	8	8	33	1	64	35	5033
30533810	2003	5/2/2003	1	8	8	33	1	64	35	5033
990721484	1999	7/18/1999	1	8	8	33	1	72	93	5033
980305000	1998	3/3/1998	1	8	8	33	1	64	35	5033
30310515	2003	2/24/2003	1	6	8	34	1	64	89	5033
21249266	2002	12/21/2002	1	6	8	34	1	71	79	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
20515307	2002	4/28/2002	1	6	8	34	1	64	79	5033
11037082	2001	10/11/2001	1	6	8	34	1	64	79	5033
513674	2000	5/8/2000	1	6	8	34	1	64	89	5033
70863898	2007	8/27/2007	1	7	8	34	1	56	33	5033
50612443	2005	6/4/2005	1	7	8	34	1	71	30	5033
40729810	2004	6/25/2004	1	7	8	34	1	64	30	5033
40802956	2004	7/28/2004	1	7	8	34	1	64	34	5033
30632568	2003	6/15/2003	1	7	8	34	1	71	32	5033
30315590	2003	3/7/2003	1	7	8	34	1	64	30	5033
20929006	2002	9/11/2002	1	7	8	34	1	64	34	5033
51121586	2005	11/12/2005	1	8	8	34	1	64	37	5033
40648370	2004	6/22/2004	1	8	8	34	1	64	35	5033
40653245	2004	6/13/2004	1	8	8	34	1	64	83	5033
21119704	2002	10/4/2002	1	8	8	34	1	64	35	5033
11061577	2001	10/26/2001	1	8	8	34	1	71	81	5033
50851816	2005	7/29/2005	1	6	8	35	1	71	79	5033
10349054	2001	3/19/2001	1	6	8	35	1	64	79	5033
60717847	2006	7/8/2006	1	7	8	35	1	64	30	5033
40305414	2004	2/15/2004	1	7	8	35	1	64	30	5033
31033654	2003	10/13/2003	1	7	8	35	1	71	92	5033
50814660	2005	8/3/2005	1	8	8	35	1	71	81	5033
51146781	2005	11/24/2005	1	8	8	35	1	56	36	5033
729143	2000	7/11/2000	1	8	8	35	1	64	83	5033
10718719	2001	6/9/2001	1	4	8	36	1	64	31	5033
206670	2000	1/11/2000	1	4	8	36	1	64	31	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
40754248	2004	7/3/2004	1	6	8	36	1	64	89	5033
31106593	2003	10/27/2003	1	6	8	36	1	71	79	5033
60224370	2006	1/26/2006	1	7	8	36	1	71	30	5033
50720796	2005	6/30/2005	1	7	8	36	1	64	30	5033
40425117	2004	4/13/2004	1	7	8	36	1	64	30	5033
10606774	2001	5/25/2001	1	7	8	36	1	64	92	5033
828674	2000	8/2/2000	1	7	8	36	1	64	30	5033
51125755	2005	11/13/2005	1	8	8	36	1	64	37	5033
41215734	2004	12/1/2004	1	8	8	36	1	64	35	5033
990905808	1999	8/21/1999	1	8	8	36	1	64	37	5033
11042451	2001	10/9/2001	1	4	8	37	1	64	31	5033
21000187	2002	9/15/2002	1	6	8	37	1	64	89	5033
20404016	2002	3/29/2002	1	6	8	37	1	64	89	5033
70743503	2007	7/19/2007	1	7	8	37	1	71	30	5033
60923817	2006	9/11/2006	1	7	8	37	1	64	82	5033
60727274	2006	7/13/2006	1	7	8	37	1	64	34	5033
20736462	2002	7/11/2002	1	7	8	37	1	64	92	5033
10744858	2001	7/19/2001	1	7	8	37	1	71	30	5033
70622546	2007	6/3/2007	1	8	8	37	1	71	36	5033
21001664	2002	9/27/2002	1	8	8	37	1	64	37	5033
990600337	1999	5/30/1999	1	8	8	37	1	71	36	5033
991122048	1999	11/14/1999	1	6	8	38	1	64	89	5033
980915621	1998	9/6/1998	1	6	8	38	1	64	89	5033
60148845	2006	1/21/2006	1	7	8	38	1	64		5033
50131300	2005	1/14/2005	1	7	8	38	1	64	34	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
40543760	2004	5/8/2004	1	7	8	38	1	64	30	5033
20958393	2002	9/10/2002	1	7	8	38	1	64	92	5033
10833022	2001	8/14/2001	1	7	8	38	1	64	34	5033
980510244	1998	4/18/1998	1	7	8	38	1	64	30	5033
980627240	1998	6/20/1998	1	7	8	38	1	64	30	5033
20823878	2002	8/1/2002	1	8	8	38	1	71	36	5033
980201725	1998	1/31/1998	1	8	8	38	1	64	37	5033
980617494	1998	6/10/1998	1	8	8	38	1	71	83	5033
21135836	2002	8/3/2002	1	4	8	39	1	71	31	5033
981105547	1998	11/2/1998	1	4	8	39	1	64	31	5033
117390	2000	1/15/2000	1	6	8	39	1	64	89	5033
990313489	1999	3/12/1999	1	6	8	39	1	71	79	5033
61230622	2006	12/4/2006	1	7	8	39	1	71	32	5033
30430132	2003	4/6/2003	1	7	8	39	1	64	30	5033
21001669	2002	9/28/2002	1	7	8	39	1	64	92	5033
10345706	2001	3/10/2001	1	7	8	39	1	64	30	5033
10703110	2001	6/14/2001	1	7	8	39	1	64	33	5033
11061202	2001	10/22/2001	1	7	8	39	1	71	34	5033
11105286	2001	10/30/2001	1	7	8	39	1	71	92	5033
990704176	1999	6/26/1999	1	7	8	39	1	64	34	5033
990728561	1999	7/13/1999	1	7	8	39	1	64	34	5033
980709178	1998	7/5/1998	1	7	8	39	1	64	34	5033
50960715	2005	9/3/2005	1	8	8	39	1	64	79	5033
20827284	2002	8/10/2002	1	8	8	39	1	64	37	5033
20428800	2002	4/6/2002	1	8	8	39	1	71	35	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
1004975	2000	9/30/2000	1	8	8	39	1	64	37	5033
990902176	1999	8/28/1999	1	8	8	39	1	71	36	5033
20629304	2002	5/24/2002	1	6	8	40	1	64	79	5033
50139846	2005	1/20/2005	1	7	8	40	1	71	82	5033
855444	2000	8/26/2000	1	7	8	40	1	71	34	5033
30950749	2003	7/5/2003	1	8	8	40	1	64	37	5033
20634152	2002	5/31/2002	1	8	8	40	1	55	35	5033
20136657	2002	1/17/2002	1	8	8	40	1	64	36	5033
21039305	2002	10/7/2002	1	8	8	40	1	64	35	5033
840981	2000	8/19/2000	1	8	8	40	1	64	37	5033
990702175	1999	6/15/1999	1	8	8	40	1	64	35	5033
30646135	2003	6/22/2003	1	6	8	41	1	64	89	5033
20112696	2001	12/18/2001	1	6	8	41	1	64	79	5033
1001554	2000	9/24/2000	1	6	8	41	1	64	89	5033
61145693	2006	11/18/2006	1	7	8	41	1	71	33	5033
30728828	2003	7/12/2003	1	7	8	41	1	64	30	5033
10435749	2001	4/17/2001	1	7	8	41	1	64	30	5033
50960691	2005	9/2/2005	1	8	8	41	1	64	37	5033
51115853	2005	11/3/2005	1	8	8	41	1	64	37	5033
51038479	2005	9/27/2005	1	8	8	41	1	64	35	5033
40959757	2004	9/23/2004	1	8	8	41	1	71	35	5033
104244	1999	11/25/1999	1	4	8	42	1	57	31	5033
10706259	2001	6/30/2001	1	7	8	42	1	64	34	5033
534578	2000	5/13/2000	1	7	8	42	1	64	34	5033
61111030	2006	11/3/2006	1	8	8	42	1	64	37	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
20724466	2002	7/5/2002	1	8	8	42	1	64	35	5033
20747528	2002	6/7/2002	1	6	8	43	1	64	89	5033
50445920	2005	4/17/2005	1	7	8	43	1	64	30	5033
40115435	2004	1/8/2004	1	7	8	43	1	64	30	5033
10859804	2001	8/27/2001	1	7	8	43	1	64	30	5033
990919409	1999	9/14/1999	1	7	8	43	1	71	32	5033
50924742	2005	8/17/2005	1	8	8	43	1	64	35	5033
980810964	1998	8/7/1998	1	8	8	43	1	64	37	5033
60500603	2006	4/29/2006	1	4	8	44	1	71	31	5033
61106127	2006	10/25/2006	1	7	8	44	1	64		5033
60854981	2006	8/6/2006	1	7	8	44	1	64	34	5033
50739188	2005	7/15/2005	1	7	8	44	1	71	30	5033
40950303	2004	9/21/2004	1	7	8	44	1	64	30	5033
20637767	2002	6/3/2002	1	7	8	44	1	64	30	5033
311771	2000	3/5/2000	1	7	8	44	1	64	34	5033
20315792	2002	3/2/2002	1	4	8	45	1	71	31	5033
61236205	2006	12/18/2006	1	6	8	45	1	64	89	5033
21236358	2002	12/8/2002	1	6	8	45	1	64	89	5033
40910858	2004	9/3/2004	1	7	8	45	1	64	30	5033
10851898	2001	8/12/2001	1	7	8	45	1	64	30	5033
10842437	2001	8/19/2001	1	4	8	46	1	71	31	5033
60717994	2006	7/9/2006	1	7	8	46	1	64	30	5033
10431632	2001	4/8/2001	1	7	8	46	1	64	30	5033
824727	2000	8/10/2000	1	7	8	47	1	64	30	5033
981217130	1998	10/14/1998	1	7	8	47	1	64	92	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
530088	2000	5/14/2000	1	8	8	47	1	64	35	5033
990632233	1999	6/13/1999	1	8	8	47	1	64	35	5033
20644944	2002	6/11/2002	1	6	8	48	1	64	79	5033
51101624	2005	10/10/2005	1	7	8	48	1	64	30	5033
30147732	2003	1/26/2003	1	7	8	48	1	64	34	5033
719373	2000	6/26/2000	1	7	8	48	1	64	30	5033
20405743	2002	3/23/2002	1	8	8	48	1	64	35	5033
40653198	2004	6/19/2004	1	2	8	49	1	60	88	5033
10614222	2001	6/2/2001	1	5	8	49	1	64	38	5033
20517916	2002	4/8/2002	1	6	8	49	1	64	89	5033
60321219	2006	2/26/2006	1	6	8	50	1	64	79	5033
20755746	2002	6/23/2002	1	6	8	50	1	64	79	5033
50628105	2005	6/2/2005	1	7	8	50	1	64	34	5033
50911634	2005	9/4/2005	1	7	8	50	1	64	82	5033
21045810	2002	10/16/2002	1	7	8	50	1	64	34	5033
10920035	2001	9/3/2001	1	7	8	50	1	64	34	5033
980706563	1998	6/30/1998	1	8	8	50	1	71	36	5033
990423792	1999	4/3/1999	1	5	8	51	1	64	79	5033
990800335	1999	7/20/1999	1	7	8	51	1	64	30	5033
40809338	2004	7/26/2004	1	8	8	51	1	64	81	5033
20704306	2002	6/10/2002	1	7	8	52	1	64	30	5033
981121438	1998	11/13/1998	1	8	8	52	1	74	36	5033
31138229	2003	9/2/2003	1	4	8	54	1	71	31	5033
61037570	2006	10/7/2006	1	6	8	54	1	64	89	5033
990906051	1999	8/30/1999	1	6	8	55	1	64	89	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
990908528	1999	9/6/1999	1	6	8	55	1	64	89	5033
11009020	2001	9/27/2001	1	7	8	55	1	64	30	5033
840974	2000	8/18/2000	1	7	8	56	1	64	30	5033
1034432	2000	8/20/2000	1	8	8	56	1	71	37	5033
60528099	2006	5/13/2006	1	7	8	57	1	64	30	5033
11208121	2001	12/3/2001	1	8	8	57	1	64	37	5033
914735	2000	9/5/2000	1	6	8	58	1	64	89	5033
20855809	2002	8/21/2002	1	8	8	58	1	64	37	5033
980727229	1998	7/18/1998	1	6	8	61	1	64	79	5033
11152565	2001	11/28/2001	1	7	8	61	1	71	30	5033
60915340	2006	9/3/2006	1	7	8	69	1	64	30	5033
980726651	1998	7/19/1998	1	4	8	97	1	71	31	5033
981228065	1998	12/28/1998	1	7	8	7	2	57	33	5033
980607584	1998	6/6/1998	1	8	8	8	2	64	35	5033
10731493	2001	7/9/2001	1	7	8	9	2	64	34	5033
50346036	2005	3/19/2005	1	8	8	9	2	64	35	5033
980425778	1998	4/12/1998	1	8	8	9	2	64	35	5033
21111390	2002	11/1/2002	1	7	8	11	2	64	92	5033
991030490	1999	10/24/1999	1	7	8	11	2	64	32	5033
10934661	2001	9/10/2001	1	7	8	13	2	64	82	5033
990704177	1999	6/26/1999	1	7	8	13	2	64	34	5033
20741418	2002	7/14/2002	1	8	8	13	2	64	35	5033
636694	2000	6/12/2000	1	6	8	14	2	64	89	5033
990625776	1999	6/20/1999	1	7	8	14	2	71	34	5033
50837663	2005	8/12/2005	1	8	8	15	2	64	83	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980513069	1998	4/22/1998	1	7	8	16	2	64	34	5033
10548340	2001	5/22/2001	1	7	8	19	2	64	30	5033
980727249	1998	7/20/1998	1	8	8	19	2	64	37	5033
10349045	2001	3/13/2001	1	7	8	20	2	64	34	5033
60722245	2006	6/22/2006	1	6	8	21	2	64	79	5033
980631296	1998	6/26/1998	1	7	8	21	2	64	82	5033
990701879	1999	6/20/1999	1	7	8	22	2	71	80	5033
60917440	2006	9/8/2006	1	6	8	24	2	64	79	5033
30735908	2003	7/11/2003	1	8	8	24	2	64	35	5033
11240246	2001	12/24/2001	1	7	8	25	2	64	34	5033
980622756	1998	6/19/1998	1	7	8	25	2	64	34	5033
10851967	2001	8/17/2001	1	1	8	26	2	71	75	5033
30514149	2003	5/3/2003	1	7	8	26	2	64	32	5033
10805995	2001	7/24/2001	1	8	8	26	2	64	37	5033
20839735	2002	8/14/2002	1	2	8	27	2	60	88	5033
842177	2000	8/18/2000	1	6	8	27	2	64	89	5033
60909459	2006	9/3/2006	1	7	8	27	2	64	34	5033
11029386	2001	10/1/2001	1	7	8	28	2	64	30	5033
10120860	2000	12/31/2000	1	7	8	28	2	64	34	5033
20442405	2002	4/20/2002	1	7	8	29	2	64	34	5033
50817865	2005	7/31/2005	1	8	8	29	2	64	35	5033
991029749	1999	10/25/1999	1	4	8	30	2	71	31	5033
50538291	2005	5/13/2005	1	7	8	30	2	64	34	5033
933675	2000	9/17/2000	1	7	8	30	2	64	34	5033
990710511	1999	7/4/1999	1	7	8	30	2	71	32	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
931735	2000	9/17/2000	1	8	8	30	2	64	37	5033
10637004	2001	6/18/2001	1	6	8	31	2	64	89	5033
980422140	1998	4/15/1998	1	7	8	31	2	71	82	5033
990901681	1999	8/28/1999	1	2	8	32	2	60	88	5033
50932807	2005	8/26/2005	1	7	8	32	2	64	34	5033
50924665	2005	9/9/2005	1	7	8	32	2	64	30	5033
30706172	2003	6/25/2003	1	7	8	32	2	64	30	5033
909883	2000	7/15/2000	1	8	8	33	2	64	37	5033
980802432	1998	8/2/1998	1	8	8	34	2	71	35	5033
10554450	2001	5/26/2001	1	7	8	35	2	71	30	5033
990632037	1999	6/24/1999	1	7	8	35	2	64	34	5033
60516009	2006	5/4/2006	1	8	8	35	2	64	35	5033
40717954	2004	7/3/2004	1	6	8	36	2	64	79	5033
10217642	2001	2/8/2001	1	8	8	36	2	56	79	2002
40923476	2004	9/8/2004	1	7	8	37	2	64	82	5033
20816789	2002	7/14/2002	1	8	8	37	2	71	36	5033
70828461	2007	8/11/2007	1	7	8	39	2	71	30	5033
991014385	1999	10/9/1999	1	7	8	39	2	64	34	5033
980732034	1998	7/26/1998	1	7	8	39	2	64	34	5033
991204137	1999	11/23/1999	1	8	8	40	2	64	35	5033
21205468	2002	8/10/2002	1	6	8	42	2	71	79	5033
61046443	2006	10/22/2006	1	7	8	43	2	64	30	5033
117361	2000	1/13/2000	1	7	8	43	2	64	34	5033
990820778	1999	8/15/1999	1	7	8	43	2	64	30	5033
981012890	1998	10/8/1998	1	7	8	43	2	64	33	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980709029	1998	7/4/1998	1	8	8	43	2	64	35	5033
11144757	2001	11/23/2001	1	6	8	46	2	71	79	5033
980819325	1998	8/12/1998	1	7	8	47	2	71	93	5033
704613	2000	6/27/2000	1	7	8	48	2	64	92	5033
40813289	2004	7/17/2004	1	7	8	51	2	64	30	5033
50519287	2005	5/9/2005	1	7	8	54	2	64	30	5033
41118452	2004	11/6/2004	1	8	8	54	2	64	36	5033
20911575	2002	9/4/2002	1	8	8	55	2	64	81	5033
60611709	2006	5/19/2006	1	8	8	56	2	64	35	5033
41052096	2004	10/15/2004	1	6	8	58	2	64	31	5033
980409812	1998	4/8/1998	2	7	1	5	1	57	33	5033
20952735	2002	9/15/2002	2	7	1	7	1	57	33	5033
20333151	2002	3/16/2002	2	7	1	8	1	57	33	5033
20130398	2002	1/16/2002	2	7	1	8	1	57	33	5033
10412192	2001	3/23/2001	2	7	1	8	1	57	30	5033
10507281	2001	5/1/2001	2	7	1	8	1	57	30	5033
990109362	1998	12/27/1998	2	7	1	8	1	57	30	5033
61020448	2006	9/30/2006	2	7	1	9	1	57	30	5033
20123061	2001	12/26/2001	2	7	1	9	1	57	34	5033
991211701	1999	10/25/1999	2	7	1	9	1	57	33	5033
980316514	1998	3/15/1998	2	7	1	9	1	57	30	5033
980520473	1998	5/10/1998	2	7	1	9	1	57	33	5033
30345576	2003	3/16/2003	2	6	1	10	1	57	89	5033
60856158	2006	8/10/2006	2	7	1	10	1	57	33	5033
20939214	2002	9/14/2002	2	7	1	10	1	57	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10526272	2001	5/9/2001	2	7	1	10	1	57	33	5033
637013	2000	6/15/2000	2	7	1	10	1	57	82	5033
980715092	1998	7/6/1998	2	7	1	10	1	57	30	5033
980727226	1998	7/18/1998	2	7	1	10	1	57	82	5033
60727555	2006	7/6/2006	2	8	1	10	1	57	83	5033
40534721	2004	5/13/2004	2	8	1	10	1	57	83	5033
40817854	2004	7/26/2004	2	7	1	11	1	57	30	5033
30817526	2003	7/20/2003	2	7	1	11	1	57	30	5033
30711885	2003	6/8/2003	2	7	1	11	1	57	34	5033
20710253	2002	6/29/2002	2	7	1	11	1	57	30	5033
20432801	2002	3/30/2002	2	7	1	11	1	57	34	5033
20652050	2002	6/23/2002	2	7	1	11	1	57	33	5033
200526	2000	1/29/2000	2	7	1	11	1	57	33	5033
530120	2000	4/29/2000	2	7	1	11	1	57	33	5033
606878	2000	5/27/2000	2	7	1	11	1	57	82	5033
816296	2000	7/26/2000	2	7	1	11	1	57	82	5033
990423068	1999	4/7/1999	2	7	1	11	1	57	30	5033
990621250	1999	6/19/1999	2	7	1	11	1	57	30	5033
990822693	1999	8/14/1999	2	7	1	11	1	57	82	5033
60143787	2006	1/22/2006	2	8	1	11	1	57	37	5033
71137418	2007	11/19/2007	2	7	1	12	1	57	32	5033
60708431	2006	7/3/2006	2	7	1	12	1	57	34	5033
60445199	2006	4/21/2006	2	7	1	12	1	57	33	5033
30943002	2003	9/1/2003	2	7	1	12	1	57	34	5033
30827313	2003	8/11/2003	2	7	1	12	1	57	33	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10731462	2001	7/8/2001	2	7	1	12	1	52	75	5033
11135318	2001	9/15/2001	2	7	1	12	1	57	80	5033
113684	2000	1/10/2000	2	7	1	12	1	57	82	5033
312450	2000	3/12/2000	2	7	1	12	1	57	34	5033
531991	2000	5/19/2000	2	7	1	12	1	57	30	5033
625584	2000	6/3/2000	2	7	1	12	1	57	30	5033
731155	2000	7/16/2000	2	7	1	12	1	57	30	5033
803734	2000	7/30/2000	2	7	1	12	1	57	30	5033
837446	2000	8/17/2000	2	7	1	12	1	57	33	5033
990630952	1999	6/27/1999	2	7	1	12	1	57	34	5033
990909126	1999	8/30/1999	2	7	1	12	1	57	30	5033
980706079	1998	7/5/1998	2	7	1	12	1	57	30	5033
980800148	1998	7/27/1998	2	7	1	12	1	57	33	5033
980819316	1998	8/10/1998	2	7	1	12	1	57	92	5033
981226632	1998	12/27/1998	2	7	1	12	1	57	30	5033
981228063	1998	12/28/1998	2	7	1	12	1	57	30	5033
1105538	2000	10/12/2000	2	8	1	12	1	57	83	5033
990808059	1999	7/20/1999	2	8	1	12	1	72	35	5033
70651291	2007	6/25/2007	2	7	1	13	1	57	30	5033
70745629	2007	7/21/2007	2	7	1	13	1	57	30	5033
50446897	2005	4/24/2005	2	7	1	13	1	57	34	5033
50720342	2005	7/6/2005	2	7	1	13	1	57	33	5033
41243314	2004	10/17/2004	2	7	1	13	1	57	33	5033
30825867	2003	8/5/2003	2	7	1	13	1	57	30	5033
21252541	2002	12/21/2002	2	7	1	13	1	57	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
21008370	2002	8/27/2002	2	7	1	13	1	57	33	5033
20845457	2002	8/16/2002	2	7	1	13	1	57	30	5033
21005977	2002	8/19/2002	2	7	1	13	1	57	30	5033
10549297	2001	5/4/2001	2	7	1	13	1	57	33	5033
1054632	2000	4/3/2000	2	7	1	13	1	57	33	5033
1110506	2000	10/29/2000	2	7	1	13	1	57	32	5033
990402285	1999	3/30/1999	2	7	1	13	1	57	30	5033
990601030	1999	5/31/1999	2	7	1	13	1	57	30	5033
980206086	1998	2/4/1998	2	7	1	13	1	57	30	5033
980814114	1998	8/4/1998	2	7	1	13	1	57	34	5033
980911147	1998	8/29/1998	2	7	1	13	1	57	82	5033
981228071	1998	12/29/1998	2	7	1	13	1	57	31	5033
1118240	2000	11/4/2000	2	8	1	13	1	57	83	5033
30618507	2003	6/6/2003	2	4	1	14	1	57	31	5033
70920454	2007	8/29/2007	2	7	1	14	1	57	30	5033
60916407	2006	9/3/2006	2	7	1	14	1	57	33	5033
60556426	2006	5/28/2006	2	7	1	14	1	57	30	5033
60859230	2006	8/20/2006	2	7	1	14	1	57	30	5033
50647742	2005	6/16/2005	2	7	1	14	1	57	33	5033
50523525	2005	5/10/2005	2	7	1	14	1	57	34	5033
50837981	2005	8/12/2005	2	7	1	14	1	57	82	5033
30340194	2003	3/22/2003	2	7	1	14	1	57	30	5033
30417170	2003	3/23/2003	2	7	1	14	1	64	92	5033
20542684	2002	5/19/2002	2	7	1	14	1	57	82	5033
30117964	2002	12/27/2002	2	7	1	14	1	57	34	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
20608100	2002	5/31/2002	2	7	1	14	1	57	30	5033
20719694	2002	6/30/2002	2	7	1	14	1	57	30	5033
10560468	2001	5/24/2001	2	7	1	14	1	57	30	5033
20126213	2001	12/29/2001	2	7	1	14	1	57	33	5033
938115	2000	9/20/2000	2	7	1	14	1	57	30	5033
1010813	2000	10/3/2000	2	7	1	14	1	57	30	5033
1131825	2000	11/12/2000	2	7	1	14	1	57	30	5033
990413399	1999	4/9/1999	2	7	1	14	1	57	82	5033
990525012	1999	5/15/1999	2	7	1	14	1	57	30	5033
990605070	1999	5/22/1999	2	7	1	14	1	57	30	5033
990709950	1999	7/2/1999	2	7	1	14	1	57	33	5033
980805320	1998	8/3/1998	2	7	1	14	1	57	80	5033
980827440	1998	8/22/1998	2	7	1	14	1	57	34	5033
981228060	1998	12/27/1998	2	7	1	14	1	57	33	5033
30113500	2003	1/5/2003	2	8	1	14	1	57	36	5033
11006602	2001	9/29/2001	2	8	1	14	1	71	83	5033
980725344	1998	7/12/1998	2	8	1	14	1	57	83	5033
70404430	2007	3/25/2007	2	7	1	15	1	57	34	5033
60850089	2006	8/20/2006	2	7	1	15	1	57	33	5033
40609866	2004	5/28/2004	2	7	1	15	1	57	30	5033
30522029	2003	5/9/2003	2	7	1	15	1	57	30	5033
30539451	2003	5/18/2003	2	7	1	15	1	57	33	5033
30555445	2003	5/26/2003	2	7	1	15	1	57	30	5033
21220080	2002	12/8/2002	2	7	1	15	1	57	30	5033
20715376	2002	7/4/2002	2	7	1	15	1	57	34	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
20438546	2002	4/17/2002	2	7	1	15	1	62	75	5033
10725136	2001	7/10/2001	2	7	1	15	1	52	75	5033
10916857	2001	9/3/2001	2	7	1	15	1	57	34	5033
11122792	2001	11/8/2001	2	7	1	15	1	57	82	5033
990714274	1999	7/9/1999	2	7	1	15	1	57	30	5033
990816521	1999	7/31/1999	2	7	1	15	1	57	32	5033
990826679	1999	8/22/1999	2	7	1	15	1	57	30	5033
991108913	1999	11/3/1999	2	7	1	15	1	57	34	5033
980325180	1998	3/28/1998	2	7	1	15	1	57	32	5033
980824331	1998	8/21/1998	2	7	1	15	1	57	30	5033
981029704	1998	10/27/1998	2	7	1	15	1	57	34	5033
990115291	1998	12/29/1998	2	7	1	15	1	57	32	5033
40354789	2004	3/28/2004	2	8	1	15	1	57	36	5033
10516935	2001	5/5/2001	2	8	1	15	1	57	36	5033
10916759	2001	9/8/2001	2	8	1	15	1	57	37	5033
980317847	1998	3/13/1998	2	8	1	15	1	57	37	5033
990832294	1999	8/16/1999	2	6	1	16	1	57	79	5033
991124988	1999	8/22/1999	2	6	1	16	1	57	76	5033
60847347	2006	8/20/2006	2	7	1	16	1	57	33	5033
51113569	2005	11/2/2005	2	7	1	16	1	57	30	5033
40705294	2004	7/2/2004	2	7	1	16	1	57	34	5033
20839451	2002	8/14/2002	2	7	1	16	1	57	30	5033
20911882	2002	9/3/2002	2	7	1	16	1	57	33	5033
10541253	2001	5/14/2001	2	7	1	16	1	57	30	5033
990613159	1999	5/23/1999	2	7	1	16	1	57	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980315291	1998	3/16/1998	2	7	1	16	1	57	30	5033
990101824	1998	12/13/1998	2	7	1	16	1	57	30	5033
981226634	1998	12/27/1998	2	7	1	16	1	57	30	5033
51107219	2005	10/31/2005	2	7	1	17	1	53	82	5033
40501847	2004	4/30/2004	2	7	1	17	1	57	34	5033
30603627	2003	5/25/2003	2	7	1	17	1	57	30	5033
20742255	2002	7/19/2002	2	7	1	17	1	57	33	5033
20506200	2002	4/23/2002	2	7	1	17	1	57	80	5033
10626514	2001	6/12/2001	2	7	1	17	1	57	34	5033
10815469	2001	7/30/2001	2	7	1	17	1	57	33	5033
749372	2000	7/16/2000	2	7	1	17	1	57	30	5033
990120029	1999	1/8/1999	2	7	1	17	1	57	34	5033
980409244	1998	3/16/1998	2	7	1	17	1	57	30	5033
980815319	1998	8/15/1998	2	7	1	17	1	57	82	5033
10639690	2001	6/19/2001	2	8	1	17	1	57	37	5033
227501	2000	2/18/2000	2	8	1	17	1	57	36	5033
980603774	1998	5/24/1998	2	8	1	17	1	57	79	5033
60820007	2006	8/5/2006	2	7	1	18	1	57	30	5033
50403703	2005	4/1/2005	2	7	1	18	1	57	30	5033
50864360	2005	8/6/2005	2	7	1	18	1	57	34	5033
40501896	2004	4/19/2004	2	7	1	18	1	57	30	5033
1030871	2000	10/14/2000	2	7	1	18	1	57	30	5033
990321100	1999	3/20/1999	2	7	1	18	1	57	33	5033
990519158	1999	4/24/1999	2	7	1	18	1	57	30	5033
980520918	1998	4/11/1998	2	7	1	18	1	57	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980504871	1998	5/3/1998	2	7	1	18	1	57	34	5033
10746717	2001	7/21/2001	2	8	1	18	1	57	37	5033
50526105	2005	5/10/2005	2	7	1	19	1	57	30	5033
50639053	2005	6/14/2005	2	7	1	19	1	57	30	5033
30122181	2003	1/10/2003	2	7	1	19	1	57	82	5033
20322028	2002	3/11/2002	2	7	1	19	1	57	30	5033
530844	2000	5/18/2000	2	7	1	19	1	57	30	5033
991104312	1999	10/31/1999	2	7	1	19	1	57	33	5033
50705121	2005	7/2/2005	2	8	1	19	1	57	79	5033
30453575	2003	4/26/2003	2	8	1	19	1	57	36	5033
10943822	2001	9/22/2001	2	8	1	19	1	57	36	5033
738343	2000	7/10/2000	2	8	1	19	1	57	37	5033
70905618	2007	8/25/2007	2	7	1	20	1	57	30	5033
71004016	2007	9/22/2007	2	7	1	20	1	57	30	5033
60528231	2006	5/11/2006	2	7	1	20	1	57	30	5033
50655144	2005	6/19/2005	2	7	1	20	1	57	34	5033
41044009	2004	10/20/2004	2	7	1	20	1	57	30	5033
30210312	2003	2/2/2003	2	7	1	20	1	57	30	5033
30212151	2003	2/1/2003	2	7	1	20	1	57	32	5033
21012084	2002	9/29/2002	2	7	1	20	1	57	34	5033
943055	2000	9/16/2000	2	7	1	20	1	57	34	5033
990628985	1999	6/24/1999	2	7	1	20	1	57	33	5033
990816534	1999	8/4/1999	2	7	1	20	1	57	30	5033
980105014	1998	1/3/1998	2	7	1	20	1	57	30	5033
980714900	1998	7/12/1998	2	7	1	20	1	57	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980806532	1998	8/4/1998	2	7	1	20	1	57	82	5033
981105197	1998	11/3/1998	2	7	1	20	1	57	34	5033
10233559	2001	2/6/2001	2	8	1	20	1	57	37	5033
60223769	2006	2/12/2006	2	7	1	21	1	57	30	5033
50947846	2005	9/24/2005	2	7	1	21	1	57	34	5033
50539916	2005	5/19/2005	2	7	1	21	1	57	30	5033
50331591	2005	3/19/2005	2	7	1	21	1	57	33	5033
30318972	2003	3/10/2003	2	7	1	21	1	57	32	5033
10523858	2001	4/30/2001	2	7	1	21	1	57	30	5033
803049	2000	7/28/2000	2	7	1	21	1	57	30	5033
913601	2000	9/6/2000	2	7	1	21	1	57	30	5033
990426248	1999	4/16/1999	2	7	1	21	1	57	82	5033
990529113	1999	5/25/1999	2	7	1	21	1	57	30	5033
990908038	1999	8/19/1999	2	7	1	21	1	57	30	5033
10850769	2001	8/22/2001	2	8	1	21	1	57	37	5033
51055541	2005	10/6/2005	2	7	1	22	1	57	30	5033
51122549	2005	11/3/2005	2	7	1	22	1	57	30	5033
40705729	2004	6/28/2004	2	7	1	22	1	57	34	5033
990329407	1999	3/29/1999	2	7	1	22	1	57	82	5033
990410626	1999	4/9/1999	2	7	1	22	1	57	82	5033
991204143	1999	11/20/1999	2	7	1	22	1	57	30	5033
980725204	1998	7/16/1998	2	7	1	22	1	57	31	5033
60947577	2006	9/21/2006	2	8	1	22	1	57		5033
20514258	2002	5/6/2002	2	8	1	22	1	57	83	5033
715815	2000	7/4/2000	2	8	1	22	1	57	36	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980409272	1998	4/2/1998	2	8	1	22	1	57	37	5033
30722741	2003	7/3/2003	2	7	1	23	1	57	32	5033
20932353	2002	9/4/2002	2	7	1	23	1	57	30	5033
20401695	2002	3/3/2002	2	7	1	23	1	57	30	5033
11119729	2001	11/7/2001	2	7	1	23	1	57	30	5033
11122893	2001	11/11/2001	2	7	1	23	1	57	30	5033
1038632	2000	10/10/2000	2	7	1	23	1	57	33	5033
980702011	1998	6/28/1998	2	7	1	23	1	57	33	5033
980921312	1998	9/18/1998	2	7	1	23	1	57	30	5033
31108223	2003	11/2/2003	2	6	1	24	1	57	79	5033
71150348	2007	11/26/2007	2	7	1	24	1	57	82	5033
60320571	2006	3/11/2006	2	7	1	24	1	57	82	5033
50759398	2005	7/27/2005	2	7	1	24	1	57	30	5033
40951673	2004	9/24/2004	2	7	1	24	1	57	30	5033
40514202	2004	5/2/2004	2	7	1	24	1	57	33	5033
41019564	2004	9/11/2004	2	7	1	24	1	57	33	5033
20536911	2002	5/16/2002	2	7	1	24	1	57	34	5033
20443355	2002	4/19/2002	2	7	1	24	1	57	36	5033
20712669	2002	6/26/2002	2	7	1	24	1	57	30	5033
20306104	2002	3/2/2002	2	7	1	24	1	57	82	5033
10505364	2001	4/28/2001	2	7	1	24	1	57	33	5033
10652051	2001	6/26/2001	2	7	1	24	1	57	33	5033
507896	2000	4/30/2000	2	7	1	24	1	57	30	5033
622664	2000	6/12/2000	2	7	1	24	1	57	30	5033
838293	2000	8/7/2000	2	7	1	24	1	57	34	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
840969	2000	8/18/2000	2	7	1	24	1	57	31	5033
990323098	1999	3/18/1999	2	7	1	24	1	57	30	5033
990425693	1999	4/22/1999	2	7	1	24	1	57	33	5033
991004592	1999	9/30/1999	2	7	1	24	1	57	33	5033
991222500	1999	12/21/1999	2	7	1	24	1	57	30	1843
980718292	1998	7/9/1998	2	7	1	24	1	57	34	5033
981216480	1998	12/6/1998	2	7	1	24	1	57	82	5033
70529974	2007	4/18/2007	2	7	1	25	1	57	32	5033
60933964	2006	9/6/2006	2	7	1	25	1	57	33	5033
20556425	2002	5/27/2002	2	7	1	25	1	57	30	5033
10910274	2001	6/10/2001	2	7	1	25	1	57	30	5033
10706236	2001	6/28/2001	2	7	1	25	1	57	30	5033
10703021	2001	6/28/2001	2	7	1	25	1	59	32	5033
10943792	2001	9/22/2001	2	7	1	25	1	57	30	5033
980631674	1998	6/28/1998	2	7	1	25	1	57	32	5033
980715974	1998	7/11/1998	2	7	1	25	1	57	30	5033
980915733	1998	9/12/1998	2	7	1	25	1	57	82	5033
50954278	2005	8/27/2005	2	8	1	25	1	57	37	5033
10436255	2001	4/5/2001	2	6	1	26	1	57	89	5033
71025958	2007	10/1/2007	2	7	1	26	1	57	30	5033
70616075	2007	5/14/2007	2	7	1	26	1	57	80	5033
70425092	2007	4/11/2007	2	7	1	26	1	57	82	5033
10526485	2001	5/4/2001	2	7	1	26	1	57	30	5033
10803623	2001	7/28/2001	2	7	1	26	1	57	30	5033
933524	2000	9/17/2000	2	7	1	26	1	57	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
1105578	2000	10/30/2000	2	7	1	26	1	57	30	5033
990328801	1999	3/27/1999	2	7	1	26	1	57	30	5033
990512202	1999	4/30/1999	2	7	1	26	1	57	34	5033
990622260	1999	6/13/1999	2	7	1	26	1	57	32	5033
991014288	1999	10/10/1999	2	7	1	26	1	57	30	5033
991204195	1999	11/26/1999	2	7	1	26	1	57	34	5033
980726056	1998	7/12/1998	2	7	1	26	1	57	82	5033
30825797	2003	7/30/2003	2	8	1	26	1	57	83	5033
70945495	2007	9/17/2007	2	7	1	27	1	57	30	5033
70925268	2007	9/8/2007	2	7	1	27	1	57	82	5033
60843784	2006	8/20/2006	2	7	1	27	1	57	82	5033
40403347	2004	3/28/2004	2	7	1	27	1	57	30	5033
40540086	2004	5/17/2004	2	7	1	27	1	57	30	5033
40749963	2004	7/24/2004	2	7	1	27	1	57	33	5033
21210403	2002	12/2/2002	2	7	1	27	1	57	34	5033
20807788	2002	7/30/2002	2	7	1	27	1	57	33	5033
20724668	2002	7/6/2002	2	7	1	27	1	57	30	5033
10132749	2001	1/9/2001	2	7	1	27	1	57	34	5033
10855942	2001	8/21/2001	2	7	1	27	1	57	82	5033
1204583	2000	11/26/2000	2	7	1	27	1	57	30	5033
990603211	1999	6/1/1999	2	7	1	27	1	57	30	5033
980605649	1998	6/2/1998	2	7	1	27	1	57	33	5033
50711982	2005	7/3/2005	2	8	1	27	1	57	83	5033
30309653	2002	10/24/2002	2	8	1	27	1	57	35	5033
20851218	2002	8/18/2002	2	8	1	27	1	57	37	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10839110	2001	8/16/2001	2	4	1	28	1	57	31	5033
30726040	2003	6/30/2003	2	6	1	28	1	57	79	5033
1001099	2000	9/29/2000	2	6	1	28	1	57	89	5033
70733632	2007	7/9/2007	2	7	1	28	1	57	34	5033
50405746	2005	4/2/2005	2	7	1	28	1	57	33	5033
51104275	2005	10/22/2005	2	7	1	28	1	57	34	5033
50417800	2005	4/3/2005	2	7	1	28	1	57	33	5033
40546638	2004	5/24/2004	2	7	1	28	1	57	32	5033
40711964	2004	7/5/2004	2	7	1	28	1	57	34	5033
31135133	2003	9/1/2003	2	7	1	28	1	57	33	5033
30753325	2003	7/22/2003	2	7	1	28	1	57	32	5033
30644970	2003	6/21/2003	2	7	1	28	1	57	33	5033
20636590	2002	6/17/2002	2	7	1	28	1	57	34	5033
21202737	2002	11/15/2002	2	7	1	28	1	57	82	5033
20833956	2002	8/13/2002	2	7	1	28	1	57	30	5033
539850	2000	5/26/2000	2	7	1	28	1	57	30	5033
850767	2000	8/24/2000	2	7	1	28	1	57	92	5033
990407719	1999	4/7/1999	2	7	1	28	1	57	30	5033
990419563	1999	4/17/1999	2	7	1	28	1	57	30	5033
990520487	1999	5/15/1999	2	7	1	28	1	57	30	5033
990611428	1999	6/6/1999	2	7	1	28	1	57	34	5033
990812669	1999	8/7/1999	2	7	1	28	1	57	33	5033
991023969	1999	10/17/1999	2	7	1	28	1	57	31	5033
980703933	1998	7/3/1998	2	7	1	28	1	57	30	5033
980714899	1998	7/12/1998	2	7	1	28	1	57	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
60626913	2006	6/12/2006	2	8	1	28	1	57	35	5033
50954286	2005	8/27/2005	2	8	1	28	1	57	37	5033
40613050	2004	5/31/2004	2	8	1	28	1	57	36	5033
70231041	2007	2/8/2007	2	7	1	29	1	57	30	5033
60849456	2006	8/21/2006	2	7	1	29	1	57	33	5033
60538931	2006	4/22/2006	2	7	1	29	1	57	33	5033
40661197	2004	6/17/2004	2	7	1	29	1	57	30	5033
30961360	2003	9/5/2003	2	7	1	29	1	57	82	5033
20122262	2002	1/13/2002	2	7	1	29	1	57	30	5033
10861999	2001	8/29/2001	2	7	1	29	1	57	30	5033
10144816	2000	12/10/2000	2	7	1	29	1	57	30	5033
991032518	1999	7/14/1999	2	7	1	29	1	57	30	5033
991128726	1999	11/20/1999	2	7	1	29	1	57	82	5033
50610223	2005	5/29/2005	2	8	1	29	1	57	37	5033
10929535	2001	8/19/2001	2	8	1	29	1	57	36	5033
1127901	2000	11/11/2000	2	8	1	29	1	57	37	5033
980902096	1998	8/30/1998	2	8	1	29	1	57	35	5033
980727504	1998	7/21/1998	2	4	1	30	1	57	31	5033
980605785	1998	5/30/1998	2	6	1	30	1	57	31	5033
70837545	2007	8/17/2007	2	7	1	30	1	57	30	5033
70951814	2007	8/15/2007	2	7	1	30	1	57	82	5033
70563191	2007	5/27/2007	2	7	1	30	1	57	30	5033
60423943	2006	4/12/2006	2	7	1	30	1	57	30	5033
60855057	2006	8/12/2006	2	7	1	30	1	57	30	5033
51103738	2005	10/30/2005	2	7	1	30	1	57	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
40554298	2004	5/24/2004	2	7	1	30	1	57	30	5033
30448189	2003	4/19/2003	2	7	1	30	1	57	30	5033
30630700	2003	6/11/2003	2	7	1	30	1	57	30	5033
20827552	2002	8/9/2002	2	7	1	30	1	57	33	5033
20855669	2002	8/1/2002	2	7	1	30	1	57	30	5033
10402430	2001	3/17/2001	2	7	1	30	1	57	30	5033
10713076	2001	7/2/2001	2	7	1	30	1	57	30	5033
10717999	2001	7/6/2001	2	7	1	30	1	57	30	5033
10939291	2001	9/10/2001	2	7	1	30	1	57	34	5033
427962	2000	4/23/2000	2	7	1	30	1	57	30	5033
1126078	2000	11/12/2000	2	7	1	30	1	57	30	5033
990711114	1999	7/3/1999	2	7	1	30	1	57	34	5033
990710155	1999	7/5/1999	2	7	1	30	1	57	30	5033
990800370	1999	7/25/1999	2	7	1	30	1	57	30	5033
60504707	2006	4/29/2006	2	8	1	30	1	57	36	5033
529544	2000	5/16/2000	2	8	1	30	1	57	79	5033
814830	2000	8/4/2000	2	2	1	31	1	57	76	5033
30848258	2003	8/9/2003	2	6	1	31	1	57	79	5033
70747808	2007	7/21/2007	2	7	1	31	1	57	30	5033
60103359	2005	12/30/2005	2	7	1	31	1	57	34	5033
40514887	2004	5/7/2004	2	7	1	31	1	57	34	5033
40555059	2004	5/17/2004	2	7	1	31	1	57	30	5033
30317004	2003	3/6/2003	2	7	1	31	1	57	30	5033
20848679	2002	8/18/2002	2	7	1	31	1	57	30	5033
21246965	2002	12/22/2002	2	7	1	31	1	57	82	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
704654	2000	7/1/2000	2	7	1	31	1	57	31	5033
990913088	1999	9/4/1999	2	7	1	31	1	57	33	5033
980313827	1998	3/7/1998	2	7	1	31	1	57	34	5033
980427787	1998	4/17/1998	2	7	1	31	1	57	30	5033
980612262	1998	5/24/1998	2	7	1	31	1	57	30	5033
980718532	1998	7/14/1998	2	7	1	31	1	57	30	5033
980822558	1998	7/20/1998	2	7	1	31	1	57	32	5033
61004909	2006	9/9/2006	2	8	1	31	1	57		5033
60422296	2006	4/5/2006	2	8	1	31	1	57	36	5033
51130315	2005	11/6/2005	2	8	1	31	1	57	37	5033
10707387	2001	6/15/2001	2	8	1	31	1	57	83	5033
806081	2000	7/18/2000	2	8	1	31	1	57	36	5033
60936630	2006	9/1/2006	2	6	1	32	1	57	31	5033
981201676	1998	11/14/1998	2	6	1	32	1	57	31	5033
70245544	2007	2/19/2007	2	7	1	32	1	57	30	5033
60722361	2006	6/19/2006	2	7	1	32	1	57	82	5033
50351103	2005	3/20/2005	2	7	1	32	1	57	32	5033
40802511	2004	7/29/2004	2	7	1	32	1	57	30	5033
40543354	2004	5/21/2004	2	7	1	32	1	57	30	5033
31030252	2003	10/7/2003	2	7	1	32	1	57	30	5033
30633298	2003	6/10/2003	2	7	1	32	1	57	34	5033
20809913	2002	8/4/2002	2	7	1	32	1	57	30	5033
21134792	2002	11/17/2002	2	7	1	32	1	57	82	5033
20949842	2002	9/22/2002	2	7	1	32	1	57	30	5033
10739551	2001	7/14/2001	2	7	1	32	1	57	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10905502	2001	9/2/2001	2	7	1	32	1	57	30	5033
837435	2000	8/15/2000	2	7	1	32	1	57	30	5033
952143	2000	8/16/2000	2	7	1	32	1	57	30	5033
980508499	1998	5/3/1998	2	7	1	32	1	57	82	5033
504475	2000	4/7/2000	2	8	1	32	1	57	37	5033
70749191	2007	7/22/2007	2	2	1	33	1	57	76	5033
70921845	2007	9/9/2007	2	7	1	33	1	57	30	5033
60816062	2006	8/4/2006	2	7	1	33	1	57	30	5033
60543652	2006	5/20/2006	2	7	1	33	1	57	33	5033
41029843	2004	10/12/2004	2	7	1	33	1	57	32	5033
41035309	2004	10/16/2004	2	7	1	33	1	57	32	5033
30704236	2003	6/28/2003	2	7	1	33	1	57	30	5033
21023550	2002	10/4/2002	2	7	1	33	1	57	33	5033
20150453	2002	1/27/2002	2	7	1	33	1	57	30	5033
20641575	2002	6/13/2002	2	7	1	33	1	57	30	5033
20716893	2002	7/5/2002	2	7	1	33	1	57	30	5033
10240530	2001	2/19/2001	2	7	1	33	1	57	30	5033
10619538	2001	6/10/2001	2	7	1	33	1	57	34	5033
10763720	2001	7/22/2001	2	7	1	33	1	57	30	5033
990412337	1999	4/10/1999	2	7	1	33	1	57	34	5033
20132937	2002	1/16/2002	2	8	1	33	1	57	79	5033
990704136	1999	5/3/1999	2	8	1	33	1	57	37	5033
40512676	2004	5/5/2004	2	6	1	34	1	57	31	5033
70924557	2007	9/10/2007	2	7	1	34	1	57	34	5033
50344645	2005	3/19/2005	2	7	1	34	1	52	75	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
51003235	2005	9/18/2005	2	7	1	34	1	57	82	5033
50849297	2005	8/20/2005	2	7	1	34	1	57	34	5033
40902801	2004	8/16/2004	2	7	1	34	1	57	82	5033
20826351	2002	6/24/2002	2	7	1	34	1	57	82	5033
20851221	2002	8/18/2002	2	7	1	34	1	57	33	5033
11148560	2001	11/20/2001	2	7	1	34	1	57	32	5033
206580	2000	1/31/2000	2	7	1	34	1	57	30	5033
60420047	2006	4/6/2006	2	8	1	34	1	57		5033
50214306	2005	2/4/2005	2	8	1	34	1	57	36	5033
20805396	2002	7/31/2002	2	8	1	34	1	57	35	5033
71105078	2007	9/11/2007	2	7	1	35	1	57	82	5033
70559118	2007	5/18/2007	2	7	1	35	1	57	32	5033
60911010	2006	9/3/2006	2	7	1	35	1	57	33	5033
60828035	2006	8/12/2006	2	7	1	35	1	57	33	5033
50723772	2005	6/10/2005	2	7	1	35	1	57	33	5033
40346527	2004	3/22/2004	2	7	1	35	1	57	30	5033
40726707	2004	7/2/2004	2	7	1	35	1	57	30	5033
211878	2000	2/2/2000	2	7	1	35	1	57	30	5033
646124	2000	6/21/2000	2	7	1	35	1	57	33	5033
980309707	1998	3/9/1998	2	7	1	35	1	57	34	5033
20942376	2002	5/5/2002	2	8	1	35	1	57	83	5033
20343686	2002	3/24/2002	2	8	1	35	1	57	83	5033
50422054	2005	4/11/2005	2	4	1	36	1	57	31	5033
50829724	2005	7/19/2005	2	7	1	36	1	57	32	5033
40852314	2004	8/14/2004	2	7	1	36	1	57	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
40810667	2004	8/1/2004	2	7	1	36	1	57	80	5033
941232	2000	9/18/2000	2	7	1	36	1	57	30	5033
990800379	1999	7/26/1999	2	7	1	36	1	57	31	5033
990929662	1999	9/21/1999	2	7	1	36	1	57	30	5033
980719931	1998	7/15/1998	2	7	1	36	1	57	30	5033
980806506	1998	8/2/1998	2	7	1	36	1	57	30	5033
61010309	2006	9/29/2006	2	8	1	36	1	57	36	5033
20700839	2002	6/20/2002	2	4	1	37	1	57	31	5033
11052963	2001	10/14/2001	2	6	1	37	1	57	89	5033
70612242	2007	6/2/2007	2	7	1	37	1	57	76	5033
70156195	2007	1/26/2007	2	7	1	37	1	57	32	5033
61132890	2006	11/9/2006	2	7	1	37	1	57	30	5033
40616291	2004	6/3/2004	2	7	1	37	1	57	33	5033
41128953	2004	11/8/2004	2	7	1	37	1	57	34	5033
30937272	2003	6/28/2003	2	7	1	37	1	57	82	5033
30943883	2003	8/18/2003	2	7	1	37	1	57	30	5033
30937346	2003	6/29/2003	2	7	1	37	1	57	34	5033
20643464	2002	6/22/2002	2	7	1	37	1	57	30	5033
21236354	2002	12/8/2002	2	7	1	37	1	57	34	5033
20112768	2002	1/5/2002	2	7	1	37	1	57	34	5033
21056280	2002	10/5/2002	2	7	1	37	1	57	30	5033
10612082	2001	5/25/2001	2	7	1	37	1	57	30	5033
729137	2000	7/11/2000	2	7	1	37	1	57	30	5033
990531109	1999	5/9/1999	2	7	1	37	1	57	30	5033
990705480	1999	6/29/1999	2	7	1	37	1	57	33	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
991100722	1999	10/26/1999	2	7	1	37	1	57	30	5033
990521839	1999	5/12/1999	2	4	1	38	1	57	31	5033
70755564	2007	7/14/2007	2	7	1	38	1	57	30	5033
51002187	2005	9/5/2005	2	7	1	38	1	57	34	5033
41152963	2004	11/25/2004	2	7	1	38	1	57	36	5033
41221848	2004	11/26/2004	2	7	1	38	1	57	32	5033
20442236	2002	4/17/2002	2	7	1	38	1	57	92	5033
10509152	2001	4/21/2001	2	7	1	38	1	62	75	5033
10701696	2001	6/26/2001	2	7	1	38	1	57	30	5033
10832539	2001	8/11/2001	2	7	1	38	1	57	30	5033
10852028	2001	8/21/2001	2	7	1	38	1	57	82	5033
401938	2000	3/30/2000	2	7	1	38	1	57	30	5033
429409	2000	4/11/2000	2	7	1	38	1	57	30	5033
990421247	1999	4/4/1999	2	7	1	38	1	57	34	5033
990826877	1999	8/12/1999	2	7	1	38	1	57	92	5033
980915846	1998	8/18/1998	2	7	1	38	1	57	34	5033
60857327	2006	8/26/2006	2	8	1	38	1	57		5033
31038219	2003	8/8/2003	2	8	1	38	1	57	83	5033
70915968	2007	8/17/2007	2	2	1	39	1	57	76	5033
990502350	1999	5/1/1999	2	6	1	39	1	57	31	5033
980709018	1998	7/3/1998	2	6	1	39	1	57	31	5033
70547718	2007	5/19/2007	2	7	1	39	1	57	30	5033
40433405	2004	4/9/2004	2	7	1	39	1	57	30	5033
31123421	2003	11/2/2003	2	7	1	39	1	57	34	5033
30942566	2003	9/7/2003	2	7	1	39	1	57	34	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
20814291	2002	7/1/2002	2	7	1	39	1	57	34	5033
980106429	1998	1/4/1998	2	7	1	39	1	57	30	5033
990828003	1999	8/4/1999	2	1	1	40	1	57	75	5033
71013898	2007	9/13/2007	2	4	1	40	1	57	31	5033
71226168	2007	12/13/2007	2	6	1	40	1	57	79	5033
40745824	2004	7/13/2004	2	6	1	40	1	57	89	5033
71031831	2007	10/5/2007	2	7	1	40	1	57	30	5033
40510825	2004	4/25/2004	2	7	1	40	1	57	30	5033
30626506	2003	6/1/2003	2	7	1	40	1	62	75	5033
20923508	2002	9/9/2002	2	7	1	40	1	57	33	5033
10501806	2001	4/27/2001	2	7	1	40	1	57	30	5033
10518079	2001	5/6/2001	2	7	1	40	1	57	30	5033
10916151	2001	9/6/2001	2	7	1	40	1	57	30	5033
990921597	1999	9/6/1999	2	7	1	40	1	57	30	5033
980912097	1998	8/27/1998	2	7	1	40	1	57	30	5033
70532721	2007	5/12/2007	2	8	1	40	1	57	36	5033
11219800	2001	12/9/2001	2	8	1	40	1	57	79	5033
324237	1999	11/27/1999	2	8	1	40	1	57	79	5033
937282	2000	9/3/2000	2	4	1	41	1	57	31	5033
1020063	2000	10/7/2000	2	4	1	41	1	71	31	5033
70117595	2007	1/3/2007	2	7	1	41	1	57	30	5033
60647854	2006	6/22/2006	2	7	1	41	1	62	75	5033
50103064	2004	12/14/2004	2	7	1	41	1	57	34	5033
30928433	2003	9/9/2003	2	7	1	41	1	57	32	5033
21135571	2002	11/16/2002	2	7	1	41	1	57	33	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10522230	2001	5/9/2001	2	7	1	41	1	57	30	5033
990305113	1999	3/2/1999	2	7	1	41	1	57	34	5033
990933343	1999	9/25/1999	2	7	1	41	1	57	30	5033
991104792	1999	11/1/1999	2	7	1	41	1	57	30	5033
980415172	1998	4/4/1998	2	7	1	41	1	57	82	5033
980620394	1998	6/6/1998	2	7	1	41	1	57	82	5033
980721196	1998	7/18/1998	2	7	1	41	1	57	30	5033
60527868	2006	4/26/2006	2	8	1	41	1	57	36	5033
70549174	2007	5/20/2007	2	7	1	42	1	57	30	5033
40841497	2004	8/4/2004	2	7	1	42	1	57	30	5033
50103009	2004	12/12/2004	2	7	1	42	1	57	30	5033
40927683	2004	8/25/2004	2	7	1	42	1	57	33	5033
30143889	2003	1/25/2003	2	7	1	42	1	57	33	5033
30552135	2003	5/24/2003	2	7	1	42	1	57	30	5033
821661	2000	8/12/2000	2	7	1	42	1	57	30	5033
980516728	1998	5/15/1998	2	7	1	42	1	57	31	5033
20800747	2002	6/30/2002	2	8	1	42	1	57	36	5033
990906244	1999	9/2/1999	2	4	1	43	1	57	31	5033
70302645	2007	2/4/2007	2	7	1	43	1	57	30	5033
51043589	2005	10/23/2005	2	7	1	43	1	57	30	5033
50551522	2005	5/16/2005	2	7	1	43	1	57	82	5033
20827283	2002	8/9/2002	2	7	1	43	1	57	30	5033
11045086	2001	10/20/2001	2	7	1	43	1	57	82	5033
725570	2000	7/11/2000	2	7	1	43	1	57	33	5033
990918919	1999	9/5/1999	2	7	1	43	1	57	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
20228479	2002	2/16/2002	2	2	1	44	1	57	76	5033
51052263	2005	10/25/2005	2	4	1	44	1	57	31	5033
20516461	2002	5/6/2002	2	4	1	44	1	57	31	5033
20716725	2002	7/4/2002	2	4	1	44	1	57	31	5033
60635703	2006	6/11/2006	2	7	1	44	1	57		5033
31024403	2003	10/8/2003	2	7	1	44	1	57	34	5033
11247808	2001	12/26/2001	2	7	1	44	1	57	30	5033
990924517	1999	9/12/1999	2	7	1	44	1	62	75	5033
60862795	2006	8/17/2006	2	8	1	44	1	57	37	5033
30423707	2003	4/11/2003	2	8	1	44	1	57	37	5033
40722413	2004	7/6/2004	2	7	1	45	1	57	33	5033
30641431	2003	6/18/2003	2	7	1	45	1	57	30	5033
20816699	2002	7/10/2002	2	7	1	45	1	57	30	5033
11209562	2001	11/28/2001	2	7	1	45	1	57	30	5033
990906252	1999	9/4/1999	2	7	1	45	1	57	31	5033
51041018	2005	9/25/2005	2	8	1	45	1	57	35	5033
980627242	1998	6/21/1998	2	6	1	46	1	57	79	5033
70564613	2007	5/26/2007	2	7	1	46	1	57	34	5033
60726072	2006	7/4/2006	2	7	1	46	1	57	30	5033
10831404	2001	8/11/2001	2	7	1	46	1	57	30	5033
10905387	2001	8/30/2001	2	7	1	46	1	57	30	5033
711168	2000	7/3/2000	2	7	1	46	1	57	33	5033
990914000	1999	9/11/1999	2	7	1	46	1	57	33	5033
711403	2000	6/26/2000	2	6	1	47	1	57	31	5033
61205925	2006	11/25/2006	2	7	1	47	1	57	34	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
40723170	2004	7/11/2004	2	7	1	47	1	57	30	5033
30713491	2003	7/5/2003	2	7	1	47	1	57	30	5033
20846086	2002	8/16/2002	2	7	1	47	1	57	30	5033
20821448	2002	8/5/2002	2	7	1	47	1	57	34	5033
20858844	2002	8/25/2002	2	7	1	47	1	57	30	5033
990218227	1999	2/7/1999	2	7	1	47	1	57	30	5033
990414171	1999	4/6/1999	2	7	1	47	1	57	76	5033
990901223	1999	8/29/1999	2	7	1	47	1	57	30	5033
61235778	2006	12/13/2006	2	7	1	48	1	57	30	5033
990508000	1999	4/25/1999	2	7	1	48	1	57	30	5033
980828461	1998	8/23/1998	2	7	1	48	1	57	30	5033
50706961	2005	6/27/2005	2	8	1	48	1	57	37	5033
70410352	2007	3/6/2007	2	2	1	49	1	57	76	5033
990507977	1999	4/16/1999	2	4	1	49	1	57	31	5033
70732043	2007	7/11/2007	2	7	1	49	1	57	30	5033
60124624	2006	1/10/2006	2	7	1	49	1	57	30	5033
20742256	2002	7/19/2002	2	7	1	49	1	57	92	5033
20758696	2002	7/24/2002	2	7	1	49	1	57	33	5033
980716932	1998	7/8/1998	2	7	1	49	1	57	30	5033
70846775	2007	8/14/2007	2	6	1	50	1	57	31	5033
61038177	2006	10/15/2006	2	7	1	50	1	57	33	5033
50546640	2005	5/22/2005	2	7	1	50	1	57	30	5033
30951863	2003	9/6/2003	2	7	1	50	1	57	80	5033
40113324	2003	12/16/2003	2	7	1	50	1	57	34	5033
20612104	2002	6/4/2002	2	7	1	50	1	57	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980408580	1998	4/6/1998	2	7	1	50	1	57	34	5033
60516038	2006	5/4/2006	2	8	1	50	1	57	37	5033
30137865	2003	1/19/2003	2	4	1	51	1	57	31	5033
50850432	2005	8/22/2005	2	7	1	51	1	57	30	5033
51007697	2005	9/30/2005	2	7	1	51	1	57	30	5033
40218773	2004	1/2/2004	2	7	1	51	1	57	30	5033
10432831	2001	4/8/2001	2	7	1	51	1	57	82	5033
980808115	1998	8/3/1998	2	7	1	51	1	57	30	5033
100476	1999	12/19/1999	2	8	1	51	1	57	37	5033
30151351	2002	9/15/2002	2	7	1	52	1	57	30	5033
20814999	2002	8/4/2002	2	7	1	52	1	57	33	5033
11103931	2001	10/25/2001	2	7	1	53	1	57	82	5033
21145260	2002	11/24/2002	2	4	1	54	1	57	31	5033
71039269	2007	10/14/2007	2	7	1	54	1	62	75	5033
10951463	2001	9/2/2001	2	7	1	54	1	57	30	5033
990813260	1999	8/4/1999	2	7	1	54	1	57	30	5033
980522551	1998	5/16/1998	2	7	1	55	1	57	80	5033
990905840	1999	8/22/1999	2	6	1	56	1	57	89	5033
60739804	2006	7/19/2006	2	7	1	56	1	57	30	5033
40661138	2004	6/6/2004	2	7	1	56	1	57	30	5033
991222727	1999	12/19/1999	2	7	1	56	1	57	82	5033
11038783	2001	10/15/2001	2	6	1	57	1	57	89	5033
10726798	2001	7/7/2001	2	7	1	57	1	57	30	5033
310946	2000	3/11/2000	2	7	1	57	1	57	30	5033
990714273	1999	7/9/1999	2	7	1	57	1	57	33	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
71137145	2007	11/18/2007	2	7	1	58	1	57	30	5033
980721583	1998	7/12/1998	2	7	1	58	1	57	33	5033
70925632	2007	9/8/2007	2	7	1	59	1	57	30	5033
10851954	2001	8/16/2001	2	7	1	59	1	57	30	5033
905172	2000	8/28/2000	2	7	1	59	1	57	30	5033
749301	2000	7/24/2000	2	2	1	62	1	57	76	2003
61138775	2006	11/9/2006	2	7	1	62	1	57	30	5033
990920758	1999	9/15/1999	2	7	1	62	1	57	31	5033
30916739	2003	9/4/2003	2	8	1	63	1	57	36	5033
60622059	2006	6/4/2006	2	7	1	64	1	57	30	5033
60805386	2006	7/19/2006	2	7	1	64	1	57	30	5033
60934702	2006	9/17/2006	2	7	1	68	1	57	30	5033
980512666	1998	5/10/1998	2	7	1	68	1	57	30	5033
40711437	2004	7/6/2004	2	7	1	8	2	57	34	5033
980718848	1998	7/18/1998	2	7	1	8	2	57	34	5033
819584	2000	8/7/2000	2	7	1	9	2	57	33	5033
20946213	2002	9/19/2002	2	7	1	10	2	57	34	5033
10446285	2001	4/14/2001	2	7	1	10	2	57	34	5033
30609301	2003	6/1/2003	2	7	1	11	2	57	82	5033
980709025	1998	7/4/1998	2	7	1	11	2	57	33	5033
10561042	2001	5/12/2001	2	7	1	12	2	57	32	5033
808273	2000	8/1/2000	2	7	1	12	2	57	33	5033
1039536	2000	10/15/2000	2	7	1	12	2	57	34	5033
990704168	1999	6/25/1999	2	6	1	13	2	57	31	5033
40627845	2004	6/7/2004	2	7	1	14	2	57	32	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
990707357	1999	6/26/1999	2	7	1	14	2	57	30	5033
980731033	1998	7/28/1998	2	7	1	14	2	57	33	5033
60240219	2006	2/20/2006	2	7	1	15	2	57	32	5033
31060314	2003	10/21/2003	2	7	1	15	2	57	30	5033
990701869	1999	6/17/1999	2	7	1	16	2	57	33	5033
30430493	2003	4/12/2003	2	7	1	17	2	57	33	5033
51106334	2005	10/18/2005	2	8	1	18	2	57	37	5033
991117462	1999	11/13/1999	2	7	1	19	2	57	32	5033
10856961	2001	8/26/2001	2	6	1	21	2	57	89	5033
70762983	2007	7/16/2007	2	7	1	21	2	53	32	5033
980603824	1998	5/30/1998	2	7	1	21	2	57	32	5033
10400711	2001	3/28/2001	2	7	1	22	2	57	32	5033
40841218	2004	8/19/2004	2	7	1	23	2	57	32	5033
60747234	2006	7/17/2006	2	7	1	24	2	57	82	5033
40445555	2004	4/24/2004	2	7	1	24	2	57	32	5033
11100018	2001	9/7/2001	2	7	1	24	2	57	30	5033
704626	2000	6/29/2000	2	7	1	24	2	57	34	5033
711143	2000	7/2/2000	2	7	1	24	2	57	33	5033
990835354	1999	8/28/1999	2	7	1	24	2	57	32	5033
980716072	1998	7/14/1998	2	7	1	24	2	57	34	5033
990605583	1999	5/30/1999	2	7	1	25	2	57	33	5033
980728822	1998	7/21/1998	2	7	1	25	2	57	32	5033
60508728	2006	4/28/2006	2	8	1	25	2	57	37	5033
70719076	2007	6/23/2007	2	7	1	26	2	57	30	5033
990906258	1999	9/5/1999	2	7	1	26	2	57	32	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
990929654	1999	9/5/1999	2	7	1	26	2	57	33	5033
980719016	1998	7/10/1998	2	7	1	26	2	57	33	5033
11053278	2001	10/17/2001	2	8	1	26	2	57	37	5033
50820819	2005	8/6/2005	2	7	1	27	2	57	32	5033
980714051	1998	7/3/1998	2	7	1	27	2	57	30	5033
304077	2000	3/2/2000	2	8	1	28	2	57	36	5033
990709943	1999	7/1/1999	2	8	1	28	2	57	36	5033
50750905	2005	6/30/2005	2	7	1	29	2	57	34	5033
30742242	2003	6/12/2003	2	7	1	29	2	57	32	5033
20827285	2002	8/10/2002	2	8	1	29	2	57	36	5033
980815132	1998	8/6/1998	2	8	1	29	2	57	37	5033
20525469	2002	5/8/2002	2	2	1	30	2	57	76	5033
10541656	2001	5/16/2001	2	7	1	30	2	57	30	5033
980903805	1998	8/31/1998	2	7	1	30	2	57	32	5033
20903177	2002	8/27/2002	2	7	1	31	2	57	34	5033
990430138	1999	4/24/1999	2	7	1	31	2	57	33	5033
60441747	2006	4/19/2006	2	7	1	32	2	57	32	5033
20858832	2002	8/24/2002	2	7	1	32	2	57	33	5033
419977	2000	4/16/2000	2	7	1	33	2	57	30	5033
70618642	2007	6/7/2007	2	7	1	34	2	57	32	5033
20807794	2002	7/30/2002	2	7	1	34	2	57	82	5033
20545999	2002	5/22/2002	2	7	1	34	2	57	34	5033
10914599	2001	8/25/2001	2	8	1	34	2	57	37	5033
981017384	1998	9/22/1998	2	1	1	35	2	57	75	5033
102687	1999	12/29/1999	2	7	1	35	2	57	32	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
980831946	1998	8/15/1998	2	7	1	35	2	57	33	5033
51024499	2005	9/10/2005	2	8	1	35	2	57	37	5033
51218613	2005	12/11/2005	2	7	1	37	2	57	30	5033
709203	2000	7/2/2000	2	7	1	37	2	57	30	5033
990507018	1999	5/1/1999	2	7	1	37	2	57	34	5033
40220159	2004	2/10/2004	2	2	1	38	2	57	76	5033
990807900	1999	8/4/1999	2	7	1	38	2	57	34	5033
60150910	2006	1/28/2006	2	8	1	38	2	57	35	5033
506381	2000	4/27/2000	2	8	1	38	2	57	37	5033
40847357	2004	7/17/2004	2	7	1	39	2	57	33	5033
50933605	2005	8/25/2005	2	8	1	39	2	57	36	5033
20550356	2002	5/26/2002	2	8	1	39	2	57	37	5033
11216143	2001	12/4/2001	2	8	1	40	2	57	36	5033
980212568	1998	2/12/1998	2	7	1	41	2	57	30	5033
20738830	2002	7/15/2002	2	7	1	42	2	57	30	5033
10706176	2001	6/28/2001	2	7	1	42	2	57	33	5033
10736009	2001	7/12/2001	2	7	1	42	2	57	34	5033
842844	2000	8/20/2000	2	7	1	42	2	57	30	5033
990709948	1999	7/2/1999	2	7	1	42	2	57	30	5033
990702799	1999	6/29/1999	2	8	1	42	2	57	83	5033
71217154	2007	11/20/2007	2	7	1	43	2	57	33	5033
40901140	2004	8/1/2004	2	7	1	43	2	57	30	5033
990703724	1999	7/1/1999	2	4	1	44	2	57	31	5033
980914510	1998	9/6/1998	2	7	1	44	2	57	34	5033
20101218	2001	12/30/2001	2	7	1	45	2	57	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
1034442	2000	8/20/2000	2	7	1	45	2	57	30	5033
990611082	1999	6/8/1999	2	7	1	45	2	57	32	5033
10826858	2001	8/7/2001	2	7	1	46	2	57	33	5033
703099	2000	6/25/2000	2	7	1	46	2	57	34	5033
60139867	2006	1/15/2006	2	7	1	47	2	57	34	5033
20733272	2002	7/9/2002	2	7	1	47	2	57	30	5033
20602088	2002	5/30/2002	2	7	1	47	2	57	30	5033
980712955	1998	7/10/1998	2	7	1	47	2	57	82	5033
21056899	2002	9/19/2002	2	4	1	48	2	57	31	5033
50911114	2005	9/1/2005	2	7	1	48	2	57	33	5033
522036	2000	5/6/2000	2	7	1	49	2	57	80	5033
20430078	2002	4/8/2002	2	8	1	49	2	57	83	5033
808278	2000	8/1/2000	2	8	1	49	2	57	84	5033
990615559	1999	6/12/1999	2	8	1	49	2	57	83	5033
30513453	2003	5/3/2003	2	7	1	50	2	57	34	5033
70824405	2007	8/5/2007	2	7	1	51	2	57	30	5033
60651377	2006	6/17/2006	2	7	1	53	2	57	30	5033
1020062	2000	10/7/2000	2	7	1	53	2	57	30	5033
40419170	2004	4/9/2004	2	7	1	54	2	57	32	5033
10608170	2001	6/1/2001	2	7	1	54	2	57	82	5033
51028852	2005	9/17/2005	2	7	1	55	2	57	33	5033
980820857	1998	8/14/1998	2	7	1	56	2	57	30	5033
71016410	2007	10/4/2007	2	7	1	57	2	57	32	5033
981018128	1998	10/6/1998	2	4	1	58	2	57	31	5033
10734402	2001	7/11/2001	2	1	2	5	1	53	75	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
990913478	1999	9/5/1999	2	1	2	7	1	52	75	5033
50851851	2005	7/31/2005	2	1	2	8	1	52	75	5033
20810856	2002	7/19/2002	2	1	2	8	1	52	75	5033
10636685	2001	6/14/2001	2	1	2	10	1	52	75	5033
51013847	2005	10/2/2005	2	1	2	13	1	62	75	5033
990509548	1999	5/8/1999	2	1	2	13	1	62	75	5033
30816835	2003	8/3/2003	2	1	2	17	1	62	75	5033
60630680	2006	5/26/2006	2	1	2	19	1	52	75	5033
40410506	2004	4/3/2004	2	1	2	23	1	52	75	5033
50864392	2005	8/7/2005	2	1	2	25	1	52	75	5033
70620908	2007	6/9/2007	2	1	2	26	1	62	75	5033
20620550	2002	6/9/2002	2	1	2	26	1	62	75	5033
41003445	2004	9/29/2004	2	1	2	29	1	62	75	5033
40507197	2004	4/27/2004	2	1	2	30	1	52	75	5033
20529830	2002	5/13/2002	2	1	2	31	1	62	75	5033
730678	2000	6/21/2000	2	1	2	35	1	62	75	5033
50828679	2005	8/6/2005	2	1	2	36	1	52	75	5033
40116120	2003	9/23/2003	2	1	2	37	1	57	76	5033
21224344	2002	11/29/2002	2	1	2	37	1	52	75	5033
40314828	2004	2/28/2004	2	1	2	39	1	62	75	5033
10828468	2001	8/9/2001	2	1	2	42	1	52	75	5033
30645182	2003	6/7/2003	2	1	2	46	1	52	75	5033
60529874	2006	5/4/2006	2	1	2	50	1	52	75	5033
61020739	2006	10/7/2006	2	1	2	51	1	52		5033
50863922	2005	8/24/2005	2	1	2	51	1	52	75	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10754042	2001	7/23/2001	2	1	2	51	1	62	75	5033
70246302	2007	2/25/2007	2	1	2	55	1	52	75	5033
990800385	1999	7/27/1999	2	1	2	57	1	57	31	5033
70334788	2007	3/15/2007	2	1	2	8	2	52	75	5033
50449707	2005	4/26/2005	2	1	2	20	2	52	75	5033
70135399	2006	12/12/2006	2	1	2	28	2	52	75	5033
990900519	1999	8/21/1999	2	1	2	30	2	62	75	5033
60620544	2006	6/4/2006	2	1	2	33	2	62	75	5033
1204116	2000	11/11/2000	2	1	2	36	2	62	75	5033
725581	2000	7/12/2000	2	1	2	41	2	58	75	5033
20548121	2002	5/24/2002	2	1	2	49	2	62	75	5033
980728434	1998	7/22/1998	2	1	2	49	2	52	75	5033
990900518	1999	8/21/1999	2	1	2	59	2	62	75	5033
40808846	2004	7/24/2004	2	7	4	6	1	55	32	5033
20838142	2002	8/17/2002	2	7	4	9	1	52	75	5033
707488	2000	6/25/2000	2	7	4	11	1	55	30	5033
991208373	1999	12/4/1999	2	7	4	14	1	57	32	5033
990615439	1999	6/12/1999	2	7	4	15	1	64	30	5033
990527544	1999	5/21/1999	2	7	4	16	1	64	30	5033
20811443	2002	8/3/2002	2	7	4	17	1	55	30	5033
838192	2000	8/7/2000	2	7	4	17	1	55	31	5033
30334460	2003	3/16/2003	2	7	4	18	1	55	30	5033
990914927	1999	9/11/1999	2	7	4	18	1	55	30	5033
60819135	2006	8/8/2006	2	7	4	19	1	64	30	5033
20648170	2002	6/22/2002	2	7	4	19	1	55	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10829400	2001	8/11/2001	2	7	4	19	1	55	34	5033
980932129	1998	9/25/1998	2	7	4	19	1	64	30	5033
61140748	2006	11/11/2006	2	7	4	20	1	55	30	5033
61220500	2006	12/2/2006	2	7	4	20	1	55	30	5033
20246133	2002	2/24/2002	2	7	4	20	1	55	30	5033
991203936	1999	12/1/1999	2	7	4	20	1	55	30	5033
60527737	2006	5/9/2006	2	7	4	21	1	55	30	5033
50911125	2005	9/1/2005	2	7	4	21	1	55	30	5033
40927993	2004	9/11/2004	2	7	4	21	1	55	30	5033
11018655	2001	9/30/2001	2	7	4	21	1	55	30	5033
718849	2000	7/8/2000	2	7	4	21	1	55	30	5033
70615143	2007	5/12/2007	2	7	4	22	1	55	30	5033
60802566	2006	7/30/2006	2	7	4	22	1	55	30	5033
60440164	2006	4/20/2006	2	7	4	22	1	55	30	5033
11229422	2001	12/1/2001	2	7	4	22	1	55	30	5033
752396	2000	7/29/2000	2	7	4	22	1	55	30	5033
910109	2000	9/5/2000	2	7	4	22	1	55	30	5033
1223562	2000	10/3/2000	2	7	4	22	1	55	30	5033
1209435	2000	12/4/2000	2	7	4	22	1	59	82	5033
70453543	2007	4/23/2007	2	7	4	23	1	64	30	5033
40835219	2004	8/15/2004	2	7	4	23	1	55	30	5033
609008	2000	5/21/2000	2	7	4	24	1	55	30	5033
980527789	1998	5/25/1998	2	7	4	24	1	71	30	5033
980726304	1998	7/23/1998	2	7	4	24	1	55	30	5033
10440480	2001	4/19/2001	2	7	4	25	1	55	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
910163	2000	9/5/2000	2	7	4	25	1	55	30	5033
991212282	1999	12/5/1999	2	7	4	25	1	71	30	5033
20710691	2002	6/29/2002	2	7	4	26	1	55	30	5033
422891	2000	4/7/2000	2	7	4	26	1	55	30	5033
990625705	1999	6/13/1999	2	7	4	26	1	55	30	5033
980730275	1998	7/24/1998	2	7	4	26	1	55	30	5033
50506539	2005	5/3/2005	2	7	4	27	1	55	30	5033
40723957	2004	6/12/2004	2	7	4	27	1	55	30	5033
40754271	2004	7/26/2004	2	7	4	27	1	55	30	5033
40701893	2004	6/28/2004	2	7	4	27	1	55	30	5033
991028113	1999	10/24/1999	2	7	4	27	1	55	30	5033
981123483	1998	11/20/1998	2	7	4	27	1	55	30	5033
50346057	2005	3/20/2005	2	7	4	28	1	55	30	5033
30537042	2003	5/10/2003	2	7	4	28	1	55	30	5033
30143858	2003	1/26/2003	2	7	4	28	1	55	30	5033
20738721	2002	7/13/2002	2	7	4	28	1	55	30	5033
981100809	1998	10/22/1998	2	7	4	28	1	71	30	5033
60509828	2006	4/30/2006	2	8	4	28	1	55	35	5033
50336237	2005	3/21/2005	2	7	4	29	1	55	30	5033
40613772	2004	6/3/2004	2	7	4	29	1	55	30	5033
10610609	2001	5/18/2001	2	7	4	29	1	55	30	5033
990324849	1999	3/23/1999	2	7	4	29	1	55	30	5033
50862250	2005	8/24/2005	2	7	4	30	1	55	30	5033
30546199	2003	5/14/2003	2	7	4	30	1	55	30	5033
20908644	2002	9/1/2002	2	7	4	30	1	55	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
10318329	2001	3/10/2001	2	7	4	30	1	55	30	5033
10708364	2001	6/10/2001	2	7	4	30	1	55	30	5033
10652814	2001	6/26/2001	2	7	4	30	1	55	30	5033
10720025	2001	7/8/2001	2	7	4	30	1	55	30	5033
980504382	1998	5/3/1998	2	7	4	30	1	55	30	5033
980602294	1998	5/30/1998	2	7	4	30	1	64	30	5033
980618646	1998	6/12/1998	2	7	4	30	1	55	30	5033
20555508	2002	5/19/2002	2	7	4	31	1	55	30	5033
10649237	2001	6/24/2001	2	7	4	31	1	55	30	5033
10754909	2001	7/21/2001	2	7	4	31	1	55	30	5033
990124007	1998	8/29/1998	2	7	4	31	1	59	76	5033
60521368	2006	4/30/2006	2	7	4	32	1	55	30	5033
10826016	2001	8/7/2001	2	7	4	32	1	55	30	5033
980915611	1998	9/5/1998	2	7	4	32	1	64	30	5033
20756043	2002	7/24/2002	2	7	4	33	1	55	30	5033
1212652	2000	11/19/2000	2	7	4	33	1	55	30	5033
990704163	1999	6/23/1999	2	7	4	33	1	55	30	5033
990724238	1999	7/17/1999	2	7	4	33	1	71	30	5033
980815700	1998	8/11/1998	2	7	4	33	1	55	30	5033
11041293	2001	10/16/2001	2	2	4	35	1	55	76	5033
10635025	2001	6/16/2001	2	7	4	35	1	55	30	5033
120747	2000	1/17/2000	2	7	4	35	1	55	30	5033
40352134	2004	3/13/2004	2	7	4	36	1	55	30	5033
20429506	2002	4/14/2002	2	7	4	36	1	55	30	5033
990808652	1999	7/31/1999	2	7	4	37	1	64	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
990818816	1999	8/14/1999	2	7	4	37	1	71	30	5033
980922521	1998	9/20/1998	2	7	4	37	1	55	34	5033
70853265	2007	8/18/2007	2	7	4	38	1	55	30	5033
411078	2000	4/9/2000	2	7	4	38	1	55	30	5033
980720495	1998	7/12/1998	2	7	4	38	1	55	30	5033
981127277	1998	11/26/1998	2	8	4	38	1	55	35	5033
30819933	2003	8/10/2003	2	7	4	39	1	55	30	5033
30328451	2003	3/8/2003	2	7	4	39	1	55	30	5033
10826343	2001	8/10/2001	2	7	4	39	1	55	30	5033
707476	2000	6/24/2000	2	7	4	39	1	64	30	5033
990920762	1999	9/17/1999	2	7	4	39	1	64	30	5033
70734479	2007	7/13/2007	2	7	4	40	1	64	30	5033
21131117	2002	10/21/2002	2	7	4	40	1	55	30	5033
51217273	2005	11/18/2005	2	7	4	41	1	55	30	5033
40717294	2004	7/9/2004	2	7	4	41	1	55	30	5033
731182	2000	7/15/2000	2	7	4	41	1	71	84	5033
60945392	2006	9/17/2006	2	7	4	42	1	55	30	5033
60740246	2006	7/19/2006	2	7	4	42	1	64	30	5033
50843610	2005	8/17/2005	2	7	4	43	1	55	30	5033
50644246	2005	6/1/2005	2	7	4	43	1	55	30	5033
50800196	2005	7/28/2005	2	7	4	43	1	55	30	5033
20831553	2002	8/10/2002	2	7	4	43	1	55	30	5033
20617745	2002	6/8/2002	2	7	4	43	1	55	30	5033
51022661	2005	10/7/2005	2	7	4	44	1	55	30	5033
980908118	1998	9/2/1998	2	7	4	44	1	64	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
41215074	2004	11/21/2004	2	7	4	45	1	55	30	5033
30531287	2003	5/10/2003	2	7	4	45	1	55	30	5033
20903184	2002	8/28/2002	2	7	4	46	1	55	30	5033
1040569	2000	10/19/2000	2	7	4	46	1	55	30	5033
990701887	1999	6/21/1999	2	7	4	46	1	64	30	5033
10647266	2001	6/22/2001	2	7	4	47	1	55	30	5033
980102957	1998	1/1/1998	2	7	4	47	1	55	30	5033
41030605	2004	10/10/2004	2	7	4	48	1	55	30	5033
70743452	2007	7/15/2007	2	7	4	49	1	55	30	5033
980516736	1998	5/16/1998	2	7	4	49	1	55	30	5033
980815722	1998	8/12/1998	2	7	4	49	1	55	30	5033
723398	2000	7/10/2000	2	7	4	50	1	64	30	5033
40824487	2004	8/7/2004	2	8	4	50	1	55	35	5033
70537193	2007	5/14/2007	2	7	4	51	1	55	30	5033
20746447	2002	7/22/2002	2	7	4	51	1	64	30	5033
980917111	1998	9/13/1998	2	7	4	51	1	64	30	5033
70759671	2007	7/18/2007	2	7	4	52	1	55	30	5033
50544895	2005	5/19/2005	2	7	4	53	1	55	30	5033
938650	2000	9/19/2000	2	7	4	53	1	64	30	5033
980709017	1998	7/3/1998	2	7	4	53	1	64	30	5033
30108160	2002	12/16/2002	2	7	4	54	1	57	31	5033
10905375	2001	8/29/2001	2	7	4	55	1	55	30	5033
723393	2000	7/10/2000	2	7	4	58	1	55	30	5033
990920765	1999	9/18/1999	2	7	4	61	1	55	30	5033
946433	2000	9/25/2000	2	7	4	69	1	55	30	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
60433429	2006	4/14/2006	2	7	4	22	2	64	30	5033
306413	2000	3/5/2000	2	7	4	24	2	55	30	5033
719335	2000	7/8/2000	2	7	4	28	2	64	30	5033
980220037	1998	2/13/1998	2	7	4	28	2	64	30	5033
20821818	2002	8/10/2002	2	7	4	30	2	55	30	5033
40928759	2004	9/12/2004	2	8	4	31	2	55	35	5033
607177	2000	5/29/2000	2	8	4	31	2	55	35	5033
60748955	2006	7/3/2006	2	7	4	32	2	57	32	5033
10736018	2001	7/13/2001	2	7	4	32	2	55	32	5033
980716276	1998	7/12/1998	2	7	4	34	2	55	30	5033
50913890	2005	9/5/2005	2	7	4	40	2	55	30	5033
70306250	2007	2/18/2007	2	7	4	46	2	55	30	5033
50954260	2005	8/27/2005	2	7	4	55	2	55	30	5033
70959524	2007	9/8/2007	2	7	5	13	1	53	32	5033
50854641	2005	8/23/2005	2	7	6	19	1	59	32	5033
980905519	1998	7/16/1998	2	1	6	26	1	59	75	5033
10602955	2001	5/28/2001	2	8	6	53	1	59	35	5033
980709027	1998	7/4/1998	2	5	6	53	2	59	79	5033
953091	2000	9/27/2000	2	5	7	11	1	59	31	5033
980709020	1998	7/3/1998	2	5	7	12	1	59	79	5033
20754289	2002	7/25/2002	2	5	7	13	1	62	31	5033
60804879	2006	7/24/2006	2	5	7	20	1	62	31	5033
927824	2000	9/16/2000	2	5	7	20	1	59	31	5033
10640476	2001	6/10/2001	2	5	7	22	1	71	38	5033
10734834	2001	7/15/2001	2	5	7	22	1	62	31	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
70700150	2007	6/26/2007	2	4	7	23	1	71	31	5033
30614100	2003	6/5/2003	2	4	7	24	1	62	31	5033
70808337	2007	7/22/2007	2	5	7	40	1	62	79	5033
70756453	2007	7/22/2007	2	5	7	43	1	62	31	5033
60930360	2006	9/8/2006	2	4	7	44	1	71	31	5033
40649916	2004	6/21/2004	2	4	7	47	1	62	31	5033
990506767	1999	4/15/1999	2	4	7	53	1	62	31	5033
41012967	2004	10/2/2004	2	5	7	26	2	62	79	5033
30639841	2003	5/10/2003	2	5	7	30	2	62	31	5033
10723034	2001	7/4/2001	2	5	7	37	2	62	79	5033
70957908	2007	9/25/2007	2	5	7	48	2	62	31	5033
723932	2000	6/25/2000	2	7	8	20	1	54	82	5033
30547198	2003	4/19/2003	2	8	8	26	1	71	35	5033
540129	2000	5/26/2000	2	7	8	29	1	72	82	5033
10723017	2001	7/4/2001	2	7	8	34	1	72	92	5033
10117818	2000	12/27/2000	2	8	8	37	1	71	79	5033
40914301	2004	9/3/2004	2	8	8	39	1	71	81	5033
11225125	2001	12/16/2001	2	8	8	42	1	61	79	5033
10243712	2001	2/26/2001	3	8	1	10	1	57	81	5033
30322556	2003	3/9/2003	3	8	1	13	1	62	75	5033
990201619	1999	1/23/1999	3	8	1	16	1	57	81	5033
10813223	2001	7/17/2001	3	8	1	27	1	57	37	5033
10914582	2001	8/27/2001	3	8	1	31	1	57	79	5033
20319784	2002	3/2/2002	3	8	1	34	1	57	79	5033
40650750	2004	6/15/2004	3	8	1	39	1	57	81	5033

Case Number	Year	Treatment Date	AIS Score	Body Segment	Injury Type	Age	Sex	Diagnosis	Body Part	Product Code
20340499	2002	3/17/2002	3	8	1	40	1	57	79	5033
20712649	2002	6/25/2002	3	8	1	42	1	57	81	5033
40829599	2004	8/8/2004	3	8	1	44	1	57	79	5033
980702605	1998	6/27/1998	3	8	1	47	1	57	81	5033
20801139	2002	7/28/2002	3	8	1	51	1	57	79	5033
810322	2000	8/5/2000	3	8	1	51	1	57	79	5033
60907719	2006	8/27/2006	3	8	1	52	1	57	79	5033
51129686	2005	11/14/2005	3	8	1	52	1	57	81	5033
20556861	2002	5/29/2002	3	8	1	52	1	57	81	5033
40818977	2004	8/6/2004	3	8	1	55	1	57	81	5033
10924638	2001	9/8/2001	3	8	1	57	1	57	79	5033
30749752	2003	5/31/2003	3	8	1	59	1	57	81	5033
50821390	2005	8/6/2005	3	8	1	47	2	57	79	5033
649573	2000	6/24/2000	3	1	2	15	2	62	75	5033
20839487	2002	8/17/2002	3	5	7	12	1	62	31	5033
21015573	2002	10/5/2002	3	5	7	12	1	62	31	5033
10921559	2001	9/7/2001	3	5	7	15	1	62	31	5033
991125240	1999	11/12/1999	3	5	7	16	1	71	31	5033
50930160	2005	8/6/2005	3	1	7	17	1	62	75	5033
60901881	2006	8/12/2006	3	1	7	24	1	62	75	5033
61204341	2006	12/1/2006	3	4	7	65	1	57	31	5033
50925667	2005	8/24/2005	4	1	1	45	2	57	75	5033
50904895	2005	7/23/2005	4	1	7	18	1	62	75	5033

Case Number	Body Segment Combined	Injury Type Combined	Year Group
828020	1	1	2
980902105	6	1	1
60860383	1	1	5
20438408	5	1	3
11026942	5	1	2
980907621	5	1	1
20958622	6	1	3
729017	1	1	2
50837991	5	1	4
721463	5	1	2
405444	6	1	2
30622480	1	1	3
20912367	1	1	3
10862307	1	1	2
30435447	5	1	3
70705215	1	1	5
40634288	5	1	4
990404574	5	1	1
980906230	6	1	1
30310647	1	1	3
990712836	1	1	1
61039751	5	1	5
30927758	1	1	3
70105280	5	1	5
10739141	5	1	2
990609713	1	1	1

980905767	1	1	1
Case	Body Segment	Injury Type	Year
Number	Combined	Combined	Group
980933289	1	1	1
41214647	2	1	4
980819326	2	1	1
20834127	5	1	3
10613610	6	1	2
40714875	1	1	4
70716976	5	1	5
61231453	5	1	5
10721565	5	1	2
50723799	1	1	4
50530886	1	1	4
70511120	1	1	5
991018773	5	1	1
20327965	1	1	3
928732	5	1	2
409760	6	1	2
30726507	5	1	3
10628602	5	1	2
991029134	5	1	1
980709997	5	1	1
10927022	1	1	2
70126807	5	1	5
40125562	5	1	3
981213669	5	1	1
30720943	5	1	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10637050	5	1	2
10554191	1	1	2
40323203	5	1	4
10623042	5	1	2
11004878	5	1	2
991122421	2	1	1
60604157	5	1	5
71248939	2	1	5
20315496	2	1	3
51155860	5	1	4
30804816	2	1	3
71044106	1	1	5
990525001	5	1	1
20943124	1	1	3
20927042	5	1	3
10862295	5	1	2
70508108	2	1	5
41135384	2	1	4
61211847	2	1	5
61201273	2	1	5
50830374	2	1	4
980914545	2	1	1
30426494	5	1	3
638003	5	1	2
30535183	1	1	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
981217372	5	1	1
981119799	1	1	1
21100104	2	1	3
126107	1	1	2
10927013	2	1	2
70848978	5	1	5
10602176	5	1	2
61143318	2	1	5
991122564	2	1	1
70920128	5	1	5
11227601	5	1	2
20737118	5	1	3
813936	5	1	2
707484	2	1	2
70909706	5	1	5
30653178	2	1	3
10852030	2	1	2
61233946	2	1	5
50900836	5	1	4
60118944	2	1	5
20245448	2	1	3
906648	2	1	2
20856175	1	1	3
10427375	2	1	2
980830458	1	1	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980114832	1	1	1
981224217	1	1	1
70860074	2	1	5
991018496	2	1	1
31101141	5	1	3
20406200	5	1	3
30109056	5	1	3
11211365	2	1	2
30338113	5	1	3
10837200	2	1	2
990908529	2	1	1
808283	5	1	2
980819307	5	1	1
980620084	1	1	1
980402647	6	1	1
11044774	5	1	2
70612405	2	1	5
10444719	1	2	2
1101751	1	2	2
71059707	1	2	5
721762	1	2	2
70937323	1	2	5
20644518	1	2	3
10850038	1	2	2
20123090	1	2	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
804825	1	2	2
990511490	1	2	1
60401571	1	2	5
20912261	1	2	3
21222167	1	2	3
10933869	1	2	2
20128234	1	2	2
990921195	1	2	1
60820211	1	2	5
30322537	1	2	3
20752606	1	2	3
10843903	1	2	2
981000268	1	2	1
60507483	1	2	5
40907159	1	2	4
41007455	1	2	4
30533747	1	2	3
40506461	1	2	3
20816238	1	2	3
20939027	1	2	3
10440586	1	2	2
10611705	1	2	2
724466	1	2	2
827850	1	2	2
837456	1	2	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
1050014	1	2	2
990412883	1	2	1
990609250	1	2	1
990616480	1	2	1
990819685	1	2	1
980710053	1	2	1
70734167	1	2	5
51202579	1	2	4
20850373	1	2	3
10703334	1	2	2
20128223	1	2	2
717187	1	2	2
732916	1	2	2
990815542	1	2	1
991102629	1	2	1
990106717	1	2	1
60829945	1	2	5
30713492	1	2	3
20537434	1	2	3
824903	1	2	2
990222962	1	2	1
980731195	1	2	1
60611580	1	2	5
31006384	1	2	3
30141191	1	2	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10732402	1	2	2
301577	1	2	2
990704171	1	2	1
60713351	1	2	5
50544487	1	2	4
51045138	1	2	4
980611869	1	2	1
40660179	1	2	4
30741816	1	2	3
20648387	1	2	3
980113465	1	2	1
60909433	1	2	5
50752893	1	2	4
10827728	1	2	2
11206695	1	2	2
991008500	1	2	1
11152560	1	2	2
990819357	1	2	1
40756068	1	2	4
991006062	1	2	1
70529575	1	2	5
40661182	1	2	4
10755407	1	2	2
990924082	1	2	1
50444677	1	2	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
41006412	1	2	4
990814913	1	2	1
30239467	1	2	3
21027428	1	2	3
10629502	1	2	2
203158	1	2	2
308270	1	2	2
60531337	1	2	5
30802921	1	2	3
61211885	1	2	5
10860227	1	2	2
50115002	1	2	4
511521	1	2	2
990801606	1	2	1
20807805	1	2	3
60941723	1	2	5
1142462	1	2	2
80115283	1	2	5
60862186	1	2	5
20560966	1	2	3
50652333	1	2	4
21001022	1	2	3
530121	1	2	2
70216129	1	2	5
70565708	1	2	5

Case Number	Body Segment Combined	Injury Type Combined	Year Group
50438019	1	2	4
30750879	1	2	3
40346653	1	2	4
652697	1	2	2
990621085	1	2	1
60333309	1	2	5
60808744	1	2	5
1029740	1	2	2
50759080	1	2	4
10846346	1	2	2
20758697	1	2	3
990904519	1	2	1
981203162	1	2	1
50446656	1	2	4
71057003	1	2	5
11128766	1	2	2
514448	1	2	2
11052962	1	2	2
11037087	1	2	2
980913144	1	2	1
20755838	1	2	3
21111083	1	2	3
10851932	1	2	2
10915333	1	2	2
980830233	1	2	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
40115500	1	2	4
70724106	1	2	5
10436282	1	2	2
60811504	1	2	5
10425073	1	2	2
10902585	1	2	2
20900351	1	2	3
70721333	1	2	5
981012382	1	2	1
70547845	1	2	5
990629435	1	2	1
80120964	1	2	5
50717919	1	2	4
822826	1	2	2
70759085	5	3	5
71214545	6	3	5
70732219	1	3	5
70850630	5	3	5
70945195	5	3	5
70837539	5	3	5
70959480	6	3	5
70505691	6	3	5
70529940	6	3	5
70440094	6	3	5
70759172	6	3	5

Case Number	Body Segment Combined	Injury Type Combined	Year Group
70207888	1	3	5
70421098	6	3	5
71235767	6	3	5
70829914	5	3	5
70902226	5	3	5
70819159	5	3	5
70844533	6	3	5
70834496	5	3	5
71038647	6	3	5
71130405	5	3	5
71115611	5	3	5
71050769	5	3	5
70824397	5	3	5
70711507	5	3	5
70337285	5	3	5
70314551	6	3	5
70907889	5	3	5
70562918	5	3	5
70345301	4	3	5
70815736	5	3	5
70915063	5	3	5
70530146	1	3	5
71009166	5	3	5
70823222	5	3	5
70837528	6	3	5

Case Number	Body Segment Combined	Injury Type Combined	Year Group
70861212	5	3	5
70837529	6	3	5
70902644	1	3	5
70711795	4	3	5
71061201	5	3	5
70563002	5	3	5
70948447	5	3	5
20855820	5	4	3
981000936	5	4	1
21015602	5	4	3
70811927	5	4	5
70446810	5	4	5
40122999	5	4	4
40125664	5	4	3
980902938	5	4	1
981021585	5	4	1
981013291	5	4	1
981028475	5	4	1
70761503	5	4	5
30836951	5	4	3
10231026	5	4	2
40928755	5	4	4
70609841	5	4	5
60236472	5	4	5
10616469	5	4	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
30442906	5	4	3
20834397	5	4	3
107524	5	4	2
50532880	5	4	4
980116122	5	4	1
980610192	5	4	1
60544380	5	4	5
50112874	5	3	4
50847056	6	3	4
711160	1	3	2
71150200	6	3	5
10647609	6	3	2
51145324	1	3	4
990709934	5	3	1
40932776	5	3	4
619806	5	3	2
980913146	5	3	1
70409189	6	3	5
30625507	6	3	3
20952717	6	3	3
990832442	6	3	1
10420050	5	3	2
10741603	5	3	2
1215717	5	3	2
631200	6	3	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
707492	6	3	2
990322412	6	3	1
980907626	6	3	1
10739563	1	3	2
526906	2	3	2
10557917	4	3	2
10440235	6	3	2
10633199	6	3	2
11209281	6	3	2
980800155	6	3	1
20650519	1	3	3
10912790	1	3	2
981226629	1	3	1
980819953	2	3	1
70516555	3	3	5
1011734	3	3	2
50116644	5	3	4
31100067	5	3	3
20942352	5	3	3
20617264	5	3	3
10950110	5	3	2
540638	5	3	2
1012553	5	3	2
980905520	5	3	1
990106698	5	3	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10742913	6	3	2
990906400	6	3	1
980903800	6	3	1
50616063	1	3	4
50544162	1	3	4
50235191	1	3	4
990719506	1	3	1
30117963	1	3	3
990424699	1	3	1
10451158	2	3	2
11043506	3	3	2
30804560	4	3	3
50616000	5	3	4
30630325	5	3	3
21109409	5	3	3
990613142	5	3	1
991017015	5	3	1
410820	6	3	2
20822069	1	3	3
20541729	2	3	3
990500086	2	3	1
30635417	5	3	3
10709428	5	3	2
990309191	5	3	1
990407399	5	3	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
990605074	5	3	1
991009540	5	3	1
980730533	5	3	1
60744777	6	3	5
10618438	6	3	2
10547626	6	3	2
10647629	6	3	2
10843756	6	3	2
990520706	6	3	1
990521256	6	3	1
990613380	6	3	1
10330498	1	3	2
990518657	1	3	1
10616371	1	3	2
10432195	2	3	2
50140889	3	3	4
30507418	3	3	3
61027959	5	3	5
40542689	5	3	4
30700824	5	3	3
20919174	5	3	3
521491	5	3	2
611158	5	3	2
990631991	5	3	1
980907622	5	3	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
981022124	5	3	1
61010396	6	3	5
990626720	6	3	1
990826689	6	3	1
991101082	6	3	1
512625	1	3	2
991005632	2	3	1
980726233	2	3	1
21224453	5	3	3
20937664	5	3	3
990716966	5	3	1
60421267	6	3	5
30719175	6	3	3
21022541	6	3	3
538562	6	3	2
980800137	6	3	1
609103	1	3	2
981102215	1	3	1
990501704	1	3	1
70913237	2	3	5
1047084	2	3	2
990120613	2	3	1
981228072	2	3	1
70916343	5	3	5
50643315	5	3	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
30954546	5	3	3
31008619	5	3	3
20441756	5	3	3
20644517	5	3	3
10931751	5	3	2
990514887	5	3	1
990514278	5	3	1
990707837	5	3	1
990812680	5	3	1
991001922	5	3	1
30232465	6	3	3
980704137	6	3	1
50548634	1	3	4
30907673	1	3	3
981202160	1	3	1
11145172	1	3	2
990820874	1	3	1
60922525	2	3	5
50709518	5	3	4
10530459	5	3	2
603207	5	3	2
71009733	6	3	5
60551256	6	3	5
842205	4	3	2
50924823	5	3	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980911776	5	3	1
60652290	2	3	5
40753835	2	3	4
21048415	2	3	3
991122113	3	3	1
20240069	5	3	3
20211576	5	3	3
990608122	5	3	1
991112508	5	3	1
70913742	6	3	5
70567129	6	3	5
40505469	6	3	4
20231701	6	3	3
980617456	6	3	1
70752917	2	3	5
30746450	5	3	3
10609266	5	3	2
1103129	5	3	2
31115823	6	3	3
71148739	1	3	5
50323842	1	3	4
40917897	1	3	4
980902434	1	3	1
21050390	2	3	3
980612022	3	3	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
70912748	5	3	5
70748991	5	3	5
50526377	5	3	4
50856802	5	3	4
40535502	5	3	4
20907187	5	3	3
10217781	5	3	2
425584	5	3	2
605750	5	3	2
60635941	6	3	5
20949177	6	3	3
650988	6	3	2
990808866	6	3	1
980420403	6	3	1
980621223	6	3	1
10511186	1	3	2
405906	1	3	2
742595	1	3	2
70610599	2	3	5
51106070	2	3	4
40754263	2	3	4
30745015	2	3	3
21018137	2	3	3
11235392	2	3	2
991020541	2	3	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
945992	3	3	2
990407251	3	3	1
70760990	5	3	5
60818977	5	3	5
60440989	5	3	5
21218893	5	3	3
11017633	5	3	2
841062	5	3	2
991022312	5	3	1
981024485	5	3	1
40142831	6	3	4
20839408	6	3	3
30106489	6	3	3
10444630	6	3	2
990906042	6	3	1
990202447	1	3	1
990602399	2	3	1
50723817	3	3	4
990800333	3	3	1
980722761	3	3	1
40945653	4	3	4
40352828	5	3	4
20444896	5	3	3
21009819	5	3	3
990505422	5	3	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980421727	5	3	1
50954421	6	3	4
30902936	6	3	3
70603863	1	3	5
991119331	2	3	1
30705418	3	3	3
10326942	3	3	2
50904107	5	3	4
40708538	5	3	4
40621964	5	3	4
20610826	5	3	3
990215422	5	3	1
990705554	5	3	1
980302139	5	3	1
60630618	6	3	5
30721664	6	3	3
10617126	6	3	2
10913239	6	3	2
10752288	6	3	2
1001696	6	3	2
20325219	2	3	3
10817866	2	3	2
30958439	5	3	3
20451061	5	3	3
980618862	5	3	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980909782	5	3	1
70818025	6	3	5
30639421	1	3	3
50805112	1	3	4
10719155	1	3	2
945592	1	3	2
61104806	2	3	5
70400967	5	3	5
40534513	5	3	4
30453784	5	3	3
10649235	5	3	2
616352	5	3	2
990408748	5	3	1
990428354	5	3	1
980500555	5	3	1
980628607	5	3	1
60907178	6	3	5
41111677	6	3	4
20724374	6	3	3
10801280	6	3	2
30714000	1	3	3
40740940	1	3	4
10426142	1	3	2
1131238	1	3	2
990901928	1	3	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
991028639	1	3	1
70732444	2	3	5
60508734	2	3	5
20602565	2	3	3
830661	2	3	2
840512	2	3	2
60940506	3	3	5
61128735	5	3	5
40515419	5	3	4
40513008	5	3	4
40105602	5	3	4
40645778	5	3	4
20733244	5	3	3
10835117	5	3	2
515659	5	3	2
602955	5	3	2
990513647	5	3	1
990527277	5	3	1
990723553	5	3	1
990817988	5	3	1
980621786	5	3	1
980618154	5	3	1
980725091	5	3	1
70503885	6	3	5
980912576	6	3	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
532347	1	3	2
70420084	2	3	5
31108351	2	3	3
20628092	2	3	3
10644415	2	3	2
10847811	2	3	2
618295	2	3	2
980620020	2	3	1
61219129	5	3	5
40814942	5	3	4
30433299	5	3	3
30937266	5	3	3
20726007	5	3	3
204304	5	3	2
990619575	5	3	1
990727187	5	3	1
20149302	6	3	3
409047	6	3	2
11003926	1	3	2
980322432	1	3	1
10539038	2	3	2
10813724	2	3	2
70626644	5	3	5
60841917	5	3	5
30749115	5	3	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10614448	5	3	2
11051081	5	3	2
11048544	5	3	2
71034581	6	3	5
51211224	6	3	4
20712927	6	3	3
803952	6	3	2
980424336	6	3	1
980520552	6	3	1
980701712	6	3	1
60231621	2	3	5
40331505	2	3	4
30448766	2	3	3
1001958	2	3	2
70902826	5	3	5
40231004	5	3	4
20940719	5	3	3
20819892	5	3	3
10610640	5	3	2
10762682	5	3	2
11131303	5	3	2
990911872	5	3	1
60706200	6	3	5
30650532	6	3	3
30703754	6	3	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
20634003	6	3	3
936604	6	3	2
412806	1	3	2
50743746	2	3	4
30906741	2	3	3
20811931	2	3	3
980933339	2	3	1
61213964	5	3	5
50705226	5	3	4
50923739	5	3	4
70507526	6	3	5
60323737	6	3	5
20616006	6	3	3
20947944	6	3	3
10501116	6	3	2
10811395	6	3	2
10857000	6	3	2
638522	6	3	2
723930	6	3	2
20832002	1	3	3
990913826	1	3	1
20415088	2	3	3
10612083	2	3	2
981127356	2	3	1
61234612	5	3	5

Case Number	Body Segment Combined	Injury Type Combined	Year Group
50841319	5	3	4
21003727	5	3	3
815131	5	3	2
70947503	6	3	5
60849657	6	3	5
20837110	6	3	3
20623225	6	3	3
990922874	6	3	1
30953441	1	3	3
10621506	1	3	2
990528754	1	3	1
50505678	2	3	4
50224742	2	3	4
30908480	4	3	3
71005021	5	3	5
70640267	5	3	5
60718296	5	3	5
61028021	5	3	5
30937345	5	3	3
10402288	5	3	2
10941117	5	3	2
915039	5	3	2
919115	5	3	2
990505843	5	3	1
990812260	5	3	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
40820411	6	3	4
30412210	6	3	3
50864358	1	3	4
51040967	1	3	4
60717017	5	3	5
10433615	5	3	2
322175	5	3	2
990619797	5	3	1
990727973	5	3	1
20836623	6	3	3
70566394	1	3	5
70809306	2	3	5
70753151	2	3	5
70120396	2	3	5
60905134	2	3	5
61215118	2	3	5
30708892	2	3	3
21046261	2	3	3
30704117	5	3	3
30841933	5	3	3
10238402	5	3	2
21224486	6	3	3
980305729	6	3	1
980607862	6	3	1
61110388	2	3	5

Case Number	Body Segment Combined	Injury Type Combined	Year Group
30814024	2	3	3
980403542	2	3	1
70823262	3	3	5
50341056	5	3	4
40931091	5	3	4
41046002	5	3	4
30638179	5	3	3
10424863	5	3	2
10600973	5	3	2
30714981	6	3	3
21212104	6	3	3
20546661	6	3	3
1238631	6	3	2
980425111	6	3	1
71245336	1	3	5
60946003	2	3	5
60530764	5	3	5
30203540	5	3	3
20421309	5	3	3
10746236	5	3	2
11124215	5	3	2
855262	5	3	2
991004595	5	3	1
71218346	6	3	5
70947362	6	3	5

Case Number	Body Segment Combined	Injury Type Combined	Year Group
61209364	6	3	5
40522962	6	3	4
20639815	6	3	3
20606381	6	3	3
60427029	1	3	5
70210994	2	3	5
30750871	2	3	3
30618400	2	3	3
21223999	2	3	3
41148301	5	3	4
21010323	5	3	3
990824670	5	3	1
980522494	5	3	1
70557572	6	3	5
60433516	6	3	5
21206606	6	3	3
990831515	6	3	1
30757993	1	3	3
980712294	1	3	1
70934214	2	3	5
71052677	2	3	5
990917824	2	3	1
980916850	3	3	1
20947077	4	3	3
71061998	5	3	5

Case Number	Body Segment Combined	Injury Type Combined	Year Group
31008641	5	3	3
20909618	5	3	3
830522	5	3	2
70603529	6	3	5
60347691	6	3	5
60655420	6	3	5
20443983	6	3	3
30845320	2	3	3
20439590	2	3	3
10739985	5	3	2
990801631	5	3	1
990811548	5	3	1
981216076	5	3	1
70817910	6	3	5
60440055	6	3	5
50649840	6	3	4
51148127	6	3	4
980904350	6	3	1
10911732	2	3	2
980824348	2	3	1
30230205	5	3	3
30946952	6	3	3
40860523	1	3	4
20852171	1	3	3
980908119	2	3	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
41052321	4	3	4
70921194	5	3	5
20733278	5	3	3
10555392	5	3	2
70337773	6	3	5
30802941	6	3	3
990428193	1	3	1
60525058	2	3	5
214871	2	3	2
40539319	5	3	4
21202611	5	3	3
11229400	5	3	2
610501	5	3	2
60624521	6	3	5
40514539	6	3	4
981216469	6	3	1
30137697	2	3	3
70650425	5	3	5
30933958	5	3	3
10939272	5	3	2
616777	5	3	2
990710514	5	3	1
30408406	6	3	3
20602087	6	3	3
10700572	6	3	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
70109849	1	3	5
70724165	2	3	5
71009177	2	3	5
31021319	2	3	3
20735891	2	3	3
750289	4	3	2
50448143	6	3	4
20741479	6	3	3
50924659	2	3	4
20612109	2	3	3
980817840	5	3	1
70119501	6	3	5
20645551	6	3	3
10133074	6	3	2
71216369	1	3	5
61204223	2	3	5
990712288	2	3	1
1112034	6	3	2
71019346	1	3	5
61239577	2	3	5
980930364	5	3	1
10520289	6	3	2
980611544	1	3	1
30218588	2	3	3
11041907	2	3	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
11234618	2	3	2
20318962	1	3	3
704647	2	3	2
980420122	5	3	1
980903793	6	3	1
60426114	6	3	5
60638571	5	3	5
990800368	5	3	1
980702009	6	3	1
50709981	2	3	4
30744998	5	3	3
40727568	6	3	4
70314960	3	3	5
980828464	6	3	1
60204509	6	3	5
30127719	2	3	3
70721377	5	3	5
50806480	1	3	4
20444920	1	3	3
10642599	1	3	2
990728550	5	3	1
20231837	5	3	3
990717044	6	3	1
324205	1	3	2
749295	1	3	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
990907208	1	3	1
10522537	5	3	2
990919290	5	3	1
70733398	3	3	5
30959499	5	3	3
20801664	5	3	3
30412301	6	3	3
744300	6	3	2
20860522	5	3	3
20723305	5	3	3
60209724	6	3	5
60709866	1	3	5
10724855	6	3	2
990106713	6	3	1
707501	1	3	2
990816224	3	3	1
60812845	4	3	5
10535019	5	3	2
11023972	6	3	2
842173	6	3	2
990832441	6	3	1
980427181	6	3	1
50713070	1	3	4
10762675	5	3	2
817733	5	3	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980731830	5	3	1
714316	6	3	2
991030271	6	3	1
60724038	6	3	5
20741352	6	3	3
20123072	3	3	2
60817609	5	3	5
70757199	6	3	5
990932825	1	3	1
50528265	2	3	4
41115374	5	3	4
10322123	5	3	2
11029446	6	3	2
980707822	3	3	1
10719136	1	3	2
981102999	6	3	1
990621068	5	3	1
980303447	6	3	1
980630083	1	3	1
31005004	3	3	3
30830954	5	3	3
20958989	5	3	3
417501	5	3	2
990907719	5	3	1
40908891	6	3	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980207908	6	3	1
70745607	5	3	5
533391	5	3	2
905158	6	3	2
990622330	6	3	1
50622168	1	3	4
40850620	2	3	4
519056	5	3	2
913783	5	3	2
10744313	2	3	2
60214212	3	3	5
71020389	5	3	5
990528029	5	3	1
980516263	5	3	1
40139268	6	3	4
990800334	6	3	1
980625511	6	3	1
40736812	1	3	4
50307171	1	3	4
10538129	2	3	2
61208353	3	3	5
10744912	5	3	2
70545825	6	3	5
60905977	6	3	5
10510247	2	3	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
70555393	5	3	5
40527842	5	3	4
990816697	5	3	1
543472	6	3	2
628365	6	3	2
980903806	2	3	1
70535237	5	3	5
60419502	5	3	5
60906400	6	3	5
980405845	5	3	1
60657729	6	3	5
40655566	6	3	4
324753	6	3	2
990800369	6	3	1
980716925	1	3	1
40423044	3	3	4
10651688	5	3	2
20523080	6	3	3
980805823	1	3	1
70509413	2	3	5
990630074	2	3	1
10310782	5	3	2
990818772	5	3	1
10520606	6	3	2
980702019	6	3	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
30646116	2	3	3
30636322	2	3	3
106757	2	3	2
70727891	5	3	5
20706794	5	3	3
711144	5	3	2
10428445	6	3	2
21205470	1	3	3
991104689	5	3	1
990912319	6	3	1
60548213	2	3	5
10545745	2	3	2
11060529	6	3	2
30930429	2	3	3
60721119	5	3	5
40722957	5	3	4
980807845	5	3	1
30317111	6	3	3
990525466	6	3	1
10840333	4	3	2
30439079	2	3	3
10805932	5	3	2
904695	5	3	2
990735133	5	3	1
980601846	5	3	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10605877	2	3	2
20750904	5	3	3
990118918	6	3	1
70420549	5	3	5
990723384	2	3	1
30707342	5	3	3
815449	6	3	2
70708377	5	3	5
50923653	6	3	4
30819725	1	3	3
20735896	5	3	3
10818610	1	3	2
990409370	1	3	1
980830393	1	3	1
10511546	1	3	2
990516797	1	3	1
980804152	1	3	1
11028275	1	3	2
980622755	1	3	1
20856401	1	3	3
990709956	6	3	1
20921546	1	3	3
51125756	1	3	4
981123143	6	3	1
980702359	1	3	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
70806084	1	3	5
11047113	5	3	2
990906382	5	3	1
40914689	6	3	4
30907617	6	3	3
30739026	6	3	3
980612086	6	3	1
10943847	1	3	2
610099	1	3	2
990921127	1	3	1
990927229	1	3	1
980630547	1	3	1
71152839	6	3	5
20556858	6	3	3
10551831	6	3	2
990823928	6	3	1
70838954	1	3	5
61007531	1	3	5
40631929	1	3	4
632956	1	3	2
990520721	1	3	1
322042	5	3	2
30812640	6	3	3
20756993	6	3	3
808289	6	3	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10827273	1	3	2
20834860	1	3	3
990709945	1	3	1
980810850	1	3	1
60825475	5	3	5
980802650	5	3	1
30227978	6	3	3
319371	6	3	2
543430	6	3	2
907255	6	3	2
980903802	6	3	1
10234803	1	3	2
1111275	1	3	2
990107288	1	3	1
990803148	1	3	1
991017762	1	3	1
60925456	5	3	5
30809264	5	3	3
71146365	6	3	5
50451409	6	3	4
11144851	6	3	2
609065	6	3	2
827000	6	3	2
60648601	1	3	5
60863977	1	3	5

Case Number	Body Segment Combined	Injury Type Combined	Year Group
20516542	1	3	3
980415739	1	3	1
990427008	5	3	1
990909797	5	3	1
60810084	6	3	5
30350058	6	3	3
30534524	6	3	3
20554673	6	3	3
642783	6	3	2
914049	6	3	2
990816547	6	3	1
50943313	1	3	4
980505649	1	3	1
60902700	5	3	5
990300190	5	3	1
990723603	5	3	1
50657367	6	3	4
40860525	6	3	4
30854316	6	3	3
20752519	6	3	3
60821604	1	3	5
60546286	1	3	5
21027232	1	3	3
990615529	1	3	1
980613005	1	3	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
51023010	5	3	4
10723033	5	3	2
10754388	5	3	2
990913993	5	3	1
11042690	6	3	2
981113161	6	3	1
50614353	1	3	4
10811214	1	3	2
10834780	1	3	2
10853403	1	3	2
756099	1	3	2
980424362	1	3	1
980602043	1	3	1
980827186	1	3	1
50444915	5	3	4
70845265	6	3	5
30548961	6	3	3
10803825	6	3	2
625814	6	3	2
1001683	6	3	2
980517004	6	3	1
40501544	1	3	4
20648285	1	3	3
11034586	1	3	2
726665	1	3	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980706576	1	3	1
70715270	5	3	5
980908120	5	3	1
11142372	6	3	2
20606062	2	3	3
10719120	3	3	2
70603864	5	3	5
50518394	5	3	4
40551442	5	3	4
10828402	5	3	2
50841430	6	3	4
40842174	6	3	4
20922044	6	3	3
10811371	6	3	2
620812	6	3	2
980223189	6	3	1
980419001	6	3	1
70535935	1	3	5
60514752	1	3	5
20555411	1	3	3
20719863	1	3	3
842846	1	3	2
41013875	5	3	4
20948049	5	3	3
10813884	5	3	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
990806986	5	3	1
981029890	5	3	1
50524386	6	3	4
20130369	6	3	3
70803902	1	3	5
61133233	1	3	5
20955473	1	3	3
10526259	1	3	2
10935857	1	3	2
505727	1	3	2
980719018	1	3	1
325741	5	3	2
741971	5	3	2
991029915	5	3	1
70724535	6	3	5
60933943	6	3	5
31139184	6	3	3
30845528	6	3	3
980721327	6	3	1
990705462	1	3	1
60447009	1	3	5
50816806	1	3	4
40858389	1	3	4
21119411	1	3	3
10340284	1	3	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10548796	1	3	2
30908982	2	3	3
71249154	5	3	5
70529549	5	3	5
20762026	5	3	3
311119	5	3	2
802215	5	3	2
60351857	6	3	5
21218841	6	3	3
10428484	6	3	2
10808984	6	3	2
991030694	6	3	1
991122134	6	3	1
980520225	6	3	1
50864381	1	3	4
41140651	1	3	4
20613741	1	3	3
980700002	1	3	1
70241928	5	3	5
50815472	5	3	4
50902675	5	3	4
20919311	5	3	3
990924081	5	3	1
61203752	6	3	5
20426123	6	3	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
723767	6	3	2
980819318	6	3	1
50643792	1	3	4
20720939	1	3	3
10852022	1	3	2
608507	1	3	2
934997	1	3	2
990517660	1	3	1
980627243	1	3	1
60639129	5	3	5
50519843	5	3	4
10801969	5	3	2
719964	5	3	2
814548	5	3	2
842155	5	3	2
990709955	5	3	1
980624280	5	3	1
80101160	6	3	5
61003997	6	3	5
20239956	6	3	3
11204045	6	3	2
902474	6	3	2
10649552	1	3	2
70824582	5	3	5
41117326	5	3	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
30908222	5	3	3
543442	5	3	2
990527377	5	3	1
991122145	5	3	1
50448914	6	3	4
40706077	6	3	4
20861873	6	3	3
10636690	6	3	2
990323358	6	3	1
990425157	6	3	1
990914381	6	3	1
991003427	6	3	1
980609664	1	3	1
20521550	1	3	3
980613797	5	3	1
50704033	6	3	4
40517029	6	3	4
30127714	6	3	3
30962314	6	3	3
20221001	6	3	3
20701558	6	3	3
11127289	6	3	2
980903292	6	3	1
70617220	1	3	5
40826052	1	3	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
20539324	1	3	3
30210576	1	3	3
10915669	1	3	2
980707117	1	3	1
30212548	1	3	3
20737147	5	3	3
10828454	5	3	2
980621987	5	3	1
70536492	6	3	5
10811330	6	3	2
905946	6	3	2
990808676	6	3	1
980629841	6	3	1
981013202	6	3	1
40805056	1	3	4
20631659	1	3	3
21205601	1	3	3
990902503	1	3	1
980404593	1	3	1
980826346	1	3	1
41107950	5	3	4
632007	5	3	2
990632584	5	3	1
990807640	5	3	1
40655006	6	3	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
30304118	6	3	3
10701468	6	3	2
10549188	6	3	2
401662	6	3	2
905134	6	3	2
991004275	6	3	1
50838921	1	3	4
50743599	1	3	4
41055247	1	3	4
980711599	1	3	1
71116677	5	3	5
10139206	5	3	2
623390	5	3	2
20760068	6	3	3
10724826	6	3	2
625484	6	3	2
980706077	6	3	1
41113214	1	3	4
10721175	1	3	2
226854	1	3	2
330461	1	3	2
840018	1	3	2
990918123	1	3	1
50540756	5	3	4
41052013	5	3	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
30633762	5	3	3
21135853	5	3	3
991030671	5	3	1
980511967	5	3	1
980726462	5	3	1
61205926	6	3	5
20730806	6	3	3
51107350	1	3	4
40800914	1	3	4
630732	1	3	2
60741644	5	3	5
40224667	5	3	3
20641221	5	3	3
991103214	5	3	1
40661081	6	3	4
11136984	6	3	2
990709183	6	3	1
990911033	6	3	1
10139209	1	3	2
10531261	1	3	2
414038	1	3	2
980104685	1	3	1
60815765	5	3	5
40130036	5	3	4
10617805	5	3	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980918862	5	3	1
70711555	6	3	5
61113759	6	3	5
41139717	6	3	4
40634329	6	3	4
10802972	6	3	2
980702016	6	3	1
980804151	6	3	1
50321994	1	3	4
710471	1	3	2
11113859	1	3	2
990927238	1	3	1
980809019	5	3	1
61135727	6	3	5
50902774	6	3	4
40841717	6	3	4
10734020	6	3	2
40705587	1	3	4
10736017	1	3	2
990523981	1	3	1
990905856	1	3	1
60524529	5	3	5
50315887	5	3	4
981122940	5	3	1
50856586	6	3	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
30910653	6	3	3
30713041	6	3	3
20303650	6	3	3
10810899	6	3	2
912480	6	3	2
990828598	6	3	1
31040732	1	3	3
50718150	1	3	4
40960257	5	3	4
508726	5	3	2
719330	5	3	2
990828444	5	3	1
71125535	6	3	5
742179	6	3	2
980512684	6	3	1
980918247	6	3	1
981109924	6	3	1
11235230	1	3	2
744968	1	3	2
990805637	1	3	1
10805989	5	3	2
980819327	5	3	1
40424493	6	3	4
40855442	6	3	4
31221759	6	3	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
20717594	6	3	3
980819300	6	3	1
70851937	1	3	5
60801039	1	3	5
50816242	1	3	4
50402830	1	3	4
733237	1	3	2
981202516	1	3	1
20733246	5	3	3
60533711	6	3	5
30903297	6	3	3
20245042	1	3	3
40649923	5	3	4
732654	6	3	2
20514634	4	3	3
70857377	1	3	5
50960814	5	3	4
1149563	1	3	2
607429	1	3	2
743168	1	3	2
924315	1	3	2
70501367	5	3	5
991004597	5	3	1
980819323	5	3	1
60700731	6	3	5

Case Number	Body Segment Combined	Injury Type Combined	Year Group
40753850	1	3	4
980407067	1	3	1
980510245	1	3	1
980622742	1	3	1
980912094	1	3	1
60710075	5	3	5
20827412	5	3	3
10934913	5	3	2
60811114	6	3	5
40912886	6	3	4
50755587	1	3	4
20818042	5	3	3
10905404	5	3	2
10943187	5	3	2
830543	5	3	2
1203006	5	3	2
30947053	6	3	3
60823592	1	3	5
50907086	1	3	4
10806010	1	3	2
980702987	1	3	1
70937571	5	3	5
50623344	5	3	4
60114089	5	3	4
830548	5	3	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
990827532	6	3	1
80124614	1	3	5
60834221	1	3	5
21134788	1	3	3
711130	1	3	2
980820854	5	3	1
60719221	6	3	5
40417533	6	3	4
637240	6	3	2
70246890	1	3	5
990829079	1	3	1
10851915	5	3	2
980920111	5	3	1
20857536	6	3	3
725589	6	3	2
40542829	5	3	4
10808973	5	3	2
990819360	6	3	1
70757496	1	3	5
21031929	1	3	3
1224739	5	3	2
20733345	6	3	3
980911774	6	3	1
990506695	1	3	1
50324996	5	3	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
990713051	6	3	1
31016060	1	3	3
60642091	5	3	5
981013473	5	3	1
60659739	6	3	5
10806011	5	3	2
429860	6	3	2
50864943	5	3	4
30649137	6	3	3
10631510	6	3	2
911544	6	3	2
837444	1	3	2
50902867	6	3	4
20745594	6	3	3
10516784	1	3	2
980518942	5	3	1
70633071	6	3	5
60238094	1	3	5
60839859	5	3	5
60834894	5	3	5
833476	5	3	2
70909296	6	3	5
10814483	1	3	2
10816871	1	3	2
40813358	5	3	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
20733231	1	3	3
610085	5	3	2
990629431	6	3	1
20756983	6	3	3
980908117	6	3	1
755743	1	3	2
980903788	5	3	1
980728819	6	3	1
980706569	6	3	1
30600884	6	3	3
980815141	6	3	1
980910108	6	3	1
980819313	6	3	1
30610010	6	3	3
70518905	5	3	5
990723388	5	3	1
40727994	6	3	4
60811498	5	3	5
990709144	1	3	1
10538270	5	3	2
60708270	6	3	5
10832527	6	3	2
711539	6	3	2
980619865	6	3	1
70730299	3	3	5

Case Number	Body Segment Combined	Injury Type Combined	Year Group
20733258	6	3	3
990608803	5	3	1
51040837	6	3	4
10851899	6	3	2
980513079	1	3	1
50628756	5	3	4
30648317	6	3	3
1015453	6	3	2
990824671	1	3	1
50939422	1	3	4
10747097	1	3	2
20733253	5	3	3
40954875	6	3	4
990918918	6	3	1
980922875	1	3	1
980919075	5	3	1
981202014	5	3	1
30710860	6	3	3
980223054	1	3	1
535558	6	3	2
40335331	1	3	4
70512211	5	3	5
711148	5	3	2
11010256	6	3	2
991019532	6	3	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
990321614	1	3	1
990835865	5	3	1
20322621	6	3	3
990714952	6	3	1
60313257	5	3	5
10832521	6	3	2
10827393	6	3	2
980727217	6	3	1
60822831	5	3	5
50719195	5	3	4
20911577	5	3	3
30747165	6	3	3
990715748	1	3	1
990934804	1	3	1
30500257	3	3	3
10501936	5	3	2
60505421	6	3	5
60701567	1	3	5
50631293	1	3	4
70521494	5	3	5
990517071	6	3	1
990913994	6	3	1
1030109	6	3	2
70720502	1	3	5
30937267	1	3	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10822718	5	3	2
10814485	5	3	2
41006234	6	3	4
30534982	1	3	3
980922514	1	3	1
61116977	6	3	5
50747083	5	3	4
321805	5	3	2
50847607	6	3	4
50704349	1	3	4
990824669	1	3	1
990829074	5	3	1
991030493	6	3	1
50832578	1	3	4
833478	1	3	2
60419865	1	3	5
990918663	6	3	1
833475	1	3	2
51031427	6	3	4
808286	6	3	2
10642610	1	3	2
50835507	1	3	4
980707812	6	3	1
748003	3	5	2
980711806	1	5	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
521258	3	5	2
10515591	2	5	2
504515	1	5	2
60603912	3	5	5
10814757	3	5	2
71051479	3	5	5
60332811	3	5	5
991118103	1	5	1
1135750	3	5	2
61116921	3	5	5
51141550	1	5	4
60339450	1	5	4
20104658	3	5	2
70615892	1	5	5
70418561	1	5	5
21133172	3	5	3
417642	3	5	2
980113397	3	5	1
980528445	1	5	1
41111100	5	5	4
990106701	6	5	1
1240790	5	5	2
980609741	5	5	1
50834736	5	5	4
990824972	5	5	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
20856386	6	5	3
936735	6	5	2
11034204	5	5	2
980414413	5	5	1
990613132	6	5	1
990809819	6	5	1
990322286	3	5	1
30103009	4	5	3
990311555	4	5	1
21021952	5	5	3
833479	5	5	2
20432070	6	5	3
20323919	6	5	3
981117962	6	5	1
1131843	2	5	2
980718500	4	5	1
30734812	5	5	3
10523078	5	5	2
10843201	5	5	2
422337	5	5	2
1023339	5	5	2
10324980	5	5	2
990605065	5	5	1
30826080	6	5	3
21142235	5	5	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
20123080	5	5	2
980105858	5	5	1
980627241	5	5	1
981024484	5	5	1
923315	6	5	2
990405552	6	5	1
980729087	1	5	1
60422705	5	5	5
60610940	5	5	5
50945304	5	5	4
40621638	5	5	4
717110	5	5	2
990309820	5	5	1
990728331	5	5	1
990831023	5	5	1
60905388	6	5	5
30525957	6	5	3
990926350	6	5	1
31117350	4	5	3
20202088	4	5	3
20137890	5	5	3
990818779	5	5	1
990832432	5	5	1
30910748	6	5	3
30138680	6	5	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10754994	6	5	2
991105173	6	5	1
50743592	5	5	4
50960634	5	5	4
40748203	5	5	4
41115375	5	5	4
20855807	5	5	3
742576	5	5	2
980619830	5	5	1
21145035	6	5	3
10322640	6	5	2
10764217	6	5	2
991210899	6	5	1
990420344	1	5	1
50851850	4	5	4
981013452	4	5	1
60317802	5	5	5
60123326	5	5	4
40543791	5	5	4
30936779	6	5	3
10507515	6	5	2
11142638	6	5	2
50724767	5	5	4
10642601	5	5	2
810485	5	5	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980315763	5	5	1
980731021	5	5	1
50939775	6	5	4
31138025	6	5	3
10552420	6	5	2
990606607	6	5	1
31030440	4	5	3
30947399	5	5	3
20816768	5	5	3
839724	5	5	2
50146536	6	5	4
40906590	6	5	4
990528719	4	5	1
981118416	4	5	1
10601678	5	5	2
10636919	5	5	2
10763692	5	5	2
1027523	5	5	2
60940510	6	5	5
20326397	6	5	3
20449114	4	5	3
20824859	4	5	3
40902105	5	5	4
30726512	5	5	3
10723567	5	5	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
990727899	5	5	1
71037313	6	5	5
30652020	6	5	3
10763756	6	5	2
11015838	6	5	2
990412044	6	5	1
990912776	2	5	1
50316253	4	5	4
61134896	5	5	5
10627479	5	5	2
990904412	5	5	1
991016702	5	5	1
980826056	5	5	1
21125027	6	5	3
20856786	6	5	3
10448688	6	5	2
980931876	6	5	1
71105146	4	5	5
10817504	4	5	2
60535333	5	5	5
60659128	5	5	5
10514051	5	5	2
990524863	5	5	1
981200051	5	5	1
60500777	6	5	5

Case Number	Body Segment Combined	Injury Type Combined	Year Group
60606173	6	5	5
60217830	6	5	5
50843819	6	5	4
40526293	6	5	4
41019731	6	5	4
30404985	6	5	3
21224396	6	5	3
21105876	6	5	3
10706989	6	5	2
642866	6	5	2
742166	6	5	2
980921474	6	5	1
20802930	1	5	3
20429004	4	5	3
11108765	4	5	2
103558	4	5	1
10412026	5	5	2
10637632	5	5	2
11035715	5	5	2
990308492	5	5	1
990921312	5	5	1
991123223	5	5	1
980709175	5	5	1
980808975	5	5	1
990722809	6	5	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
50902821	4	5	4
50106680	5	5	4
50517100	5	5	4
10651522	5	5	2
649010	5	5	2
980407301	5	5	1
980907943	5	5	1
20908262	6	5	3
991006059	6	5	1
980715967	6	5	1
60425147	4	5	5
50336624	5	5	4
540162	5	5	2
822820	5	5	2
980301803	5	5	1
425861	6	5	2
990321113	6	5	1
30102841	4	5	3
1035086	4	5	2
50913882	5	5	4
41146466	5	5	4
31137335	5	5	3
426993	5	5	2
711132	5	5	2
718670	5	5	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
829814	5	5	2
991015906	5	5	1
980719214	5	5	1
981001059	5	5	1
71134526	6	5	5
40724191	6	5	4
30848255	6	5	3
10142636	6	5	2
507091	6	5	2
653437	6	5	2
825851	6	5	2
980518142	6	5	1
981116172	6	5	1
990901605	4	5	1
60801910	5	5	5
51154975	5	5	4
40844025	5	5	4
10721145	5	5	2
11137895	5	5	2
991204296	5	5	1
980729089	5	5	1
981007295	5	5	1
31123992	6	5	3
20504239	6	5	3
31008644	5	5	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
11038079	5	5	2
11233412	5	5	2
990601481	5	5	1
103350	5	5	1
980500123	5	5	1
980622190	5	5	1
980622606	2	5	1
30614737	4	5	3
20455532	4	5	3
10422187	4	5	2
1121294	4	5	2
981027023	5	5	1
50233300	6	5	4
30643078	6	5	3
980628036	6	5	1
536103	2	5	2
40849131	4	5	4
20427285	4	5	3
10622533	4	5	2
60538930	5	5	5
40219328	5	5	4
20624314	5	5	3
21041685	5	5	3
20846455	5	5	3
11062918	5	5	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
40319018	6	5	4
905687	3	5	2
10729852	4	5	2
70927879	5	5	5
20702328	5	5	3
20704521	5	5	3
10748239	5	5	2
980816573	5	5	1
30447723	6	5	3
990923274	1	5	1
50512831	4	5	4
1006820	4	5	2
1200287	4	5	2
10135420	4	5	2
990835903	4	5	1
30308101	5	5	3
20816903	5	5	3
10814484	5	5	2
991221715	5	5	1
50905254	6	5	4
30533810	6	5	3
990721484	6	5	1
980305000	6	5	1
30310515	4	5	3
21249266	4	5	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
20515307	4	5	3
11037082	4	5	2
513674	4	5	2
70863898	5	5	5
50612443	5	5	4
40729810	5	5	4
40802956	5	5	4
30632568	5	5	3
30315590	5	5	3
20929006	5	5	3
51121586	6	5	4
40648370	6	5	4
40653245	6	5	4
21119704	6	5	3
11061577	6	5	2
50851816	4	5	4
10349054	4	5	2
60717847	5	5	5
40305414	5	5	4
31033654	5	5	3
50814660	6	5	4
51146781	6	5	4
729143	6	5	2
10718719	2	5	2
206670	2	5	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
40754248	4	5	4
31106593	4	5	3
60224370	5	5	5
50720796	5	5	4
40425117	5	5	4
10606774	5	5	2
828674	5	5	2
51125755	6	5	4
41215734	6	5	4
990905808	6	5	1
11042451	2	5	2
21000187	4	5	3
20404016	4	5	3
70743503	5	5	5
60923817	5	5	5
60727274	5	5	5
20736462	5	5	3
10744858	5	5	2
70622546	6	5	5
21001664	6	5	3
990600337	6	5	1
991122048	4	5	1
980915621	4	5	1
60148845	5	5	5
50131300	5	5	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
40543760	5	5	4
20958393	5	5	3
10833022	5	5	2
980510244	5	5	1
980627240	5	5	1
20823878	6	5	3
980201725	6	5	1
980617494	6	5	1
21135836	2	5	3
981105547	2	5	1
117390	4	5	2
990313489	4	5	1
61230622	5	5	5
30430132	5	5	3
21001669	5	5	3
10345706	5	5	2
10703110	5	5	2
11061202	5	5	2
11105286	5	5	2
990704176	5	5	1
990728561	5	5	1
980709178	5	5	1
50960715	6	5	4
20827284	6	5	3
20428800	6	5	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
1004975	6	5	2
990902176	6	5	1
20629304	4	5	3
50139846	5	5	4
855444	5	5	2
30950749	6	5	3
20634152	6	5	3
20136657	6	5	3
21039305	6	5	3
840981	6	5	2
990702175	6	5	1
30646135	4	5	3
20112696	4	5	2
1001554	4	5	2
61145693	5	5	5
30728828	5	5	3
10435749	5	5	2
50960691	6	5	4
51115853	6	5	4
51038479	6	5	4
40959757	6	5	4
104244	2	5	1
10706259	5	5	2
534578	5	5	2
61111030	6	5	5

Case Number	Body Segment Combined	Injury Type Combined	Year Group
20724466	6	5	3
20747528	4	5	3
50445920	5	5	4
40115435	5	5	4
10859804	5	5	2
990919409	5	5	1
50924742	6	5	4
980810964	6	5	1
60500603	2	5	5
61106127	5	5	5
60854981	5	5	5
50739188	5	5	4
40950303	5	5	4
20637767	5	5	3
311771	5	5	2
20315792	2	5	3
61236205	4	5	5
21236358	4	5	3
40910858	5	5	4
10851898	5	5	2
10842437	2	5	2
60717994	5	5	5
10431632	5	5	2
824727	5	5	2
981217130	5	5	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
530088	6	5	2
990632233	6	5	1
20644944	4	5	3
51101624	5	5	4
30147732	5	5	3
719373	5	5	2
20405743	6	5	3
40653198	1	5	4
10614222	3	5	2
20517916	4	5	3
60321219	4	5	5
20755746	4	5	3
50628105	5	5	4
50911634	5	5	4
21045810	5	5	3
10920035	5	5	2
980706563	6	5	1
990423792	3	5	1
990800335	5	5	1
40809338	6	5	4
20704306	5	5	3
981121438	6	5	1
31138229	2	5	3
61037570	4	5	5
990906051	4	5	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
990908528	4	5	1
11009020	5	5	2
840974	5	5	2
1034432	6	5	2
60528099	5	5	5
11208121	6	5	2
914735	4	5	2
20855809	6	5	3
980727229	4	5	1
11152565	5	5	2
60915340	5	5	5
980726651	2	5	1
981228065	5	5	1
980607584	6	5	1
10731493	5	5	2
50346036	6	5	4
980425778	6	5	1
21111390	5	5	3
991030490	5	5	1
10934661	5	5	2
990704177	5	5	1
20741418	6	5	3
636694	4	5	2
990625776	5	5	1
50837663	6	5	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980513069	5	5	1
10548340	5	5	2
980727249	6	5	1
10349045	5	5	2
60722245	4	5	5
980631296	5	5	1
990701879	5	5	1
60917440	4	5	5
30735908	6	5	3
11240246	5	5	2
980622756	5	5	1
10851967	1	5	2
30514149	5	5	3
10805995	6	5	2
20839735	1	5	3
842177	4	5	2
60909459	5	5	5
11029386	5	5	2
10120860	5	5	2
20442405	5	5	3
50817865	6	5	4
991029749	2	5	1
50538291	5	5	4
933675	5	5	2
990710511	5	5	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
931735	6	5	2
10637004	4	5	2
980422140	5	5	1
990901681	1	5	1
50932807	5	5	4
50924665	5	5	4
30706172	5	5	3
909883	6	5	2
980802432	6	5	1
10554450	5	5	2
990632037	5	5	1
60516009	6	5	5
40717954	4	5	4
10217642	6	5	2
40923476	5	5	4
20816789	6	5	3
70828461	5	5	5
991014385	5	5	1
980732034	5	5	1
991204137	6	5	1
21205468	4	5	3
61046443	5	5	5
117361	5	5	2
990820778	5	5	1
981012890	5	5	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980709029	6	5	1
11144757	4	5	2
980819325	5	5	1
704613	5	5	2
40813289	5	5	4
50519287	5	5	4
41118452	6	5	4
20911575	6	5	3
60611709	6	5	5
41052096	4	5	4
980409812	5	1	1
20952735	5	1	3
20333151	5	1	3
20130398	5	1	3
10412192	5	1	2
10507281	5	1	2
990109362	5	1	1
61020448	5	1	5
20123061	5	1	2
991211701	5	1	1
980316514	5	1	1
980520473	5	1	1
30345576	4	1	3
60856158	5	1	5
20939214	5	1	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10526272	5	1	2
637013	5	1	2
980715092	5	1	1
980727226	5	1	1
60727555	6	1	5
40534721	6	1	4
40817854	5	1	4
30817526	5	1	3
30711885	5	1	3
20710253	5	1	3
20432801	5	1	3
20652050	5	1	3
200526	5	1	2
530120	5	1	2
606878	5	1	2
816296	5	1	2
990423068	5	1	1
990621250	5	1	1
990822693	5	1	1
60143787	6	1	5
71137418	5	1	5
60708431	5	1	5
60445199	5	1	5
30943002	5	1	3
30827313	5	1	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10731462	5	1	2
11135318	5	1	2
113684	5	1	2
312450	5	1	2
531991	5	1	2
625584	5	1	2
731155	5	1	2
803734	5	1	2
837446	5	1	2
990630952	5	1	1
990909126	5	1	1
980706079	5	1	1
980800148	5	1	1
980819316	5	1	1
981226632	5	1	1
981228063	5	1	1
1105538	6	1	2
990808059	6	1	1
70651291	5	1	5
70745629	5	1	5
50446897	5	1	4
50720342	5	1	4
41243314	5	1	4
30825867	5	1	3
21252541	5	1	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
21008370	5	1	3
20845457	5	1	3
21005977	5	1	3
10549297	5	1	2
1054632	5	1	2
1110506	5	1	2
990402285	5	1	1
990601030	5	1	1
980206086	5	1	1
980814114	5	1	1
980911147	5	1	1
981228071	5	1	1
1118240	6	1	2
30618507	2	1	3
70920454	5	1	5
60916407	5	1	5
60556426	5	1	5
60859230	5	1	5
50647742	5	1	4
50523525	5	1	4
50837981	5	1	4
30340194	5	1	3
30417170	5	1	3
20542684	5	1	3
30117964	5	1	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
20608100	5	1	3
20719694	5	1	3
10560468	5	1	2
20126213	5	1	2
938115	5	1	2
1010813	5	1	2
1131825	5	1	2
990413399	5	1	1
990525012	5	1	1
990605070	5	1	1
990709950	5	1	1
980805320	5	1	1
980827440	5	1	1
981228060	5	1	1
30113500	6	1	3
11006602	6	1	2
980725344	6	1	1
70404430	5	1	5
60850089	5	1	5
40609866	5	1	4
30522029	5	1	3
30539451	5	1	3
30555445	5	1	3
21220080	5	1	3
20715376	5	1	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
20438546	5	1	3
10725136	5	1	2
10916857	5	1	2
11122792	5	1	2
990714274	5	1	1
990816521	5	1	1
990826679	5	1	1
991108913	5	1	1
980325180	5	1	1
980824331	5	1	1
981029704	5	1	1
990115291	5	1	1
40354789	6	1	4
10516935	6	1	2
10916759	6	1	2
980317847	6	1	1
990832294	4	1	1
991124988	4	1	1
60847347	5	1	5
51113569	5	1	4
40705294	5	1	4
20839451	5	1	3
20911882	5	1	3
10541253	5	1	2
990613159	5	1	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980315291	5	1	1
990101824	5	1	1
981226634	5	1	1
51107219	5	1	4
40501847	5	1	4
30603627	5	1	3
20742255	5	1	3
20506200	5	1	3
10626514	5	1	2
10815469	5	1	2
749372	5	1	2
990120029	5	1	1
980409244	5	1	1
980815319	5	1	1
10639690	6	1	2
227501	6	1	2
980603774	6	1	1
60820007	5	1	5
50403703	5	1	4
50864360	5	1	4
40501896	5	1	4
1030871	5	1	2
990321100	5	1	1
990519158	5	1	1
980520918	5	1	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980504871	5	1	1
10746717	6	1	2
50526105	5	1	4
50639053	5	1	4
30122181	5	1	3
20322028	5	1	3
530844	5	1	2
991104312	5	1	1
50705121	6	1	4
30453575	6	1	3
10943822	6	1	2
738343	6	1	2
70905618	5	1	5
71004016	5	1	5
60528231	5	1	5
50655144	5	1	4
41044009	5	1	4
30210312	5	1	3
30212151	5	1	3
21012084	5	1	3
943055	5	1	2
990628985	5	1	1
990816534	5	1	1
980105014	5	1	1
980714900	5	1	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980806532	5	1	1
981105197	5	1	1
10233559	6	1	2
60223769	5	1	5
50947846	5	1	4
50539916	5	1	4
50331591	5	1	4
30318972	5	1	3
10523858	5	1	2
803049	5	1	2
913601	5	1	2
990426248	5	1	1
990529113	5	1	1
990908038	5	1	1
10850769	6	1	2
51055541	5	1	4
51122549	5	1	4
40705729	5	1	4
990329407	5	1	1
990410626	5	1	1
991204143	5	1	1
980725204	5	1	1
60947577	6	1	5
20514258	6	1	3
715815	6	1	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980409272	6	1	1
30722741	5	1	3
20932353	5	1	3
20401695	5	1	3
11119729	5	1	2
11122893	5	1	2
1038632	5	1	2
980702011	5	1	1
980921312	5	1	1
31108223	4	1	3
71150348	5	1	5
60320571	5	1	5
50759398	5	1	4
40951673	5	1	4
40514202	5	1	4
41019564	5	1	4
20536911	5	1	3
20443355	5	1	3
20712669	5	1	3
20306104	5	1	3
10505364	5	1	2
10652051	5	1	2
507896	5	1	2
622664	5	1	2
838293	5	1	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
840969	5	1	2
990323098	5	1	1
990425693	5	1	1
991004592	5	1	1
991222500	5	1	1
980718292	5	1	1
981216480	5	1	1
70529974	5	1	5
60933964	5	1	5
20556425	5	1	3
10910274	5	1	2
10706236	5	1	2
10703021	5	1	2
10943792	5	1	2
980631674	5	1	1
980715974	5	1	1
980915733	5	1	1
50954278	6	1	4
10436255	4	1	2
71025958	5	1	5
70616075	5	1	5
70425092	5	1	5
10526485	5	1	2
10803623	5	1	2
933524	5	1	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
1105578	5	1	2
990328801	5	1	1
990512202	5	1	1
990622260	5	1	1
991014288	5	1	1
991204195	5	1	1
980726056	5	1	1
30825797	6	1	3
70945495	5	1	5
70925268	5	1	5
60843784	5	1	5
40403347	5	1	4
40540086	5	1	4
40749963	5	1	4
21210403	5	1	3
20807788	5	1	3
20724668	5	1	3
10132749	5	1	2
10855942	5	1	2
1204583	5	1	2
990603211	5	1	1
980605649	5	1	1
50711982	6	1	4
30309653	6	1	3
20851218	6	1	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10839110	2	1	2
30726040	4	1	3
1001099	4	1	2
70733632	5	1	5
50405746	5	1	4
51104275	5	1	4
50417800	5	1	4
40546638	5	1	4
40711964	5	1	4
31135133	5	1	3
30753325	5	1	3
30644970	5	1	3
20636590	5	1	3
21202737	5	1	3
20833956	5	1	3
539850	5	1	2
850767	5	1	2
990407719	5	1	1
990419563	5	1	1
990520487	5	1	1
990611428	5	1	1
990812669	5	1	1
991023969	5	1	1
980703933	5	1	1
980714899	5	1	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
60626913	6	1	5
50954286	6	1	4
40613050	6	1	4
70231041	5	1	5
60849456	5	1	5
60538931	5	1	5
40661197	5	1	4
30961360	5	1	3
20122262	5	1	3
10861999	5	1	2
10144816	5	1	2
991032518	5	1	1
991128726	5	1	1
50610223	6	1	4
10929535	6	1	2
1127901	6	1	2
980902096	6	1	1
980727504	2	1	1
980605785	4	1	1
70837545	5	1	5
70951814	5	1	5
70563191	5	1	5
60423943	5	1	5
60855057	5	1	5
51103738	5	1	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
40554298	5	1	4
30448189	5	1	3
30630700	5	1	3
20827552	5	1	3
20855669	5	1	3
10402430	5	1	2
10713076	5	1	2
10717999	5	1	2
10939291	5	1	2
427962	5	1	2
1126078	5	1	2
990711114	5	1	1
990710155	5	1	1
990800370	5	1	1
60504707	6	1	5
529544	6	1	2
814830	1	1	2
30848258	4	1	3
70747808	5	1	5
60103359	5	1	4
40514887	5	1	4
40555059	5	1	4
30317004	5	1	3
20848679	5	1	3
21246965	5	1	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
704654	5	1	2
990913088	5	1	1
980313827	5	1	1
980427787	5	1	1
980612262	5	1	1
980718532	5	1	1
980822558	5	1	1
61004909	6	1	5
60422296	6	1	5
51130315	6	1	4
10707387	6	1	2
806081	6	1	2
60936630	4	1	5
981201676	4	1	1
70245544	5	1	5
60722361	5	1	5
50351103	5	1	4
40802511	5	1	4
40543354	5	1	4
31030252	5	1	3
30633298	5	1	3
20809913	5	1	3
21134792	5	1	3
20949842	5	1	3
10739551	5	1	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10905502	5	1	2
837435	5	1	2
952143	5	1	2
980508499	5	1	1
504475	6	1	2
70749191	1	1	5
70921845	5	1	5
60816062	5	1	5
60543652	5	1	5
41029843	5	1	4
41035309	5	1	4
30704236	5	1	3
21023550	5	1	3
20150453	5	1	3
20641575	5	1	3
20716893	5	1	3
10240530	5	1	2
10619538	5	1	2
10763720	5	1	2
990412337	5	1	1
20132937	6	1	3
990704136	6	1	1
40512676	4	1	4
70924557	5	1	5
50344645	5	1	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
51003235	5	1	4
50849297	5	1	4
40902801	5	1	4
20826351	5	1	3
20851221	5	1	3
11148560	5	1	2
206580	5	1	2
60420047	6	1	5
50214306	6	1	4
20805396	6	1	3
71105078	5	1	5
70559118	5	1	5
60911010	5	1	5
60828035	5	1	5
50723772	5	1	4
40346527	5	1	4
40726707	5	1	4
211878	5	1	2
646124	5	1	2
980309707	5	1	1
20942376	6	1	3
20343686	6	1	3
50422054	2	1	4
50829724	5	1	4
40852314	5	1	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
40810667	5	1	4
941232	5	1	2
990800379	5	1	1
990929662	5	1	1
980719931	5	1	1
980806506	5	1	1
61010309	6	1	5
20700839	2	1	3
11052963	4	1	2
70612242	5	1	5
70156195	5	1	5
61132890	5	1	5
40616291	5	1	4
41128953	5	1	4
30937272	5	1	3
30943883	5	1	3
30937346	5	1	3
20643464	5	1	3
21236354	5	1	3
20112768	5	1	3
21056280	5	1	3
10612082	5	1	2
729137	5	1	2
990531109	5	1	1
990705480	5	1	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
991100722	5	1	1
990521839	2	1	1
70755564	5	1	5
51002187	5	1	4
41152963	5	1	4
41221848	5	1	4
20442236	5	1	3
10509152	5	1	2
10701696	5	1	2
10832539	5	1	2
10852028	5	1	2
401938	5	1	2
429409	5	1	2
990421247	5	1	1
990826877	5	1	1
980915846	5	1	1
60857327	6	1	5
31038219	6	1	3
70915968	1	1	5
990502350	4	1	1
980709018	4	1	1
70547718	5	1	5
40433405	5	1	4
31123421	5	1	3
30942566	5	1	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
20814291	5	1	3
980106429	5	1	1
990828003	1	1	1
71013898	2	1	5
71226168	4	1	5
40745824	4	1	4
71031831	5	1	5
40510825	5	1	4
30626506	5	1	3
20923508	5	1	3
10501806	5	1	2
10518079	5	1	2
10916151	5	1	2
990921597	5	1	1
980912097	5	1	1
70532721	6	1	5
11219800	6	1	2
324237	6	1	1
937282	2	1	2
1020063	2	1	2
70117595	5	1	5
60647854	5	1	5
50103064	5	1	4
30928433	5	1	3
21135571	5	1	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10522230	5	1	2
990305113	5	1	1
990933343	5	1	1
991104792	5	1	1
980415172	5	1	1
980620394	5	1	1
980721196	5	1	1
60527868	6	1	5
70549174	5	1	5
40841497	5	1	4
50103009	5	1	4
40927683	5	1	4
30143889	5	1	3
30552135	5	1	3
821661	5	1	2
980516728	5	1	1
20800747	6	1	3
990906244	2	1	1
70302645	5	1	5
51043589	5	1	4
50551522	5	1	4
20827283	5	1	3
11045086	5	1	2
725570	5	1	2
990918919	5	1	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
20228479	1	1	3
51052263	2	1	4
20516461	2	1	3
20716725	2	1	3
60635703	5	1	5
31024403	5	1	3
11247808	5	1	2
990924517	5	1	1
60862795	6	1	5
30423707	6	1	3
40722413	5	1	4
30641431	5	1	3
20816699	5	1	3
11209562	5	1	2
990906252	5	1	1
51041018	6	1	4
980627242	4	1	1
70564613	5	1	5
60726072	5	1	5
10831404	5	1	2
10905387	5	1	2
711168	5	1	2
990914000	5	1	1
711403	4	1	2
61205925	5	1	5

Case Number	Body Segment Combined	Injury Type Combined	Year Group
40723170	5	1	4
30713491	5	1	3
20846086	5	1	3
20821448	5	1	3
20858844	5	1	3
990218227	5	1	1
990414171	5	1	1
990901223	5	1	1
61235778	5	1	5
990508000	5	1	1
980828461	5	1	1
50706961	6	1	4
70410352	1	1	5
990507977	2	1	1
70732043	5	1	5
60124624	5	1	5
20742256	5	1	3
20758696	5	1	3
980716932	5	1	1
70846775	4	1	5
61038177	5	1	5
50546640	5	1	4
30951863	5	1	3
40113324	5	1	3
20612104	5	1	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980408580	5	1	1
60516038	6	1	5
30137865	2	1	3
50850432	5	1	4
51007697	5	1	4
40218773	5	1	4
10432831	5	1	2
980808115	5	1	1
100476	6	1	1
30151351	5	1	3
20814999	5	1	3
11103931	5	1	2
21145260	2	1	3
71039269	5	1	5
10951463	5	1	2
990813260	5	1	1
980522551	5	1	1
990905840	4	1	1
60739804	5	1	5
40661138	5	1	4
991222727	5	1	1
11038783	4	1	2
10726798	5	1	2
310946	5	1	2
990714273	5	1	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
71137145	5	1	5
980721583	5	1	1
70925632	5	1	5
10851954	5	1	2
905172	5	1	2
749301	1	1	2
61138775	5	1	5
990920758	5	1	1
30916739	6	1	3
60622059	5	1	5
60805386	5	1	5
60934702	5	1	5
980512666	5	1	1
40711437	5	1	4
980718848	5	1	1
819584	5	1	2
20946213	5	1	3
10446285	5	1	2
30609301	5	1	3
980709025	5	1	1
10561042	5	1	2
808273	5	1	2
1039536	5	1	2
990704168	4	1	1
40627845	5	1	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
990707357	5	1	1
980731033	5	1	1
60240219	5	1	5
31060314	5	1	3
990701869	5	1	1
30430493	5	1	3
51106334	6	1	4
991117462	5	1	1
10856961	4	1	2
70762983	5	1	5
980603824	5	1	1
10400711	5	1	2
40841218	5	1	4
60747234	5	1	5
40445555	5	1	4
11100018	5	1	2
704626	5	1	2
711143	5	1	2
990835354	5	1	1
980716072	5	1	1
990605583	5	1	1
980728822	5	1	1
60508728	6	1	5
70719076	5	1	5
990906258	5	1	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
990929654	5	1	1
980719016	5	1	1
11053278	6	1	2
50820819	5	1	4
980714051	5	1	1
304077	6	1	2
990709943	6	1	1
50750905	5	1	4
30742242	5	1	3
20827285	6	1	3
980815132	6	1	1
20525469	1	1	3
10541656	5	1	2
980903805	5	1	1
20903177	5	1	3
990430138	5	1	1
60441747	5	1	5
20858832	5	1	3
419977	5	1	2
70618642	5	1	5
20807794	5	1	3
20545999	5	1	3
10914599	6	1	2
981017384	1	1	1
102687	5	1	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
980831946	5	1	1
51024499	6	1	4
51218613	5	1	4
709203	5	1	2
990507018	5	1	1
40220159	1	1	4
990807900	5	1	1
60150910	6	1	5
506381	6	1	2
40847357	5	1	4
50933605	6	1	4
20550356	6	1	3
11216143	6	1	2
980212568	5	1	1
20738830	5	1	3
10706176	5	1	2
10736009	5	1	2
842844	5	1	2
990709948	5	1	1
990702799	6	1	1
71217154	5	1	5
40901140	5	1	4
990703724	2	1	1
980914510	5	1	1
20101218	5	1	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
1034442	5	1	2
990611082	5	1	1
10826858	5	1	2
703099	5	1	2
60139867	5	1	5
20733272	5	1	3
20602088	5	1	3
980712955	5	1	1
21056899	2	1	3
50911114	5	1	4
522036	5	1	2
20430078	6	1	3
808278	6	1	2
990615559	6	1	1
30513453	5	1	3
70824405	5	1	5
60651377	5	1	5
1020062	5	1	2
40419170	5	1	4
10608170	5	1	2
51028852	5	1	4
980820857	5	1	1
71016410	5	1	5
981018128	2	1	1
10734402	1	2	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
990913478	1	2	1
50851851	1	2	4
20810856	1	2	3
10636685	1	2	2
51013847	1	2	4
990509548	1	2	1
30816835	1	2	3
60630680	1	2	5
40410506	1	2	4
50864392	1	2	4
70620908	1	2	5
20620550	1	2	3
41003445	1	2	4
40507197	1	2	4
20529830	1	2	3
730678	1	2	2
50828679	1	2	4
40116120	1	2	3
21224344	1	2	3
40314828	1	2	4
10828468	1	2	2
30645182	1	2	3
60529874	1	2	5
61020739	1	2	5
50863922	1	2	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10754042	1	2	2
70246302	1	2	5
990800385	1	2	1
70334788	1	2	5
50449707	1	2	4
70135399	1	2	5
990900519	1	2	1
60620544	1	2	5
1204116	1	2	2
725581	1	2	2
20548121	1	2	3
980728434	1	2	1
990900518	1	2	1
40808846	5	4	4
20838142	5	4	3
707488	5	4	2
991208373	5	4	1
990615439	5	4	1
990527544	5	4	1
20811443	5	4	3
838192	5	4	2
30334460	5	4	3
990914927	5	4	1
60819135	5	4	5
20648170	5	4	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10829400	5	4	2
980932129	5	4	1
61140748	5	4	5
61220500	5	4	5
20246133	5	4	3
991203936	5	4	1
60527737	5	4	5
50911125	5	4	4
40927993	5	4	4
11018655	5	4	2
718849	5	4	2
70615143	5	4	5
60802566	5	4	5
60440164	5	4	5
11229422	5	4	2
752396	5	4	2
910109	5	4	2
1223562	5	4	2
1209435	5	4	2
70453543	5	4	5
40835219	5	4	4
609008	5	4	2
980527789	5	4	1
980726304	5	4	1
10440480	5	4	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
910163	5	4	2
991212282	5	4	1
20710691	5	4	3
422891	5	4	2
990625705	5	4	1
980730275	5	4	1
50506539	5	4	4
40723957	5	4	4
40754271	5	4	4
40701893	5	4	4
991028113	5	4	1
981123483	5	4	1
50346057	5	4	4
30537042	5	4	3
30143858	5	4	3
20738721	5	4	3
981100809	5	4	1
60509828	6	4	5
50336237	5	4	4
40613772	5	4	4
10610609	5	4	2
990324849	5	4	1
50862250	5	4	4
30546199	5	4	3
20908644	5	4	3

Case Number	Body Segment Combined	Injury Type Combined	Year Group
10318329	5	4	2
10708364	5	4	2
10652814	5	4	2
10720025	5	4	2
980504382	5	4	1
980602294	5	4	1
980618646	5	4	1
20555508	5	4	3
10649237	5	4	2
10754909	5	4	2
990124007	5	4	1
60521368	5	4	5
10826016	5	4	2
980915611	5	4	1
20756043	5	4	3
1212652	5	4	2
990704163	5	4	1
990724238	5	4	1
980815700	5	4	1
11041293	1	4	2
10635025	5	4	2
120747	5	4	2
40352134	5	4	4
20429506	5	4	3
990808652	5	4	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
990818816	5	4	1
980922521	5	4	1
70853265	5	4	5
411078	5	4	2
980720495	5	4	1
981127277	6	4	1
30819933	5	4	3
30328451	5	4	3
10826343	5	4	2
707476	5	4	2
990920762	5	4	1
70734479	5	4	5
21131117	5	4	3
51217273	5	4	4
40717294	5	4	4
731182	5	4	2
60945392	5	4	5
60740246	5	4	5
50843610	5	4	4
50644246	5	4	4
50800196	5	4	4
20831553	5	4	3
20617745	5	4	3
51022661	5	4	4
980908118	5	4	1

Case Number	Body Segment Combined	Injury Type Combined	Year Group
41215074	5	4	4
30531287	5	4	3
20903184	5	4	3
1040569	5	4	2
990701887	5	4	1
10647266	5	4	2
980102957	5	4	1
41030605	5	4	4
70743452	5	4	5
980516736	5	4	1
980815722	5	4	1
723398	5	4	2
40824487	6	4	4
70537193	5	4	5
20746447	5	4	3
980917111	5	4	1
70759671	5	4	5
50544895	5	4	4
938650	5	4	2
980709017	5	4	1
30108160	5	4	3
10905375	5	4	2
723393	5	4	2
990920765	5	4	1
946433	5	4	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
60433429	5	4	5
306413	5	4	2
719335	5	4	2
980220037	5	4	1
20821818	5	4	3
40928759	6	4	4
607177	6	4	2
60748955	5	4	5
10736018	5	4	2
980716276	5	4	1
50913890	5	4	4
70306250	5	4	5
50954260	5	4	4
70959524	5	3	5
50854641	5	3	4
980905519	1	3	1
10602955	6	3	2
980709027	3	3	1
953091	3	5	2
980709020	3	5	1
20754289	3	5	3
60804879	3	5	5
927824	3	5	2
10640476	3	5	2
10734834	3	5	2

Case Number	Body Segment Combined	Injury Type Combined	Year Group
70700150	2	5	5
30614100	2	5	3
70808337	3	5	5
70756453	3	5	5
60930360	2	5	5
40649916	2	5	4
990506767	2	5	1
41012967	3	5	4
30639841	3	5	3
10723034	3	5	2
70957908	3	5	5
723932	5	5	2
30547198	6	5	3
540129	5	5	2
10723017	5	5	2
10117818	6	5	2
40914301	6	5	4
11225125	6	5	2
10243712	6	1	2
30322556	6	1	3
990201619	6	1	1
10813223	6	1	2
10914582	6	1	2
20319784	6	1	3
40650750	6	1	4

Case Number	Body Segment Combined	Injury Type Combined	Year Group
20340499	6	1	3
20712649	6	1	3
40829599	6	1	4
980702605	6	1	1
20801139	6	1	3
810322	6	1	2
60907719	6	1	5
51129686	6	1	4
20556861	6	1	3
40818977	6	1	4
10924638	6	1	2
30749752	6	1	3
50821390	6	1	4
649573	1	2	2
20839487	3	5	3
21015573	3	5	3
10921559	3	5	2
991125240	3	5	1
50930160	1	5	4
60901881	1	5	5
61204341	2	5	5
50925667	1	1	4
50904895	1	5	4

VITA

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Dissertation: MOUNTAIN BIKE INJURIES: A TEN YEAR RETROSPECTIVE
EVALUATION 1998 TO 2007

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Scope and Method of Study:

The National Electronic Injury Surveillance System (NEISS database) provided data regarding mountain bike related injuries from 1998 to 2007. Each case was evaluated and assigned an Abbreviated Injury Scale (AIS) score. Data were evaluated to determine trends in frequency, body segment injured, and injury type. Data were further evaluated for sex related and age related trends in the previously mentioned variables.

Findings and Conclusions:

Injury frequency generally increased from 1998 through 2001. A downward trend began in 2002. Injury severity was low (AIS = 1.33), with upper extremity injuries being most common (48.69%). Fractures were the most common injury type (28.37%). Males sustained injury more frequently than females (83.55%); although, injury severity did not differ by sex. Injury severity was highest for the 45 to 54 year old age group. The average age of injured persons was 29.56 with age increasing from 28.03 to 33.00 from 1998 to 2007.

Injury frequency increased from 1998 to 2001 but declined after 2002. Injury severity was low, indicating that mountain biking is a relatively safe sport. Safety is not affected by the rider's sex, rather by age (being in the 45 to 54 age group).

ADVISER'S APPROVAL: _____