

A major sporting event does not necessarily mean an increased workload for accident and emergency departments

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Abstract

Aim—To determine whether there were any changes in attendance at accident and emergency departments that could be related to international football matches (Euro96 tournament).

Method—Fourteen accident and emergency departments (seven adjacent to and seven distant from a Euro96 venue) provided their daily attendance figures for a nine week period: three weeks before, during, and after the tournament. The relation between daily attendance rates and Euro96 football matches was assessed using a generalised linear model and analysis of variance. The model took into account underlying trends in attendance rates including day of the week.

Results—The 14 hospitals contributed 172 366 attendances (mean number of daily attendances 195). No association was shown between the number of attendances at accident and emergency departments and the day of the football match, whether the departments were near to or distant from stadia or the occurrence of a home nation match. The only observed independent predictors of variation were day of the week and week of the year. Attendance rates were significantly higher on Sunday and/or Monday; Monday was about 9% busier than the daily average. Increasing attendance was observed over time for 86% of the hospitals.

Conclusion—Large sports tournaments do not increase the number of patients attending accident and emergency departments. Special measures are not required for major sporting events over and above the capacity of an accident and emergency department to increase its throughput on other days.

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Keywords: accident and emergency; attendance rates; football; sports tournament; workload

In the summer of 1996, England hosted the European Football Championships, named Euro96. Before Euro96 there was considerable discussion in the medical press about the potential effects of this multicentre tournament on accident and emergency attendances. It was suggested that accident and emergency departments near participating football stadia may see an increase in workload resulting both from

match violence and the temporarily increased local population.

It has been stated that 4-7% of accident and emergency attendances relate to sports injuries, most from people playing football.¹⁻³ However, there is only limited, and contradictory, information in the literature on the effects of large sports events on the workload of accident and emergency departments. Both the Superbowl and the America's Cup have been reported to be associated with a decrease in accident and emergency attendances.^{4 5} Reductions in psychiatric presentations have been noted during the World Cup.⁶ However, assaults on women have been reported to increase when the local American Football team wins in Washington.⁷

To ensure that the necessary staffing levels are available in accident and emergency departments to cover future major sporting events, it is necessary to have available data describing the relation between these events and accident and emergency attendance. This study therefore aimed to determine whether there were any changes in attendances at accident and emergency departments that could be related to international football matches (Euro96 tournament).

Method

Fourteen accident and emergency departments were contacted and requested to provide their daily attendance figures. Eligible cases comprised all new presentations irrespective of age. The only exclusions were general practitioner referrals. The accident and emergency departments were selected to provide seven adjacent to a Euro96 venue and seven that were distant from these venues (table 1). All Euro96 venues were represented in this study. One reminder was sent to each site. Data were collected from all participating hospitals for a nine week period: three weeks before, during, and after the tournament (20 May until 21 July 1996).

The null hypothesis was that there is no difference in the attendance rates between hospitals close to and distant from Euro96 venues. The relation between daily attendance rates and Euro96 football matches (both local to the accident and emergency department and elsewhere) was assessed using a generalised linear model. Analysis of variance was used to compare the observed variation in attendance rates between the two groups with that expected after allowing for the observed variability between the hospitals. Analysis was

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Table 1 Participating hospitals

Hospital	Euro96 venue
City Hospital, Birmingham	Villa Park
Leeds General Hospital, Leeds	Elland Road
Manchester Royal Infirmary	Old Trafford
Northern General Hospital, Sheffield	Hillsborough
Northwick Park Hospital	Wembley
Queens Medical Centre, Nottingham	City Ground
Royal Victoria Hospital, Newcastle	Victoria Park
Bristol Royal Infirmary	None
Cheltenham District General Hospital	None
City Hospital, Sunderland	None
Frimley Park Hospital, Camberley	None
Kings College Hospital, London	none
Russells Hall Hospital, Dudley	None
Stafford District General Hospital	None

undertaken using SPSS and STATA. The final model took into account underlying trends in attendance rates including day of the week.

Results

All 14 hospitals that were contacted agreed to participate in this study (100% response rate). These 14 hospitals contributed 172 366 attendances, relating to new presentations, over the nine week period. The mean number of daily attendances was 195, ranging from 90 (Cheltenham) to 369 (Nottingham).

Two centres showed a significant increase in attendances during the tournament, one near a stadium (Nottingham) and the other not (Bristol). These increases were not related to match dates. Manchester had a large single day increase which was due to a terrorist bombing. No association was shown between the number of attendances at accident and emergency departments and the day of the football match, whether accident and emergency departments were near to or distant from stadia or the occurrence of a home nation (England or Scotland) match.

Initial analyses suggested that the day preceding or following a home nation match was associated with increased attendance. The average daily attendance on the day of an England match was 195, increasing to 211 the day after. For Scotland's matches, the average attendance was 197, rising to 207 the day before. However, neither of these observed changes was statistically significant, nor did the increases exceed 9% over the daily average.

The only observed independent predictors of variation were day of the week and week of the year. Attendance rates were significantly higher on Sunday and/or Monday ($p < 0.05$). Over the nine week period, Monday was about 9% busier than the daily average. Increasing attendances were observed over time for 12 (86%) of the 14 hospitals included in this study. These increases ranged from an average of three to 21 attendances per day over the period of the study.

Discussion

This study has provided further information that is of benefit for planning purposes in accident and emergency departments: (a) a variation of 9–10% should be included when calculating manpower needs within an accident and emergency department; (b) Sundays and Mondays should have increased staffing over

other days. These data also show increased numbers of attendances over the nine week period, consistent with the nationally recognised increasing numbers,⁸ although changes in this short study period may be for other reasons such as seasonal variation.

At any large gathering, there are inevitably some minor injuries and it is now common for medical facilities to be in place, such as St John Ambulance services. The facilities at football grounds are highly variable—for example, Wembley has x ray facilities, and all stadia used in Euro96 had doctors and nurses but in variable numbers. The number of cases seen by such facilities is not, however, relevant to this study which aimed to assess the impact on accident and emergency departments; mass gathering casualty rates have been reported elsewhere.⁹ The results do not support the hypothesis that Euro96 would increase the number of patients attending these departments. There were inevitably attenders both from the matches and the increased population. However, local people remaining at home and thereby not suffering so many accidents and injuries may have compensated for these. The non-significant increase observed on the day after an England match may be attributable to late presentations of injury as supporters became sober and appreciated their injuries. The increased attendance noted in Nottingham and Bristol could not be related to the timing of matches and may have been due to other factors that were not available for this analysis and were not known to the local departments.

It is possible that, although this large sports tournament did not increase the overall number of patients attending accident and emergency departments, it may have impacted on the time of attendance—for example, delayed presentation until after the match—or the case mix. Further research is required to assess these factors.

It appears from our results that special measures for increased workload are not required by accident and emergency departments for major sporting events such as Euro96 over and above their capacity to increase throughput on other days, but more research is required to confirm this initial finding. Contingency planning for potential major incidents continues to be important. Speculation that sporting events may result in an excessive workload for accident and emergency departments appears to be unfounded. The health service and the tabloid press have given considerable attention to the potential for large sports tournaments to be the focus for major disasters and public order offences. It is important that the long term health benefits of participation in sport are considered and the health service does not solely concentrate on the short term injury risk.

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Take home message

Large sports events, such as Euro96 and Euro2000, may not increase numbers of attendances at accident and emergency departments

This year's Boat Race

This year's Boat Race had a special interest for my family as my son Tom was rowing in the Cambridge Blue boat. He is in his first year at Cambridge, and to win a Blue as a freshman is a special achievement. Cambridge won the race, beating Oxford over the traditional Putney to Mortlake course.

Tom has followed rowing since he was very young as I have continued to row through my adult and now veteran years. As a small boy he gladly accepted the Olympic kit bag I was given as the rowing doctor at the Los Angeles Games; the Seoul bag went to his younger brother Max. I originally taught them to row on the River Lea at Broxbourne Rowing Club and both quickly caught the rowing "bug". Tom was an under 18 international in 1996. At 6 foot 4 inches and just under 14 stones he was the smallest in the Cambridge crew and known to his team mates as "Stumpy"!

I too have gone back to rowing with Cambridge and was in the winning crew in the Veteran Boat Race. This was the fourth veteran race rowed over half the course two days before the main event. After a close race including two clashes we managed to beat Oxford by one length.

All the Blue Boat parents met on the big day to support their offspring. They had travelled from Canada, USA, and Germany as well as various parts of England for the occasion. It was quite a surprise to find that the father of Graham Smith, the British International in the seven seat, and the father of Vlan Sherif, the diminutive cox, were also orthopaedic surgeons.

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