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Male Patient Visits to the Emergency Department Decline During the Play of Major Sporting Events

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Objectives: To study whether emergency department (ED) visits by male patients wane simultaneously with the play of scheduled professional and college sports events.

Methods: Retrospective cohort analysis looked at ED male patient registration rates during a time block lasting from two hours before, during, and two hours after the play of professional football games (Monday night, Sundays, post-season play), major league baseball, and a Division I college football and basketball team, respectively. These registration rates were compared to rates at similar times on similar days of the week during the year devoid of a major sporting contest. Games were assumed to have a play time of three hours. Data was collected from April 2000 through March 2003 at an urban academic ED seeing 33,000 male patients above the age of 18 years annually.

Results: A total of 782 games were identified and used for purposes of the study. Professional football game dates had a mean of 17.9 males (95% confidence interval [CI] 17.4-18.4) registering vs. 26.8 males (95% CI 25.9-27.6) on non-game days. A registration rate for major league baseball was 18.4 patients (95% CI 17.6-18.4). The mean for registration on comparable non-game days was 23.9 patients (95% CI 22.8-24.3). For the regional Division I college football team, the mean number of patients registering on game days and non-game days was 21.7 (95% CI 20.9-22.4) and 23.4 (95% CI 22.9-23.7), respectively. Division I college basketball play for game and non-game days had mean rates of registration of 14.5 (95% CI 13.9-15.1) and 15.5 (95% CI 15.1-15.9) patients, respectively. For all sports dates collectively, a comparison of two means yielded a mean of 18.2 patients (95% CI 17.4-18.8) registering during the study hours on game days vs. 23.3 patients (95% CI 22.0-23.7) on non-game days. The mean difference was 5.1 patients (95% CI 3.7 to 7.0) with $p < .000074$.

Conclusion: Male patient visits to the ED decline during major sporting events.
[WestJEM. 2009;10:101-103.]

INTRODUCTION

Emergency physicians may anecdotally recall that major sporting events such as the Super Bowl or the World Series have historically meant lower ED census during the times or days of game play. Although few in number, some studies have shown that on very specific game dates (Super Bowl and post-season play in baseball) a periodicity is seen on game day with respect to patients seeking care in the emergency department (ED).^{1,2,3} These studies showed this is particularly

pronounced for those dates and regions where the home team is playing (Super Bowl, World Series). In addition, fewer visits have been reported before and after a game.

We investigated this phenomenon during the play of regular season games. Specifically, we looked at the rate of male patient ED registrations at a Veteran's Administration hospital during scheduled regular season professional and collegiate sporting events (professional football, regional professional baseball and regional college basketball and

football, respectively) over a three-year period of time.

METHODS

A retrospective cohort analysis looked at ED male patient registrations from two hours before, during, and two hours after the play of regular season professional football (regional and national games; Monday night and Sundays), major league baseball games involving the local team, and Division I college football and basketball contests, respectively. These registrations were compared to similar times on similar days of the week devoid of a major sporting contest. All games were assumed to have a play time of three hours. We collected data from April 2000 through March 2003 at an urban academic ED seeing 33,000 male patients above the age of 18 years annually. Investigational review board approval was obtained. Epi Calc 2000 (<http://www.myatt.demon.co.UK/epicalc.htm>) was employed for statistical analysis.

RESULTS

We assessed 782 game dates. Professional football game dates had a mean of 17.9 male patients (95% confidence interval [CI] 17.4-18.4) registering vs. 26.8 patients (95% CI 25.9-27.6) on non-game days. For major league baseball, registrations were 18.4 patients (95% CI 17.6-23.9) compared with 23.9 patients (95% CI, 22.8-24.3) on non-game dates. For the regional Division I college football team, the mean numbers of patients registering on game days and non-game days were 21.7 (95% CI 20.9-22.4) and 23.4 (95% CI 22.9-23.7), respectively. Division I college basketball play for game and non-game days had mean rates of registration of 14.5 (95% CI 13.9-15.1) and 15.5 (95% CI 15.1-15.9) patients, respectively. For all sports dates taken collectively, a comparison of two means yielded a mean of 18.2 patients (95% CI, 17.9-18.5) registering during the study hours on game days vs. 23.3 patients (95% CI, 23.0-23.7) on non-game days. The mean difference was 5.1 patients (95% CI 5.00-5.20) over a seven-hour period (Table).

DISCUSSION

Our study demonstrates that even for regular season

games, ED use by male patients decreases just before, after, and during the contest. For the seven-hour time period, ED census was significantly lower than during comparable days without a sports contest. Previous studies have looked at how ED volumes are impacted by the play of sporting contests.^{1,2} These studies have shown that sporting contest play is associated with a significant decrease in numbers of patients seeking emergency care; however, these studies have looked at sporting event dates with tremendous national or regional significance, namely post-season play. Reich, et al.¹ looked at successive Januaries from 1988-1992 during Super Bowl Sunday in Buffalo, New York. The local team (Buffalo Bills) played in the Super Bowl for two of the five years studied. In addition, the Bills made the playoffs during four of the five years studied. This study revealed that ED census during these Super Bowl Sundays significantly decreased from the usual. Through 1991, five of the top 10 rated shows of all time were Super Bowls.⁴ It was expected that over 130 million people watched the 2006 Super Bowl in the U.S. alone.⁵ Reis et al.² looked at the impact on ED flow in Boston during the playoff and World Series run of the Red Sox in the fall of 2004. The effect on ED registration was remarkable.

Rather than look at post-season games we looked at the impact of ED patient registration rates (specifically, male) during regular season games as well. We sought to show that even relatively insignificant (in most cases) regular season game for four regional teams and professional football teams would be associated with decreased male patient registrations.

Of great interest is that our results show strong association with statistically significant decreases in male patient registrations for much of the day or evening simultaneous with the play of regular season games. That each regular season game – presumed to have much less impact and fan interest vs. that of postseason play – could still significantly decrease ED census during play time and beyond has not been studied before. We did not study if there was a compensatory increase in registrations after the game which might imply there was increased acuity of these patients. Similarly, we did not study female patients.

These data cannot be extrapolated to other regions of the U.S.. Different areas may pursue sports with differing zeal. Earlier studies have made the unsupported statement that, on dates with major sport events such as Super Bowl games, consideration be given to decreasing ED staffing in anticipation of lower patient volumes.¹ We make no such claim. Although we found fewer male patients registering in the ED, the declines were not sufficient or consistent enough to drive lowered staffing levels.

Emergency physicians are aware of the reasons why patients use the ED. What has been less well studied are the reasons why patients do not go to the ED when they might otherwise. Studies like this may corroborate that patients delay or avoid ED care because of spectator events and this

Table. Impact of regular season sporting event play on emergency department male patient registration (2000-2003).

Sport	Games	Mean Difference in Male Patient Registration
Pro football	178	8.9 fewer (95% CI, 8.8-9.1)
Pro baseball	486	5.5 fewer (95% CI, 5.4-5.6)
College football	36	1.7 fewer (95% CI, 1.3-2.1)
College baseball	82	1.0 fewer (95% CI, 0.8-1.2)
Total	782	5.1 fewer (95% CI, 5.0-5.2)

might affect planning for staffing levels.

LIMITATIONS

Our study did not consider weather during the hours or the days of the study dates. Adverse weather might have the largest impact on ED census during the latter part of football season (snow, sleet, cold temperatures). In addition, traffic conditions around Baltimore might have affected new patient flow into the ED. We did not attempt to correlate the decrease in male patients with broadcast ratings of the various media venues (radio or television) broadcasting the games being monitored. Regular season game Nielsen ratings are not published routinely as they are not considered sufficiently high enough to be of general interest.

We could not control for the seasonal variation in patient volume when the sports season spanned an entire year. For instance, there are no Sundays in October without football that can then be compared against football-filled Sundays of the same calendar month. We found a consistent negative association between the game days and ED registrations, adding credence to our findings despite possible seasonal variation. Only with Division I college basketball did we find a slight increase in male patient registrations in any of the games and even that was nominal compared to other types of games.

CONCLUSION

Fewer male patients seek care in the ED during the seven-hour period before, during and after regional and national sporting events during the regular season. We recommend

studying outcomes for those apparently delaying emergent care.

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