

For each example (i) identify the (comparative) parameter of interest (ii) identify the study design / method of obtaining the data (iii) give a point estimate of the (comparative) parameter (iv) identify the statistical model underlying the estimate (v) indicate how to obtain an interval estimate, or test the (implied) null hypothesis.

1 Competing risks of mortality with marathons

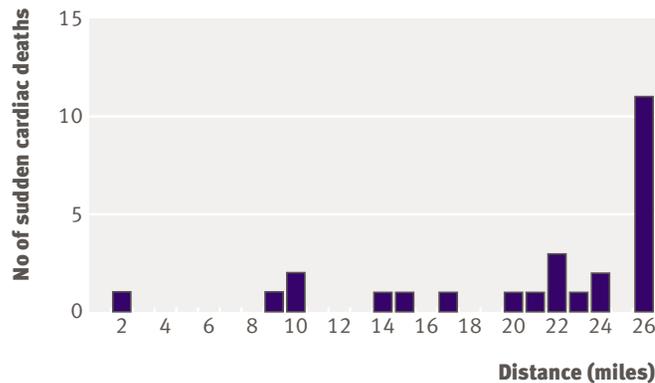


Fig 1 Distribution of sudden cardiac deaths according to distance along marathon course when participant collapsed (to nearest mile; 1 mile=1.6 km; total course 26.2 miles, equal to 42 km). Deaths expressed as counts summed over all marathons and years

Objective To determine from a societal perspective the risk of sudden cardiac death associated with running in an organised marathon compared with the risk of dying from a motor vehicle crash that might otherwise have taken place if the roads had not been closed. Design Population based retrospective analysis with linked ecological comparisons of sudden death.

Setting Marathons with at least 1000 participants that had two decades of history and were on public roads in the United States, 1975-2004.

Main outcome measures Sudden death attributed to cardiac causes or to motor vehicle trauma.

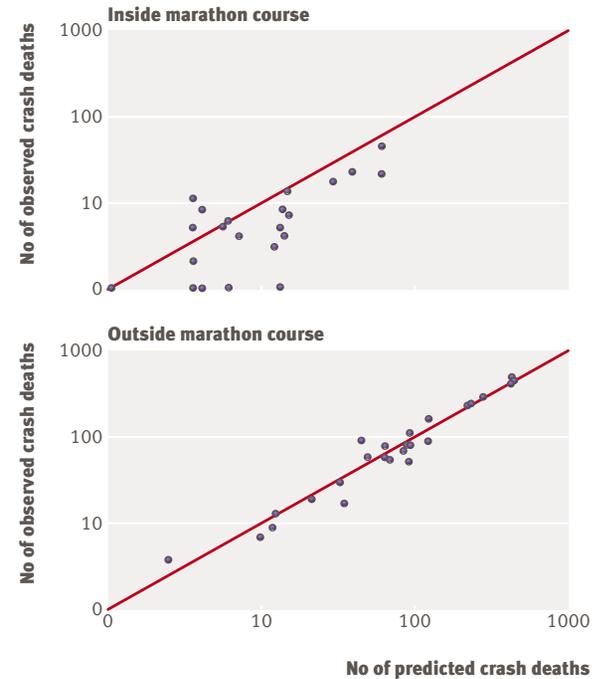


Fig 2 Comparison of observed crash fatalities on marathon days relative to predicted crash fatalities on control days. Top: counties inside marathon route; bottom: counties outside marathon route and data from corresponding hours of road closures. Each point represents one marathon site summed over all years. Note logarithmic scale and zero values plotted at 1

Results The marathons provided results for 3 292 268 runners on 750 separate days encompassing about 14 million hours of exercise. There were 26 sudden cardiac deaths observed, equivalent to a rate of 0.8 per 100 000 participants (95% confidence interval 0.5 to 1.1). Because of road closure, an estimated 46 motor vehicle fatalities were prevented, equivalent to a relative risk reduction of 35% (95% confidence interval 17% to 49%). The net reduction in sudden death during marathons amounted to a ratio of about 1.8 crash deaths saved for each case of sudden cardiac death observed (95% confidence interval: 0.7 to 3.8). The net reduction in total deaths could not be explained by re-routing traffic to other regions or days and was consistent across different parts of the country, decades of the century, seasons of the year, days of the week, degree

of competition, and course difficulty.

Conclusion Organised marathons are not associated with an increase in sudden deaths from a societal perspective, contrary to anecdotal impressions fostered by news media. D. Redelmeier, BMJ Christmas 2007

2 Effect of altitude on physiological performance: a statistical analysis using results of international football games

Objective To assess the effect of altitude on match results and physiological performance of a large and diverse population of professional athletes. *Design* Statistical analysis of international football (soccer) scores and results.

Data resources FIFA extensive database of 1460 football matches in 10 countries spanning over 100 years.

Results Altitude had a significant ($P < 0.001$) negative impact on physiological performance as revealed through the overall underperformance of low altitude teams when playing against high altitude teams in South America. High altitude teams score more and concede fewer goals with increasing altitude difference. Each additional 1000 m of altitude difference increases the goal difference by about half of a goal. The probability of the home team winning for two teams from the same altitude is 0.537, whereas this rises to 0.825 for a home team with an altitude difference of 3695 m (such as Bolivia v Brazil) and falls to 0.213 when the altitude difference is -3695 m (such as Brazil v Bolivia).

Conclusions Altitude provides a significant advantage for high altitude teams when playing international football games at both low and high altitudes. Lowland teams are unable to acclimatise to high altitude, reducing physiological performance. As physiological performance does not protect against the effect of altitude, better predictors of individual susceptibility to altitude illness would facilitate team selection. P McSharry, BMJ Christmas 2007

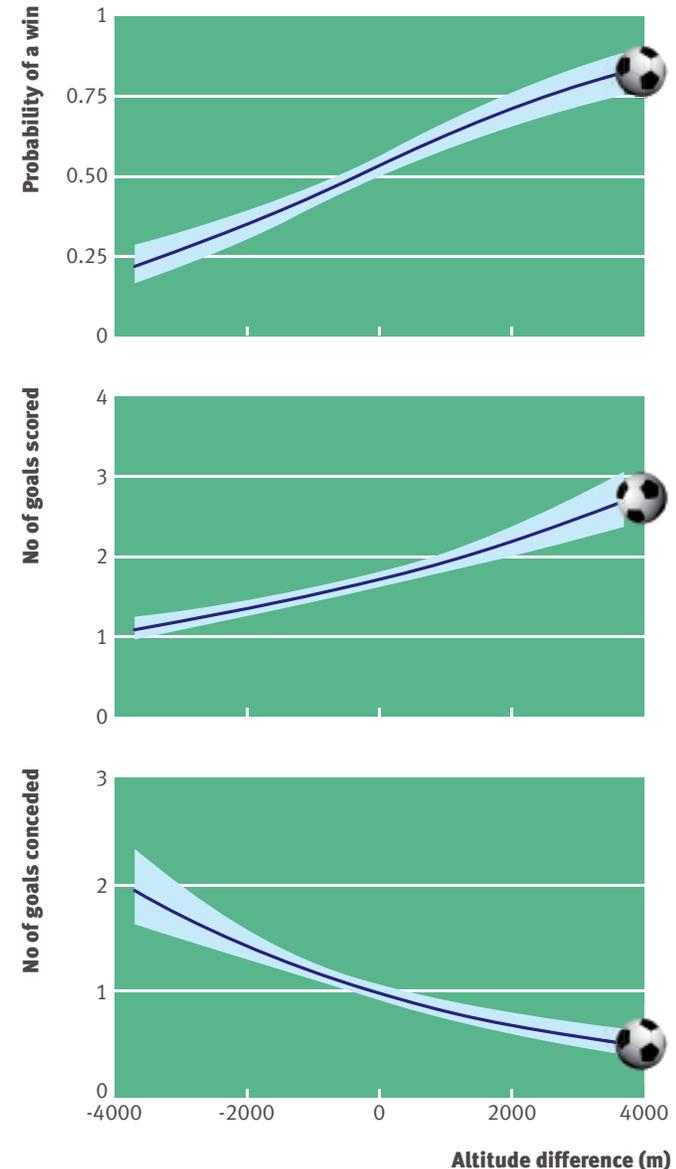


Fig 2 | Effect of altitude difference on the probability of winning (top panel) and on the number of goals scored (middle panel) and conceded (bottom panel). The shaded area indicates the 95% confidence interval.

3 Is Scouting Safe?

Over the past year, leaders have been showing a growing commitment to provide each member a safe and enjoyable Scouting experience. In support of efforts in the field, we conducted a study to establish baseline data on scouting accident and injury trends so that we can make informed decisions about activity precautions or the need for higher safety standards. This column highlights the findings. The first question we asked ourselves was, “Is Scouting a safe program for members?”

Statistics Canada, Health Division, told us that 11 out of every 1,000 males aged 5-19 are hospitalized for at least one night a year. When we compared similar information taken from Scouting accident forms, we found our members are hospitalized at a rate of only one per thousand a year. Given that we run active programs and heavily use the outdoors, Scouting falls far below the average rate for daily living risk to males in this age group.

Having established this, let’s look at the main kinds of accidents and injuries that do happen to Scouting members. Our study identified the types of injuries that happened during the course of a normal Scouting year, excluding summer camps (Chart A). It also recorded the types of activities associated with the injuries (Chart B). When we examine the two sets of information, we begin to see some relationships... The (Scouting) Leader (magazine) June/July 1991

4 Women are safer pilots: Study

LONDON- Initial results of a study by Britain’s Civil Aviation Authority shows that women behind the controls of a plane might be safer than men. The study shows that male pilots in general aviation are more likely to have accidents than female pilots. Only 6 per cent of Britain’s general aviation pilots are women. According to the aviation magazine Flight International, there have been 138 fatal accidents in general aviation in the last 10 years, and only two involved women - less than 1.5 per cent of the total. Woman News, page F1 The Montreal Gazette, August 21st, 1995

5 Risk factors for injuries from dog bites in Greece

Abstract We conducted a study using a newly developed dataset based on Emergency Departments records of a network of hospitals from Greece on injuries from dog bites.

Our goal is three-fold: (a) to investigate if surrogate factors of leisure time are associated with increased risk of injury from bites; (b) to address recently reported contradictory results on putative association of lunar periods and injuries from dog bites; and (c) to offer a general methodology for addressing similar case-only designs with combined factors of which some can exhibit cyclical patterns.

To address these goals, we used a xxxx-xxxx design of our dataset, and conducted an analysis where we controlled simultaneously for weekday/weekend effects, season of year (winter, spring/fall, summer), and lunar periods, because any one of these factors can contribute to the degree of exposure to injuries from dog bites. We found that increased risk of injury from bites was associated with weekends versus weekdays (RR = 1.19, 95% CI: 1.101.29), summer versus winter (RR = 1.24, 95% CI: 1.111.39), and fall or spring versus winter (RR = 1.31, 95% CI: 1.191.45). The results support the hypothesis that longer leisure time at these levels of factors does increase the risk of having a bite injury. Moreover, after controlling for these factors, risk of bite injury was not associated with moon periods, thereby also helping settle a longstanding argument. C Frangakis. Accident Analysis and Prevention 35 (2003) 435-438

Table 1 on next page [original, with weekday on left, weekend on right, split into 2, so that text is more readable]

Numbers [N_i = injuries from bites, E_i = calendar days] falling in each cell i of the cross-classification by weekend/weekday, season of year, and period of moon between 1 May 1996 and 21 December 1999.

Period of moon (P_i)	Weekday ($W_i = 0$)		
	Winter ^b ($S_i = 1$)	Fall/spring ($S_i = 2$)	Summer ($S_i = 3$)
1	[50, 28]	[97, 54]	[55, 26]
2	[38, 24]	[107, 52]	[55, 27]
3	[36, 28]	[121, 53]	[55, 27]
4	[34, 24]	[98, 55]	[36, 24]
5	[18, 18]	[84, 46]	[42, 23]
6	[31, 25]	[94, 52]	[55, 31]
7	[37, 23]	[114, 57]	[45, 23]
8	[52, 28]	[74, 49]	[43, 28]
9	[30, 24]	[90, 54]	[52, 27]
10	[39, 27]	[73, 50]	[34, 26]

^a Total injuries from bites = 2642.

^b Winter: December–February; spring: March–May; summer: June–August; fall: S

Weekend ($W_i = 1$)		
Winter ($S_i = 1$)	Fall/spring ($S_i = 2$)	Summer ($S_i = 3$)
[12, 9]	[48, 20]	[21, 10]
[19, 12]	[50, 21]	[27, 11]
[14, 8]	[38, 21]	[20, 10]
[19, 11]	[42, 21]	[23, 12]
[7, 10]	[47, 18]	[16, 9]
[12, 8]	[47, 21]	[19, 10]
[13, 11]	[41, 20]	[22, 13]
[11, 8]	[68, 25]	[18, 9]
[30, 12]	[44, 18]	[24, 12]
[18, 9]	[61, 25]	[22, 10]

ptember–November.

6 Daylight Savings Time & Traffic Accidents

To the Editor¹: It has become increasingly clear that insufficient sleep and disrupted circadian rhythms are a major public health problem. For instance, in 1988 the cost of sleep-related accidents exceeded \$56 billion and included 24,318 deaths and 2,474,430 disabling injuries.[1] Major disasters, including the nuclear accident at Chernobyl, the Exxon Valdez oil spill, and the destruction of the space shuttle Challenger, have been linked to insufficient sleep, disrupted circadian rhythms, or both on the part of involved supervisors and staff.[2,3] It has been suggested that as a society we are chronically sleep-deprived[4] and that small additional losses of sleep may have consequences for public and individual safety.[2]

We can use noninvasive techniques to examine the effects of minor disruptions of circadian rhythms on normal activities if we take advantage of annual shifts in time keeping. More than 25 countries shift to daylight savings time each spring and return to standard time in the fall. The spring shift results in the loss of one hour of sleep time (the equivalent in terms of jet lag of traveling one time zone to the east), whereas the fall shift permits an additional hour of sleep (the equivalent of traveling one time zone to the west). Although one hour's change may seem like a minor disruption in the cycle of sleep and wakefulness, measurable changes in sleep pattern persist for up to five days after each time shift.[5] This leads to the prediction that the spring shift, involving a loss of an hour's sleep, might lead to an increased number of "microsleeps," or lapses of attention, during daily activities and thus might cause an increase in the probability of accidents, especially in traffic. The additional hour of sleep gained in the fall might then lead conversely to a reduction in accident rates.

We used data from a tabulation of all traffic accidents in Canada as they were reported to the Canadian Ministry of Transport for the years **1991 and 1992** by all 10 provinces. A total of 1,398,784 accidents were coded according to the date of occurrence. **Data for analysis were restricted to the Monday preceding the week of the change due to daylight savings time, the Monday immediately after, and the Monday one week after the change, for both spring and fall time shifts.** Data from the province of Saskatchewan were excluded because it does not observe daylight savings time. The analysis of the spring shift included 9593 accidents and that of the fall shift 12,010. The resulting data are shown in Figure 1.

The loss of one hour's sleep associated with the spring shift to daylight savings time increased the risk of accidents. The Monday immediately after the shift

¹Correspondence: New Engl. J of Medicine: Vol. 334:924-925 April 4, 1996.

showed a relative risk of 1.086 (95 percent confidence interval, 1.029 to 1.145; $\chi^2 = 9.01$, 1 df; $P < 0.01$). As compared with the accident rate a week later, the relative risk for the Monday immediately after the shift was 1.070 (95 percent confidence interval, 1.015 to 1.129; $\chi^2 = 6.19$, 1 df; $P < 0.05$). Conversely, there was a reduction in the risk of traffic accidents after the fall shift from daylight savings time when an hour of sleep was gained. In the fall, the relative risk on the Monday of the change was 0.937 (95 percent confidence interval, 0.897 to 0.980; $\chi^2 = 8.07$, 1 df; $P < 0.01$) when compared with the preceding Monday and 0.896 (95 percent confidence interval, 0.858 to 0.937; $\chi^2 = 23.69$; $P < 0.001$) when compared with the Monday one week later. Thus, **the spring shift to daylight savings time, and the concomitant loss of one hour of sleep, resulted in an average increase in traffic accidents of approximately 8 percent**, whereas the fall shift resulted in a decrease in accidents of approximately the same magnitude immediately after the time shift.

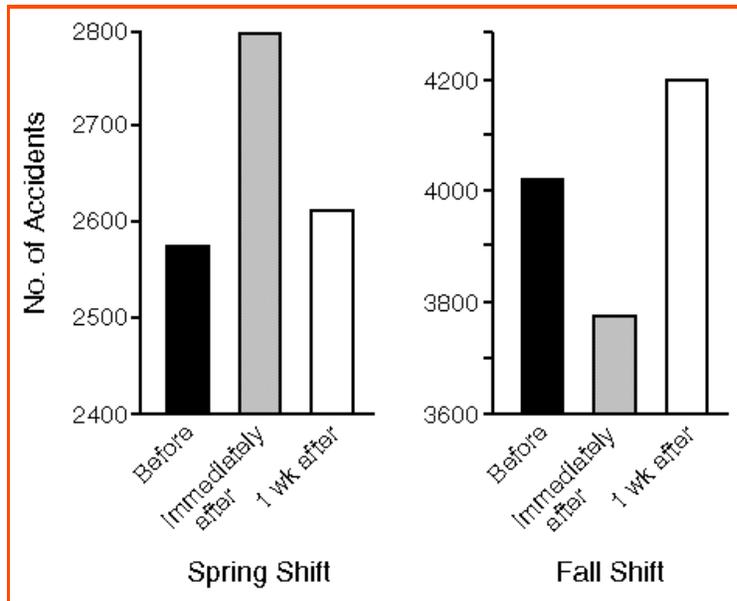


Figure 1. Numbers of Traffic Accidents on the Mondays before and after the Shifts to and from Daylight Savings Time for the Years 1991 and 1992. *There is an increase in accidents after the spring shift (when an hour of sleep is lost) and a decrease in the fall (when an hour of sleep is gained).*

These data show that small changes in the amount of sleep that people get can have major consequences in everyday activities. The loss of merely one hour of sleep can increase the risk of traffic accidents. It is likely that the effects are due to sleep loss rather than a nonspecific disruption in circadian rhythm, since gaining an additional hour of sleep at the fall time shift seems to decrease the risk of accidents.

Stanley Coren, Ph.D., University of British Columbia, Vancouver, Canada

7 Extended Work Duration and the Risk of Self-reported Percutaneous Injuries in Interns

Context In their first year of postgraduate training, interns commonly work shifts that are longer than 24 hours. Extended-duration work shifts are associated with increased risks of automobile crash, particularly during a commute from work. Interns may be at risk for other occupation-related injuries.

Objective To assess the relationship between extended work duration and rates of percutaneous injuries in a diverse population of interns in the United States.

Design, Setting, and Participants National prospective cohort study of 2737 of the estimated 18,447 interns in US postgraduate residency programs from July 2002 through May 2003. Each month, comprehensive Web-based surveys that asked about work schedules and the occurrence of percutaneous injuries in the previous month were sent to all participants. xxx-xxxxxxxx xxxxxx-xxxxxxxx analyses were performed.

Main Outcome Measures Comparisons of rates of percutaneous injuries during day work (6:30 AM to 5:30 PM) after working overnight (extended work) vs day work that was not preceded by working overnight (nonextended work). We also compared injuries during the nighttime (11:30 PM to 7:30 AM) vs the daytime (7:30 AM to 3:30 PM).

Results From a total of 17,003 monthly surveys, 498 percutaneous injuries were reported (0.029/intern-month). In 448 injuries, at least 1 contributing factor was reported. Lapse in concentration and fatigue were the 2 most commonly reported contributing factors (64% and 31% of injuries, respectively). Percutaneous injuries were more frequent during extended work compared with nonextended work (1.31/1000 opportunities vs 0.76/1000 opportunities, respectively; odds ratio [OR], 1.61; 95% confidence interval [CI], 1.46-1.78). Extended work injuries occurred after a mean of 29.1 consecutive work hours;

nonextended work injuries occurred after a mean of 6.1 consecutive work hours. Injuries were more frequent during the nighttime than during the daytime (1.48/1000 opportunities vs 0.70/1000 opportunities, respectively; OR, 2.04; 95% CI, 1.98-2.11).

Conclusion Extended work duration and night work were associated with an increased risk of percutaneous injuries in this study population of physicians during their first year of clinical training. N Ayas, JAMA. 2006;296:1055-1062

Table 1. Rates of Percutaneous Injuries by Residency Program

Type of Residency	No. of I-M's	No. of P-I's	Rate, per intern-Month (I-M) pt. est. (95% CI)
All	17003	498	0.0293 (0.0268-0.0318)
Internal medicine	3995	57	0.0143 (0.0106-0.0179)
Surgery	1730	124	0.0717 (0.0595-0.0838)
Family medicine	2008	51	0.0254 (0.0185-0.0323)
Emergency medicine	1007	40	0.0397 (0.0277-0.0518)
Pediatrics	2159	24	0.0111 (0.0067-0.0155)
Psychiatry	658	1	0.0015 (0-0.0045)
Pathology	283	15	0.0530 (0.0269-0.0791)
Obstetrics/gynecology	964	94	0.0975 (0.0788-0.1160)
Other specialties	4199	92	0.0219 (0.0175-0.0263)

Abbreviations: I-M's: Intern-Months; P-I's: Percutaneous Injuries; pt. est: point estimate; CI, confidence interval;

*Rates of percutaneous injuries for interns in surgery, obstetrics/gynecology, and pathology programs were significantly greater than the mean of all residency programs; the rates of percutaneous injuries for interns in internal medicine, pediatrics, and psychiatry programs were significantly lower than the mean ($P < 0.001$). Surgery Includes general, neurologic, orthopedic, and urologic surgery.

Table 3. Percutaneous Injuries During Daytime Hours (6:30 AM to 5:30 PM) for Nonextended vs Extended (Ext'd) Work*. 3660 I-M's. Opp's = Opportunities

Ext'd?	No. Opp's	No. P-I's	Rate per 1000 Opp's	Rate 95% CI	Rate Ratio	95% CI
No	60,763	46	0.757	0.538 to 0.976	ref.	
Yes	26,667	35	1.310	0.878 to 1.750	1.61	1.46 to 1.78

8 If Nothing Goes Wrong, Is Everything All Right?

“The following examples are from recent issues of major medical journals, including JAMA. They have been arbitrarily chosen strictly for illustrative purposes. Thus, we have reduced the details to a minimum². For each, the reader should consider the inference that might be made from these data.”

Example 1. – Of 14 boys followed up for a median of 5 1/2 years after chemotherapy for leukemia, none had abnormal testicular function (i.e., the abnormality rate was 0/14).[ref] With what risk, if any, of testicular dysfunction might these results be compatible?

Example 2. – The status of 112 liveborn children whose mothers had been immunized against rubella was studied to assess the risks of gestational exposure to the vaccine.[ref] None of the infants born (0/112) had any congenital malformations associated with congenital rubella. What is the maximum malformation risk compatible with finding none of 112 infants with defects in a single study?

Example 3.–The final example is one we will adapt to explain the inferences that may be made when a zero numerator is found. In a study of siblings of 167 infants with tracheoesophageal dysraphism (TED), none was found to have a neural tube defect.[ref] (We ignore here problems in defining the denominator for this study and assume, for illustrative purposes, that 167 siblings were studied and that the observed rate of neural tube defect was 0/167.) Is this evidence sufficient to say that the risk of neural tube defect in siblings of children with TED is not increased over the risk in the general population (1.5 per 1,000 births in the area studied)? Or is a 0/167 rate also compatible with a risk that would make parents of children with TED eligible for the prenatal diagnosis of neural tube defects in subsequent pregnancies?

J Hanley and A Lippman-Hand, JAMA, April 1, 1983 – Vol 249, No. 13 pp 1743-1745.

²Also, the JAMA editors were reluctant to have us quote the overly optimistic conclusions drawn by the original authors.

9 Distal radial fractures in young goalkeepers: a case for an appropriately sized soccer ball

Objectives – To assess the rate of wrist fractures in young goalkeepers sustained by the specific mechanism of “saving the ball” and the potential influence of ball size and environmental conditions.

Methods – A prospective, clinic based study in one institution over a 17 month period. Patients were identified by specific questioning. Information on play circumstances and subsequent clinical progress was documented.

Results – Twenty nine fractures of the distal radius were identified in young goalkeepers (age range 6-15 years) as a direct result of saving the ball. Most were managed simply in a plaster cast. Three patients required minor surgical interventions, and all fractures went on to unite without significant complications. Where ball size was known, 12 of the 15 fractures in children aged 11 years or less occurred as the result of impact with an adult sized ball compared with three when a junior ball was involved. This is statistically significant ($p = 0.039$). In the 10 children aged 12-15 years, only one fracture involved a junior ball; this is also statistically significant ($p = 0.027$). Six of the injuries (21%) occurred when the ball was kicked by an adult. Injuries occurred in both organised and informal games throughout the year.

Conclusions – This specific mechanism of injury has not been widely acknowledged nor has the potential influence of ball size as a causative factor been examined. Recommendations for an appropriately sized soccer ball for young players exist but are not in universal use. Increased awareness of this particular injury mechanism is required. K Boyd. Br J Sports Med 2001; 35:409-411

10 Are there excess Sharons in genitourinary clinics?

Most doctors believe that they can determine the age and social class of a patient merely from hearing their name but this has not been proved. In the 1990s, paediatricians seldom encounter Hildas or Ethels, and Kylies and Bradleys are yet to call on the services of elderly medicine. Stereotypes abound, but is it true that Camillas are more likely to have private medical insurance than Paulines? Above all, are those “Essex girls” Tracey, Sandra, and Sharon really women of easy virtue? With this in mind we set out to establish whether these names are overrepresented among attenders in departments of genitourinary medicine.

Sharons-1.pdf



Method and results We analysed the database for women in the 16-24 age group attending as patients at our department between April 1998 and March 1999. The 10 girls’ names most commonly encountered were recorded and compared with data from the Office of Population Censuses and Surveys, which published a database of popular names at intervals of 10 years.[ref] The age of our study population spanned two data sets (1974 and 1984). The frequency of the 10 most popular names in our records was broadly similar in both official databases, so we used 1974 for comparison as it most closely approximated to the mean ages of the named groups in the study population. As Tracey, Sandra, and Sharon did not feature in the 10 most common names in our clinic, additional data were collected for these names. Data were analysed with SPSS version 9.0.1, using an exact one sample 2 test.

In the study period 1462 women aged 16-24 attended our department. The ranking and frequency of girls’ names and the mean age of these patients in genitourinary medicine clinics and their frequency in the population for that age group are shown in the table.

Most of the top 10 names for women attending our department were seen with the frequency expected by the incidence of the name in the population. The names most often encountered were Sarah (3.8%) and Emma (2.4%).

Table: Girls' names most frequently encountered in a Southampton genitourinary medicine clinic

Rank in clinic	Name	Mean age (y)	Total (% of all patients)	National rank*	% of birth cohort*
1	Sarah	21.7	55 (3.8)	1	3.8
2	Emma	20.2	35 (2.4)	4	2.3
3	Kelly	20.9	34 (2.3)	47	0.4
4	Louise	19.6	30 (2.0)	13	1.4
5	Claire	21.5	27 (1.8)	2	2.8
6	Lisa	21.3	26 (1.8)	5	2.2
7	Rachel	21.7	23 (1.6)	12	1.4
8	Clare	22.0	22 (1.5)	15	1.1
9	Michelle	21.1	17 (1.2)	7	1.8
10	Nicola	21.4	16 (1.1)	3	2.6
30	Sharon	22.4	7 (0.48)	17	1.0
35	Tracey	22.8	5 (0.34)	26	0.78
62	Sandra	22.0	1 (0.07)	73	0.25

* Data from Office of Population Censuses and Surveys, 1974 database.

Comment: The much maligned Sharon, Tracey, and Sandra were seen half as often as expected ($P=0.003$), and as we enter the new millennium, these names make way for the more popular “Hampshire girls” Kelly and Louise ($P<0.0001$ and $P=0.035$ respectively).

Having detected a significant difference in the names of women attending our genitourinary medicine clinic in a retrospective study, we suggest that a prospective randomised study on an “intention to name” basis should be performed. This may, however, have recruitment difficulties. E Foley, *BMJ* 1999;319:1615-1615 (18 December)

11 A population-based study of measles, mumps, and rubella vaccination and autism

Background: It has been suggested that vaccination against measles, mumps, and rubella (MMR) is a cause of autism.

Methods: We conducted a retrospective cohort study of all children born in Denmark from January 1991 through December 1998. The cohort was selected on the basis of data from the Danish Civil Registration System, which assigns a unique identification number to every live-born infant and new resident in Denmark. MMR-vaccination status was obtained from the Danish National

Board of Health. Information on the childrens autism status was obtained from the Danish Psychiatric Central Register, which contains information on all diagnoses received by patients in psychiatric hospitals and outpatient clinics in Denmark. We obtained information on potential confounders from the Danish Medical Birth Registry, the National Hospital Registry, and Statistics Denmark.

Results: Of the 537,303 children in the cohort (representing 2,129,864 person-years), 440,655 (82.0 percent) had received the MMR vaccine. We identified 316 children with a diagnosis of autistic disorder and 422 with a diagnosis of other autistic-spectrum disorders. After adjustment for potential confounders, the relative risk of autistic disorder in the group of vaccinated children, as compared with the unvaccinated group, was 0.92 (95 percent confidence interval, 0.68 to 1.24), and the relative risk of another autistic-spectrum disorder was 0.83 (95 percent confidence interval, 0.65 to 1.07). There was no association between the age at the time of vaccination, the time since vaccination, or the date of vaccination and the development of autistic disorder.

Conclusions: This study provides strong evidence against the hypothesis that MMR vaccination causes autism. K Madsen. *N Engl J Med* 2002;347:1477-82.)

12 Vasectomy and health. Results from a large cohort study.

In this historical cohort study we identified, located, and, if living, interviewed 10,590 vasectomized men from four cities, along with a paired neighborhood control for each. The times between procedure data and interview or death ranged from under one to 41 years, with median equal to 7.9 years and with 2,318 pairs having ten or more years of follow-up. Participant reports of diseases or conditions that might possibly be related to vasectomy through an immunopathological mechanism were validated by direct contact with physicians and review of medical records. Results of this study do not support the suggestions of immunopathological consequences of vasectomy within the period of follow-up. Except for epididymitis-orchitis, the incidence of diseases for vasectomized men was similar or lower than for their paired controls. F Massey. *JAMA*. 1984 Aug 24-31;252(8):1023-9.

13 La Presse, Montréal, jeudi 21 avril 1994. Leadup to key series against Boston Bruins

14 Final report on the aspirin component of the ongoing Physicians' Health Study

The Physicians' Health Study is a randomized, double-blind, placebo-controlled trial designed to determine whether low-dose aspirin (325 mg every other day) decreases cardiovascular mortality and whether beta carotene reduces the incidence of cancer. The aspirin component was terminated earlier than scheduled, and the preliminary findings were published. We now present detailed analyses of the cardiovascular component for 22,071 participants, at an average follow-up time of 60.2 months.

There was a 44 percent reduction in the risk of myocardial infarction (relative risk, 0.56; 95 percent confidence interval, 0.45 to 0.70; P less than 0.00001) in the aspirin group (254.8 per 100,000 per year as compared with 439.7 in the placebo group). A slightly increased risk of stroke among those taking aspirin was not statistically significant; this trend was observed primarily in the subgroup with hemorrhagic stroke (relative risk, 2.14; 95 percent confidence interval, 0.96 to 4.77; P = 0.06). No reduction in mortality from all cardiovascular causes was associated with aspirin (relative risk, 0.96; 95 percent confidence interval, 0.60 to 1.54). Further analyses showed that the reduction in the risk of myocardial infarction was apparent only among those who were 50 years of age and older. The benefit was present at all levels of cholesterol, but appeared greatest at low levels. The relative risk of ulcer in the aspirin group was 1.22 (169 in the aspirin group as compared with 138 in the placebo group; 95 percent confidence interval, 0.98 to 1.53; P = 0.08), and the relative risk of requiring a blood transfusion was 1.71.

This trial of aspirin for the primary prevention of cardiovascular disease demonstrates a conclusive reduction in the risk of myocardial infarction, but the evidence concerning stroke and total cardiovascular deaths remains inconclusive because of the inadequate numbers of physicians with these end points. Steering Committee of the Physicians' Health Study Research Group. *N Engl J Med.* 1989 Jul 20;321(3):129-35.

15 Randomised trial of prophylactic daily aspirin in British male doctors

A six year randomised trial was conducted among 5139 apparently healthy male doctors to see whether 500 mg aspirin daily would reduce the incidence of and mortality from stroke, myocardial infarction, or other vascular conditions.

LA PRESSE, MONTRÉAL, JEUDI 21 AVRIL 1994

Sutter a trop parlé; personne ne va toucher à Roy, foi de Carbo

Pages 2 à 5

Haut du filet: 10 sur 51 (20 p. cent)

Milieu du filet: 5 sur 51 (10 p. cent)

Bas du filet: 36 sur 51 (70 p. cent)

Pour battre Roy, mieux vaut lancer bas...

Quand même étonnant que les gens des Bruins de Boston ne soient pas mieux renseignés. En voulant battre Roy en lançant dans le haut du filet, comme il l'ont fait lundi, les Bruins perdent leur temps. La preuve, le graphique publié ci-dessus. Au cours des vingt matchs des séries éliminatoires disputés l'an passé, le Canadien a accordé 51 buts (16 contre les Nordiques, 12 face aux Sabres, 11 et 12 face aux Islanders et aux Kings). Des 51 buts alloués par le meilleur gardien au monde, 35, soit 70 p. cent d'entre eux, ont vu la rondelle pénétrer dans la partie inférieure du filet, à ras la glace comme on dit. Seulement 20 d'entre eux, accordés l'ont été dans la partie supérieure du filet. Le style d'attaque des Bruins, qui veut faire passer le ballon dans le haut du filet, ne fonctionne pas. Car Roy réussit, merveilleusement, à cacher les failles qui l'habitent. L'attaque des Bruins, fort bien renseignée sur ces statistiques, on en sous-entend, n'a pas hésité à lancer Roy dans la Presse d'hier ait volontairement nargué les Bruins en montrant qu'ils ne devaient pas continuer à lancer haut. Que jamais ils ne le battraient!

A L'ÉCRITURE: J. S. 2 A 5

Though total mortality was 10% lower in the treated than control group, this difference was not statistically significant and chiefly involved diseases other than stroke or myocardial infarction. Likewise, there was no significant difference in the incidence of non-fatal myocardial infarction or stroke—indeed, disabling strokes were somewhat commoner among those allocated aspirin. The lower confidence limit for the effect of aspirin on non-fatal stroke or myocardial infarction, however, was a substantial 25% reduction. Migraine and certain types of musculoskeletal pain were reported significantly less often in the treated than control group, but as the control group was not given a placebo the relevance of these findings was difficult to assess. There was no apparent reduction in the incidence of cataract in the treated group. The lack of any apparent reduction in disabling stroke or vascular death contrasts with the established value of antiplatelet treatment after occlusive vascular disease. R Peto. *Br Med J (Clin Res Ed)*. 1988 Jan 30;296(6618):313-6.

16 Breast Cancers among women exposed to x-ray fluoroscopy

Breast cancer cases and person years of observation for women with tuberculosis repeatedly exposed to multiple x-ray fluoroscopies, and women with tuberculosis not so exposed Boice and Monson, 1977; Example 11-1 from Rothman 1986, pp 156, Ch 11.

	Radiation exposure		Total
	Yes	No	
Breast cancers	41	15	56
Person-years	28,010	19,017	47,027

17 Efficacy Analyses of a Human Papillomavirus Type 16 L1 Virus-like-Particle Vaccine.

In the Primary per-protocol efficacy analysis, there were 0 persistent infections in 1084.0 w-y of vaccinated follow-up, versus 41 in 1076.9 w-y of placebo follow-up. The article gave point estimate of 100 percent, 95% CI of 90 percent to 100 percent.

In the secondary efficacy analysis, there were 6 and 68 ‘transient or persistent’ infections. The article reported 97% to 80% as CI for percent efficacy.

From the Statistical Analysis in the article...

For all efficacy analyses, a point estimate of vaccine efficacy and the 95 percent confidence interval were calculated on the basis of the observed case split between vaccine and placebo recipients and the accrued person-time. The statistical criterion for success required that the lower bound of the two-sided 95 percent confidence interval for vaccine efficacy exceed 0 percent. For the primary analysis, this corresponds to a test (two-sided $\alpha = 0.05$) of the null hypothesis that the vaccine efficacy equals 0 percent. An exact conditional procedure, which assumes that the numbers of cases in the vaccine and placebo groups are independent Poisson random variables, was used to evaluate vaccine efficacy. L. Koutsky, *N Engl J Med* 2002;347:1645-51.

18 Traffic-law enforcement and risk of death from motor-vehicle crashes

Background: Driving offences and traffic deaths are common in countries with high rates of motor-vehicle use. We tested whether traffic convictions, because of their direct effect on the recipient, might be associated with a reduced risk of fatal motor-vehicle crashes.

Methods: We identified licensed drivers in Ontario, Canada, who had been involved in fatal crashes in the past 11 years. We used the xxxx-xxxxxxx design to analyse the protective effect of recent convictions on individual drivers.

Findings: 8975 licensed drivers had fatal crashes during the study period. 21501 driving convictions were recorded for all drivers from the date of obtaining a full licence to the date of fatal crash, equivalent to about one conviction per driver every 5 years. The risk of a fatal crash in the month after a conviction was about 35% lower than in a comparable month with no conviction for the same driver (95% CI 20-45, $p=0.0002$). The benefit lessened substantially by 2 months and was not significant by 3-4 months. The benefit was not altered by age, previous convictions, and other personal characteristics; was greater for speeding violations with penalty points than speeding violations without points; was no different for crashes of differing severity; and was not seen in drivers whose licences were suspended.

Interpretation: Traffic-law enforcement effectively reduces the frequency of fatal motor-vehicle crashes in countries with high rates of motor-vehicle use. Inconsistent enforcement, therefore, may contribute to thousands of deaths each year worldwide. D. Redelmeier. *Lancet*. 2003 Jun 28;361(9376):2177-82

19 Male circumcision for HIV prevention in men in Rakai, Uganda: a randomised trial

	Intervention group	Control group	Incidence rate ratio (95% CI)	p value
0–6 months follow-up interval				
Number of participants	2263	2319		
Incident events	14	19		
Person-years	1172.1	1206.7		
Incidence per 100 person-years	1.19	1.58	0.76 (0.35–1.60)	0.439
6–12 months follow-up interval				
Number of participants	2235	2229		
Incident events	5	14		
Person-years	1190.7	1176.3		
Incidence per 100 person-years	0.42	1.19	0.35 (0.10–1.04)	0.0389
12–24 months follow-up interval				
Number of participants	964	980		
Incident events	3	12		
Person-years	989.7	1008.7		
Incidence per 100 person-years	0.30	1.19	0.25 (0.05–0.94)	0.0233
Total 0–24 months follow-up				
Cumulative number of participants	2387	2430		
Cumulative incident events	22	45		
Cumulative person-years	3352.4	3391.8		
Cumulative incidence per 100 person-years	0.66	1.33	0.49 (0.28–0.84)	0.0057

Table 3: HIV incidence by study group and follow-up interval, and cumulative HIV incidence over 2 years

Background Ecological and observational studies suggest that male circumcision reduces the risk of HIV acquisition in men. Our aim was to investigate the effect of male circumcision on HIV incidence in men.

Methods 4996 uncircumcised, HIV-negative men aged 15–49 years who agreed to HIV testing and counselling were enrolled in this randomised trial in rural Rakai district, Uganda. Men were randomly assigned to receive immediate circumcision (n=2474) or circumcision delayed for 24 months (2522). HIV testing, physical examination, and interviews were repeated at 6, 12, and 24 month follow-up visits. The primary outcome was HIV incidence. Analyses were done on a modified intention-to-treat basis. This trial is registered with ClinicalTrials.gov, with the number NCT00425984.

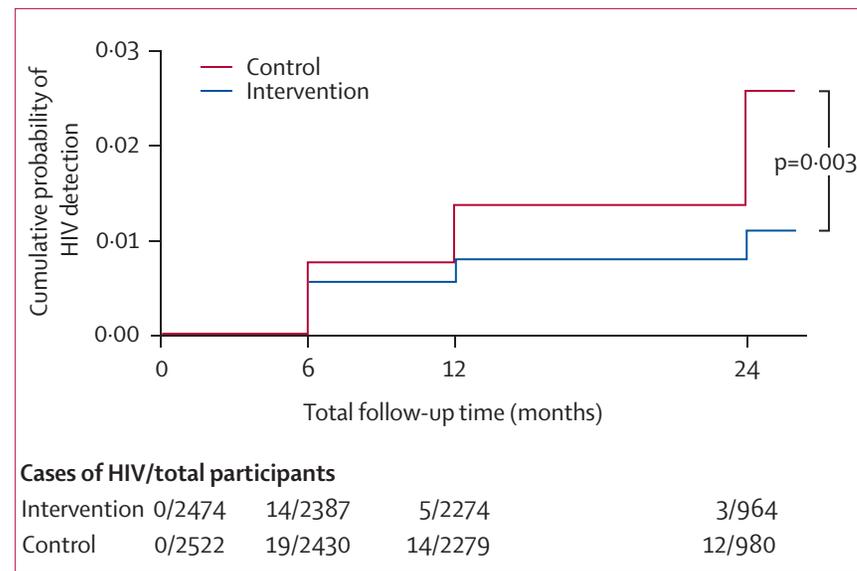


Figure 2: Kaplan-Meier cumulative probabilities of HIV detection by study group

Actual visits grouped by the three scheduled visits at 6 months, 12 months, and 24 months after enrolment. The cumulative probabilities of HIV infection were 1.1% in the intervention group and 2.6% in the control group over 24 months.

Findings Baseline characteristics of the men in the intervention and control groups were much the same at enrolment. Retention rates were much the same in the two groups, with 90.92% of participants retained at all time points. In the modified intention-to-treat analysis, HIV incidence over 24 months was 0.66 cases per 100 person-years in the intervention group and 1.33 cases per 100 person-years in the control group (estimated efficacy of intervention 51%, 95% CI 16.72; p=0.006). The as-treated efficacy was 55% (95% CI 22.75; p=0.002); efficacy from the Kaplan-Meier time-to-HIV-detection as-treated analysis was 60% (30.77; p=0.003). HIV incidence was lower in the intervention group than it was in the control group in all sociodemographic, behavioural, and sexually transmitted disease symptom subgroups. Moderate or severe adverse events occurred in 84 (3.6%) circumcisions; all resolved with treatment. Behaviours were much the same in both groups during follow-up.

Interpretation Male circumcision reduced HIV incidence in men without behavioural disinhibition. Circumcision can be recommended for HIV prevention in men. R Gray. Lancet 2007; 369: 657–66

20 Leukemia Rate Triples near Nuke Plant: Study

OTTAWA (CP) - Children born near a nuclear power station on Lake Huron have 3.5 times the normal rate of leukemia, according to figures made public yesterday. The study conducted for the Atomic Energy Control Board, found the higher rate among children born near the Bruce generating station at Douglas Point. But the scientist who headed the research team cautioned that the sample size was so small that that actual result could be much lower - or nearly four times higher.

Dr. Aileen Clarke said that while the Douglas Point results showed 3.5 cases of leukemia where one would have been normal, a larger sample size could place the true figure somewhere in the range from 0.4 cases to 12.6 cases.

Clarke will do a second study to look at leukemia rates among children aged five to 14. The first study was on children under age 5. Clarke was asked whether parents should worry about the possibility that childhood leukemia rates could be over 12 times higher than normal around Douglas point. "My personal opinion is, not at this time," she said. She suggested that parents worried by the results should put them in context with other causes of death in children.

"Accidents are by far and away the chief cause of death in children, and what we're talking about is a very much smaller risk than that of death due to accidents," she said.

The results were detailed in a report on a year-long study into leukemia rates among children born within a 25-kilometre radius of five Ontario nuclear facilities. The study was ordered after British scientists reported leukemia rates among children born near nuclear processing plants were nine times higher than was normal. The Ontario study was based on 795 children who died of leukemia between 1950 and 1986 and 951 children who were diagnosed with cancer between 1964 and 1985.

It showed a lower-than-normal rate among children born near the Chalk River research station and only slightly higher than expected rates at Elliot Lake and Port Hope, uranium mining and conversion facilities.

At the Pickering generating station, the ratio was slightly higher still, at 1.4 - meaning there were 1.4 cases for every expected case. But the confidence interval - the range of reliability - for that figure set the possible range between 0.8 cases and 2.2 cases. *Montreal Gazette*, Friday May 12, 1989.

21 Prophylactic vaccination against human papillomavirus infection and disease in women: a systematic review of randomized controlled trials

Background: Human papillomavirus (HPV) is now known to be a necessary cause of cervical cancer, and prophylactic HPV vaccines aimed at preventing genital warts, precancerous cervical lesions and cervical cancer are now available. To gauge the potential impact on disease burden, we performed a systematic review of the evidence from randomized controlled trials.

Methods: We conducted a systematic search of the literature to identify all randomized controlled trials of prophylactic HPV vaccination. Reports in 5 electronic databases covering 1950 to June 2007 (MEDLINE, MEDLINE in process, EMBASE, the Cochrane Central Registry of Controlled Trials and the Cochrane Library), bibliographies of all included studies and of narrative reviews (20062007), clinical trial registries, Google Scholar, public health announcements, selected conference proceedings (20042007) and manufacturers information on unpublished data or ongoing trials were screened against pre-defined eligibility criteria by 2 independent reviewers. Vaccines had to contain coverage against at least 1 oncogenic HPV strain. The primary outcome of interest was the frequency of high-grade cervical lesions (high-grade squamous intraepithelial lesion, or grade 2 or 3 cervical intraepithelial neoplasia). The secondary outcomes were persistent HPV infection, low-grade cervical lesions (low-grade squamous intraepithelial lesion or grade 1 cervical intraepithelial neoplasia), external genital lesions, adverse events and death. Meta-analysis of the data was done in all cases where adequate clinical and methodological homogeneity existed.

Results: Of 456 screened reports, 9 were included in the review (6 were reports of randomized controlled trials and 3 were follow-up reports of initial trials). Findings from the meta-analysis showed that prophylactic HPV vaccination was associated with a reduction in the frequency of high-grade cervical lesions caused by vaccine-type HPV strains compared with control groups: Peto odds ratio 0.14 (95% confidence interval [CI] 0.090.21) from combined per-protocol analyses, and 0.52 (95% CI 0.430.63) from modified intention- to-treat analyses. Vaccination was also highly efficacious in preventing other HPV-related infection and disease outcomes, including persistent HPV infection, low-grade lesions and genital warts. The majority of adverse events were minor. The incidence of serious adverse events and death were balanced between the vaccine and control groups.

Interpretation: Among women aged 15-25 years not previously infected with vaccine-type HPV strains, prophylactic HPV vaccination appears to be highly efficacious in preventing HPV infection and precancerous cervical disease. Longterm follow-up is needed to substantiate reductions in cervical cancer incidence and mortality. L. Rambout. CMAJ 2007;177(5):469-79

22 High risk of HIV-1 infection for first-born twins

To examine the epidemiology and natural history of mother-to-infant transmission of human immunodeficiency virus type 1 (HIV-1), especially genetic and intrapartum exposure factors, we obtained data on twins and triplets born to women infected with the virus.

40 investigators in nine countries contributed demographic, clinical, and epidemiological data on 100 sets of twins and 1 set of triplets. Among the 66 evaluable sets, HIV-1 infection was more common in first-born than in second-born twins ($p = 0.004$). In 22 sets, only one twin was infected (18 first-born, 4 second-born). 50% of first-born twins delivered vaginally and 38% of first-born twins delivered by caesarean were infected, compared with 19% of second-born twins delivered by either route. HIV-1 infection status tended to be concordant in more monozygotic (14 of 17 sets) than dizygotic (26 of 43) sets, but the frequency and clinical signs of HIV-1-related disease were similar in only 3 of the 10 sets with both children infected.

These findings suggest that some infants may be infected in utero before labour but that a substantial proportion of HIV-1 transmission occurs as the first twin encounters the cervix and birth canal. Such measures as cleansing of the birth canal and caesarean delivery before membrane rupture might reduce the risk of transmission for infants born to HIV-1-infected women and should be the subjects of controlled clinical trials. Caesarean section should not be regarded as a wholly preventive measure, however, since substantial proportions of both first-born and second-born twins delivered in this way were infected. J Goedert, Lancet 1991; 338: 1471-75.

Table: Risk factors for mother-to-child transmission of HIV-1 infection in 66 sets of twins by birth order (A born first, B born second) [*excerpt from larger Table, with several other risk factors*]

	no. of sets	Prev. inf.**	infection(s) in twin sets			
			Neither	A&B	A	B
All sets	66	32%	34	10	18	4
<i>Delivery</i>						
...Both vaginal	32	34%	15	5	11	1
...Both caesarian	26	29%	15	4	6	1
...Vaginal/caesarian	3	50%	1	1	0	1

*Including first-born and second-born of triplet set; ** % infected/all children in group. Totals not always 66 sets, owing to missing data.

23 Association between Cellular-Telephone Calls and Motor Vehicle Collisions

Background Because of a belief that the use of cellular telephones while driving may cause collisions, several countries have restricted their use in motor vehicles, and others are considering such regulations. We used an epidemiologic method, the abcd-efghijklm design, to study whether using a cellular telephone while driving increases the risk of a motor vehicle collision.

Methods We studied 699 drivers who had cellular telephones and who were involved in motor vehicle collisions resulting in substantial property damage but no personal injury. Each person's cellular-telephone calls on the day of the collision and during the previous week were analyzed through the use of detailed billing records.

Results A total of 26,798 cellular-telephone calls were made during the 14-month study period. The risk of a collision when using a cellular telephone was four times higher than the risk when a cellular telephone was not being used (relative risk, 4.3; 95 percent confidence interval, 3.0 to 6.5). The relative risk was similar for drivers who differed in personal characteristics such as age and driving experience; calls close to the time of the collision were particularly hazardous (relative risk, 4.8 for calls placed within 5 minutes of the collision, as compared with 1.3 for calls placed more than 15 minutes before the collision; $P < 0.001$); and units that allowed the hands to be free (relative risk, 5.9) offered no safety advantage over hand-held units (relative risk, 3.9; P not significant). Thirty-nine percent of the drivers called emergency services after the collision,

suggesting that having a cellular telephone may have had advantages in the aftermath of an event.

Conclusions The use of cellular telephones in motor vehicles is associated with a quadrupling of the risk of a collision during the brief period of a call. Decisions about regulation of such telephones, however, need to take into account the benefits of the technology and the role of individual responsibility. D. Redelmeier, NEJM 336:453-458 February 13, 1997

From Results section of Fulltext... Overall, 170 subjects (24 percent) had used a cellular telephone during the 10-minute period immediately before the collision, 37 (5 percent) had used the telephone during the same period on the day before the collision, and 13 (2 percent) had used the telephone during both periods. The crude analysis indicated that cellular-telephone activity was associated with a relative risk of a motor vehicle collision of 6.5 (95 percent confidence interval, 4.5 to 9.9). The primary analysis, adjusted for intermittent driving, indicated that cellular-telephone activity was associated with a quadrupling of the risk of a motor vehicle collision (relative risk, 4.3; 95 percent confidence interval, 3.0 to 6.5).

24 Longer term effects of New York State's law on drivers' handheld cell phone use

Objective: To determine whether substantial short term declines in drivers use of handheld cell phones, after a state ban, were sustained one year later.

Design: Drivers daytime handheld cell phone use was observed in four New York communities and two Connecticut communities. Observations were conducted one month before the ban, shortly after, and 16 months after. Driver gender, estimated age, and vehicle type were recorded for phone users and a sample of motorists.

Intervention: Effective 1 November 2001, New York became the only state in the United States to ban drivers handheld cell phone use. Connecticut is an adjacent state without such a law.

Sample: 50 033 drivers in New York, 28 307 drivers in Connecticut.

Outcome measures: Drivers handheld cell phone use rates in New York and Connecticut and rates by driver characteristics.

Results: Overall use rates in Connecticut did not change. Overall use in New York declined from 2.3% prelaw to 1.1% shortly after ($p < 0.05$). One year later, use was 2.1%, higher than immediately post-law ($p < 0.05$) and not

significantly different from pre-law. Initial declines in use followed by longer term increases were observed for males and females, drivers younger than 60, and car and van drivers; use patterns varied among the four communities. Publicity declined after the laws implementation. No targeted enforcement efforts were evident. Cell phone citations issued during the first 15 months represented 2% of all traffic citations. Conclusions: Vigorous enforcement campaigns accompanied by publicity appear necessary to achieve longer term compliance with bans on drivers cell phone use. A. McCartt. Injury Prevention 2004;10:1115. doi: 10.1136/ip.2003.00373

METHODS: Collecting observation data

A detailed account of the method for conducting observations, summarized here, is provided elsewhere. Daytime observations of drivers were conducted at controlled intersections in four small to medium sized upstate communities in New York State (Albany County, Cities of Binghamton and Kingston, Village of Spring Valley) and in two communities in central Connecticut (Town of Hamden, City of Hartford). Areas considered for observation in New York excluded the downstate counties of Nassau, Suffolk, and Westchester due to pre-existing local bans on cell phone use while driving; New York City because of its unusual traffic patterns, major congestion, and the difficulty of finding suitable observation sites; and the western and northernmost counties due to inclement winter weather conditions. Observations were conducted at controlled intersections on geographically dispersed, heavily traveled roads. Limited access highways were excluded. Observations were conducted on Thursday or Friday in seven observation periods throughout the day. Approaching vehicles in the closest two lanes were observed by a person positioned at the roadside at or near the intersection. Emergency vehicles, tractor-trailer trucks, and buses were excluded. In accordance with the law, cell phone use was recorded as yes only if the driver was holding the telephone to the ear while the vehicle was moving.

Pre-law observations were conducted about one month before the warning period began on 1 November 2001; short term compliance was measured by observations conducted immediately after the fine-with-waiver phase took effect on 1 December and immediately after the fine-without-waiver phase took effect on 1 March 2002. Longer term compliance was measured in observations conducted during the first two weeks of March 2003.

Thirty five minutes of each observation period focused on enumerating cell phone use. A handheld counter recorded drivers not using a handheld cell phone. For drivers using a cell phone, the counter was not clicked and the following information was recorded: estimated age category (younger than 25, ages 25-59, ages 60 and older), gender, and vehicle type (car, pickup truck, sport utility vehicle (SUV), van or minivan, large single unit truck with more than four tires). During five minutes before and five minutes after the 35 minute cell phone observations, the age category, gender, and vehicle type were recorded for a sample of drivers in passing traffic.

25 The Lidköping Accident Prevention Programme—a community approach to preventing childhood injuries in Sweden

OBJECTIVES: In Sweden about 100 children 0-14 years die from accidental injuries every year, roughly 40 girls and 60 boys. To reduce this burden the Safe Community concept was developed in Falköping, Sweden in 1975. Several years later a second programme was initiated in Lidköping. The objectives of this paper are to describe the programme in Lidköping and to relate it to changes in injury occurrence.

SETTING: The Lidköping Accident Prevention Programme (LAPP) was compared with four bordering municipalities and to the whole of Skaraborg County.

Table 2 Incidence of hospitalized injuries (rates/1000 under 14 years) in Lidköping (intervention area) and comparison areas by year and gender (n = area population)

	Intervention area		Comparison areas			
	Girls	Boys	Four border municipalities		Skaraborg	
			Girls	Boys	Girls	Boys
1983	10.5	17.6	8.3	12.0	8.7	12.7
n	3247	3356	4118	4318	26202	27464
1984	15.0	13.5	6.9	13.8	8.8	13.2
n	3200	3271	4046	4203	25818	26998
1985	10.2	12.6	8.4	11.3	8.4	13.0
n	3140	3265	4059	4175	25519	26690
1986	8.4	16.9	6.7	13.7	8.7	13.7
n	3092	3252	4018	4146	25296	26470
1987	12.4	12.2	9.5	15.9	9.5	14.2
n	3056	3208	4018	4162	25151	26325
1988	7.3	13.4	4.2	12.5	7.8	12.4
n	3016	3204	4049	4163	25079	26391
1989	13.3	19.2	10.7	14.1	8.8	12.4
n	3006	3232	4113	4163	25153	26602
1990	9.1	10.3	11.0	13.7	9.3	12.8
n	3072	3287	4179	4304	25506	27047
1991	9.5	11.0	7.1	12.2	7.9	11.4
n	3160	3378	4235	4355	25977	27552
Mean	10.6	14.1	8.1	13.2	8.7	12.9
95% CI	8.7 to 12.5	11.5 to 16.7	6.4 to 9.8	12.1 to 14.3	8.3 to 9.1	12.3 to 13.5
β_1	-0.3	-0.4	0.2	0.1	-0.1	-0.2
% Change/year	-2.1	-2.4	2.2	0.6	-0.3	-1.0

Source: Skaraborg County inpatient discharge register 1983-91.
CI = Confidence interval.

RESULTS: In Lidköping there was an on average annual decrease in injuries leading to hospital admissions from 1983 to 1991 of 2.4% for boys and 2.1% for

girls compared with a smaller decline in one comparison area and an increase in the other.

CONCLUSION: Because the yearly injury numbers are small there is a great variation from year to year. However, comparisons over the nine year study period with the four border municipalities and the whole of Skaraborg County strengthen the impression that the programme has had a positive effect. The findings support the proposition that the decrease in the incidence of childhood injuries after 1984 could be attributed to the intervention of the LAPP. Nevertheless, several difficulties in drawing firm conclusions from community based studies are acknowledged and discussed. L. Svanstrom, *Inj. Prev.*, Sep 1995; 1: 169 - 172.

26 From... On the Mode of Communication of Cholera

by John Snow, M.D. London: John Churchill, New Burlington Street, England, 1855; material below taken from <http://www.ph.ucla.edu/epi/snow/>

(...) NEW WATER SUPPLY OF THE LAMBETH COMPANY

London was without cholera from the latter part of 1849 to August 1853. During this interval an important change had taken place in the water supply of several of the south districts of London. The Lambeth Company removed their water works, in 1852, from opposite Hungerford Market to Thames Ditton; thus obtaining a supply of water quite free from the sewage of London. The districts supplied by the Lambeth Company are, however, also supplied, to a certain extent, by the Southwark and Vauxhall Company, the pipes of both companies going down every street, in the places where the supply is mixed, as was previously stated. In consequence of this intermixing of the water supply, the effect of the alteration made by the Lambeth Company on the progress of cholera was not so evident, to a cursory observer, as it would otherwise have been. It attracted the attention, however, of the Registrar-General, who published a table in the "Weekly Return of Births and Deaths" for 26th November 1853, of which the following is an abstract, containing as much as applies to the south districts of London.

EFFECT OF THIS NEW SUPPLY IN THE EPIDEMIC OF AUTUMN 1853
(...)

It thus appears that the districts partially supplied with the improved water suffered much less than the others, although, in 1849, when the Lambeth Company obtained their supply opposite Hungerford Market, these same dis-

districts suffered quite as much as those supplied entirely by the Southwark and Vauxhall Company, as was shown in Table III.

The following table (which, with a little alteration in the arrangement, is taken from the "Weekly Return of Births and Deaths" for 31st December 1853) shows the mortality from cholera, in the epidemic of 1853, down to a period when the disease had almost disappeared. The districts are arranged in the order of their mortality from Cholera.

It will be observed that Lambeth, which is supplied with water in a great measure by the Lambeth Company, occupies a lower position in the above table than it did in the previous table showing the mortality in 1849. Rotherhithe also has been removed from the first to the fifth Place; owing, no doubt, to the portion of the district supplied with water from the Kent Water Works, instead of the ditches, being altogether free from the disease, as was noticed above.

(...)

INTIMATE MIXTURE OF THE WATER SUPPLY OF THE LAMBETH WITH THAT OF THE SOUTHWARK AND VAUXHALL COMPANY

Although the facts shown in the above table afford very strong evidence of the powerful influence which the drinking of water containing the sewage of a town exerts over the spread of cholera, when that disease is present, yet the question does not end here; for the intermixing of the water supply of the Southwark and Vauxhall Company with that of the Lambeth Company, over an extensive part of London, admitted of the subject being sifted in such a way as to yield the most incontrovertible proof on one side or the other. In the sub-districts enumerated in the above table as being supplied by both Companies, the mixing of the supply is of the most intimate kind. The pipes of each Company go down all the streets, and into nearly all the courts and alleys. A few houses are supplied by one Company and a few by the other, according to the decision of the owner or occupier at that time when the Water Companies were in active competition. In many cases a single house has a supply different from that on either side. Each company supplies both rich and poor, both large houses and small; there is no difference either in the condition or occupation of the persons receiving the water of the different Companies. Now it must be evident that, if the diminution of cholera, in the districts partly supplied with the improved water, depended on this supply, the houses receiving it would be the houses enjoying the whole benefit of the diminution of the malady, whilst the houses supplied with the water from Battersea Fields would suffer the same mortality as they would if the improved supply did not exist at all. As there is no difference whatever, either in the houses or the people receiving the supply of the two Water Companies, or in

any of the physical conditions with which they are surrounded, it is obvious that no experiment could have been devised which would more thoroughly test the effect of water supply on the progress of cholera than this, which circumstances placed ready made before the observer.

OPPORTUNITY THUS AFFORDED OF GAINING CONCLUSIVE EVIDENCE OF THE EFFECT OF THE WATER SUPPLY ON THE MORTALITY FROM CHOLERA

The experiment, too, was on the grandest scale. No fewer than three hundred thousand people of both sexes, of every age and occupation, and of every rank and station, from gentlefolks down to the very poor, were divided into two groups without their choice, and, in most cases, without their knowledge; one group being supplied with water containing the sewage of London, and, amongst it, whatever might have come from the cholera patients, the other group having water quite free from such impurity.

To turn this grand experiment to account, all that was required was to learn the supply of water to each individual house where a fatal attack of cholera might occur. I regret that, in the short days at the latter part of last year, I could not spare the time to make the inquiry; and, indeed, I was not fully aware, at that time, of the very intimate mixture of the supply of the two Water Companies, and the consequently important nature of the desired inquiry.

When the cholera returned to London in July of the present year, however, I resolved to spare no exertion which might be necessary to ascertain the exact effect of the water supply on the progress of the epidemic, in the places where all the circumstances were so happily adapted for the inquiry. I was desirous of making the investigation myself, in order that I might have the most satisfactory proof of the truth or fallacy of the doctrine which I had been advocating for five years. I had no reason to doubt the correctness of the conclusions I had drawn from the great number of facts already in my possession, but I felt that the circumstance of the cholera-poison passing down the sewers into a great river, and being distributed through miles of pipes, and yet producing its specific effects, was a fact of so startling a nature, and of so vast importance to the community, that it could not be too rigidly examined, or established on too firm a basis.

I accordingly asked permission at the General Register Office to be supplied with the addresses of persons dying of cholera, in those districts where the supply of the two Companies is intermingled in the manner I have stated above. Some of these addresses were published in the "Weekly Returns," and I was kindly permitted to take a copy of others. I commenced my inquiry about the middle of August with two sub-districts of Lambeth, called Kennington, first part, and Kennington, second part. There were forty-four deaths in these

sub-districts down to 12th August, and I found that thirty-eight of the houses in which these deaths occurred were supplied with water by the Southwark and Vauxhall Company, four houses were supplied by the Lambeth Company, and two had pump-wells on the premises and no supply from either of the Companies.

ACCOUNT OF THE INQUIRY FOR OBTAINING THIS EVIDENCE

As soon as I had ascertained these particulars I communicated them to Dr. Farr, who was much struck with the result, and at his suggestion the Registrars of all the south districts of London were requested to make a return of the water supply of the house in which the attack took place, in all cases of death from cholera. This order was to take place after the 26th August, and I resolved to carry my inquiry down to that date, so that the facts might be ascertained for the whole course of the epidemic. I pursued my inquiry over the various other sub-districts of Lambeth, Southwark, and Newington, where the supply of the two Water Companies is intermixed, with a result very similar to that already given, as will be seen further on. In cases where persons had been removed to a workhouse or any other place, after the attack of cholera had commenced, I inquired the water supply of the house where the individuals were living when the attack took place.

The inquiry was necessarily attended with a good deal of trouble. There were very few instances in which I could at once get the information I required. Even when the water-rates are paid by the residents, they can seldom remember the name of the Water Company till they have looked for the receipt. In the case of working people who pay weekly rents, the rates are invariably paid by the landlord or his agent, who often lives at a distance, and the residents know nothing about the matter. It would, indeed, have been almost impossible for me to complete the inquiry, if I had not found that I could distinguish the water of the two companies with perfect certainty by a chemical test. The test I employed was founded on the great difference in the quantity of chloride of sodium contained in the two kinds of water, at the time I made the inquiry. On adding solution of nitrate of silver to a gallon of the water of the Lambeth Company, obtained at Thames Ditton, beyond the reach of the sewage of London, only 2.28 grains of chloride of silver were obtained, indicating the presence of 0.95 grains of chloride of sodium in the water. On treating the water of the Southwark and Vauxhall Company in the same manner, 91 grains of chloride of silver were obtained, showing the presence of 37.9 grains of common salt per gallon. Indeed, the difference in appearance on adding nitrate of silver to the two kinds of water was so great, that they could be at once distinguished without any further trouble. Therefore when the resident could not give clear and conclusive evidence about the Water Company, I obtained some of the water in a small phial, and wrote the address on the cover, when

I could examine it after coming home. The mere appearance of the water generally afforded a very good indication of its source, especially if it was observed as it came in, before it had entered the water-butt or cistern ; and the time of its coming in also afforded some evidence of the kind of water, after I had ascertained the hours when the turncocks of both Companies visited any street. These points were, however, not relied on, except as corroborating more decisive proof, such as the chemical test, or the Company's receipt for the rates.

A return had been made to Parliament of the entire number of houses supplied with water by each of the Water Companies, but as the number of houses which they supplied in particular districts was not stated, I found that it would be necessary to carry my inquiry into all the districts to which the supply of either Company extends, in order to show the full bearing of the facts brought out in those districts where the supply is intermingled. I inquired myself respecting every death from cholera in the districts to which the supply of the Lambeth Company extends, and I was fortunate enough to obtain the assistance of a medical man, Mr. John Joseph Whiting, L.A.C., to make inquiry in Bermondsey, Rotherhithe, Wandsworth, and certain other districts, which are supplied only by the Southwark and Vauxhall Company. Mr. Whiting took great pains with his part of the inquiry, which was to ascertain whether the houses in which the fatal attacks took place were supplied with the Company's water, or from a pump-well, or some other source.

RESULT OF THE INQUIRY AS REGARDS THE FIRST FOUR WEEKS OF THE EPIDEMIC OF 1854

Mr. Whiting's part of the investigation extended over the first four weeks of the epidemic, from 8th July to 5th August; and as inquiry was made respecting every death from cholera during this part of the epidemic, in all the districts to which the supply of either of the Water Companies extends, it may be well to consider this period first. There were three hundred and thirty-four deaths from cholera in these four weeks, in the districts to which the water supply of the Southwark and Vauxhall and the Lambeth Company extends. **Of these it was ascertained, that in two hundred and eighty-six cases the house where the fatal attack of cholera took place was supplied with water by the Southwark and Vauxhall Company, and in only fourteen cases was the house supplied with the Lambeth Company's water;** in twenty-two cases the water was obtained by dipping a pail directly into the Thames, in four instances it was obtained from pump-wells, in four instances from ditches, and in four cases the source of supply was not ascertained, owing to the person being taken ill whilst traveling, or from some similar cause. The particulars of all the deaths which were caused by cholera in the first four weeks of the late epidemic, were published by the Registrar-General in the

"Weekly Returns of Births and Deaths in London," and I have had the three hundred and thirty-four above enumerated reprinted in an appendix to this edition, as a guarantee that the water supply was inquired into, and to afford any person who wishes it an opportunity of verifying the result. Any one who should make the inquiry must be careful to find the house where the attack took place, for in many streets there are several houses having the same number.

According to a return which was made to Parliament, the Southwark and Vauxhall Company supplied 40,046 houses from January 1st to December 31st, 1853, and the Lambeth Company supplied 26,107 houses during the same period; consequently, as 286 fatal attacks of cholera took place, in the first four weeks of the epidemic, in houses supplied by the former Company, and only 14 in houses supplied by the latter, the proportion of fatal attacks to each 10,000 houses was as follows. Southwark and Vauxhall 71. Lambeth 5. The cholera was therefore fourteen times as fatal at this period, amongst persons having the impure water of the Southwark and Vauxhall Company, as amongst those having the purer water from Thames Ditton.

It is extremely worthy of remark, that whilst only five hundred and sixty-three deaths from cholera occurred in the whole of the metropolis, in the four weeks ending 5th August, more than one half of them took place amongst the customers of the Southwark and Vauxhall Company, and a great portion of the remaining deaths were those of mariners and persons employed amongst the shipping in the Thames, who almost invariably draw their drinking water direct from the river.

It may, indeed, be confidently asserted, that if the Southwark and Vauxhall Water Company had been able to use the same expedition as the Lambeth Company in completing their new works, and obtaining water free from the contents of sewers, the late epidemic of cholera would have been confined in a great measure to persons employed among the shipping, and to poor people who get water by pailsful direct from the Thames or tidal ditches.

The number of houses in London at the time of the last census was 327,391. If the houses supplied with water by the Southwark and Vauxhall Company, and the deaths from cholera occurring in these houses, be deducted, we shall have in the remainder of London 287,345 houses, in which 277 deaths from cholera took place in the first four weeks of the epidemic. This is at the rate of nine deaths to each 10,000. But the houses supplied with water by the Lambeth Company only suffered a mortality of five in each 10,000 at this period; it follows, therefore, that these houses, although intimately mixed with those

of the Southwark and Vauxhall Company, in which so great a proportional mortality occurred, did not suffer even so much as the rest of London which was not so situated.

In the beginning of the late epidemic of cholera in London, the Thames water seems to have been the great means of its diffusion, either through the pipes of the Southwark and Vauxhall Company, or more directly by dipping a pail in the river. Cholera was prevailing in the Baltic Fleet in the early part of summer, and the following passage from the "Weekly Returns" of the Registrar-General shows that the disease was probably imported thence to the Thames.

"Bermondsey, St. James. At 10, Marine Street, on 25th July, a mate mariner, aged 34 years, Asiatic cholera 101 hours, after premonitory diarrhoea 16.5 hours. The medical attendant states: 'This patient was the chief mate to a steam-vessel taking stores to and bringing home invalids from the Baltic Fleet. Three weeks ago he brought home in his cabin the soiled linen of an officer who had been ill. The linen was washed and returned.' "

The time when this steam-vessel arrived in the Thames with the soiled linen on board, was a few days before the first cases of cholera appeared in London, and these first cases were chiefly amongst persons connected with the shipping in the river. It is not improbable therefore that a few simple precautions, with respect to the communications with the Baltic Fleet, might have saved London from the cholera this year, or at all events greatly retarded its appearance.

RESULT OF THE INQUIRY AS REGARDS THE FIRST SEVEN WEEKS OF THE EPIDEMIC OF 1854

As the epidemic advanced, the disproportion between the number of cases in houses supplied by the Southwark and Vauxhall Company and those supplied by the Lambeth Company, became not quite so great, although it continued very striking. In the beginning of the epidemic the cases appear to have been almost altogether produced through the agency of the Thames water obtained amongst the sewers; and the small number of cases occurring in houses not so supplied, might be accounted for by the fact of persons not keeping always at home and taking all their meals in the houses in which they live; but as the epidemic advanced it would necessarily spread amongst the customers of the Lambeth Company, as in parts of London where the water was not in fault, by all the usual means of its communication. The two subjoined tables, VII and VIII, show the number of fatal attacks in houses supplied respectively by the two Companies, in all the sub-districts to which their water extends. The cases in table VII, are again included in the larger number which appear in the next table. The sub-districts are arranged in three groups, as they were in table VI, illustrating the epidemic of 1853.

TABLE VII.

The mortality from Cholera in the four weeks ending 5th August.

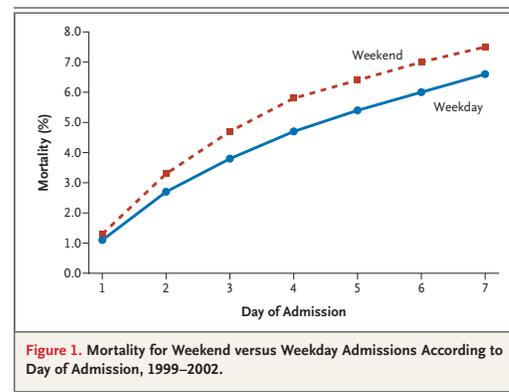
Sub-Districts.	Population in 1881.	Deaths from Cholera in the four wks. ending 5th August.	Water Supply.				
			Southwark & Vauxhall.	Lambeth.	Pump-wells.	River Thames, ditches, etc.	Unascertained.
St. Saviour, Southwark	19,709	26	24	—	—	2	—
St. Olave, Southwark .	8,015	19	15	—	—	2	2
St. John, Horsleydown	11,360	18	17	—	—	1	—
St. James, Bermondsey	18,899	29	23	—	—	6	—
St. Mary Magdalen .	13,934	20	19	—	—	1	—
Leather Market .	15,295	23	23	—	—	—	—
Rotherhithe .	17,805	26	17	—	—	9	—
Battersea .	10,560	13	10	—	1	2	—
Wandsworth .	9,611	2	—	—	—	2	—
Putney .	5,280	1	—	—	1	—	—
Camberwell .	17,742	19	19	—	—	—	—
Peckham .	19,444	4	4	—	—	—	—
Christchurch, Southwk.	16,022	3	2	1	—	—	—
Kent Road .	18,126	8	7	1	—	—	—
Borough Road .	15,862	21	20	1	—	—	—
London Road .	17,836	9	5	4	—	—	—
Trinity, Newington .	20,922	14	14	—	—	—	—
St. Peter, Walworth .	29,861	20	20	—	—	—	—
St. Mary, Newington .	14,033	5	5	—	—	—	—
Waterloo Road (1st) .	14,088	5	5	—	—	—	—
Waterloo Road (2nd) .	18,348	5	5	—	—	—	—
Lambeth Church (1st)	18,409	5	2	1	—	1	1
Lambeth Church (2nd)	26,784	10	7	2	—	—	1
Kennington (1st) .	24,261	11	9	1	1	—	—
Kennington (2nd) .	18,848	3	3	—	—	—	—
Brixton .	14,610	1	—	1	—	—	—
Clapham .	16,290	5	4	—	1	—	—
St. George, Camberwell	15,849	9	7	2	—	—	—
Norwood .	3,977	—	—	—	—	—	—
Streatham .	9,023	—	—	—	—	—	—
Dulwich .	1,632	—	—	—	—	—	—
Sydenham .	4,501	—	—	—	—	—	—
	486,936	334	286	14	4	26	4

27 Weekend versus Weekday Admission and Mortality from Myocardial Infarction

Background: Management of acute myocardial infarction requires urgent diagnostic and therapeutic procedures, which may not be uniformly available throughout the week.

Methods: We examined differences in mortality between patients admitted on weekends and those admitted on weekdays for a first acute myocardial infarction, using the Myocardial Infarction Data Acquisition System. All such admissions in New Jersey from 1987 to 2002 (231,164) were included and grouped in 4-year intervals.

Results: There were no significant differences in demographic characteristics, coexisting conditions, or infarction site between patients admitted on weekends and those admitted on weekdays. However, patients admitted on weekends were less likely to undergo invasive cardiac procedures, especially on the first and second days of hospitalization ($P < 0.001$). In the interval from 1999 to 2002 (59,786 admissions), mortality at 30 days was significantly higher for patients admitted on weekends (12.9% vs. 12.0%, $P = 0.006$). The difference became significant the day after admission (3.3% vs. 2.7%, $P < 0.001$) and persisted at 1 year (1% absolute difference in mortality). The difference in mortality at 30 days remained significant after adjustment for demographic characteristics, coexisting conditions, and site of infarction (hazard ratio, 1.048; 95% confidence interval [CI], 1.022 to 1.076; $P < 0.001$), but it became nonsignificant after additional adjustment for invasive cardiac procedures (hazard ratio, 1.023; 95% CI, 0.997 to 1.049; $P = 0.09$).



Conclusions: For patients with myocardial infarction, admission on weekends is associated with higher mortality and lower use of invasive cardiac procedures. Our findings suggest that the higher mortality on weekends is mediated in part by the lower rate of invasive procedures, and we speculate that better access to care on weekends could improve the outcome for patients with acute myocardial infarction. W. Kostis. NEJM 2007;356:1099.

28 Short and long term mortality associated with foodborne bacterial gastrointestinal infections: registry based study

OBJECTIVES: To determine the excess mortality associated with infections with Salmonella, Campylobacter, Yersinia enterocolitica, and Shigella and to examine the effect of pre-existing illness. **DESIGN:** Registry based, matched cohort study. **SETTING:** Denmark. **PARTICIPANTS:** 48 857 people with gastrointestinal infections plus 487 138 controls from the general population. **MAIN OUTCOME MEASURE:** One year mortality among patients with gastrointestinal infections compared with controls after adjustment for comorbidity. **RESULTS:** 1071 (2.2%) people with gastrointestinal infections died within one year after infection compared with 3636 (0.7%) controls. The relative mortality within one year was 3.1 times higher in patients than in controls. The relative mortality within 30 days of infection was high in all four bacterial groups. Furthermore, there was excess mortality one to six months after infection with Yersinia enterocolitica (relative risk 2.53, 95% confidence interval 1.38 to 4.62) and from six months to one year after infection with Campylobacter (1.35, 1.02 to 1.80) and Salmonella (1.53, 1.31 to 1.79).

CONCLUSIONS: Infections with all these bacteria were associated with an increased short term risk of death, even after pre-existing illnesses were taken into account. Salmonella, Campylobacter, and Yersinia enterocolitica infections were also associated with increased long term mortality. *M Helms. BMJ. 2003 Feb 15;326(7385):357.*

29 Death rates of characters in soap operas on British television: is a government health warning required?

Objective: To measure mortality among characters in British soap operas on television.

Design: Cohort analysis of deaths in EastEnders and Coronation Street, supplemented by an analysis of deaths in Brookside and Emmerdale.

Main outcome measures: Standardised mortality ratios and the proportional mortality ratio for deaths attributable to external causes (E code of ICD-9).

Results: Staying alive in a television soap opera is not easy. Standardised

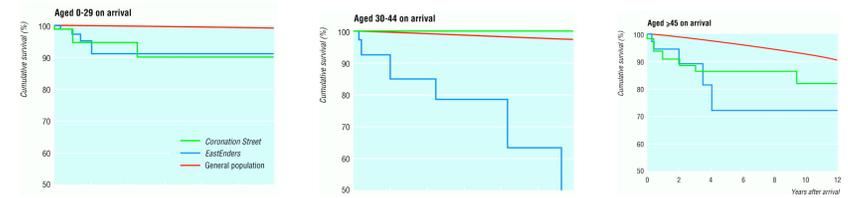


Figure 1: Kaplan-Meier survival curves, for 12 years after arrival, for characters in Coronation Street (green) and EastEnders (blue) in three age groups. Red lines for general population show survival of cohort from population of United Kingdom who were followed up from 1985, when they were aged 20 (left), 35 (middle), and 50 (right panel) respectively.

mortality ratios for characters were among the highest for any occupation yet described (771 (95% confidence interval 415 to 1127) for characters in EastEnders), and this was not just because all causes of death were overrepresented. Deaths in soap operas were almost three times more likely to be from violent causes than would be expected from a character’s age and sex. A character in EastEnders was twice as likely as a similar character in Coronation Street to die during an episode.

Conclusions: The most dangerous job in the United Kingdom is not, as expected, bomb disposal expert, steeplejack, or Formula One racing driver but having a role in one of the United Kingdom’s most well known soap operas. This is the first quantitative estimate of the size of the pinch of salt which should be taken when watching soap operas. *T. Crayford. BMJ 1997;315:1649-1652.*

Table Five year survival rates in percentages (with SEs) of characters in two British soap operas according to age at first introduction and in comparison with general population

Age (years)	CoronationStreet		EastEnders		General popl’n*
	Survival rate	SE	Survival rate	SE	
0-29	90	(5.4)	91	(4.0)	99.7
30-44	100	(.)	79	(8.6)	99.5
≥45	86	(4.6)	73	(12.1)	97.3

*Survival in 1990 of people aged 20, 35, and 50 in 1985.

Table Standardised mortality ratios (SMRs) for various high risk groups in comparison with general population (100)

EastEnders	...771	Formula One drivers	...581	Coronation Street	...353
Oil rig divers	...235	Bomb disposal experts	...196	Steeplejacks	...148

30 Survival in Academy Award-Winning Actors and Actresses

Background: Social status is an important predictor of poor health. Most studies of this issue have focused on the lower echelons of society.

Objective: To determine whether the increase in status from winning an academy award is associated with long-term mortality among actors and actresses.

Design: Retrospective cohort analysis.

Setting: Academy of Motion Picture Arts and Sciences. **Participants:** All actors and actresses ever nominated for an academy award in a leading or a supporting role were identified ($n = 762$). For each, another cast member of the same sex who was in the same film and was born in the same era was identified ($n = 887$).

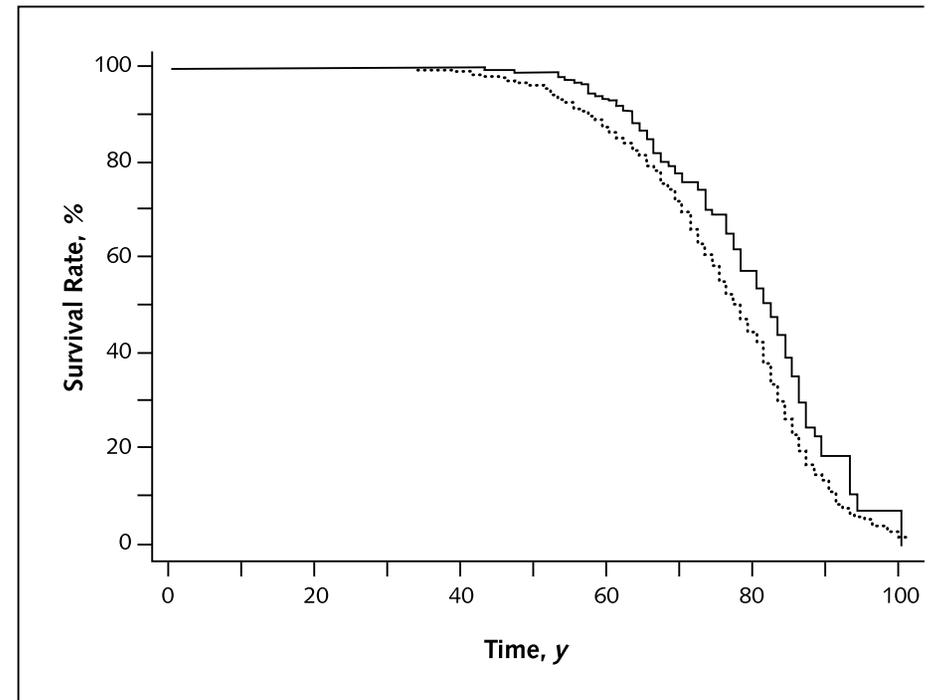
Measurements: Life expectancy and all-cause mortality rates.

Results: All 1649 performers were analyzed; the median duration of follow-up time from birth was 66 years, and 772 deaths occurred (primarily from ischemic heart disease and malignant disease). Life expectancy was 3.9 years longer for Academy Award winners than for other, less recognized performers (79.7 vs. 75.8 years; $P = 0.003$). This difference was equal to a 28% relative reduction in death rates (95% CI, 10% to 42%). Adjustment for birth year, sex, and ethnicity yielded similar results, as did adjustments for birth country, possible name change, age at release of first film, and total films in career. Additional wins were associated with a 22% relative reduction in death rates (CI, 5% to 35%), whereas additional films and additional nominations were not associated with a significant reduction in death rates.

Conclusion: The association of high status with increased longevity that prevails in the public also extends to celebrities, contributes to a large survival advantage, and is partially explained by factors related to success.

D Redelmeier. *Ann Intern Med.* 2001;134:955-962.

Figure. Survival in Academy Award-winning actors and actresses (*solid line*) and controls (performers who were never nominated) (*dotted line*), plotted by using the Kaplan–Meier technique.



Analysis is based on log-rank test comparing 235 winners (99 deaths) with 887 controls (452 deaths). The total numbers of performers available for analysis were 1122 at 0 years, 1056 at 40 years, 762 at 60 years, and 240 at 80 years. $P = 0.003$ for winners vs. controls.

31 Premature Death in Jazz Musicians: Fact or Fiction?

A letter to *Am J Public Health* 1991 Jun;81(6):804-805

“Jazz musicians tend to be more liable than other professions to die early deaths from drink, drugs, women, or overwork.”¹

“The career of the ODJB (*Original Dixieland Jazz Band*) was both as fantastic and as typical as any that jazz has had to offer. Its story features... the petty jealousies, alcoholism, premature deaths, and all the rest.”²

“Catlett’s career was a singularly queer one, even for jazz, whose history is filled with the wreckage of poverty, sudden obscurity, and premature death.”³

Statistical study of 86 jazz musicians listed in a university syllabus refutes these tenets,⁴ the second and third of which were made by two of America’s most respected critics, and all of which foster the commonly held view that jazz players die prematurely. Dates of birth, and of death when it had occurred, were tabulated, and longevity matched with that expected in the United States by year of birth, race, and sex.^{5–7} One musician who had not reached the age of his life expectancy was excluded from the list; the musicians were born in the US.

Birth years ranged from 1862 to 1938; 16 births occurred before 1900, 23 between 1900 and 1909, 19 between 1910 and 1919, 22 between 1920 and 1929, and five between 1930 and 1939. Comparison with national values showed that 70 (82%) of the musicians exceeded their life expectancy; four-fifths of the Black men, three fourths of the White men, and all the women lived longer than expected as shown in this frequency distribution.

	Male			Female		
	Total	<i>n</i>	%	Total	<i>n</i>	%
White	19	14	74	-	-	-
Black	59	49	83	7	7	100

Jazz was born in the “sporting houses” of New Orleans and nurtured in the speakeasies and night clubs of Chicago, Kansas City, and New York. Its association with vice and crime in its early days has led to the assumption that to play jazz is to court depravity and death. Although the size and sex distribution of the sample limits the inferences to be drawn, the data suggest that jazz musicians do not die young. Most of the 85 musicians in this study have survived the potential hazards of irregular hours of work and meals, the ready temptation of drugs and alcohol, and the perils of racial prejudice, and to have overcome “the problem of the artist who is creative within a socially and racially discriminatory world.”⁸

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32 Estimability and estimation in case-referent studies

Age (years)	No. new cases	Size of S-P	Overall I.D. in $(10^5 \text{ years})^{-1}$	No. of study subjects				I.D. Ratio (I.D.R.)	Smoking-related fraction of cases		Exposure-specific incidence density in $(10^5 \text{ years})^{-1}$	
				Cases		Referents			Etiologic	Preventive	Sm +	Sm -
50-54	35	77.4	30	Sm + 24	Sm - 1	Sm + 22	Sm - 4	4.36	.74		34	8
56-69	52	68.4	51	Sm + 35	Sm - 2	Sm + 35	Sm - 4	2.00	.47		54	27
60-64	52	61.5	56	Sm + 31	Sm - 5	Sm + 38	Sm - 3	0.49		.48	52	110
65-69	86	47.4	120	Sm + 46	Sm - 7	Sm + 42	Sm - 15	2.35	.50		140	60
70-74	105	38.0	180	Sm + 60	Sm - 13	Sm + 51	Sm - 28	2.53	.50		230	90
75-79	76	23.2	220	Sm + 39	Sm - 14	Sm + 32	Sm - 20	1.74	.50		260	150

Table 1. Case-referent data by Cole et al. (4) and Cole (7) relating the incidence of bladder cancer to cigarette-smoking in men of various ages. [see section 6]

S-P : Source Population;

I.D. : Incidence Density, to two-digit accuracy.

Sm + and **Sm -** : Smoker and nonsmoker, respectively

Abstract:

The concepts that case-referent studies provide for the estimation of “relative risk” only if the illness is “rare,” and that the rates and risks themselves are inestimable, are overly superficial and restrictive. The ratio of incidence densities (forces of morbidity) – and thereby the instantaneous risk-ratio – is estimable without any rarity-assumption. Long-term risk-ratio can be computed through the coupling of case-referent data on exposure rates for various age-categories with estimates, possibly from the study itself, of the corresponding age-specific incidence-densities for the exposed and nonexposed combined – but again, no rarity-assumption is involved. Such data also provide for the assessment of exposure-specific absolute incidence-rates and risks. Point estimation of the various parameters can be based on simple relationships among them, and in interval estimation it is sufficient simply to couple the point estimate with the value of the chi square statistic used in significance testing.

O. Miettinen. Amer. J. of Epidemiology, 103: 226-236, 1976.

Section 6. Example

Cole et al. identified all newly-diagnosed cases of bladder cancer [“*case series*”] in a (**static**) **population (eastern Massachusetts) of known size over an 18-month period**, drew a reference [or what Miettinen would now call a “*denominator*”] *series* from the source-population of the cases, and inquired (*inter alia*) into the subjects’ histories with respect to cigarette smoking (4). Interviews were confined to a sample of cases as well as of non-cases. Some of the data (7) are presented in Table 1.

The data allow the **computation of age-specific overall incidence densities**. For example, for the 50- to 54-years category the value is

$$35/[(77,400) \times (1.5 \text{ years})] = 30/10^5 \text{ years (cf. formulas 1 and 2)}.$$

The samples of cases and noncases in each category of age allow the **estimation of the corresponding incidence density ratio** (without any rarity-assumption). For example, for the 50- to 54-years age category, the incidence density ratio (IDR) – i.e., the incidence density for smokers (ID_1) divided by that for nonsmokers (ID_0) – is estimated to be³

$$\widehat{IDR} = (24/1)/(22/4) = 4.36 \quad (\text{formula 3}).$$

³It is instructive to re-write the estimate as $(24/22) \div (1/4)$, with the 22 and 4 serving as *quasi-denominators*, and thus with the 24/22 and 1/4 serving as *quasi incidence-densities*. The 24 and the 1 are *numerators*; the 22 and the 4 are *estimated (relative) denominators*.

In order to provide for the **estimation of absolute incidence density separately for smokers and nonsmokers**, and as a matter of interest in its own right, the **age-specific estimates for the etiologic fraction** (with $IDR > 1$) or the preventive fraction ($IDR < 1$) are computed next. Thus, for the 50- to 54-years category age, for which $IDR (= 4.36) > 1$, the etiologic fraction is estimated as follows:

$$\widehat{EF} = [(4.36 - 1)/4.36] \times (24/25) = 0.74 \text{ (formula 8).}$$

For the 60- to 64-years category $IDR (= 0.49) < 1$, and therefore the preventive fraction is calculated (without inferring prevention):

$$\widehat{PF} = (1 - 0.49)(31/36)/[(1 - 31/36)(0.49) + 31/36] = 0.47 \text{ (formula 11).}$$

The **incidence density estimates specific for the exposed and the non-exposed** are then computed by the use of either formulas 6 and 7 (if $IDR > 1$) or formulas 9 and 10 (if $IDR < 1$). For the 50- to 54-years category the estimate for smokers is

$$4.36 \times (30/10^5 \text{years}) \times (1 - 0.74) = 34/10^5 \text{years} \quad \text{(formula 6),}$$

while the corresponding result for nonsmokers is

$$(30/10^5 \text{years}) \times (1 - 0.74) = 8/10^5 \text{years} \quad \text{(formula 7).}$$

In the 60- to 64-years category the estimate for smokers is

$$0.49 \times (56/10^5 \text{years})/(1 - 0.47) = 52/10^5 \text{years} \quad \text{(formula 9),}$$

while for nonsmokers it is

$$(56/10^5 \text{years})/(1 - 0.47) = 110/10^5 \text{years.}$$

Turning to the assessment of **risk**, consider the **30-year risk** of bladder cancer for a **50-year-old** man, assuming that without bladder cancer he would survive that period. **If the man is a smoker**, then the estimate is

$$\begin{aligned} \hat{R}_{50,80} &= 1 - \exp\{-[(34 + 54 + 52 + 140 + 230 + 260)/10^5 \text{years}] \times 5 \text{ years}\} \\ &= 1 - \exp\{-0.0385\} \\ &= 3.8 \text{ per cent.} \quad \text{(formulas 16 and 13)} \end{aligned}$$

Almost the same result can be obtained more simply from the approximate expression in formula 15.

For a nonsmoker the corresponding estimate is 2.2 per cent. The estimate of the 30-year risk ratio at age 50 years is, then, $3.8/2.2 = 1.7$, and the corresponding risk difference estimate is $(3.8 - 2.2)$ per cent = 1.6 per cent.