Trauma Unit volumes: Is there a relationship with weather, sporting events and week/month-end times? An audit at an urban tertiary trauma unit in Cape Town

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DECLARATION

I, Dr Karen Milford, hereby declare that the work on which this dissertation is based is my original work and that neither the whole work or any part of it has been, is being, or is to be submitted for another degree in this or any other university.

Signature:

Signed by candidate

Date: 12 August 2015

Abstract

Background

The Trauma Unit at Groote Schuur Hospital is a mature, tertiary, high-volume trauma referral centre. The number of patients being treated in the unit at any given time can vary greatly. There is evidence to suggest that these fluctuations may be related to external and environmental factors, such as time of the day, week and month, local weather and significant home-team sport matches.

Objective

The objective of this audit was to determine the relationship between volumes of patients in the unit, and environmental factors. Specifically, we aimed to determine whether the numbers of patients presenting after motor vehicle collisions and interpersonal violence was related in any way to temporal factors (time of day, week and month), weather variables (temperature and precipitation), and whether or not major or home-team soccer matches were being played.

Methods

Trauma Unit admission records were examined retrospectively, and the numbers of patients presenting to the unit per shift for a total of 17 months was recorded. Patients were grouped according to their presenting complaints. Weather data, Premier Soccer League and Bafana Bafana match locations and results, and information regarding public holidays and long weekends were obtained for the relevant shifts. Average daily attendances for interpersonal violence (IPV)-related injuries and motor vehicle collisions (MVCs) were compared across the various external factors described. Poisson regression models were fitted using Stata 13 (StataCorp. 2013. *Stata Statistical Software: Release 13*. College Station, TX: StataCorp LP). and used to express the relative incidence of attendances. These results were expressed using incidence rate ratios (IRRs).

Results

In total, 16 706 attendances were recorded over 1 074 shifts. Of these, 7 350 (44%) attendances were due to injuries sustained as a result of interpersonal violence (IPV), and 3 188 (19%) were due to MVCs.

Predictors of increased attendances due to MVC-related injuries were week day shifts, and night shifts on long weekends, and on weekends that fell on the last day of the month. Weekend nights shifts were busier than week night shifts from this perspective. Public holiday shifts were shown to have less MVC-related attendances than an ordinary week day. The presence of precipitation was also shown to increase the number of MVC-related attendances.

IPV-related attendances were always increased on night shifts compared to day shifts, except on public holidays, long weekends, and on weekends that fell on the last day of the month. All weekend shifts were busier than their corresponding week day shifts from an IPV-related perspective, and this effect was enhanced on weekends that fell on the last day of the month. Long weekends showed very similar trends to ordinary weekends, and public holidays showed similar trends to ordinary week days. Increasing temperatures are associated with increased attendances due to IPV. Soccer matches and their outcomes have no significant effect on attendances due to IPV.

Conclusions

Temporal and weather factors can be used to predict which trauma unit shifts will be busiest.

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CHAPTER 1

Introduction and Literature Review

1. Introduction

The purpose of this audit is to analyse the volumes of patients presenting to a mature tertiary trauma unit in Cape Town, and the relationship between these volumes and environmental variables: the weather, temporal factors, and home-team matches.

The very nature of the pathology treated in trauma units makes the volume of patients presenting to these types of units unpredictable. Entirely dependant on the incidence of unplanned events in their feeder area, units may find themselves either extremely full, extremely empty, or somewhere in-between, at any given time. The experience at the Groote Schuur Trauma Unit reflects this: during some 12-hour shifts as few as four patients may be treated, whilst on other shifts more than ten times that number may present. Determining a relationship between patient flow and environmental factors may be useful both for resource allocation within and around the unit, and to identify areas where prevention may be possible.

1.1 Groote Schuur Trauma Unit: Background

The Trauma Unit at Groote Schuur, known within the hospital as C14, is one of two tertiary-level, state-run trauma facilities in the Western Cape which in 2011 had a population of around 5.8 million (1). Situated in Observatory in Cape Town, it takes adult trauma referrals from district and regional-level facilities in the province, as well as walk-ins from the immediately local area. Crime rates within Cape Town are high: the murder rate is higher than in any other city in South Africa (2). In 2012, over six of the busier police precincts in the unit's catchment area, there were 615 attempted murders, 3 665 assaults with grievous bodily harm, 5 787 common assaults, and 1 611 sexual crimes reported (3). The incidence of road traffic accidents is also high, with over 1200 road fatalities in the Western Cape in each of the 2009/2010 and 2010/2011 periods (4). Although many of the victims of these events will be treated at district- and regional-level facilities, as well as at private hospitals, cases requiring tertiary-level specialist and intensive care are referred on to Groote Schuur Hospital.

Patients attending the trauma unit fall into several categories with regards to the aetiology of their trauma. Some are victims of interpersonal violence and others are victims of vehicle-related accidents, as pedestrians, or as passengers or drivers in cars and trains. There is a group of patients who fall victim to unintentional, non-motor vehicle collisions, such as sporting and work-related injuries. Finally, there are small groups of patients who are victims of self-harm, and of events which are not trauma-related but dealt with in the unit, such as retained rings on fingers.

The Trauma Unit itself consists of a 'front-room' casualty area, which includes a 4-bed resuscitation unit, and is where patients are assessed upon arrival. From here they are either treated and discharged, or admitted to the trauma ward or an Intensive Care Unit for further care. The front room is staffed according to a twelve-hour shift system. Staff numbers per shift vary, with weekend and daytime shifts being more generously staffed than week-night shifts, for example. This allocation is based on experience of fluctuating patient numbers over the years.

No study has previously been undertaken in this unit to assess which shifts are most likely to be busy (or quiet), and which, if any, environmental factors impact on patient volumes. This audit aims to do that by comparing volumes of patients presenting in each category of trauma per shift over a seventeen-month period, to external factors. The external factors chosen for this audit include local weather conditions (temperature and precipitation), temporal factors (time of the week and month, and public and religious holidays), and sporting events (specifically: Premier Soccer League matches played by local teams). The selection of these particular factors for examination was based on authors' discussions with past and present Trauma Unit staff, and commonly held beliefs about external influencers of patient volumes.

1.2 External factors chosen for this study and Cape Town

1. Weather

Cape Town has a warm-summer Mediterranean climate. Summer lasts from early December to March, and is warm and dry, with average temperatures ranging from 16 to 26 degrees Celcius. Winter, from the beginning of June to the end of August, is the wet season, with an average annual rainfall of 515 millilitres. Winter temperatures range, on average, from 8.5 to 18 degrees Celcius. (5)

2. Temporal Factors

The Work Week and Pay Day

Based on personal experience, trauma unit staff report that the busiest shifts of the week are Friday and Saturday nights, and that month-end weekends are the busiest of all. Alcohol use is implicated in 30% of admissions to the Groote Schuur Trauma Unit (6), and there is a belief supported by some evidence that off-duty, recently paid individuals are more likely to become intoxicated (7). The traditional work week in South Africa is from Monday to Friday, although many workers will also work on Saturdays (the only day of the week that requires specific arrangements and extra pay is Sunday). Night-time work is also only by special arrangement. The day of payment of wages and salaries is according to the agreement between the employer and the employee and varies greatly, but most often weekly wages are paid on a Friday, and monthly wages paid in the last week of the month. (8)

Public Holidays

There are 12 official public holidays per year in South Africa, and in the case of a holiday falling on a Sunday, the Monday thereafter is also declared a public holiday. Several Christian holidays, including Christmas Day, Good Friday and Family Day (the Monday following Easter Sunday) are legislated public holidays (9).

Soccer Matches

The Premier Soccer League was founded in 1996, and is the top-level football league in South Africa. The highest division within the league is the South African Premier Division, and consists of a tournament between 16 South African clubs. Each club plays each other twice per tournament season, once at their home stadium, and once away. The team that finishes at the bottom of the log at the end of a season is relegated to another division and replaced by the winner of the National First Division. Soccer season runs from August through to May of the following year (10).

Cape Town is home to several soccer teams, the biggest of which is Ajax Cape Town. This team was founded in 1998 and has never been relegated from the Premier Division. Its home games are played at Cape Town Stadium in Greenpoint.

2. Literature Review

2.1 Objective

The objective of the literature review was to determine international and local experience with regards to the topic.

2.2 Literature search strategy

A series of PubMed searches were conducted to access the Medline data base. The keywords 'trauma unit', 'holiday*', 'weather', 'motor vehicle accident*', 'road traffic accident*', 'precipitation', 'trauma', 'assault', 'soccer', 'football', 'sport', 'spectator sport', 'weekend', 'climate', 'rainfall', weather', 'temporal factors', 'time of day', 'month end' and 'temperature' were used in various combinations. Articles looking specifically at burns admissions were excluded, as burns in Cape Town are dealt with in separate, dedicated units. Articles looking at injuries sustained because of specific interaction with snow (such as snow-sports, or shovelling snow) were also excluded, as there is very little snow in Cape Town. Non-English language articles were also excluded.

All the articles included were original articles. Of note is that several articles not pertaining specifically to volumes in trauma units were included. These included articles that sourced the incidences of violent crimes (including homicides, rapes and domestic abuse) and MVCs through police, law enforcement agency and insurance company records. The reasoning behind this was that the circumstances that ultimately result in a trauma unit visit or police involvement in a situation are similar. However, a homicide investigated by the police may never pass through a trauma unit, and the same could be true of an MVC resulting in an insurance claim but no injury. Nevertheless, studies examining the same environmental factors that surround these incidences as this audit does were thought to offer useful background to this audit's subject.

Of note is that there is a dearth of South African or African literature on the subject. In fact, only two relevant articles were found: one comparing paediatric trauma volumes at major Cape Town centres during the 2010 FIFA World Cup to volumes in the equivalent weeks in the preceding three years, and a Kenyan article looking at factors affecting road traffic accident severity.

Interpersonal Violence

For the purposes of this audit, 'Interpersonal Violence' was defined as any trauma that occurred as a result of a non-accidental injury at the hands of one or more individuals. For the purposes of the

literature review, the word 'assault' was used as a search term. This term led to several articles looking at factors linked to assault, to homicide and other violent crime, and to aggression.

Motor Vehicle Collisions (MVC)

Motor vehicle collisions refer to any injury that occurs as a result of interaction with a vehicle, either as a driver or passenger within the vehicle, or as a pedestrian or cyclist. Injuries occurring as a result of train accidents were also included in this group. The search terms 'Motor Vehicle Accident*' and 'Road Traffic Accident*' were used to find relevant papers.

Accidents

Accidents are injuries which do not occur as a result of interpersonal violence, of a motor vehicle collision, or of intentional self-harm. Using this word as a search term yielded masses of literature, much of it not relevant to the topic. However, searching the terms 'trauma unit' and 'trauma', in conjunction with another relevant search term yielded several papers looking at general trauma unit admissions, as well as some papers looking at orthopaedic case load and their relationship with the relevant external factors.

2.3 Interpretation of literature

I. Trauma unit visits and temporal factors: time of the day, week and month, and holidays

Day versus Night

Studies agree that total trauma unit visits and admissions increase at night (11–13). This seems to be particularly true for admissions as a result of interpersonal violence (12): specific studies show that homicides (14,15), rape and domestic violence (16) occur more frequently at night, after sunset.

With regards to motor vehicle collisions, studies from the Middle East (17–19) show that they are more likely to occur at times of 'dazzling light' - at sunset or sunrise. Also, the severity of the injuries sustained in motor vehicle collisions is greater at night, with more fatalities recorded (20–22). The increased incidence and severity at sunrise and sunset, and at night is attributed to poorer visibility. One study found that the relationship between numbers of truck collisions and time of day was dependent on additional factors, such as precipitation and numbers of trucks on the road(23).

Midweek versus Weekend

Studies demonstrate increased trauma unit volumes on Saturdays and Sundays in general (13,24), with numbers tailing off on Mondays and units becoming quieter Tuesday through Thursday (25,26). This weekend increase, experienced in numerous countries, seems to represent a surge in assault-related and motor vehicle collision-related trauma. Homicides (14,15), incidences of partner maltreatment (27) and incidences of sexual assault (28) are more numerous on weekends, and several trauma units in the United Kingdom (29,30) have reported increased assault-related admissions on the weekends. Several studies show a 'tail' on Mondays (15,26,30), which have lower numbers than the weekends, but are not as quiet as the mid-week. This is possibly explained by the fact that the weekends are when people are more likely to spend time with each other outside of formal work environments, and are more likely to drink alcohol, or use drugs, which are associated with increased levels of assault (27). The Monday tail may represent delayed presentations from the weekend.

With regards to motor vehicle collisions, studies show that not only are they more numerous on Fridays and Saturdays (12,31), but also have a tendency to higher fatality (20,22). The authors of the Honolulu study (31) point out that although the traffic volume is Honolulu is higher on Fridays, the spike is disproportionate to this volume increase, and that several other variables - increased social gatherings and alcohol consumption, and increased shopping and family entertainment - probably play a role. One study from Qatar showed a significant decrease in the number of motor vehicle collisions occurring on a Friday (19), and this is possibly due to the fact that Friday afternoons are reserved for prayer (Jumuah) and a meal with family at home.

One study from the Leicester Royal Infirmary in the United Kingdom stands out in that it found its busiest days were at the beginning of the week (11). They found that their general volumes of patients were increased on Mondays and Tuesdays, but it should be noted that a third of adults seen were elderly people presenting with neck of femur fractures. The incidence of specific injuries and their relationship to temporal factors was not specifically looked at for this review. Specific injury types (such as head injuries, glassing injuries and so forth) may have temporal patterns that are independent of the category they fall into for this review.

Time of the month

Few studies looked specifically at whether or not there was a month-end surge in trauma. Those that did found that there was no 'end-of-month effect' with regards to the incidence of assault (29), and that day of the month had no relationship to the overall number of trauma admissions (24,25). One study that looked at incidences of domestic partner violence in the US Air Force found that they were increased on the first day of the month (27).

Holidays

Western studies show that incidences of assault increase on the evenings before bank holidays (29) and on the day of public holidays such as Independence and Memorial Day (27). There is a particular increase in the incidence of assault on New Years' Eve (27,29,30). Looking at a study in Liverpool, the mean incidences occurring on the eve of a public holiday are similar to the mean on Friday nights, but New Years' Eve demonstrates a large spike, with more than double the number of presentations compared to other holiday eves (29). This may reflect the particularly festive nature of New Years' Eve parties, which are often very large. A study on homicide in Brazil demonstrated that that there is increased incidence of homicide in the months when people traditionally take vacation, although not necessarily on specific bank holidays (14), whereas a study from the Netherlands found there were significantly less trauma admissions during school holidays (24). One study found that motor vehicle collisions were increased on minor holidays (days when only part of the population took off from work) - this was thought to possibly be due to the combination of normal work traffic with additional holiday traffic on those particular days. This study also found there was an insignificant decrease in the number of MVCs on major holidays (31). Data from the Road Traffic Management Corporation show that in 2009/2010 and 2010/2011, the months with most road fatalities were July and December, which coincide with the South African school holidays (4).

II. Trauma unit visits and the weather: Temperature and precipitation

Regarding numbers of trauma admissions in general, numerous studies show increased numbers of admissions in 'good' weather - that is weather that is warm, dry and with long daylight hours (11,13,24,25,32,33). It should be noted that in some studies the increase in admissions was due to a rise in paediatric admissions, whilst adult admissions stayed relatively constant (11). On the whole, rain, snow and other precipitation also seem to increase numbers of admission and

workload (13,24,32,34) although one study found that patient numbers dropped as rainfall increased, and that snow had no impact (25). One study from Taiwan found that change in temperature was a more sensitive marker for changes in patient volumes than absolute temperature (33).

Higher temperatures do seem to result in increased levels of assault. Warmer quarters and seasons of the year show an increased level of violent crimes when compared to their cooler counterparts (14,35,36). This could be attributed to the fact that the warmer quarters and seasons tend to have more holiday months, but studies comparing year-on-year trauma statistics show that hotter years have increased rates of serious deadly assault and violent crimes when compared to cooler years (35,37). Studies that examine increase in assault as compared to an increase in temperature find that there is a positive correlation (36,38,39). This relationship is usually curvilinear with assaults increasing in number up to a certain point, and then stabilising or tailing off (36,40), with an inflection point that is dependent on the baseline weather for a particular area, with cities that have lower mean temperatures having a lower inflection point than those with higher means (40). However, temporal factors are important: at night, which is a relatively high-assault period compared to the day, the relationship becomes more linear (40,41). A study from Australia looking at trauma incidences during heatwave, defined as a temperature of more than 35 degrees celsius sustained for three or more days, found that there was a 13% increase in assault-related injuries during a heatwave (38). Only one study from Wales found that there was no correlation between ambient conditions and incidences of violence (30). Domestic violence may be increased in good weather (16,28). Rape and sexual assault do not seem to be affected by weather and rainfall, and this may be because they are often premeditated crimes rather than those of opportunity, and thus less dependent on ambient conditions (16). Regarding why intentional trauma increases in warm weather, there are theories that impulse control is impaired at high temperatures (37), but also that the warmer months are when people are likely to interact more with friends and family, and that this leads to increased assault (42).

Regarding non-intentional and non-motor vehicle collisions, there were decreased falls and sports injuries reported during heatwaves (38). Neck of femur fractures seem to have no relation to ambient temperature (11) although may be increased when there is increased precipitation (43).

The impact of temperature and precipitation on the incidence of motor vehicle collisions seems to be dependent on the types of roads and the traffic volume within a particular area. A European study, for example, found that temperature and precipitation correlated differently to MVCs in France, Athens and the Netherlands, depending on the type of road (main, urban or rural) and the

city (44). In other examples, rainfall intensity has been found to be significant in predicting increased crash incidence and severity in several studies (21,22,31,45,46), but other studies from the Middle East show that most crashes occur on sunny days or at times of 'dazzling' light, or in extreme heat (17–19). There is another subgroup of studies that find no correlation between ambient conditions and the incidence of MVCs at all (20,25).

III. Trauma unit visits and sport matches

The literature demonstrates that a home team win for sports such as soccer and rugby results in increased feelings of aggression in the winning team's supporters (47), and results in increased emergency unit visits and incidences of assault (48–50) when compared to a home team loss. In addition, several studies showed that a home team international sporting event increased trauma unit volumes and incidences of assault in particular (27,29,49,51,52), regardless of the outcome of the match, but that local matches made no difference (29,49). Studies from London and from South Africa demonstrated decreased trauma volumes in certain units when these locations played host to major international sporting tournaments (29,53), but otherwise whether a match is played on home turf or away seems to make little difference (30,48). Whether or not the fan psychology of winning and losing is different for different team sports (such as hockey and cricket compared to the sports mentioned above) would be an interesting question.

2.4 Conclusion

International literature demonstrates that there is a relationship between trauma unit volumes and external factors, such as the weather, temporal factors and important sport matches. Night-time, weekends, home-team sporting matches and warmer temperatures seem to be risk factors for increased amounts of interpersonal-violence related trauma. Motor-vehicle accidents also seem to be increased at night-time and on weekends, and also in periods of extreme weather, such as during heavy rainfall or times of very dazzling light.

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CHAPTER 2

Publication-Ready Manuscript

2.1 Title Page

2.1.1 Title of Paper

Trauma Unit volumes: Is there a relationship with weather, sporting events and week/month-end times? An audit at an urban tertiary trauma unit in Cape Town

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2.2 Mini Abstract

Volumes of patients presenting to trauma units can vary greatly from shift to shift. This audit demonstrates that the strongest predictor of patient volumes within the study trauma unit are time of day, week and month. Precipitation is a predictor of motor vehicle collision-related injuries, and increasing temperature is a predictor of increased numbers of injuries related to interpersonal violence.

2.3 Structured Abstract

Abstract

Background

The Groote Schuur Hospital Trauma Unit is a mature, tertiary, high-volume trauma referral centre. The number of patients being treated in the unit at any given time can vary greatly. There is evidence to suggest that these fluctuations may be related to external and environmental factors, such as time of the day, week and month, the weather, and whether or not significant sporting matches are being played.

Objective

The objective of this audit was to determine the relationship between volumes of patients in the unit, and environmental factors. Specifically, we aimed to determine whether the numbers of patients presenting after motor vehicle collisions and interpersonal violence was related in any way to temporal factors (time of day, week and month), weather variables (temperature and precipitation), and whether or not major or home-team soccer matches were being played.

Methods

Trauma Unit admission records were examined retrospectively, and the numbers of patients presenting to the unit per shift for a total of 17 months was recorded. Patients were grouped according to their presenting complaints. Weather data, Premier Soccer League and Bafana Bafana match locations and results, and information regarding public holidays and long weekends were obtained for the relevant shifts. Average daily attendances for interpersonal violence (IPV)-related injuries and motor vehicle collisions (MVCs) were compared across the various external factors described. Poisson regression models were fitted using Stata 13 (StataCorp. 2013. *Stata Statistical Software: Release 13*. College Station, TX: StataCorp LP), and used to express the relative incidence of attendances. These results were expressed using incidence rate ratios (IRRs).

Results

In total, 16 706 attendances were recorded over 1 074 shifts. Of these, 7 350 (44%) attendances were due to injuries sustained as a result of interpersonal violence (IPV), and 3 188 (19%) were due to MVCs. Predictors of increased attendances due to MVC-related injuries were week day shifts, and night shifts on long weekends, and on weekends that fell on the last day of the month. Weekend nights shifts were busier than week night shifts from this perspective. Public holiday

shifts were shown to have less MVC-related attendances than an ordinary week day. The presence of precipitation was also shown to increase the number of MVC-related attendances.

IPV-related attendances were always increased on night shifts compared to day shifts, except on public holidays, long weekends, and on weekends that fell on the last day of the month. All weekend shifts were busier than their corresponding week day shifts from an IPV-related perspective, and this effect was enhanced on weekends that fell on the last day of the month. Long weekends showed very similar trends to ordinary weekends, and public holidays showed similar trends to ordinary week days. Increasing temperatures are associated with increased attendances due to IPV. Soccer matches and their outcomes have no significant effect on attendances due to IPV.

Conclusions

Temporal and weather factors can be used to predict which trauma unit shifts will be busiest.

2.4 Main Paper

Introduction

'It's very clear; it's the first or second day of every month; whenever there's money and alcohol.'
– Dr Sa'ad Lahri, (SAMJ Izindaba November 2014), describing peak trauma times at Khayelitsha District Hospital in Cape Town (1)

The number of patients presenting to a trauma unit can vary greatly from shift to shift and from day to day. Events leading up to a presentation at a trauma unit are unplanned and therefore unpredictable, but staff working in trauma units will report that factors such as time of the day, week and month, local weather conditions and major sporting events play a role in unit busyness. The purpose of this audit was to assess the relationship between temporal factors (time of day, week and month, public and religious holidays), weather variables and major soccer matches, and the volumes of patients presenting due to interpersonal violence-related injuries and MVCs. There is a dearth of South African literature on the subject. Trauma unit staff anecdotally predict that the busiest times are month-end weekends, and the purpose of this audit was to test this theory, using data for the Trauma Unit at Groote Schuur Hospital in Cape Town.

The Trauma Unit at Groote Schuur Hospital is one of two tertiary-level, state-run adult trauma facilities in the Western Cape, a province in South Africa. Rates of interpersonal violence are high in Cape Town: the murder rate is higher than in any other South African city (2) and thousands of assaults, common assaults and sexual assaults are reported each year (3). Motor vehicle collisions also occur frequently, with over 1200 road fatalities in the Western Cape in each of the 2009/2010 and 2010/2011 periods (4). Victims of these assaults and accidents are treated at a variety of district and regional-level facilities around the city, but those requiring tertiary-level care will be referred on to Groote Schuur Hospital. Of note is that the Groote Schuur catchment area also includes some areas outside of the City of Cape Town metropole.

Temporal factors (time of day, week and month and public holidays), weather (temperature and precipitation) and soccer matches were chosen as the external factors to compare trauma unit volumes for this audit.

Regarding temporal factors, the conventional South African work-week is from Monday to Friday with work on evenings, weekends and public holidays by special arrangement only.

Cape Town has a warm-summer Mediterranean climate. Summer lasts from early December to March, and is warm and dry, with average temperatures ranging from 16 to 26 degrees Celcius. Winter, from the beginning of June to the end of August, is the wet season, with an average annual rainfall of 515 millilitres. Winter temperatures range from 8.5 to 18 degrees Celcius, on average. (5)

Soccer is a popular sport in South Africa, which played host to the FIFA Soccer World Cup in 2010. The Premier Soccer League (PSL) is the top-level football league in the country, and the Premier Division of this league consists of 16 clubs who play an annual tournament. Ajax Cape Town is a local club that has represented consistently in the Premier Division since its founding in 1998, but the two PSL clubs that enjoy the most enthusiastic support are Kaiser Chiefs and The Orlando Pirates. The South African national team is known as Bafana Bafana.

Methods

Study design

This study was a retrospective audit.

Data Collection

Patients who presented to the Groote Schuur Hospital Trauma Unit as a result of injuries sustained due to interpersonal violence and motor vehicle collisions were included in the audit. The time frames were 8/1/2011 to 11/6/2011, and 14/11/2011 to 29/11/2012. The unit's admission logs, which record each patient attending the unit along with their presenting diagnosis or complaint, were studied, and attendances were entered into an Excel spreadsheet containing categories for interpersonal violence, motor-vehicle accidents, accidents, miscellaneous problems and 'unknown'. 'Motor vehicle collisions' (MVCs) refers to all injuries sustained either as a driver or passenger in a motor vehicle, as a pedestrian or cyclist in collision with a motor vehicle, or injuries sustained in accidents involving trains. 'Accidents' were injuries that were not sustained as a result of interpersonal violence or a motor vehicle collision(such as falls, sporting injuries, and injuries sustained at work), and miscellaneous problems are those that are traditionally dealt with in the trauma unit, but are not specifically as a result of trauma (an example of this would be a ring stuck on a finger). Each date of the study period was divided into two shifts (a day shift was defined as a

period from 7am to 7pm, and a night shift was defined as a period from 7pm to 7am the following morning), and attendances were recorded as a number of instances per shift.

Shifts that fell on South African public holidays were used in analyses comparing volumes on public holidays to other days, and if a public holiday fell on a Friday, Sunday (in which case it was celebrated on the Monday) or Monday, that weekend was considered a long weekend.

Details of home-team (Ajax Cape Town, Kaiser Chiefs, Orlando Pirates and Bafana Bafana) soccer matches were entered into the spreadsheet. Whether the team played at home or away was recorded, along with whether the team won, lost or drew the match. Archived Ajax, Chiefs and Pirates results were obtained from the PSL website, and archived Bafana results were obtained from the South African Football Association website.

Data regarding temperature and precipitation in Cape Town for the study period was obtained via personal correspondence with the South African Weather Service.

Statistical Analysis

Average daily attendances for IPV-related injuries and MVCs were compared across various temporal factors. To do this, Poisson regression models were constructed. Regarding the construction of these models: the goal of this study was to model the relationship between the number of trauma attendances in each category and various external factors (time of day, week and month, temperature and precipitation, and the location and outcomes of PSL soccer matches). The Poisson model was assumed to be appropriate as the observed variable (trauma unit attendances) was not over-dispersed and did not have excessive zeros. A Mixed Effect Model with Poisson distribution was used to create a Poisson regression model using Stata 13 (StataCorp. 2013. *Stata Statistical Software: Release 13*. College Station, TX: StataCorp LP). For these models, the number of trauma unit attendances constitutes the response variable in the Poisson regression, and the external variables constitute the predictor variables. The Poisson regression coefficients were then estimated by comparing predictor variables, whilst holding other variables in the model constant. The results were then expressed using incidence rate ratios (IRRs).

Results

In total, 16 706 attendances were recorded over 1 074 shifts. Of these, 7 350 (44%) attendances were due to injuries sustained as a result of interpersonal violence (IPV), and 3 188 (19%) were due to MVCs (see figure 1).

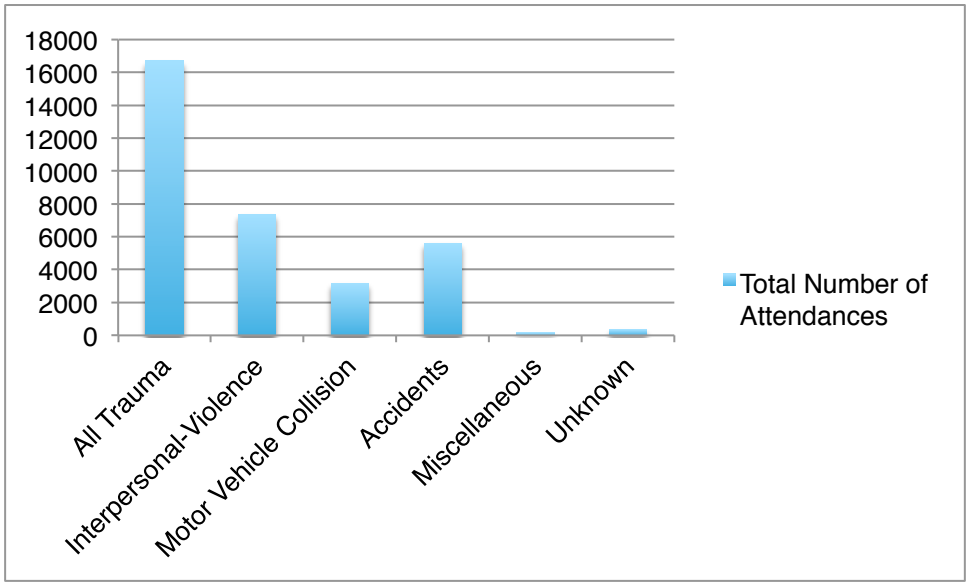

Figure 1: Number of attendances in each trauma category for the study period

When looking at the averages for total numbers of patients presenting for all trauma types, it is clear that, on average, the weekends are busier than the week-days. In general, the quietest shifts fall in the middle of the week (Tuesdays through Thursdays), with the night shifts being less busy than the day shifts (see figure 2).

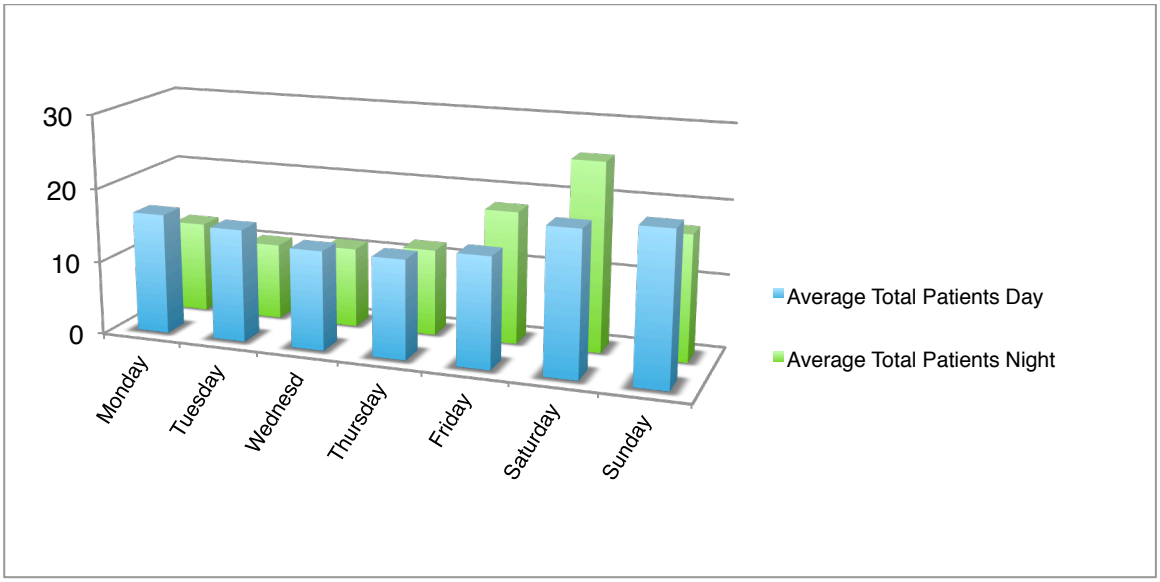

Figure 2: Average number of total patients per shift for study period

Motor Vehicle Collisions

Temporal relationships

Comparing day shifts to night shifts, incidence of MVC-related injuries was decreased by 14% (95% CI 0.79 – 0.95) on night shifts compared to day shifts during the week. On ordinary weekends and public holidays, there was no statistically significant difference in attendances for MVC-related injuries between day and night shifts. However, on long weekends attendances for MVC-related injuries was increased by 93% (95% CI 1.10 – 3.32) at night compared to the day, and if the last day of the month fell on a weekend, attendances for MVC-related injuries was increased by 156% (95% CI 1.14 – 5.65) on the night shift compared to the day shift.

Comparing week shifts to weekend shifts, there was no statistically significant difference between attendances for MVC-related injuries on an ordinary week day and weekend day shift, but weekend nights saw a 66% (95% CI 1.24 – 2.21) increase in these injuries compared to week night shifts. Regarding public holidays, if the holiday fell on a week day there was a 59% (95% CI 0.17 – 0.98)

decrease in attendances for MVC-related injuries on the day shift compared to a normal week day, and if the holiday formed part of a long weekend there was a 39% (95% CI 0.44 – 0.99) decrease in these types of injuries. Night shifts on public holidays and long weekends showed no statistically significant difference in attendance for these kinds of injuries when compared to ordinary week nights. Regarding month end, there was no statistically significant difference in attendances for MVC-related injuries compared to corresponding week shifts, regardless of whether the last day of the month fell on a week day or a weekend.

Weather Relationships

The presence of rain on a particular day resulted in a 12% (95% CI 1.002 – 1.249) increase in attendances for motor-vehicle related injuries on that day. Change in temperature resulted in no significant change in the number of attendances (Table 1).

Table 1: Incidence rate ratios for Motor Vehicle Collisions

MVC	IRR	Lower CI	Upper CI
(Intercept)	2.742	2.224	3.381
Precipitation (Rain vs. no rain)	***1.118***	***1.002***	***1.249***
Max Temp	0.999	0.991	1.008
Night vs. Day (for weekdays)	***0.863***	***0.788***	***0.945***
Night vs. Day (for public holidays)	0.506	0.113	2.270
Night vs. Day (for weekends)	1.274	0.995	1.632
Night vs. Day (for long weekends)	***1.909***	***1.096***	***3.323***
Night vs. Day (for month-end weekday)	1.138	0.627	2.065
Night vs. Day (for month-end weekend)	***2.540***	***1.142***	***5.646***
Night vs. Day (for religious)	0.962	0.590	1.568
Public Holiday vs. Weekday (daytime)	***0.412***	***0.173***	***0.978***
Weekend vs. Weekday (daytime)	1.122	0.985	1.278
Long Weekend vs. Weekday (daytime)	***0.655***	***0.435***	***0.985***
Month-End Weekday vs. Weekday (daytime)	0.783	0.520	1.177
Month-End Weekend vs. Weekday (daytime)	0.792	0.409	1.534
Religious vs. Weekday (daytime)	1.387	0.998	1.929
Public Holiday vs. Weekday (night-time)	0.241	0.025	2.350
Weekend vs. Weekday (night-time)	***1.656***	***1.243***	***2.207***
Long Weekend vs. Weekday (night-time)	1.448	0.605	3.464
Month-End Weekday vs. Weekday (night-time)	1.032	0.414	2.573
Month-End Weekend vs. Weekday (night-time)	2.331	0.593	9.165
Religious vs. Weekday (night-time)	1.546	0.747	3.200

Interpersonal violence-related injuries

Temporal Relationships

Attendances for IPV-related injuries were increased for nighttime shifts compared to daytime shifts for both ordinary week days and weekends (Figure 3). During the week, night shifts see 44% (95% CI 1.35 – 1.54) more IPV-related injuries, and on weekends night shifts see 30% (95% CI 1.10 – 1.54) more IPV-related injuries compared to daytime shifts. Peculiarly, when looking at attendances for IPV-related injuries for night versus day shifts on public holidays, long weekends, and week days or weekends that fell on the last day of the month, there was no statistically significant difference.

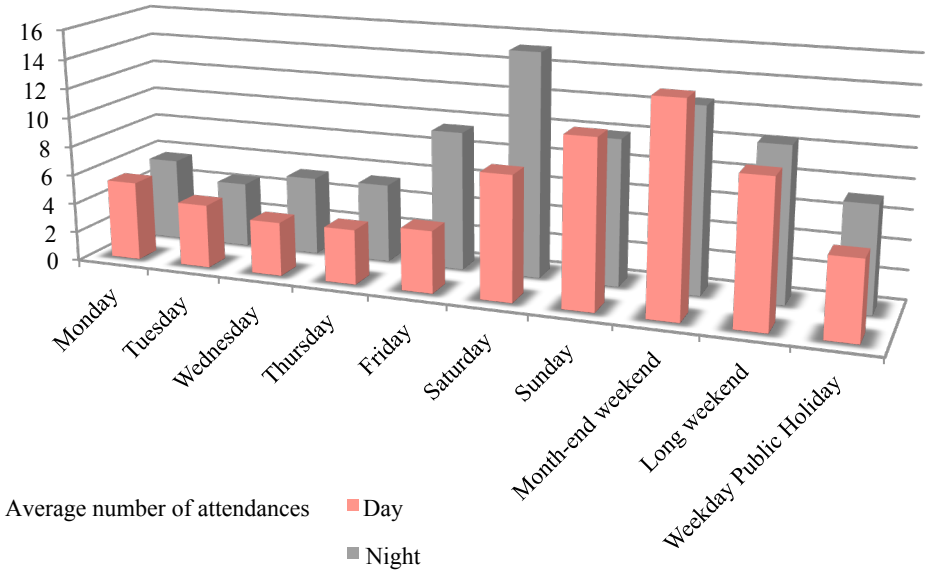

Figure 3: Average interpersonal violence-related attendances for day and night shifts

Shifts on weekends are also busier than weekday shifts from an IPV perspective. Weekend day shifts see 130% (95% CI 2.10 – 2.51) more IPV-related injuries than daytime shifts during the week, and weekend night shifts see 107% (95% CI 1.7 – 2.5) more IPV-related injuries than weeknight shifts. This effect is particularly pronounced on weekends that fall on the last day of the month, where the day and nights shifts see an increase of 165% (CI 1.88 – 3.7) and 127% (CI 1.11 – 4.6) compared to their weekday counterparts, respectively. When the last day of the month falls on a week day, there is no statistically significant change in the numbers of IPV-related injuries compared to other week days.

Regarding IPV-related injuries, long weekends show a similar trend to ordinary weekends: the day shifts see a 128% (95% CI 1.85 – 2.82) increase compared to ordinary weekday shifts, and the night shifts see a 103% (95% CI 1.31- 3.16) increase compared to ordinary week night shifts. If a public holiday does not form part of a long weekend, there is no significant difference in the number of IPV-related injuries on either the day or night shifts compared to corresponding shifts on an ordinary week day.

Table 2: Incidence rate ratios for Interpersonal Violence

IPV	IRR	Lower CI	Upper CI
(Intercept)	3.545	2.870	4.378
Precipitation (Rain vs. no rain)	0.980	0.906	1.060
Max Temp	***1.011***	***1.005***	***1.017***
Night vs. Day (for weekdays)	***1.440***	***1.347***	***1.540***
Night vs. Day (for public holidays)	1.002	0.534	1.878
Night vs. Day (for weekends)	***1.302***	***1.102***	***1.538***
Night vs. Day (for long weekends)	1.282	0.955	1.722
Night vs. Day (for month-end weekend)	1.394	0.930	2.089
Night vs. Day (for month-end weekday)	1.229	0.794	1.902
Night vs. Day (for religious)	0.985	0.713	1.360
Public Holiday vs. Weekday (daytime)	1.264	0.807	1.982
Weekend vs. Weekday (daytime)	***2.294***	***2.097***	***2.510***
Long Weekend vs. Weekday (daytime)	***2.288***	***1.853***	***2.824***
Month-End Weekday vs. Weekday (daytime)	1.102	0.825	1.473
Month-End Weekend vs. Weekday (daytime)	***2.658***	***1.881***	***3.756***
Religious vs. Weekday (daytime)	***2.368***	***1.891***	***2.964***
Public Holiday vs. Weekday (night-time)	0.879	0.320	2.416
Weekend vs. Weekday (night-time)	***2.073***	***1.715***	***2.506***
Long Weekend vs. Weekday (night-time)	***2.036***	***1.313***	***3.157***
Month-End Weekday vs. Weekday (night-time)	1.067	0.570	1.997
Religious vs. Weekday (night-time)	***2.268***	***1.109***	***4.638***
Soccer Result (Draw/Loss vs. Win)	0.911	0.762	1.090
Soccer Result (No Game vs. Win)	0.893	0.777	1.026

Weather Relationships

The presence or absence of precipitation results in no significant change in attendances due to IPV-related injuries.

The lowest maximum temperature recorded for the study period was 8 degrees celcius. It was found that for every one degree increase in the maximum temperature for the day, there was a 1% increase attendance for IPV-related injuries (95%CI 1.01 – 1.02)

Soccer Matches

The volume of IPV-related attendances is not affected by whether or not a home or major team is playing a soccer match. This was found to be true regardless of whether the match was played at a

local Cape Town stadium, whether or not the home team won (in the case of Ajax and Bafana Bafana games), and simply whether or not a match was played at all.

Discussion

Regarding interpersonal violence-related injuries, night shifts are busier than day shifts, and weekend shifts are busier than week-day shifts. Long weekends show a similar attendance pattern to normal weekends, but if a weekend falls on the last day of the month it is significantly busier than the others. This supports the anecdotal belief that assault times are highest when people have recently been paid, and aligns with international literature which shows that trauma units are generally busier at night (6), on weekends (7), and on the evenings before public and religious holidays, with a particular spike on New Year's Eve (8). Assaults in particular occur more frequently at night (6) and on weekends (8).

Weekends (and particularly month-end weekends) are likely busier from an IPV point of view than weekdays for several reasons. Chief among these are the fact that heavy alcohol consumption (which plays a large role in the presentation patterns at the unit, where it was found that alcohol was implicated in between 23% and 68% of IPV-related injuries (6)) is associated with increased violence (7,8). There is evidence that alcohol consumption is increased on weekends (9) and around payday (10). In addition, it is possible that increased interaction with others outside of the formal constraints of the work environment predispose to increased assault (11).

Although warmer temperatures seem to result in increased levels of assault, precipitation plays no role. This fitted with studies showing increased numbers of trauma unit visits in 'good' weather (warm and dry with long daylight hours) (12), assault and violent crime in particular being been shown to be related to increasing temperatures (13–15).

This audit also found that major soccer matches and the outcomes thereof had no impact on levels of interpersonal assault. This is not in keeping with international findings, where home-team sport matches are related to increased feelings of aggression (16) as well as increased numbers of assaults (17–21). Local home-team wins have been shown to have a similar effect (22,20,23). One local study from Cape Town demonstrated fewer trauma-related emergency department visits during the FIFA 2010 World Cup (24). This discrepancy between our findings and international findings could possibly be explained by a few things. Firstly, it is possible that South Africa in general and the Western Cape in particular has a higher 'baseline' level of IPV than countries that do demonstrate a spike in IPV on big soccer days, and that assaults that are related

to soccer matches and their outcomes are masked by all the other assaults that would have occurred anyway. Secondly, South Africans have fairly varied interest in sport (they enjoy rugby and cricket in addition to soccer, and are also keenly interested in international soccer leagues as well as local ones), and assault spikes related to these many other sporting activities were not picked up by this data set.

Regarding MVCs, attendances were more numerous during weekday dayshifts than weeknight shifts. This may represent the fact that many MVCs occur during work hours, amongst people who are using roads during high-traffic periods. Weekend nights showed increased attendances compared to weeknights, and nightshifts on long weekends and month-end weekends were busier than dayshifts. International literature showed an increase in numbers of MVCs at times of poor visibility such as at night (25), and on Fridays and Saturdays (26) with increased fatality on these days (25). South African data shows that motor vehicle collisions increase during the school holiday months (4).

The nighttime increase in MVCs, outside of the working week when traffic volumes are expected to be lower, may represent MVCs that occur at times when people are driving more recklessly or whilst intoxicated [alcohol is implicated in 16.8% of MVC-related admissions to this unit (6)].

Rain results in increased numbers of MVCs, likely due to slippery roads and poor visibility resulting in more dangerous driving conditions. Other studies show that the relationship between MVCs and the weather seems to be dependent on the area in question, and on the road types, traffic volume and weather pattern in the area. (27) Several studies show that rainfall intensity is significant in predicting both crash incidence and severity (25,28), but that 'dazzling light' can also increase MVC frequency in arid areas (29).

Study Limitations

This study gives insight into when busy times are expected, and what types of trauma are likely to predominate. There still is a lot to learn, however, with regards to presentation patterns at this unit. For example, this study looked only at absolute numbers of patients and not at trauma severity, and trends regarding this may be an area for further study. There are also other temporal factors that could be looked at. The period for which data was collected includes only one New Year's Eve, and so it was not possible to establish whether New Year's Eve (or Day) had any particular effect on trauma attendances. Also, the study only looked at 'day' and 'night' shifts: it may be useful to analyse hour-to-hour trends. There may also be room to interrogate some more esoteric ideas, such as the idea that the full moon or Friday the Thirteenth herald busier shifts.

Conclusion

It is possible to use temporal and some weather factors to predict which trauma unit shifts will be busier and which will be quieter, and what kinds of injuries can be expected. Although this study confirms many long-held beliefs about busy times in the unit, it provides data that should allow not only the trauma unit but also other pre- and in-hospital services to prepare appropriately for busy shifts. An analysis of trauma severity trends may be particularly useful to predict when high-resource areas such as the operating theatres and intensive care unit will be in most demand.In addition, the data should also be useful to those involved in trauma-prevention, such as the traffic and police services.

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CHAPTER 3

Appendices

Appendix 1 – Data Capture Table

		MVCD	MVCN	IPVD	IPVN	Acc D	Acc N	Misc D	Misc N	Unk D	Unk N	Tot D	Tot N	Precip	T Max	T Min	Ajax Loc	Ajax Res	Baf Loc	Baf Res	Game
08-Jan-11	Saturday	7	2	4	12	13	2	1	1	2	1	27	18	0	27	18	0	2			1
09-Jan-11	Sunday	0	3	8	7	6	2	0	0	3	1	17	13	0	26	15					
10-Jan-11	Monday	3	1	5	5	6	3	0	0	3	1	17	10	0	24	15					
11-Jan-11	Tuesday	3	2	1	5	4	2	0	1	2	0	10	10	0	27	16					
12-Jan-11	Wednesday	2	3	4	5	7	3	0	0	2	1	15	12	0	27	18					
13-Jan-11	Thursday	3	3	2	4	6	4	0	0	1	0	12	11	0	30	18					
14-Jan-11	Friday	1	2	4	9	4	3	0	0	3	1	12	15	0	24	17	1	2			1
15-Jan-11	Saturday	1	5	10	12	5	2	0	0	0	0	16	19	0	28	16					1
16-Jan-11	Sunday	4	3	8	13	5	4	0	0	1	0	18	20	0	27	14					
17-Jan-11	Monday	1	2	5	7	14	5	0	0	0	1	20	15	0	26	17					
18-Jan-11	Tuesday	3	2	5	2	12	3	0	0	0	0	20	7	0	28	16					
19-Jan-11	Wednesday	0	2	5	7	6	4	0	0	3	1	14	14	0	27	17	0	0			1
20-Jan-11	Thursday	0	2	5	5	7	1	0	0	1	0	13	8	0	25	17					
21-Jan-11	Friday	5	1	6	5	9	5	0	0	3	0	23	11	0	29	14					
22-Jan-11	Saturday	1	5	4	12	6	6	1	0	0	1	12	24	0	24	18	0	2			1
23-Jan-11	Sunday	3	0	5	10	6	1	0	0	3	2	17	13	0	32	17					
24-Jan-11	Monday	2	2	3	9	5	2	0	0	1	0	11	13	0	30	18					
25-Jan-11	Tuesday	3	2	6	8	12	1	0	0	2	2	23	13	0	31	18					
26-Jan-11	Wednesday	0	2	6	7	2	0	0	0	0	0	8	9	0	25	14					1
27-Jan-11	Thursday	3	3	5	5	4	2	0	0	0	0	12	10	0	27	18					
28-Jan-11	Friday	3	4	1	11	8	1	0	0	7	3	19	19	0	28	16	1	2			1
29-Jan-11	Saturday	2	2	7	17	8	5	0	0	0	0	17	24	0	27	15					1
30-Jan-11	Sunday	3	4	5	15	8	6	0	0	2	0	18	25	0	24	16					
31-Jan-11	Monday	0	3	3	9	9	5	0	0	0	0	12	17	0	29	16					
01-Feb-11	Tuesday	2	2	5	4	6	3	0	0	0	0	13	9	0	28	16					
02-Feb-11	Wednesday	2	2	4	8	10	3	0	0	0	0	16	13	0	35	19	0	1			1
03-Feb-11	Thursday	4	3	3	6	4	6	0	0	1	0	12	15	3	33	20					
04-Feb-11	Friday	2	1	2	15	7	10	0	0	0	0	11	26	0	26	18					
05-Feb-11	Saturday	5	1	9	20	7	6	0	0	1	2	22	29	0	26	17	1	2			1
06-Feb-11	Sunday	5	4	8	12	10	0	0	0	2	0	25	16	0	28	17					
07-Feb-11	Monday	0	2	9	9	8	3	0	0	1	2	18	16	0	28	16					
08-Feb-11	Tuesday	2	1	5	1	6	4	0	0	2	0	15	6	0	26	17					
09-Feb-11	Wednesday	5	1	3	9	9	2	0	1	2	0	19	13	0	33	18			0	2	1
10-Feb-11	Thursday	2	1	3	8	3	4	0	1	0	0	8	14	0	34	21					
11-Feb-11	Friday	1	4	10	7	11	6	0	1	1	0	23	18	0	27	18	1	2			1
12-Feb-11	Saturday	3	5	8	9	10	1	0	0	0	1	21	16	0	26	17					

13-Feb-11	Sunday	5	6	6	10	2	3	0	0	0	0	13	19	0	26	17					1
14-Feb-11	Monday	9	5	9	11	4	4	0	0	0	0	22	20	0	33	17					
15-Feb-11	Tuesday	9	5	4	7	8	2	0	0	0	0	21	14	0	28	17					
16-Feb-11	Wednesday	0	1	5	2	16	5	0	1	0	0	21	9	0	27	19					1
17-Feb-11	Thursday	2	0	4	3	4	1	0	0	0	1	10	5	0	29	19					
18-Feb-11	Friday	1	5	5	10	4	4	0	0	0	1	10	20	0	29	18					
19-Feb-11	Saturday	0	1	6	21	4	6	0	1	0	0	10	29	0	26	17	1	2			1
20-Feb-11	Sunday	3	8	12	6	4	3	1	0	1	1	21	18	0	26	17					1
21-Feb-11	Monday	2	2	5	7	6	3	0	0	0	0	13	12	0	28	17					
22-Feb-11	Tuesday	5	7	4	6	11	4	0	0	1	0	21	17	0	27	18					
23-Feb-11	Wednesday	4	1	2	5	4	6	0	0	1	1	11	13	0	25	14					
24-Feb-11	Thursday	3	0	8	2	7	7	0	0	1	1	19	10	0	27	19					
25-Feb-11	Friday	1	3	0	13	9	5	0	0	0	0	10	21	0	25	19	1	2			1
26-Feb-11	Saturday	6	7	11	23	8	12	0	0	0	0	25	42	0	28	19					1
27-Feb-11	Sunday	7	4	9	16	11	5	0	0	0	0	27	25	0	30	18					
28-Feb-11	Monday	3	4	10	7	7	5	1	1	0	1	21	18	0	37	22					
01-Mar-11	Tuesday	2	5	6	3	13	5	0	0	0	1	21	14	0	37	20					1
02-Mar-11	Wednesday	6	5	7	8	4	5	1	0	0	0	18	18	0	27	16	0	0			1
03-Mar-11	Thursday	1	1	7	5	4	6	0	0	0	0	12	12	0	27	16					
04-Mar-11	Friday	2	1	6	12	8	1	0	0	0	0	16	14	0	30	15					
05-Mar-11	Saturday	5	4	8	9	14	0	0	0	1	0	28	13	0	35	16					1
06-Mar-11	Sunday	1	4	12	14	4	2	0	0	0	0	17	20	0	28	18	1	2			1
07-Mar-11	Monday	2	2	5	0	9	10	1	0	0	0	17	12	0	29	17					
08-Mar-11	Tuesday	2	1	2	3	7	5	0	0	1	0	12	9	0	27	16					
09-Mar-11	Wednesday	2	1	2	3	7	5	0	0	1	0	12	9	0	24	16					
10-Mar-11	Thursday	1	2	4	5	8	3	0	0	0	0	13	10	0	24	17					
11-Mar-11	Friday	4	3	14	15	6	2	1	0	1	0	26	20	0	26	16					
12-Mar-11	Saturday	4	2	4	13	7	3	0	1	0	0	15	19	0	25	16					
13-Mar-11	Sunday	6	3	17	11	4	4	0	0	1	0	28	18	0	24	13					
14-Mar-11	Monday	2	5	2	8	8	3	0	0	0	0	12	16	0	24	13					
15-Mar-11	Tuesday	5	2	2	7	7	2	0	0	2	0	16	11	0	24	17					
16-Mar-11	Wednesday	2	4	4	7	7	4	0	0	0	0	13	15	0	28	17	1	2			1
17-Mar-11	Thursday	2	2	7	6	2	4	1	0	0	0	12	12	0	28	17					
18-Mar-11	Friday	1	3	6	9	2	6	0	0	0	0	9	18	0	36	18					
19-Mar-11	Saturday	1	8	8	24	3	6	0	0	0	0	12	38	0	35	15					
20-Mar-11	Sunday	2	2	10	14	7	1	0	0	1	0	20	17	0	26	17					
21-Mar-11	Monday	0	0	3	7	8	2	0	0	1	2	12	11	1	26	14					
22-Mar-11	Tuesday	2	2	2	3	8	2	0	0	2	0	14	7	0	24	16					
23-Mar-11	Wednesday	2	2	2	1	8	1	0	0	0	0	12	4	0	23	16					
24-Mar-11	Thursday	1	0	2	3	4	4	0	0	0	0	7	7	0	25	15					
25-Mar-11	Friday	4	3	2	11	12	2	0	0	0	0	18	16	0	23	13					
26-Mar-11	Saturday	2	3	9	12	3	8	1	0	0	0	15	23	0	24	12			0	2	1
27-Mar-11	Sunday	2	3	11	13	5	4	0	0	0	0	18	20	0	31	15					
28-Mar-11	Monday	2	3	7	6	12	4	0	0	0	1	21	14	0	25	11					
29-Mar-11	Tuesday	5	5	6	3	5	6	0	1	2	0	18	15	0	27	15					
30-Mar-11	Wednesday	9	3	2	1	6	4	0	0	0	0	17	8	5	20	16					

31-Mar-11	Thursday	3	0	1	4	4	4	0	0	0	0	8	8	0	24	17					
01-Apr-11	Friday	4	6	3	13	8	5	0	0	0	0	15	24	1	22	15					
02-Apr-11	Saturday	5	4	8	15	4	6	0	0	1	0	18	25	0	22	12					
03-Apr-11	Sunday	1	2	13	7	7	3	0	0	0	0	21	12	0	22	13					
04-Apr-11	Monday	1	1	6	2	7	1	0	0	0	0	14	4	0	22	12					
05-Apr-11	Tuesday	1	1	6	4	13	2	0	0	0	1	20	8	0	29	10					
06-Apr-11	Wednesday	5	1	2	5	6	4	0	0	2	0	15	10	0	23	11	0	1			1
07-Apr-11	Thursday	2	3	3	2	5	4	0	0	3	0	13	9	0	25	16					
08-Apr-11	Friday	1	4	3	8	7	2	0	0	0	1	11	15	0	33	9					
09-Apr-11	Saturday	2	8	6	15	12	2	0	0	1	2	21	27	0	26	14					
10-Apr-11	Sunday	6	4	13	6	10	4	0	0	0	0	29	14	0	31	15					
11-Apr-11	Monday	5	4	4	7	2	2	1	0	0	1	12	14	0	34	16					
12-Apr-11	Tuesday	5	1	3	5	9	7	0	0	1	0	18	13	0	25	18					
13-Apr-11	Wednesday	3	1	4	4	3	1	0	0	0	0	10	6	0	24	16					1
14-Apr-11	Thursday	3	1	2	4	10	3	0	0	1	0	16	8	0	25	11					
15-Apr-11	Friday	3	5	5	6	11	6	0	0	0	0	19	17	0	28	14	1	2			1
16-Apr-11	Saturday	3	9	4	15	10	4	0	0	0	1	17	29	0	27	16					1
17-Apr-11	Sunday	4	0	6	8	11	3	0	1	0	1	21	13	0	27	14					1
18-Apr-11	Monday	3	2	6	6	7	3	0	0	0	0	16	11	0	24	10					
19-Apr-11	Tuesday	0	2	4	2	8	1	0	0	0	2	12	7	0	25	13					
20-Apr-11	Wednesday	4	4	0	4	6	2	0	1	0	1	10	12	2	19	13					
21-Apr-11	Thursday	1	2	5	8	4	4	0	0	0	0	10	14	0	19	8					
22-Apr-11	Friday	2	6	8	19	8	3	0	0	0	0	18	28	0	22	5					
23-Apr-11	Saturday	7	3	15	11	7	5	0	1	0	0	29	20	0	23	4					
24-Apr-11	Sunday	3	6	7	5	3	1	0	0	0	0	13	12	8	16	12					
25-Apr-11	Monday	3	6	6	5	5	5	0	0	1	0	15	16	11	19	10					
26-Apr-11	Tuesday	3	4	8	4	8	1	0	0	1	1	20	10	4	16	10					
27-Apr-11	Wednesday	2	0	5	4	7	4	0	0	0	0	14	8	1	15	6					
28-Apr-11	Thursday	4	3	5	10	7	4	0	0	1	0	17	17	0	19	9					
29-Apr-11	Friday	12	3	4	10	6	2	0	0	1	0	23	15	1	18	6	1	2			1
30-Apr-11	Saturday	3	7	13	9	7	2	0	1	0	0	23	19	0	23	12					1
01-May-11	Sunday	1	1	19	12	6	8	0	0	1	0	27	21	0	31	6					1
02-May-11	Monday	1	2	10	2	8	2	0	1	0	0	19	7	8	21	15					
03-May-11	Tuesday	5	1	6	5	5	4	0	0	0	0	16	10	0	23	14					
04-May-11	Wednesday	2	5	0	6	6	1	0	0	0	0	8	12	0	29	15					
05-May-11	Thursday	6	2	3	6	3	3	0	0	0	0	12	11	6	21	13					
06-May-11	Friday	2	2	5	10	7	2	0	0	0	0	14	14	0	20	14					
07-May-11	Saturday	1	3	5	16	6	9	0	0	0	0	12	28	0	22	15	0	0			1
08-May-11	Sunday	0	0	11	11	9	3	0	0	0	0	20	14	0	25	15					
09-May-11	Monday	2	0	9	6	9	3	0	0	0	0	20	9	0	26	14					
10-May-11	Tuesday	2	1	5	6	5	1	0	0	0	0	12	8	0	20	13					
11-May-11	Wednesday	2	0	4	3	7	1	0	0	0	0	13	4	0	19	14					
12-May-11	Thursday	2	2	3	5	9	5	0	0	0	0	14	12	0	21	8					
13-May-11	Friday	1	4	3	12	9	5	0	0	1	0	14	21	0	16	11					
14-May-11	Saturday	2	2	12	16	12	5	0	0	0	2	26	25	0	16	12			1	2	1
15-May-11	Sunday	1	4	16	7	10	5	0	0	0	0	27	16	0	18	8					

16-May-11	Monday	2	2	1	6	8	4	0	0	1	0	12	12	0	20	11						
17-May-11	Tuesday	5	6	4	8	9	4	0	1	0	0	18	19	0	20	10						
18-May-11	Wednesday	2	2	6	5	5	7	0	0	0	0	13	14	0	20	7						
19-May-11	Thursday	5	4	3	4	4	4	0	0	0	0	12	12	0	21	10						
20-May-11	Friday	6	5	2	4	7	3	0	0	1	0	16	12	0	22	6						
21-May-11	Saturday	2	3	5	12	5	7	0	0	0	1	12	23	0	24	10	1	1			1	
22-May-11	Sunday	2	5	14	10	2	4	0	0	0	0	18	19	8	23	11						
23-May-11	Monday	0	2	7	3	9	5	0	0	0	0	16	10	8	20	14						
24-May-11	Tuesday	2	0	4	2	6	2	0	0	0	0	12	4	4	16	12						
25-May-11	Wednesday	1	2	3	4	2	2	0	0	0	0	6	8	0	17	10						
26-May-11	Thursday	1	0	4	9	5	3	0	0	0	0	10	12	0	18	8						
27-May-11	Friday	4	3	2	9	6	8	0	0	0	1	12	21	0	22	5						
28-May-11	Saturday	2	4	16	15	13	4	0	0	1	0	32	23	1	16	8						
29-May-11	Sunday	4	7	20	8	6	3	0	0	1	0	31	18	4	15	8						
30-May-11	Monday	5	0	3	3	9	5	0	1	0	1	17	10	19	16	11						
31-May-11	Tuesday	4	7	6	0	11	1	0	0	0	0	21	8	1	14	8						
01-Jun-11	Wednesday	4	4	2	5	8	2	0	1	0	0	14	12	0	15	8						
02-Jun-11	Thursday	1	3	7	4	9	1	0	0	0	0	17	8	0	17	7						
03-Jun-11	Friday	4	6	2	9	9	6	0	1	0	0	15	22	0	18	7						
04-Jun-11	Saturday	7	7	11	24	10	3	0	0	0	0	28	34	1	18	10						
05-Jun-11	Sunday	2	3	12	10	7	6	0	0	0	0	21	19	1	17	7			1	0	1	
06-Jun-11	Monday	8	0	4	4	11	4	0	0	0	0	23	8	5	15	7						
07-Jun-11	Tuesday	1	2	4	5	3	1	0	0	0	0	8	8	0	19	4						
08-Jun-11	Wednesday	3	2	3	2	11	4	0	0	0	0	17	8	0	19	14						
09-Jun-11	Thursday	6	1	2	3	7	4	0	0	0	0	15	8	0	21	14						
10-Jun-11	Friday	1	0	3	15	9	3	0	0	0	0	13	18	0	21	9						
11-Jun-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
12-Jun-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
13-Jun-11	Monday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
14-Jun-11	Tuesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
15-Jun-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
16-Jun-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
17-Jun-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
18-Jun-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
19-Jun-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
20-Jun-11	Monday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
21-Jun-11	Tuesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
22-Jun-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
23-Jun-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
24-Jun-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
25-Jun-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
26-Jun-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
27-Jun-11	Monday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
28-Jun-11	Tuesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
29-Jun-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
30-Jun-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						

01-Jul-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
02-Jul-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
03-Jul-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
04-Jul-11	Monday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
05-Jul-11	Tuesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
06-Jul-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
07-Jul-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
08-Jul-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
09-Jul-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
10-Jul-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
11-Jul-11	Monday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
12-Jul-11	Tuesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
13-Jul-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
14-Jul-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
15-Jul-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
16-Jul-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
17-Jul-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
18-Jul-11	Monday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
19-Jul-11	Tuesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
20-Jul-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
21-Jul-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
22-Jul-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
23-Jul-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
24-Jul-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
25-Jul-11	Monday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
26-Jul-11	Tuesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
27-Jul-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
28-Jul-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
29-Jul-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
30-Jul-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
31-Jul-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
01-Aug-11	Monday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
02-Aug-11	Tuesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
03-Aug-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
04-Aug-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
05-Aug-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
06-Aug-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
07-Aug-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
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10-Aug-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
11-Aug-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
12-Aug-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
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16-Aug-11	Tuesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
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28-Aug-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
29-Aug-11	Monday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
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31-Aug-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
01-Sep-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
02-Sep-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
03-Sep-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
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16-Sep-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
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18-Sep-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
19-Sep-11	Monday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
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21-Sep-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
22-Sep-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
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24-Sep-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
25-Sep-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
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27-Sep-11	Tuesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
28-Sep-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
29-Sep-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						
30-Sep-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.						

01-Oct-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
02-Oct-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
03-Oct-11	Monday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
04-Oct-11	Tuesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
05-Oct-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
06-Oct-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
07-Oct-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
08-Oct-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
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11-Oct-11	Tuesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
12-Oct-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
13-Oct-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
14-Oct-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
15-Oct-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
16-Oct-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
17-Oct-11	Monday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
18-Oct-11	Tuesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
19-Oct-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
20-Oct-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
21-Oct-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
22-Oct-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
23-Oct-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
24-Oct-11	Monday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
25-Oct-11	Tuesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
26-Oct-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
27-Oct-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
28-Oct-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
29-Oct-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
30-Oct-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
31-Oct-11	Monday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
01-Nov-11	Tuesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					1
02-Nov-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					1
03-Nov-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
04-Nov-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
05-Nov-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
06-Nov-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
07-Nov-11	Monday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
08-Nov-11	Tuesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
09-Nov-11	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
10-Nov-11	Thursday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
11-Nov-11	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
12-Nov-11	Saturday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
13-Nov-11	Sunday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
14-Nov-11	Monday	0	5	6	6	3	5	0	0	1	0	10	16	0	21	7					
15-Nov-11	Tuesday	3	1	4	6	4	3	0	0	2	0	13	10	0	22	11			1	1	1

16-Nov-11	Wednesday	5	0	4	17	4	7	0	1	4	0	17	25	0	23	16						
17-Nov-11	Thursday	1	0	5	6	4	1	0	0	7	0	17	7	0	25	13						
18-Nov-11	Friday	6	1	1	10	4	3	0	0	2	0	13	14	0	28	17	0	0				1
19-Nov-11	Saturday	0	8	9	16	7	3	0	0	0	0	16	27	0	33	15						1
20-Nov-11	Sunday	6	0	26	7	7	3	0	0	4	0	43	10	3	21	13						
21-Nov-11	Monday	1	5	12	6	2	3	1	0	0	0	16	14	0	19	12						
22-Nov-11	Tuesday	4	3	6	6	5	4	0	0	2	0	17	13	0	21	12						
23-Nov-11	Wednesday	2	4	2	3	2	4	0	0	9	2	15	13	2	20	13						
24-Nov-11	Thursday	4	2	2	4	4	6	0	1	0	1	10	14	0	21	12						
25-Nov-11	Friday	3	2	2	15	11	3	0	0	0	0	16	20	0	23	9						
26-Nov-11	Saturday	5	7	13	14	3	1	0	0	1	0	22	22	0	24	14						
27-Nov-11	Sunday	5	7	14	13	8	4	0	0	2	0	29	24	0	24	14						
28-Nov-11	Monday	5	1	6	4	7	5	0	0	4	1	22	11	0	28	11						
29-Nov-11	Tuesday	3	2	3	1	5	3	0	0	0	1	11	7	0	23	16						
30-Nov-11	Wednesday	4	1	6	16	2	2	1	0	0	0	13	19	0	24	17	1	1				1
01-Dec-11	Thursday	2	1	7	5	10	5	2	1	1	0	22	12	0	26	17						
02-Dec-11	Friday	7	5	13	8	5	3	0	0	0	1	25	17	0	24	17						
03-Dec-11	Saturday	4	5	13	20	4	0	0	0	3	0	24	25	0	25	16						1
04-Dec-11	Sunday	1	2	12	11	3	5	0	0	1	2	17	20	0	32	17	0	2				
05-Dec-11	Monday	2	6	10	9	8	3	1	1	0	0	21	19	0	25	15						
06-Dec-11	Tuesday	7	3	9	10	3	4	1	0	1	0	21	17	0	24	16						
07-Dec-11	Wednesday	3	2	4	7	5	2	0	0	1	0	13	11	1	21	14						
08-Dec-11	Thursday	5	5	6	4	4	4	0	0	3	0	18	13	0	19	14						
09-Dec-11	Friday	1	5	4	16	7	8	0	0	1	0	13	29	0	25	6						1
10-Dec-11	Saturday	2	7	9	14	8	9	1	0	0	0	20	30	1	22	16						
11-Dec-11	Sunday	1	7	13	15	5	4	0	0	0	0	19	26	0	23	15						
12-Dec-11	Monday	3	0	3	3	9	4	1	0	1	0	17	7	0	25	14						
13-Dec-11	Tuesday	6	1	3	2	11	2	0	0	0	0	20	5	6	22	14						
14-Dec-11	Wednesday	2	3	7	4	7	1	0	1	1	0	17	9	8	17	9						
15-Dec-11	Thursday	1	6	4	24	7	5	0	0	1	0	13	35	0	21	12						
16-Dec-11	Friday	5	7	14	13	12	5	0	0	1	0	32	25	0	25	11	1	2				
17-Dec-11	Saturday	3	5	8	18	4	3	0	0	9	0	24	26	0	28	14						1
18-Dec-11	Sunday	3	2	8	8	5	2	0	0	0	0	16	12	0	25	17						1
19-Dec-11	Monday	3	5	7	7	13	10	1	0	3	0	27	22	0	23	17						
20-Dec-11	Tuesday	2	10	7	6	8	0	0	0	2	2	19	18	0	25	13						1
21-Dec-11	Wednesday	1	5	0	12	7	1	0	0	0	0	8	18	0	25	17	0	2				1
22-Dec-11	Thursday	1	3	5	7	8	3	0	0	1	0	15	13	2	20	15						
23-Dec-11	Friday	3	1	2	14	5	4	0	0	2	1	12	20	0	22	12						
24-Dec-11	Saturday	1	4	16	21	5	6	0	0	0	1	22	32	0	28	11						
25-Dec-11	Sunday	1	3	15	25	4	3	0	0	0	0	20	31	0	30	18						
26-Dec-11	Monday	1	2	15	4	6	3	1	0	2	0	25	9	0	28	16						
27-Dec-11	Tuesday	3	2	7	6	7	3	0	0	0	2	17	13	0	26	19						
28-Dec-11	Wednesday	7	4	4	7	11	2	0	0	0	0	22	13	0	27	19						
29-Dec-11	Thursday	1	3	5	4	8	7	0	0	1	0	15	14	0	26	19						
30-Dec-11	Friday	5	0	5	4	2	6	0	0	1	0	13	10	0	24	18						
31-Dec-11	Saturday	2	5	3	15	6	10	0	0	0	2	11	32	0	24	18						

01-Jan-12	Sunday	10	3	25	10	7	4	0	0	0	0	42	17	0	25	17					
02-Jan-12	Monday	4	1	5	9	6	7	0	0	0	0	15	17	9	28	15					
03-Jan-12	Tuesday	0	1	2	6	19	3	1	0	1	0	23	10	0	24	16					
04-Jan-12	Wednesday	1	1	8	12	7	3	2	0	4	0	22	16	0	23	16					
05-Jan-12	Thursday	0	1	6	7	7	1	0	1	0	0	13	10	0	27	18					
06-Jan-12	Friday	3	5	1	5	12	4	1	0	2	0	19	14	0	26	17					
07-Jan-12	Saturday	4	4	6	14	4	3	1	0	1	0	16	21	0	26	17					
08-Jan-12	Sunday	2	1	10	8	5	6	0	1	1	0	18	16	0	26	17					
09-Jan-12	Monday	3	5	6	3	6	3	0	0	0	0	15	11	3	22	15			1	0	1
10-Jan-12	Tuesday	5	5	4	2	2	5	0	1	0	0	11	13	0	21	14					
11-Jan-12	Wednesday	1	2	3	5	10	9	0	0	0	0	14	16	0	23	14					
12-Jan-12	Thursday	6	1	6	4	13	0	0	0	1	1	26	6	0	28	11					
13-Jan-12	Friday	3	3	4	16	9	5	0	0	0	0	16	24	0	26	15					
14-Jan-12	Saturday	7	5	5	16	11	2	0	0	0	0	23	23	0	24	19					
15-Jan-12	Sunday	1	2	10	9	0	3	1	0	0	0	12	14	0	31	16					
16-Jan-12	Monday	2	1	2	9	5	6	0	0	0	0	9	16	0	33	19					
17-Jan-12	Tuesday	1	2	4	2	12	1	1	0	1	0	19	5	0	26	19					
18-Jan-12	Wednesday	5	2	8	9	3	2	0	0	0	0	16	13	0	26	20					
19-Jan-12	Thursday	1	2	4	4	5	1	0	0	0	0	10	7	0	31	20					
20-Jan-12	Friday	2	1	2	11	9	9	0	0	0	0	13	21	0	25	18					
21-Jan-12	Saturday	2	7	12	14	5	3	1	0	1	0	21	24	0	25	19					
22-Jan-12	Sunday	3	6	5	12	3	7	0	0	0	0	11	25	0	25	19					
23-Jan-12	Monday	1	5	6	6	6	4	0	0	1	0	14	15	0	26	19					
24-Jan-12	Tuesday	6	1	7	7	6	7	0	0	0	1	19	16	1	27	16					
25-Jan-12	Wednesday	8	1	5	5	6	3	0	0	0	0	19	9	0	24	17					
26-Jan-12	Thursday	3	3	1	11	6	5	1	0	0	0	11	19	0	24	18					
27-Jan-12	Friday	3	1	3	6	6	8	0	0	0	0	12	15	0	26	18					
28-Jan-12	Saturday	4	6	8	21	10	6	0	1	0	0	22	34	0	35	20					
29-Jan-12	Sunday	1	1	7	5	6	2	0	0	1	0	15	8	0	32	19					
30-Jan-12	Monday	1	5	9	8	9	3	0	0	0	0	19	16	0	26	14					
31-Jan-12	Tuesday	1	4	4	1	13	4	0	0	0	0	18	9	0	32	20					
01-Feb-12	Wednesday	2	2	4	4	9	2	0	0	0	0	15	8	0	25	19					
02-Feb-12	Thursday	1	0	6	7	0	2	0	0	0	0	7	9	0	27	19					
03-Feb-12	Friday	4	6	3	9	4	7	0	0	0	0	11	22	0	31	19					
04-Feb-12	Saturday	2	3	8	22	4	5	0	0	1	0	15	30	0	32	19					
05-Feb-12	Sunday	4	3	15	13	4	1	0	0	0	1	23	18	0	35	17					
06-Feb-12	Monday	4	3	5	5	12	5	0	0	0	0	21	13	0	37	19					
07-Feb-12	Tuesday	1	1	3	5	8	1	1	0	0	0	13	7	0	27	18					
08-Feb-12	Wednesday	3	1	2	8	7	0	0	0	0	0	12	9	0	25	18					
09-Feb-12	Thursday	2	4	4	1	6	5	2	0	0	0	14	10	0	25	18					
10-Feb-12	Friday	1	4	7	12	9	6	0	0	0	0	17	22	4	22	16					
11-Feb-12	Saturday	2	2	11	23	4	1	0	0	0	0	17	26	0	23	14					
12-Feb-12	Sunday	4	4	9	9	6	3	0	0	0	0	19	16	0	24	14					
13-Feb-12	Monday	1	0	2	13	6	2	0	1	0	0	9	16	0	24	14					
14-Feb-12	Tuesday	1	0	7	5	5	1	0	0	0	0	13	6	0	24	17					
15-Feb-12	Wednesday	5	1	8	4	5	1	0	0	0	0	18	6	0	24	17	0	2			1

16-Feb-12	Thursday	1	1	2	2	2	6	0	0	1	0	6	9	0	24	17					
17-Feb-12	Friday	4	2	6	3	10	1	0	0	0	0	20	6	0	27	18					
18-Feb-12	Saturday	1	3	8	10	4	4	2	0	0	0	15	17	0	30	14					1
19-Feb-12	Sunday	1	4	6	6	6	5	0	0	0	0	13	15	0	34	18	1	2			1
20-Feb-12	Monday	3	4	4	6	9	4	0	0	0	0	16	14	0	25	18					
21-Feb-12	Tuesday	3	0	3	3	12	5	0	0	0	1	18	9	0	26	14					
22-Feb-12	Wednesday	2	1	3	5	4	4	1	0	0	0	10	10	1	23	17					
23-Feb-12	Thursday	2	3	0	9	7	2	1	0	0	0	10	14	0	24	14					
24-Feb-12	Friday	3	3	5	5	7	5	0	0	0	2	15	15	0	24	17					
25-Feb-12	Saturday	6	10	10	18	12	9	0	0	0	1	28	38	0	26	17	0	0			1
26-Feb-12	Sunday	5	5	15	6	4	3	0	0	0	1	24	15	0	26	18					1
27-Feb-12	Monday	1	4	5	6	8	4	0	1	0	0	14	15	0	29	15					
28-Feb-12	Tuesday	7	0	6	6	8	3	0	0	0	0	21	9	0	26	16					
29-Feb-12	Wednesday	3	1	2	3	6	2	0	1	0	0	11	7	0	25	17			0	0	1
01-Mar-12	Thursday	2	3	2	8	6	6	0	0	0	0	10	17	0	13	13					
02-Mar-12	Friday	0	3	4	10	4	7	1	0	1	0	10	20	0	16	16					
03-Mar-12	Saturday	2	8	4	9	9	8	0	0	0	0	15	25	2	17	17					
04-Mar-12	Sunday	6	1	20	9	6	2	0	0	0	0	32	12	0	17	17					
05-Mar-12	Monday	7	1	8	4	11	4	0	0	0	0	26	9	0	13	13					
06-Mar-12	Tuesday	1	0	7	3	6	7	0	1	1	0	15	11	0	11	11					
07-Mar-12	Wednesday	2	0	2	5	3	3	0	0	0	0	7	8	0	18	18					
08-Mar-12	Thursday	2	2	8	5	9	3	0	0	0	0	19	10	0	18	18					
09-Mar-12	Friday	1	3	3	5	11	3	0	0	2	1	17	12	0	18	18					
10-Mar-12	Saturday	4	4	10	17	8	7	0	0	0	0	22	28	0	19	19					
11-Mar-12	Sunday	7	4	11	15	4	3	0	0	0	0	22	22	0	20	20					
12-Mar-12	Monday	3	2	1	4	10	8	0	0	0	0	14	14	0	16	16					
13-Mar-12	Tuesday	3	3	4	4	6	3	0	1	1	0	14	11	0	19	19					
14-Mar-12	Wednesday	1	1	3	2	3	3	0	0	0	0	7	6	0	16	16					1
15-Mar-12	Thursday	3	0	6	4	6	3	0	0	0	0	15	7	0	20	20					
16-Mar-12	Friday	3	4	1	7	6	6	0	0	0	0	10	17	1	16	16					
17-Mar-12	Saturday	2	5	6	11	12	3	0	0	0	0	20	19	0	11	11	0	1			1
18-Mar-12	Sunday	0	8	12	5	10	3	1	0	0	0	23	16	0	10	10					
19-Mar-12	Monday	4	0	4	6	8	4	0	0	0	0	16	10	0	17	17					
20-Mar-12	Tuesday	2	4	4	5	11	7	0	0	0	0	17	16	0	18	18					1
21-Mar-12	Wednesday	1	0	4	3	6	6	1	0	0	0	12	9	0	19	19	1	1			1
22-Mar-12	Thursday	3	2	4	3	7	4	0	0	0	0	14	9	0	18	18					
23-Mar-12	Friday	1	7	5	6	2	5	1	0	0	0	9	18	0	19	19					
24-Mar-12	Saturday	1	4	8	16	5	3	1	1	1	0	16	24	0	17	17					
25-Mar-12	Sunday	4	5	14	16	6	3	0	0	0	0	24	24	0	19	19					
26-Mar-12	Monday	3	1	8	1	11	2	1	0	0	0	23	4	0	15	15					
27-Mar-12	Tuesday	4	0	4	4	3	1	0	1	0	0	11	6	0	18	18					
28-Mar-12	Wednesday	2	3	1	12	8	1	1	0	0	0	12	16	0	14	14	0	1			1
29-Mar-12	Thursday	5	5	5	5	6	4	0	0	0	0	16	14	16	16	16					
30-Mar-12	Friday	1	4	5	12	8	7	0	0	0	0	14	23	5	12	12					
31-Mar-12	Saturday	3	3	7	17	6	5	0	0	0	0	16	25	0	11	11					
01-Apr-12	Sunday	4	3	21	8	2	7	0	0	0	0	27	18	0	14	14					

02-Apr-12	Monday	1	2	6	8	5	1	0	0	2	0	14	11	0	13	13					
03-Apr-12	Tuesday	0	1	5	7	4	3	0	0	1	0	10	11	0	12	12					1
04-Apr-12	Wednesday	2	1	1	7	8	2	0	1	1	0	12	11	0	18	18	1	1			
05-Apr-12	Thursday	4	2	7	9	6	3	0	1	0	1	17	16	0	15	15					
06-Apr-12	Friday	2	7	7	11	9	3	1	0	0	0	19	21	0	16	16					
07-Apr-12	Saturday	6	5	13	6	7	3	0	0	0	0	26	14	22	12	12	0	0			1
08-Apr-12	Sunday	4	3	5	11	5	1	0	0	0	0	14	15	3	11	11					
09-Apr-12	Monday	7	4	0	4	9	2	0	0	0	1	16	11	0	8	8					1
10-Apr-12	Tuesday	1	1	4	4	3	6	1	0	0	0	9	11	0	12	12					
11-Apr-12	Wednesday	1	2	4	1	6	6	0	0	0	0	11	9	0	11	11					
12-Apr-12	Thursday	1	1	1	5	9	2	0	0	0	0	11	8	0	10	10					
13-Apr-12	Friday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
14-Apr-12	Saturday	9	1	3	19	8	3	1	0	2	1	23	24	0	15	15					
15-Apr-12	Sunday	5	2	6	4	7	4	0	1	0	0	18	11	1	11	11					
16-Apr-12	Monday	3	1	1	5	6	4	0	0	1	0	11	10	0	8	8					
17-Apr-12	Tuesday	1	0	1	2	4	2	0	0	0	0	6	4	0	15	15					1
18-Apr-12	Wednesday	2	1	0	8	2	3	0	0	1	0	5	12	0	16	16	1	0			1
19-Apr-12	Thursday	2	5	3	4	7	2	0	0	0	0	12	11	0	10	10					
20-Apr-12	Friday	4	5	7	6	5	4	0	0	0	0	16	15	0	15	15					
21-Apr-12	Saturday	6	2	5	15	7	6	0	0	0	0	18	23	0	13	13	1	1			1
22-Apr-12	Sunday	1	3	8	2	6	5	0	0	0	0	15	10	0	13	13					1
23-Apr-12	Monday	1	0	2	8	5	2	0	0	1	0	9	10	0	12	12					
24-Apr-12	Tuesday	6	0	8	3	3	2	0	0	1	0	18	5	0	8	8					
25-Apr-12	Wednesday	3	1	3	4	8	6	0	0	0	0	14	11	0	9	9					
26-Apr-12	Thursday	2	2	1	6	7	3	0	0	0	0	10	11	4	12	12					
27-Apr-12	Friday	1	4	4	14	9	4	0	1	0	0	14	23	0	14	14	0	0			1
28-Apr-12	Saturday	4	10	11	13	12	7	0	0	0	3	27	33	0	14	14					1
29-Apr-12	Sunday	4	5	9	9	4	7	1	0	0	0	18	21	0	15	15					
30-Apr-12	Monday	2	4	8	2	5	3	1	0	1	0	17	9	14	14	14					
01-May-12	Tuesday	1	1	4	9	11	5	2	1	0	0	18	16	0	19	11					1
02-May-12	Wednesday	2	0	6	2	10	2	3	0	1	0	22	4	17	20	9	1	1			1
03-May-12	Thursday	7	3	2	2	6	1	0	0	0	0	15	6	3	17	11					
04-May-12	Friday	7	2	2	6	6	4	0	0	0	0	15	12	1	18	10					
05-May-12	Saturday	2	1	6	8	11	4	0	0	0	5	19	18	0	20	11					
06-May-12	Sunday	2	4	5	5	7	4	0	0	0	0	14	13	0	20	8					
07-May-12	Monday	3	4	5	4	9	2	0	1	0	1	17	12	0	24	12					
08-May-12	Tuesday	3	1	0	4	5	2	0	0	0	0	8	7	0	25	9					
09-May-12	Wednesday	0	2	0	2	5	3	0	0	1	0	6	7	0	18	12	1	1			1
10-May-12	Thursday	1	0	1	5	7	9	0	0	0	0	9	14	0	20	11					
11-May-12	Friday	4	6	1	8	8	6	0	1	0	0	13	21	0	24	7					
12-May-12	Saturday	3	6	6	15	8	12	0	0	0	0	17	33	0	21	10	0	2			1
13-May-12	Sunday	1	2	10	6	9	3	0	0	0	0	20	11	0	20	9					
14-May-12	Monday	6	3	5	4	6	2	0	0	1	0	18	9	0	19	13					
15-May-12	Tuesday	3	1	4	3	9	5	0	0	0	0	16	9	0	22	6					
16-May-12	Wednesday	1	1	2	7	5	8	1	0	0	0	9	16	0	22	7					
17-May-12	Thursday	1	2	1	5	6	2	0	0	2	0	10	9	2	18	9					

18-May-12	Friday	1	3	1	8	11	4	1	0	1	0	15	15	1	15	7					
19-May-12	Saturday	2	13	6	6	7	4	0	0	0	0	15	23	2	16	7	1	1			1
20-May-12	Sunday	6	1	17	7	4	4	2	0	0	0	29	12	1	16	9					
21-May-12	Monday	5	2	0	4	4	3	0	0	1	0	10	9	0	18	6					
22-May-12	Tuesday	2	5	9	0	9	2	0	0	0	0	20	7	0	25	4					
23-May-12	Wednesday	0	5	3	3	6	1	0	1	1	0	10	10	0	19	11					
24-May-12	Thursday	1	6	6	5	5	6	0	0	0	0	12	17	4	21	12					
25-May-12	Friday	8	6	2	4	7	3	0	0	1	0	18	13	6	16	12					
26-May-12	Saturday	0	10	1	22	8	5	0	1	0	0	9	38	0	18	9					
27-May-12	Sunday	4	0	17	7	5	5	1	0	0	0	27	12	0	20	8					
28-May-12	Monday	6	2	8	4	14	2	0	0	3	0	31	8	0	21	6					
29-May-12	Tuesday	6	1	5	4	9	3	1	1	0	0	21	9	4	16	7					
30-May-12	Wednesday	0	0	3	1	7	3	0	1	2	1	12	6	0	19	11					
31-May-12	Thursday	2	1	7	6	8	4	2	0	0	0	19	11	0	18	6					
01-Jun-12	Friday	7	3	5	10	5	5	1	0	0	0	18	18	0	19	11					
02-Jun-12	Saturday	0	5	11	24	7	5	1	0	0	0	19	34	0	20	14					
03-Jun-12	Sunday	5	2	13	12	4	5	2	0	0	0	24	19	0	22	12			0	0	1
04-Jun-12	Monday	8	6	5	10	12	9	0	0	0	0	25	25	0	28	12					
05-Jun-12	Tuesday	3	2	3	1	6	1	0	0	0	0	12	4	5	17	10					
06-Jun-12	Wednesday	5	0	0	3	2	3	0	0	0	0	7	6	2	15	7					
07-Jun-12	Thursday	2	3	1	5	6	0	0	0	0	0	9	8	25	15	11					
08-Jun-12	Friday	5	4	3	7	0	3	2	0	1	0	11	14	11	16	10					
09-Jun-12	Saturday	0	6	6	15	10	2	0	0	0	0	16	23	0	16	7			1	0	1
10-Jun-12	Sunday	3	3	10	7	4	4	0	0	0	0	17	14	0	17	5					
11-Jun-12	Monday	2	1	2	4	5	8	0	0	0	0	9	13	0	18	4					
12-Jun-12	Tuesday	4	0	2	1	6	8	1	0	0	0	13	9	0	18	4					
13-Jun-12	Wednesday	2	3	6	3	5	2	0	1	0	0	13	9	0	20	4					
14-Jun-12	Thursday	3	5	1	5	7	3	1	1	0	0	12	14	0	21	3					
15-Jun-12	Friday	5	3	0	15	3	7	0	0	0	0	8	25	0	20	5			0	2	1
16-Jun-12	Saturday	5	7	7	18	7	3	0	0	0	1	19	29	0	21	5					
17-Jun-12	Sunday	7	8	7	9	7	0	0	0	0	0	21	17	0	16	9					
18-Jun-12	Monday	4	2	5	5	7	6	0	0	0	1	16	14	0	17	8					
19-Jun-12	Tuesday	2	1	1	3	11	5	0	0	0	0	14	9	0	17	4					
20-Jun-12	Wednesday	2	0	8	4	4	0	0	0	0	0	14	4	0	20	7					
21-Jun-12	Thursday	3	4	4	3	6	2	0	0	0	2	13	11	7	16	4					
22-Jun-12	Friday	1	4	6	9	8	1	0	0	0	0	15	14	0	16	11					
23-Jun-12	Saturday	10	6	13	6	10	6	0	0	0	0	33	18	0	16	10					
24-Jun-12	Sunday	4	5	13	5	7	6	0	0	1	0	25	16	14	16	11					
25-Jun-12	Monday	3	7	3	4	3	3	0	0	0	0	9	14	0	17	12					
26-Jun-12	Tuesday	4	3	5	1	6	1	0	0	0	0	15	5	11	15	11					
27-Jun-12	Wednesday	6	1	0	8	7	4	0	0	0	0	13	13	0	17	6					
28-Jun-12	Thursday	4	6	2	3	5	2	1	0	0	0	12	11	1	18	3					
29-Jun-12	Friday	0	1	9	8	8	4	0	0	0	0	17	13	1	16	11					
30-Jun-12	Saturday	2	6	10	11	9	4	0	0	0	1	21	22	0	17	10					
01-Jul-12	Sunday	5	3	15	16	8	6	0	0	0	0	28	25	0	18	9					
02-Jul-12	Monday	3	5	3	4	9	6	0	1	1	0	16	16	0	18	8					

03-Jul-12	Tuesday	2	5	1	4	7	6	0	0	0	0	10	15	15	17	6					
04-Jul-12	Wednesday	2	9	2	11	6	4	0	0	0	0	10	24	0	15	4					
05-Jul-12	Thursday	9	4	2	6	7	1	1	0	0	0	19	11	0	15	3					
06-Jul-12	Friday	3	5	2	7	5	4	2	0	0	0	12	16	25	16	8					
07-Jul-12	Saturday	3	2	5	17	7	4	1	0	1	1	17	24	1	15	9					
08-Jul-12	Sunday	2	3	2	4	4	2	0	0	0	0	8	9	11	15	11					
09-Jul-12	Monday	1	0	1	7	4	3	0	1	0	0	6	11	1	17	13					
10-Jul-12	Tuesday	4	2	2	6	3	4	1	0	0	0	10	12	3	17	13					
11-Jul-12	Wednesday	2	4	3	5	9	5	0	0	1	1	15	15	0	16	7					
12-Jul-12	Thursday	3	2	2	8	8	4	0	1	0	0	13	15	1	14	4					
13-Jul-12	Friday	4	3	0	8	7	3	0	0	0	0	11	14	0	14	8					
14-Jul-12	Saturday	1	10	8	16	5	5	0	0	0	0	14	31	0	15	9					
15-Jul-12	Sunday	1	0	14	9	2	1	0	0	0	0	17	10	3	11	9					
16-Jul-12	Monday	4	1	2	6	8	5	0	0	1	0	15	12	0	17	10					
17-Jul-12	Tuesday	4	0	2	3	7	5	0	1	0	0	13	9	0	20	6					
18-Jul-12	Wednesday	2	1	3	3	6	4	2	1	0	0	13	9	0	27	5					
19-Jul-12	Thursday	3	0	1	3	10	4	0	0	0	0	14	7	0	24	9					
20-Jul-12	Friday	1	5	1	10	6	2	0	0	0	0	8	17	12	16	12					
21-Jul-12	Saturday	6	4	8	9	11	0	2	0	0	0	27	13	9	16	10					
22-Jul-12	Sunday	5	4	2	6	4	3	0	0	0	0	11	13	0	15	5					
23-Jul-12	Monday	2	2	6	6	6	4	1	1	0	0	15	13	0	17	6					
24-Jul-12	Tuesday	3	3	1	8	7	0	1	0	0	0	12	11	0	18	8					
25-Jul-12	Wednesday	3	4	5	3	5	2	2	0	0	0	15	9	0	23	4					
26-Jul-12	Thursday	1	5	1	8	4	7	1	0	1	0	8	20	5	18	7					
27-Jul-12	Friday	1	2	5	11	4	1	1	0	0	0	11	14	0	17	7					
28-Jul-12	Saturday	6	2	6	17	4	4	0	0	0	0	16	23	0	20	10					
29-Jul-12	Sunday	3	8	8	6	4	1	0	0	0	0	15	15	0	21	2					
30-Jul-12	Monday	0	2	4	8	10	3	2	0	1	0	17	13	4	24	4					
31-Jul-12	Tuesday	2	3	5	4	4	3	0	0	0	1	11	11	3	15	8					
01-Aug-12	Wednesday	3	3	4	3	1	7	0	0	0	0	8	13	0	15	5					
02-Aug-12	Thursday	5	2	2	6	8	2	0	0	1	0	16	10	0	21	1					
03-Aug-12	Friday	1	4	4	6	7	4	0	0	0	0	12	14	0	14	8					
04-Aug-12	Saturday	1	8	12	22	1	3	0	0	0	0	14	33	1	16	8					
05-Aug-12	Sunday	1	1	11	13	3	2	0	0	1	0	16	16	9	17	8					
06-Aug-12	Monday	7	3	7	5	5	4	1	1	0	0	20	13	5	13	8					
07-Aug-12	Tuesday	1	3	1	2	10	2	0	0	0	0	12	7	0	17	10					
08-Aug-12	Wednesday	4	7	3	3	11	2	0	1	0	0	18	13	0	19	11					
09-Aug-12	Thursday	0	0	6	4	15	3	0	1	0	0	21	8	0	17	5					
10-Aug-12	Friday	5	3	4	11	1	4	1	0	0	0	11	18	13	16	6	0	0			1
11-Aug-12	Saturday	2	1	9	14	7	3	1	0	0	0	19	18	8	13	8					1
12-Aug-12	Sunday	0	3	4	8	1	2	0	0	0	0	5	13	0	16	7					
13-Aug-12	Monday	5	3	7	2	8	1	1	0	0	0	21	6	0	21	8					
14-Aug-12	Tuesday	2	2	12	5	3	4	1	0	0	1	18	12	4	14	7					
15-Aug-12	Wednesday	3	1	4	6	5	3	0	0	0	0	12	10	8	16	9					
16-Aug-12	Thursday	6	2	3	3	1	8	0	0	0	0	10	13	5	16	6					
17-Aug-12	Friday	3	5	2	6	2	3	0	0	0	0	7	14	0	16	7					

18-Aug-12	Saturday	2	4	6	12	6	4	0	0	0	0	14	20	0	17	3					
19-Aug-12	Sunday	2	1	3	6	9	5	0	0	0	0	14	12	11	15	5					
20-Aug-12	Monday	3	0	3	5	10	3	0	0	0	0	16	8	0	15	8					
21-Aug-12	Tuesday	2	2	1	7	2	7	0	0	0	0	5	16	2	15	6					
22-Aug-12	Wednesday	2	3	5	1	9	5	0	0	0	1	16	10	0	15	7	1	1			1
23-Aug-12	Thursday	4	0	1	3	2	3	0	0	0	0	7	6	0	16	4					
24-Aug-12	Friday	1	12	5	12	6	3	0	0	0	0	12	27	3	19	3					
25-Aug-12	Saturday	3	8	12	3	4	3	1	0	0	0	20	14	6	15	11					
26-Aug-12	Sunday	2	2	9	8	4	3	0	0	0	0	15	13	0	17	11					
27-Aug-12	Monday	4	3	4	3	8	4	0	0	1	0	17	10	0	18	9					
28-Aug-12	Tuesday	2	4	4	6	8	2	0	0	0	0	14	12	0	20	6					
29-Aug-12	Wednesday	4	0	4	2	5	1	0	0	1	0	14	3	0	17	13					
30-Aug-12	Thursday	2	4	1	4	7	4	0	0	3	0	13	12	0	18	10					
31-Aug-12	Friday	2	6	2	13	8	3	0	0	0	1	12	23	7	16	11	0	2			1
01-Sep-12	Saturday	3	5	10	24	4	2	0	0	0	1	17	32	0	15	5					1
02-Sep-12	Sunday	13	2	18	16	4	9	0	0	0	1	35	28	0	16	3					
03-Sep-12	Monday	4	2	5	3	4	4	0	0	2	0	15	9	0	15	8					
04-Sep-12	Tuesday	2	4	5	7	6	5	3	1	1	0	17	17	0	20	2					
05-Sep-12	Wednesday	1	1	6	2	6	4	1	0	0	0	14	7	0	19	7					
06-Sep-12	Thursday	0	7	3	4	14	8	0	0	1	0	18	19	0	23	7					
07-Sep-12	Friday	3	3	8	5	4	9	0	0	0	0	15	17	0	23	9					
08-Sep-12	Saturday	4	4	4	16	4	4	0	0	1	1	13	25	0	21	5					
09-Sep-12	Sunday	4	1	11	5	0	1	0	0	1	0	16	7	4	17	12					
10-Sep-12	Monday	0	1	7	3	5	2	0	0	1	0	13	6	0	17	9					
11-Sep-12	Tuesday	1	3	3	5	8	3	0	0	0	0	12	11	0	19	6					
12-Sep-12	Wednesday	5	0	5	10	5	6	0	0	1	0	16	16	0	19	8					
13-Sep-12	Thursday	6	3	1	6	8	3	2	0	0	0	17	12	0	16	12					
14-Sep-12	Friday	0	4	3	7	8	3	0	2	0	2	11	18	0	23	9					
15-Sep-12	Saturday	5	5	10	14	1	7	1	0	3	0	20	26	0	27	7					1
16-Sep-12	Sunday	2	3	8	15	4	5	0	0	1	0	15	23	0	34	9	1	1			1
17-Sep-12	Monday	1	3	9	7	7	9	1	0	2	0	20	19	0	20	14					
18-Sep-12	Tuesday	1	7	5	5	6	0	0	0	0	0	12	12	0	18	13					
19-Sep-12	Wednesday	2	1	4	2	13	2	0	1	1	0	20	6	0	19	9					1
20-Sep-12	Thursday	2	0	10	6	13	12	0	0	0	0	25	18	14	18	6					
21-Sep-12	Friday	5	2	4	5	5	5	0	0	2	0	16	12	11	15	8					
22-Sep-12	Saturday	1	2	11	14	4	4	0	0	1	1	17	21	0	16	7					
23-Sep-12	Sunday	1	0	7	9	6	4	0	0	1	0	15	13	5	15	9					
24-Sep-12	Monday	1	3	7	8	10	3	0	0	0	0	18	14	0	19	11					1
25-Sep-12	Tuesday	3	2	9	7	7	1	0	0	0	0	19	10	0	20	9	1	1			
26-Sep-12	Wednesday	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.					
27-Sep-12	Thursday	2	3	9	4	9	4	0	0	1	0	21	11	11	18	11					
28-Sep-12	Friday	6	6	4	21	7	6	0	0	2	0	19	33	5	16	7					1
29-Sep-12	Saturday	3	2	8	22	8	4	0	0	1	0	20	28	0	17	8	0	1			1
30-Sep-12	Sunday	1	7	20	13	8	3	1	0	1	0	31	23	0	20	11					1
01-Oct-12	Monday	0	3	9	6	1	6	0	0	0	0	10	15	0	22	11					
02-Oct-12	Tuesday	4	5	3	6	6	5	1	0	0	0	14	16	0	20	10					

03-Oct-12	Wednesday	1	0	4	7	15	3	1	0	0	0	21	10	6	19	12					
04-Oct-12	Thursday	0	1	2	5	13	3	1	0	0	0	16	9	1	17	11					
05-Oct-12	Friday	4	6	8	12	8	2	0	0	0	0	20	20	0	17	8					
06-Oct-12	Saturday	6	7	10	20	14	3	0	1	0	1	30	32	3	18	7	1	2			1
07-Oct-12	Sunday	1	2	8	4	4	6	0	0	0	2	13	14	2	16	10					1
08-Oct-12	Monday	1	3	9	6	10	4	0	0	0	0	20	13	0	21	9					
09-Oct-12	Tuesday	3	1	3	8	3	5	0	0	0	0	9	14	0	19	13					
10-Oct-12	Wednesday	5	1	4	5	4	9	0	1	0	0	13	16	0	18	9					
11-Oct-12	Thursday	4	4	4	5	4	5	0	0	0	0	12	14	0	20	9					
12-Oct-12	Friday	6	2	9	8	2	7	0	1	2	0	19	18	0	21	12					
13-Oct-12	Saturday	2	4	9	11	8	4	0	0	1	0	20	19	0	21	14					
14-Oct-12	Sunday	0	4	8	13	0	5	0	0	1	0	9	22	0	25	13					
15-Oct-12	Monday	2	1	4	6	7	8	0	0	0	0	13	15	0	22	16					
16-Oct-12	Tuesday	3	2	4	4	6	3	0	0	1	1	14	10	0	27	15					
17-Oct-12	Wednesday	5	4	4	8	7	2	0	0	2	0	18	14	0	25	16					
18-Oct-12	Thursday	3	4	4	3	12	5	0	0	0	0	19	12	4	21	12					
19-Oct-12	Friday	2	2	3	8	7	1	0	0	0	0	12	11	17	15	9					
20-Oct-12	Saturday	3	2	5	13	7	2	0	0	0	1	15	18	0	22	11					
21-Oct-12	Sunday	1	0	14	14	6	3	0	0	0	0	21	17	0	19	13					
22-Oct-12	Monday	4	0	3	7	6	2	0	0	1	0	14	9	0	21	14					
23-Oct-12	Tuesday	3	0	6	6	6	7	0	0	1	0	16	13	0	26	13					
24-Oct-12	Wednesday	0	1	4	9	5	2	0	0	1	0	10	12	0	28	13					
25-Oct-12	Thursday	6	2	2	10	8	6	0	0	0	1	16	19	0	21	12					
26-Oct-12	Friday	5	1	5	5	6	6	0	0	0	1	16	13	1	18	12					1
27-Oct-12	Saturday	2	6	10	20	5	2	0	0	1	0	18	28	0	25	8	0	0			1
28-Oct-12	Sunday	0	1	17	17	8	5	0	0	0	2	25	25	0	24	15					1
29-Oct-12	Monday	1	0	10	2	8	3	0	0	1	0	20	5	0	22	16					
30-Oct-12	Tuesday	1	3	5	3	10	3	1	0	0	0	17	9	0	23	16					
31-Oct-12	Wednesday	3	0	4	5	5	2	0	0	0	0	12	7	0	27	12					
01-Nov-12	Thursday	1	3	5	9	3	5	0	0	0	0	9	17	0	30	14					
02-Nov-12	Friday	6	6	5	6	13	5	1	0	0	0	25	17	0	29	12					
03-Nov-12	Saturday	4	9	9	16	5	5	0	0	0	1	18	31	0	20	12					
04-Nov-12	Sunday	3	2	18	9	7	5	0	0	0	0	28	16	0	21	13					
05-Nov-12	Monday	1	1	6	12	12	3	0	0	0	0	19	16	0	24	14					
06-Nov-12	Tuesday	2	1	5	6	10	4	0	0	0	0	17	11	0	22	15					1
07-Nov-12	Wednesday	3	2	3	3	7	5	0	0	0	0	13	10	0	24	16	1	1			1
08-Nov-12	Thursday	0	1	4	8	5	4	0	1	0	0	9	14	0	29	13					
09-Nov-12	Friday	3	2	5	11	6	5	0	0	0	0	14	18	0	22	13					
10-Nov-12	Saturday	1	8	11	17	10	9	0	0	0	0	22	34	0	24	15					1
11-Nov-12	Sunday	2	4	16	13	4	2	0	0	0	1	22	20	0	25	13	0	1			1
12-Nov-12	Monday	3	1	1	7	5	3	0	1	0	0	9	12	4	21	14					
13-Nov-12	Tuesday	2	0	5	4	6	4	0	0	2	0	15	8	0	22	12					
14-Nov-12	Wednesday	5	1	5	6	6	6	0	0	0	0	16	13	0	27	15					
15-Nov-12	Thursday	3	2	7	1	7	5	1	0	0	0	18	8	0	23	16					
16-Nov-12	Friday	7	3	1	12	4	3	0	0	0	0	12	18	1	23	11					
17-Nov-12	Saturday	9	11	8	11	5	4	0	0	0	0	22	26	0	22	15					

18-Nov-12	Sunday	6	7	7	21	3	1	0	0	0	0	16	29	0	26	10					
19-Nov-12	Monday	2	0	6	9	1	2	2	0	1	2	12	13	0	25	16					
20-Nov-12	Tuesday	9	1	2	7	10	2	0	0	0	0	21	10	0	23	16	1	0			1
21-Nov-12	Wednesday	5	5	4	6	2	2	0	0	0	0	11	13	0	20	13					1
22-Nov-12	Thursday	2	1	3	4	7	3	0	0	0	0	12	8	0	22	12					
23-Nov-12	Friday	1	9	4	8	8	4	0	0	0	0	13	21	4	22	12	0	2			1
24-Nov-12	Saturday	10	9	10	13	9	4	1	0	0	0	30	26	0	17	10					1
25-Nov-12	Sunday	4	4	8	6	7	2	0	0	2	0	21	12	0	19	8					
26-Nov-12	Monday	5	2	7	1	11	4	0	0	0	0	23	7	0	21	8					
27-Nov-12	Tuesday	6	2	3	5	9	3	0	0	0	0	18	10	0	31	10					
28-Nov-12	Wednesday	3	0	8	5	5	1	0	0	0	0	16	6	0	27	17					
29-Nov-12	Thursday	0	4	1	5	3	4	2	0	0	0	6	13	0	25	18					

Appendix 2 – Human Research Ethics Committee Approval Letter

HREC Ref 478/2012 – 13Sept2012

UNIVERSITY OF CAPE TOWN

Faculty of Health Sciences
Human Research Ethics Committee
Room E52-24 Groote Schuur Hospital Old Main Building
Observatory 7925
Telephone [021] 406 6338 • **Facsimile** [021] 406 6411
e-mail: shuretta.thomas@uct.ac.za

13 September 2012

HREC REF: 478/2012

Dr K Milford
c/o Prof P Navsaria
General Surgery
OMB

Dear Dr Milford

PROJECT TITLE: C14 AND THE SUN-SHINEY, MONTH-END SANTOS SOCCER GAME: IS THERE A RELATIONSHIP?

Thank you for submitting your request to the Faculty of Health Sciences Human Research Ethics Committee for review.

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

Approval is granted for one year till the 30th September 2013

Please get permission from the medical superintendent to access patient records.

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.
(Forms can be found on our website: www.health.uct.ac.za/research/humanethics/forms)

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please quote the HREC. REF in all your correspondence.

Yours sincerely

PROFESSOR M BLOCKMAN
CHAIRPERSON, FHS HUMAN ETHICS
Federal Wide Assurance Number: FWA00001637.

Institutional Review Board (IRB) number: IRB00001938
This serves to confirm that the University of Cape Town Human Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical

s.thomas

UNIVERSITY OF CAPE TOWN

HUMAN RESEARCH ETHICS COMMITTEE
29 JUN 2015
FACULTY OF HEALTH SCIENCES

FACULTY OF HEALTH SCIENCES
Human Research Ethics Committee

FHS017: Annual Progress Report / Renewal

Record Reviews/Audits/Collection of Biological Specimens/Repositories/Databases/Registries

HREC office use only (FWA00001637; IRB00001938)			
This serves as notification of annual approval, including any documentation described below.			
☑ Approved	Annual progress report	Approved until/next renewal date	30.6.2016
☐ Not approved	See attached comments		
Signature Chairperson of the HREC		Date Signed	29/6/2015

Principal Investigator to complete the following:

1. Protocol information

Date (when submitting this form)	28 June 2015		
HREC REF Number	478/2012	Current Ethics Approval was granted until	30/09/2013
Protocol title	C14 and the sun-shiney, month-end soccer game: is there a relationship?		
Principal Investigator	Dr Karen Milford		
Department / Office Internal Mail Address	General Surgery, C14 Trauma Unit		
1.1 Does this protocol receive US Federal funding?		☐ Yes	X No

2. Protocol status (tick ✓)

☐	Research-related activities are ongoing
X	Data collection is complete, data analysis only

Please indicate (in the block below) the titles and HREC reference numbers of any projects currently making use of the Database/registry/repository.

3. Protocol summary

Total number of records or specimens collected, reviewed or stored since the original approval		16706
Total number of records or specimens collected, reviewed or stored since last progress report		16706
Have any research-related outputs (e.g. publications, abstracts, conference presentations) resulted from this research? If yes, please list and attach with this report.	☐ Yes	X No

4. Signature

Signature of PI		Date	28/06/2013

Appendix 3 - Injury: Instructions for Authors

Injury was founded in 1969 and is an International Journal dealing with all aspects of trauma care. Our primary aim is to facilitate the exchange of ideas, techniques and information between all members of the trauma team.

Topics covered include: trauma systems and management; surgical procedures, epidemiological studies, surgery (of all tissues) resuscitation; biomechanics, rehabilitation, anaesthesia; radiology, basic science of local and systemic response to trauma and tissue healing.

The Journal also publishes a series of scientific supplements, all of which undergo peer-review prior to publication.

The language of the journal is English (UK), for example, stabilisation, haematology, anaesthetic, centre, paediatric, mobilise.

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Preparation of Manuscripts

Title page: The first page must include the title of the article, names, initials and appointment of each author, name of the department(s) and institution(s) to which the work should be attributed and name, address, phone/fax and e-mail details of the author for correspondence and to whom reprints should be sent. Please note that it is essential to include the email address of the corresponding author, as proofs will be sent by email as attached PDF files.

Keywords: up to 10 keywords must be included.

Abstract: This should start on the second page of the manuscript and be not more than 350 words in length. It should be easy to read and where appropriate should be structured. The structure may follow the same format as the structure of the paper itself.

Text: This should start on the third page, and will normally be divided into the following sections: Introduction, Materials (or Patients) and Methods, Results, Discussion and Conclusions, but other descriptive headings and subheadings may be used if they are felt to be more appropriate.

Introduction should explain the purpose of the study or investigation, the clinical relevance and the background provided by previous research, or publications, in this area and, where appropriate, a statement of approval by an Ethical Committee.

Materials (or Patients) and Methods should give details of inclusion and exclusion criteria for patients in clinical trials, research methodology, systems of assessment, or measurement, with appropriate references and the statistical analyses used. Any proprietary equipment or apparatus used should be named, along with the manufacturer's name and address. Sufficient detail should be given to allow other investigators to repeat the study. Where relevant, tables or figures may be included to provide information more clearly. No data should normally be presented in this section.

Unnecessary experimental detail should be avoided, but appropriate references should be cited.

Results should give all the relevant data, presented in a concise and meaningful way, with tables or figures to present data more clearly or concisely, where appropriate. In studies with well under 100 subjects, percentages are

not accepted.

Discussion should consider the results and possible confounding factors, sources of bias, weaknesses in the study and a review of the relevant literature, putting the results of the study in the context of previous work in this area.

Conclusions must be based on the results presented.

References:

References should be listed in numerical sequence as they are cited in the text. Names of the first six authors are to be provided. The reference style is based on the 'Uniform Requirements for Manuscripts Submitted to Biomedical Journals' (http://www.icmje.org). Both journal and book references should contain inclusive page numbers.

Personal communications and unpublished data should be cited in parentheses in the text, and not included in the numbered reference listed at the end of the article. Such citations from someone other than the authors (e. g., personal communication) can only be published if a signed letter of permission if provided.

References to abstracts should be included only when essential, and then only if the abstract is from a readily accessible periodical (e.g., Federation Proceedings: FEBS Abstracts). Such references must contain the word (Abstract) after the title.

References in the text should be identified by superscript numbers, inside punctuation at the end of the sentence, and numbered in order of appearance. Along with the entire manuscript, references should be double spaced.

Examples of References

Journal Articles

1. Standard Journal Articles (List all authors when six or less; when seven or more, list the first six and add et al. Do not repeat page numbers).
Frame JD, Frame JE. Modifying integra as a regeneration template in deep tissue planes. *J Plast Reconstruct Aesthet Surg* 2006;**59**: 460-4.
Books

1. Book chapter
Lister GD. Skin flaps. In Green DP, editor. *Operative Hand Surgery*. 3rd ed. New York: Churchill Livingstone; 1993, p. 1741-1823.
2. Book
Book: Mathes SJ, Nahai F. *Reconstructive Surgery: principles, anatomy, and technique.* New York: Churchill Livingstone; 1997.

Website
Uebersax J. A practical guide to local dependence in latent class models.
http://ourworld.compuserve.com/homepages/jsuebersax/condep.htm.

Authors are strongly encouraged to check the accuracy of each reference against its original source.

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