

Chapter 1 : Road safety and road traffic accidents in Saudi Arabia

Road Traffic Accident (RTA) is one among the top five causes of morbidity and mortality in South-East Asian countries. Its socioeconomic repercussions are a matter of great concern. Efficient addressing of the issue requires quality information on different causative factors.

The alarming increase in morbidity and mortality owing to road traffic accidents RTA over the past few decades is a matter of great concern globally. Currently motor vehicle accidents rank ninth in order of disease burden and are projected to be ranked third in the year. In India, more than 70,000 people get killed due to RTA every year, and this needs to be recognised as an important public health issue. Very few studies have attempted to understand the epidemiology of risk factors associated with RTA in Indian cities. The present study aims to examine the magnitude of this multifaceted problem in a rapidly developing Hyderabad metropolis and analyse the causative factors.

Objectives To study the cause of road traffic accidents in Hyderabad city. To identify and analyse the risk factors and accident prone sites black spots, which form the crucial determinants of the RTA. To understand the nature, type and mode of occurrence of accidents. To study the nature and type of injuries.

Materials and Methods The current situation of the road traffic system in Hyderabad city will be reviewed in consultation with various departments and the information gathered from the multiple sources will be integrated for setting up a database on the causes, nature and magnitude of RTA in the city. Using this database, major accident-prone areas would be identified and the data pertaining to the time, place, effectiveness of emergency medical services, police inquiry and other relevant information will be collected. The risk factors would be identified and classified as: Non use of protective gear by two-wheeler riders. Driving under the influence of alcohol. Overtaking from wrong direction, use of cell phones while driving. Inadequate road markings and sign boards. Lack of a lane system for mixed traffic and encroachment of foot.

Direct observation studies The closed circuit TV CCTV monitoring technique will be adopted for recording the activity going on at traffic junctions. Once installed, the junctions would be monitored from a central control room stationed at IHS to keep count of accident occurrence at the selected study sites. First hand information will be gathered from the survivor, eye witnesses of the accident etc. Reporting from various sources would be cross verified with the directly recorded data.

Duration of the activity: Phase I - Preparatory Phase 6 months Identification, contact, establishing liaison, meeting with various departments involved. Development of study instruments questionnaire. Phase II - Data collection Phase 15 months Information will be collected from the allied sectors of police, transport, health, insurance and corporation officials. Information will also be collected from accident survivors, eyewitnesses and crime reporters. Phase III - Data Pooling Phase 6 months The information gathered from the various sources will be pooled up for setting up a database on the causes, nature and magnitude of RTA in the city. At the end of the study, a final technical report will be prepared. The information generated from this study would be disseminated to promote awareness and participation among the professional, public and media, on various aspects of the Road Traffic Accidents.

Chapter 2 : :: Epidemiology of Road Traffic Accidents ::

Objectives: To study the cause of road traffic accidents in Hyderabad city. To identify and analyse the risk factors and accident prone sites (black spots), which form the crucial determinants of the RTA.

Scientific Journal Of Forensic Medicine. Global status report on road safety: World Health Organization; Safety education of pedestrians for injury prevention: Global status report on road safety Global status report on road safety. National Document prevention and control of non-communicable diseases and related risk factors in the Islamic Republic of Iran in the period from to Ayni E, Soori H. The estimated cost of traffic accidents by using willingness to pay. Applied Research Center police, traffic police. The epidemiology of accident fatalities in Iran 8-year review. Safety Promotion and Injury Prevention. Trends of fatal road traffic injuries in Iran " Epidemiology of fatal road traffic accidents in Northern provinces of Iran during to Epidemiology of fatal traffic injuries in the Sistan and Baluchistan province in Analysis of fatal road traffic accidents in a coastal township of South India. Journal of forensic and legal medicine. Road traffic deaths in Brazil: The burden of road traffic injuries in Isfahan, Iran in Journal of Kerman University of Medical Sciences. Epidemiology of deaths due to traffic accidents in Kermanshah province J Kermanshah Univ Med Sci. Pattern of injury in fatal road traffic accidents in a rural area of western Maharashtra, India. The Australasian medical journal. Model for the prediction of death from road traffic injuries in Iran. Journal of the Faculty of Medicine. An epidemiological study of fatal road traffic accidents in Semnan province Iran in Epidemiology of road traffic injuries in qassim region, saudi arabia: International journal of health sciences. Mortality due to road traffic injuries in Guilan province in Road-traffic-related mortality in Iran: The effect of mandatory seat belt use legislations on mortalities from road traffic injuries in Iran. Refbacks This work is licensed under a Creative Commons Attribution 4. Design and publishing by Treata Medical Publishing Corporation.

Chapter 3 : WHO | Road traffic injuries

A byproduct of this revolution is the road traffic accident. An accident is a result of defects laying either in the host (victim or road user), agent (vehicle) and environment (road conditions and social atmosphere) or a combination of the defects laying in all three factors.

Road safety and road traffic accidents in Saudi Arabia A systematic review of existing evidence Farah A. This article has been cited by other articles in PMC. All articles published during the last 25 years on road traffic accident in KSA were analyzed. Road traffic accidents accounted for The most frequently injured body regions as reported in the latest studies were head and neck, followed by upper and lower extremities, which was found to be opposite to that of the studies reported earlier. Excessive speeding was the most common cause reported in all recent and past studies. Disparity was common in the type of reporting of RTAs, outcome measures, and possible causes over a period of 2. A sentinel surveillance of road crashes should be kept in place in the secondary and tertiary care hospitals for all regions of KSA. The burden of road traffic accidents RTA is a leading cause of all trauma admissions in hospitals worldwide. It has a total population of approximately 27 million, one-fourth of whom are expatriates, with the highest population density per km² of in Jizan, and 38 in Makkah, and the lowest of 2. According to a recent estimate, more than 6 million cars are found on the roads of KSA. The young and economically productive age groups are the most affected. Legislation on seat belt use has been put into practice, along with fully operational speed camera systems in large cities under the control of police departments, and police department record keeping of road mortalities and collisions. However, post-crash care is largely ignored in all possible direct, or indirect evidence on the subject. There is scarcity of local standardized information on RTAs; therefore, measures for injury related mortality and disability are mostly available, either in popular press articles, police records, or WHO projected estimates. The aim of this study was to identify the changing trends and crucial preventive approaches to RTAs adopted in KSA over the last 2. This analysis aims to provide helpful information in limiting the overall incidence of RTAs, and the severity of the resultant injuries in KSA. All articles published during the last 25 years based on primary or secondary, or both types of data on RTAs in KSA were included. Two authors independently reviewed each article to determine the outcome measures, and those articles not in English language were excluded. A total of 31 articles were retrieved through various search engines. Out of these, 2 were excluded as they were not in English. Cumulative analysis could not be performed, as outcome variables were not homogeneous across these studies. We considered RTA as an exposure, and outcome measures included injuries, death on arrival, or in the hospital, and disabilities. Ethical approval was obtained from ethical the review committee of the university to conduct this study. Results Out of the total 29 articles, 8 were full text focusing on RTA or injuries Table 1, and 21 articles including 3 full texts were those where road injuries were implicated as a cause to an event of any other specific interest. Open in a separate window Overall distribution of RTA The trend of young males affected more than females was mostly reported in all studies over the last 2. The overall age-gender-adjusted rate for non-fatal RTIs was A study conducted in Al-Ahsaa 21 reported that While in Al Qassim, the lowest rate of 5. A study conducted in a Riyadh hospital 14 reported that RTA were the cause in Pattern of reporting RTA Table 1 summarizes the findings of the 8 full text articles regarding type of data, place and time of study, year of publication, common cause of accident, outcome, and conclusion, or recommendations. The primary data collected in these 4 studies was representative of the cities of Al-Qassim in, 16 Al-Aseer in, 22 Abha in, 23 and Riyadh in The outcome measures and the methodology in these studies were diverse, and included the cause of death on arrival Abha, 23 type of injuries, and a comparison of police records of RTA Al-Qassim, 16 cause of injury Al-Aseer, 23 and the compliance to seat belt legislation Riyadh. It was reported that The cervical cord was the most common site of injury among males, whereas it was upper thoracic spine for females. Behavior of drivers It was noted that the dependence on cars for transportation has created a diversity of drivers who are not sufficiently familiar with the local driving rules, and lack the basic skills for safe driving. While the international recommendations emphasize on developing institutional framework, safer roads and vehicles,

proper surveillance or data system, safer road users, and post-crash care. It was revealed that the distribution of RTAs in terms of place and time varied widely among the reviewed studies, but cumulatively RTAs were common in cities of religious mass gatherings during the peak month of Ramadan. However, in other cities, accidents were clustered in December and May, 16, 22 probably reflecting anxiety among drivers complying with diverse schedules due to examinations in schools and colleges during those months. A Korean study 37 reported that the incidence of injuries increased sharply when the temperature decreased below freezing point in winter. Young males were found to be affected more than females in all studies with an increased ratio of 4:1. Young age was more affected as the youth in KSA consider car driving as an entertainment for themselves, as other alternatives are barely available, or opted for, such as, amusement parks or gyms, or sport arenas, and others. Accidents in residential areas could be more frequent among youth where they drive illegally for small distances along narrow roads at high speed. This behavior of the youth reflects the absence of formal training in driving, inadequate sport facilities, and lack of control by the parents. In another study, 39 biomarkers of cortisol was studied, and found to be associated with teenaged-driving risk, and necessitated the development of personalized intervention approaches. We noted that the most common reported site of injuries in recent studies were the head and neck, limbs, and trunk in contrast to previous studies where limb and trunk injuries were more common than the head and neck. Some studies reported injury per individual regions, or parts of body, and others as multiple parts. Complications of road injuries, such as amputations, neurological deficit, and others were noted in hospital audits, and not as part of follow-up for road injuries, therefore, those indirect studies 16, 35 and their chance findings will not add much to the understanding of the problems of RTA. It was concluded that factors affecting the occurrence of accidents were not necessarily predictors of outcome severity. Likewise, we identified discrepancies in some vital statistics, such as, mortality rates between sources of data as noticed by other investigators as well. The evidence was not found in local studies on data systems, or post-crash care, or implementation of widespread primary preventive strategies, and so forth. This surveillance system approach along with a few suggested interventions to modify the behavior of young drivers would prevent both RTAs and resultant injuries. The WHR on prevention of injury has identified separate risk factors for road crash, road injuries, and post-crash care. We therefore suggest developing an active surveillance system in the emergency rooms of hospitals across KSA as a measure of post-crash hospital care. This will help in better understanding the factors and processes of road crashes in our region, and relevant programs in the future can be offered to limit the problem at large. In this context, an advocacy plan for primary prevention of the risks of RTAs should be initiated to modify the behavior of young drivers, particularly, through mass media campaigns. This can be achieved by distributing health messages at points of care, such as shopping malls, and schools. Moreover, efforts can be strengthened by strict reinforcement of laws in residential areas, and also providing alternate options for entertainment by building health fitness, or sport facilities, or amusement parks in the communities. Simultaneously secondary and tertiary prevention should be ensured through a standard surveillance system in all hospitals, recognizable as the hospital component of post-crash care. For pre-hospital care components, communities need to be trained in first response care, to mitigate the delay and complications of RTAs. Limitations Underreporting and disorganized data are considered to be the major limitations of RTA data. The data quality was found to be inconsistent and the injury severity score was not calculated in any of the included studies. Many of the data sources that reported fatalities due to RTI do not follow the internationally recommended definition of a road traffic fatality, which include a day follow-up period. Due to the above constraints, meta-analysis could not be performed to estimate the size effects. In conclusion, the results of this review article clearly highlighted an indiscriminate description and explanations for RTAs in KSA due to the absence of emergency room-based injury surveillance systems. There were inherent gaps in the data presented due to the lack of adequate and uniform information from a variety of sources. This will help in developing a standardized data system for identification of the core factors and strategies to cope with the problem. Accordingly, road safety may be improved in the future by an advocacy of relevant primary preventive strategies in the population. Pattern of fractures and dislocations in a tertiary hospital in North-East India. *Internet Journal of Epidemiology*. World Health Statistics World Health Organization; World Report on Traffic Injury Prevention. A graphical

overview of the global burden of injuries. Global Status Report on Road Safety Causes and effects of road traffic accidents in Saudi Arabia. How can Saudi Arabia use the Decade of Action for Road Safety to catalyse road traffic injury prevention policy and interventions? National e-Government Portal; Road traffic injuries in Saudi Arabia, and its impact on the working population. J Egypt Public Health Assoc. Trauma cases admitted to the surgical intensive care unit--progress and outcome. Middle East J Anesthesiol. Saudi Arabia Monetary Agency. The 32nd Annual Report H. The Economical and Statistical Research Office; Consistency of Police and Health Data. Int J Health Sci Qassim ;6: A brief Planning Document. Road traffic accidents in Saudi Arabia. Isam S, Al Ghamdi A. Analysis of injuries resulting from road traffic accidents in Riyadh district. King Saud Magazine-Engineering Science. Trauma care systems in Saudi Arabia: East Mediterrian Health Journal. Injury patterns from road traffic accidents. Pakistan Journal of Medical Sciences. Analysis of road traffic accident victims seen dead on arrival at emergency room-Assir central hospital. J Family Community Med. Seat belt utilization in Saudi Arabia and its impact on road accident injuries.

Chapter 4 : Epidemiological Study of Road Traffic Accident Cases from Western Nepal

We collected all daily deaths caused by road traffic accidents (International Classification of Diseases 9th revision: EE) in all the 52 Spanish provincial capital cities between and , provided by the Spanish National Institute of Statistics.

Global Health Observatory; [cited]; Available from: Epidemiological pattern of road traffic injuries in Tehran-Abali Axis in Violence and Injury Prevention Global status report on road safety The global burden of disease: World Health Organization; Rostami kh, Zohori H, Rezaei S. Epidemiological study of fatal accidents in Ardabil Province from April to March Ardabil University of Medical Sciences. Epidemiology and risk of road traffic mortality in South Africa. South African Geographical Journal. Road traffic injuries in an urban area in Mexico: An epidemiological and cost analysis. Mortality from road traffic accidents in Switzerland: An epidemiological survey of fatal road traffic accidents and their relationship with head injuries. Journal of Indian Academy of Forensic Medicine. Pattern of injury in fatal road traffic accidents in a rural area of western Maharashtra, India. The Australasian medical journal. Road traffic injury incidence and crash characteristics in Dar es Salaam: Analysis of fatal road traffic accidents in a coastal township of South India. Journal of forensic and legal medicine. Fatal road traffic accidents and their relationship with head injuries: An epidemiological survey of five years. The Indian Journal of Neurotrauma. Road traffic injuries in Kenya: Risk factors for fatal road traffic accidents in Udine, Italy. World report on road traffic injury prevention. Epidemiology of fatal road traffic accidents in Northern provinces of Iran during to J Saf Promot Inj Prev. Epidemiology of fatal traffic injuries in the Sistan and Baluchistan province in Refbacks There are currently no refbacks. Design and publishing by Treata Medical Publishing Corporation.

Epidemiology of road traffic accidents 1. Epidemiology of Road Traffic Accidents Dr. Vikash R Keshri 2. Road Traffic Accidents Definitions Introduction & Problem Statements Agent factor Host factor Environmental Factor Impact of RTA Prevention of RTA Specific Intervention for.

Study was performed in a tertiary healthcare delivery institute in western Nepal. Demographic, human, vehicular, environmental and time factors. Percentages, linear and logarithmic trend and Chi-square. Most of the victims i. Increased prevalence of RTA was also noticed at beginning i. Out of vehicles involved; Head injury was found in In spite of a good percentage receiving first aid i. The estimated total days lost due to hospital stay was with an average of Most of the factors responsible for RTA and its fatal consequences are preventable. A comprehensive multipronged approach can mitigate most of them. Epidemiological factors, out comes, road and traffic accidents, western Nepal Introduction The statistical profile reflects a global estimate of 5. Out of this a quarter of injury-related deaths occurred in the South-East Asian region. This ever expanding epidemic targeting the young and productive generations is likely to take a heavy burden on the quality of life and socioeconomic growth of the region. It is situated in central Nepal; located at It spans 8 km from north to south and 6 km from east to west. Unlike Kathmandu, it is quite loosely built up. It is also one of the most popular tourist destinations in Nepal. The total area of Kaski district including Pokhara city is km² and has a population of 3,80, In no other place the mountains rise so quickly, within 30 km, from to over m. The Dhaulagiri, Annapurna and Manaslu ranges, each with peaks over m are within striking distance from Pokhara. Indeed, accurate estimates of the public health burden of RTA can establish the priority of this public health problem, and provide a rational basis for policy decisions. Studies on RTA are far and few in Nepal. Surprisingly, Pokhara being the second largest city and a tourist heartthrob has no epidemiological study on RTA. The geographical complexity of the region appears to make it a place of special interest. The backdrop this study, the first of its kind in Pokhara, was planned to determine the epidemiological determinants of RTA. Case definition For the purpose of the study, an RTA was defined as an accident, which took place on the road between two or more objects, in which one is any kind of moving vehicle and the other a human being. The victims and relatives in case of unconscious patients who did not consent to be a part of the study were excluded. Data collection A pre-tested proforma specially designed for this purpose was used. The information collected consisted of general epidemiological data, category of road users, day and time of accident, severity of injuries and treatment outcome. The medicolegal records and case-sheets of the victims were referred for collecting additional information and where necessary for cross-checking. Among RTA victims, most cases A high percentage of both fatal 30 cases out of total 66 Hindus and Buddhists dominated the study population i. Most of the cases were from joint family i. Victims from rural areas High prevalence of RTA was reported in school educated i. People from middle and low socioeconomic class were also affected more i. The detailed demographic profile is presented in Table 1.

Chapter 6 : Traffic collision - Wikipedia

Background and Objectives: Road traffic injuries are a major cause of death and disability blog.quintoapp.com study is done to investigate the epidemiology of fatal road traffic accidents in the Lorestan province in according to Legal Medicine findings.

Disclaimer The burden of road traffic crashes, injuries and deaths in Africa: Correspondence to Davies Adeloeye email: Bulletin of the World Health Organization ; This study aimed to review existing literature on published studies, registry-based reports and unpublished articles on the burden of road traffic injuries and deaths in the African continent to generate a continent-wide estimate of road traffic injuries and deaths for all road users and by road user type pedestrians, motorized four-wheeler occupants, motorized two- and three-wheeler users and cyclists. There was no language restriction. Search strategy of published studies on the burden of road traffic crashes, injuries and deaths in Africa. Disability adjusted life years. We excluded studies if they: For this study, a crash is defined as a road traffic collision that resulted in an injury or fatality. Injury refers to non-fatal cases from a road traffic crash. Quality assessment For each full text accessed, we checked if the study method had flaws in the design and execution. For the registry-based studies, we examined the study design, completeness, the appropriateness of statistical and analytical methods employed and if the limitations were explicitly stated. For each study, we assessed if the reported sample size or study population was appropriate to provide a representative estimate and if the heterogeneities within and between population groups undermine the pooled estimates. Studies not meeting this quality assessment were excluded. Data collection process Available data from all selected studies were extracted twice, compiled and stored in a spreadsheet. Reported road traffic crash, injury and death data for the overall study population and for the various categories of road users were extracted. The data were grouped by study setting and year of study, with corresponding age and sex categories. Studies were subdivided into population- and registry-based studies and analysed separately for all road users and by road user category. A random effects meta-analysis was conducted on extracted road traffic crash, injury and death rates. To give a better understanding of the data distribution and comparisons with the pooled estimates and the confidence intervals, we further presented the range, median and data points within each data set. Six were population-based and the remaining 33 were registry-based studies. Two studies were from Ethiopia, 10, 11 six from Ghana, 31 and 36 nine from Nigeria, 38 and 46 seven from South Africa 23 and 29 and five from the United Republic of Tanzania. The full data set is available from the corresponding author. Reported rates From all registry-based studies, Nigeria recorded the highest and lowest total crash rate at The road traffic injury rate is the highest recorded in any single study in Africa. For total crashes, the pooled rate was The pooled fatal crash rate was estimated at 9. Pooled crash injury and death rates were estimated at

Chapter 7 : Epidemiology of motor vehicle collisions - Wikipedia

The fatalities from Road Traffic Accidents (RTA) constitute a major cause of unnatural deaths among children in Chandigarh zone of North West India.

Traffic collisions can be classified by general types. Types of collision include head-on , road departure , rear-end , side collisions , and rollovers. Many different terms are commonly used to describe vehicle collisions. The World Health Organization uses the term road traffic injury, [4] while the U. Some organizations have begun to avoid the term "accident", instead preferring terms such as "collision", "crash" or "incident". Causes[edit] A study by K. Vehicle and road modifications are generally more effective than behavioral change efforts with the exception of certain laws such as required use of seat belts, motorcycle helmets and graduated licensing of teenagers. Examples include driver behavior, visual and auditory acuity, decision-making ability, and reaction speed. Nearly all drivers who had been in a crash did not believe themselves to be at fault. Although proficiency in these skills is taught and tested as part of the driving exam, a "good" driver can still be at a high risk of crashing because: Confidence feeds itself and grows unchecked until something happens – a near-miss or an accident. However, this does not translate to significantly lower crash rates in Ireland. There are demographic differences in crash rates. For example, although young people tend to have good reaction times, disproportionately more young male drivers feature in collisions, [20] with researchers observing that many exhibit behaviors and attitudes to risk that can place them in more hazardous situations than other road users. Older drivers with slower reactions might be expected to be involved in more collisions, but this has not been the case as they tend to drive less and, apparently, more cautiously. In Leeming warned that there is a balance to be struck when "improving" the safety of a road: This is, in part, because if drivers perceive a location as hazardous, they take more care. Collisions may be more likely to happen when hazardous road or traffic conditions are not obvious at a glance, or where the conditions are too complicated for the limited human machine to perceive and react in the time and distance available. High incidence of crashes is not indicative of high injury risk. Crashes are common in areas of high vehicle congestion, but fatal crashes occur disproportionately on rural roads at night when traffic is relatively light. This phenomenon has been observed in risk compensation research, where the predicted reductions in collision rates have not occurred after legislative or technical changes. One study observed that the introduction of improved brakes resulted in more aggressive driving, [23] and another argued that compulsory seat belt laws have not been accompanied by a clearly attributed fall in overall fatalities. Monderman developed shared space principles, rooted in the principles of the woonerven of the s. He concluded that the removal of highway clutter, while allowing drivers and other road users to mingle with equal priority, could help drivers recognize environmental clues. They relied on their cognitive skills alone, reducing traffic speeds radically and resulting in lower levels of road casualties and lower levels of congestion. Jose Luis Lopez Perez, a staged crash driver, died after one such maneuver, leading to an investigation that uncovered the increasing frequency of this type of crash. The evidence shows the risk of having a crash is increased both for vehicles traveling slower than the average speed, and for those traveling above the average speed. The risk of being injured increases exponentially with speeds much faster than the median speed. There is limited evidence suggesting lower speed limits result in lower speeds on a system-wide basis. Most crashes related to speed involve speed too fast for the conditions. More research is needed to determine the effectiveness of traffic calming. Assured clear distance ahead A common cause of accidents is driving faster than one can stop within their field of vision. These drivers have the highest incidence of both collisions and fatalities among all driver age groups, a fact that was observed well before the advent of mobile phones. Females in this age group exhibit somewhat lower collision and fatality rates than males but still register well above the median for drivers of all ages. Also within this group, the highest collision incidence rate occurs within the first year of licensed driving. For this reason, many US states have enacted a zero-tolerance policy wherein receiving a moving violation within the first six months to one year of obtaining a license results in automatic license suspension. Old age Old age , with some jurisdictions requiring driver retesting for reaction speed and

eyesight after a certain age. Sleep deprivation A graph outlining the relationship between number of hours driven and the percent of commercial truck crashes related to driver fatigue. Many jurisdictions now restrict or outlaw the use of some types of phone within the car. Recent research conducted by British scientists suggests that music can also have an effect; classical music is considered to be calming, yet too much could relax the driver to a condition of distraction. On the other hand, hard rock may encourage the driver to step on the acceleration pedal, thus creating a potentially dangerous situation on the road. National Safety Council compiled more than 30 studies postulating that hands-free is not a safer option, because the brain remains distracted by the conversation and cannot focus solely on the task of driving. For example, an accident may be caused by a driver who intends to commit suicide. Combining low doses of alcohol and cannabis has a more severe effect on driving performance than either cannabis or alcohol in isolation, [48] or Taking recommended doses of several drugs together, which individually do not cause impairment, may combine to bring on drowsiness or other impairment. Pedestrians or cyclists are affected in the same way and can similarly jeopardize themselves or others when on the road. Highway engineering and Road safety A potential long fall stopped by an early guardrail, ca. Guardrails , median barriers , or other physical objects can help reduce the consequences of a collision or minimize damage. Most of these crashes also involved a human factor. In these circumstances, it is frequently the driver who is blamed rather than the road; those reporting the collisions have a tendency to overlook the human factors involved, such as the subtleties of design and maintenance that a driver could fail to observe or inadequately compensate for. Individual roads also have widely differing performance in the event of an impact. In Europe, there are now EuroRAP tests that indicate how "self-explaining" and forgiving a particular road and its roadside would be in the event of a major incident. Vehicle design and maintenance[edit] A Chevrolet Malibu involved in a rollover crash Seatbelts Research has shown that, across all collision types, it is less likely that seat belts were worn in collisions involving death or serious injury, rather than light injury; wearing a seat belt reduces the risk of death by about 45 percent. Several important driving behaviors were observed on the road before and after the belt use law was enforced in Newfoundland, and in Nova Scotia during the same period without a law. Belt use increased from 16 percent to 77 percent in Newfoundland and remained virtually unchanged in Nova Scotia. Four driver behaviors speed, stopping at intersections when the control light was amber, turning left in front of oncoming traffic, and gaps in following distance were measured at various sites before and after the law. Changes in these behaviors in Newfoundland were similar to those in Nova Scotia, except that drivers in Newfoundland drove slower on expressways after the law, contrary to the risk compensation theory. The design of vehicles has also evolved to improve protection after collision, both for vehicle occupants and for those outside of the vehicle. In the early s, British Leyland started an intensive programme of vehicle safety research, producing a number of prototype experimental safety vehicles demonstrating various innovations for occupant and pedestrian protection such as air bags , anti-lock brakes , impact-absorbing side-panels, front and rear head restraints, run-flat tires, smooth and deformable front-ends, impact-absorbing bumpers, and retractable headlamps. Common features designed to improve safety include thicker pillars, safety glass, interiors with no sharp edges, stronger bodies , other active or passive safety features, and smooth exteriors to reduce the consequences of an impact with pedestrians. The UK Department for Transport publish road casualty statistics for each type of collision and vehicle through its Road Casualties Great Britain report. Center of gravity Some crash types tend to have more serious consequences. Rollovers have become more common in recent years, perhaps due to increased popularity of taller SUVs , people carriers , and minivans , which have a higher center of gravity than standard passenger cars. After retrofitting these systems to its models in "â€", Mercedes saw its models involved in fewer crashes. This difference is reflected in the casualty statistics, where they are more than twice as likely to suffer severely after a collision. In , there were , road crashes with , reported casualties on roads in Great Britain. This included 3, deaths 1.

Chapter 8 : Sparrho | Epidemiology of Road Traffic Injuries among Elderly People;

All extracted data on road traffic crashes, injuries and deaths were converted to rates per population. Studies were

subdivided into population- and registry-based studies and analysed separately for all road users and by road user category.