Cost of a roller skating rink to the local accident and emergency department

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A 14 month retrospective study was undertaken to determine the cost implications of the opening of a roller skating rink to the local hospital accident and emergency department (A and E). A total of 398 patients attended following injury at the roller skating rink, of whom 384 were included in the study. The estimated cost of their injuries was determined by the hospital accounts department. The average cost per patient attending the A and E department following roller skating injury was about £100. The total cost to the A and E department of all injuries sustained at the rink over this period was £38,412. The cost implications of opening a roller skating rink for the A and E department are considerable. If proposals for self-budgeting are applied, A and E departments will have to seek additional funding if such leisure facilities are opened in their vicinity.

Keywords: Roller skating, accident and emergency department, hospital budget, leisure

Introduction

The leisure industry is booming. Sports and leisure facilities are becoming more adventurous and are likely to cause both major and minor injuries. Roller skating, ice skating and skate board facilities have appeared all over the country and are promoted as exciting, high speed leisure pursuits. The dangers of these sports to the inexperienced are often overlooked. There also seems to be little consideration of the implications of opening new leisure facilities on accident and emergency (A and E) departments^{1,2}.

In June 1985 a roller skating rink was opened in Southend-on-Sea, Essex. The impact that this had on resources and the predicted financial implications of the rink was undertaken in a 14 month retrospective study of all injuries sustained at this roller skating rink.

Patients and methods

A total of 4,088 new patients attended the A and E department with sports injuries in the 14 months of this study. Of those, 398 (8.17%) sustained injuries while roller skating. Fourteen patients' notes have been lost, hence 384 patients have been studied. The mean age of the injured skater was 18 years (range 6 to 61 years). There were 236 (61%) female and 148 (39%) male subjects. The distribution of injuries is shown in *Figure 1*.

Results

Of the 384 patients, 185 sustained fractures and three dislocations to the various parts of the body (*Table 1*). The upper extremity was injured in 248 patients (65%). The wrist was the most commonly injured area (176 patients). The lower extremity was injured

Figure 1. Number of patients seen in an accident and emergency department for injuries sustained during roller skating per month

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Table 1. Pattern of injuries to the extremities

	Total	Fractures	Dislocations	Soft tissue injury
<i>Upper extremity</i>				
Hand	32	10	2	20
Wrist	176	116	0	60
Radius and ulna	7	7	0	0
Elbow	30	23	0	7
Humerus	1	1	0	0
Clavicle	1	1	0	0
Shoulder	1	0	1	0
<i>Lower extremity</i>				
Foot	4	0	0	4
Ankle	32	12	0	20
Tibia	23	10	0	13
Knee	24	0	0	24

Table 2. Miscellaneous injuries

Head	25	No skull fractures
Back	19	One fractured vertebra
Chest	7	Three patients with one or more rib fractures No haemo- or pneumothorax
Nose	1	Nasal bone fracture
Neck	1	Neck sprain No fracture or dislocation

Table 3. Patients admitted

Injury	No. of patients	Reason for admission
Fracture of radius and ulna	11	Observation following MUA
Fracture of tibia and fibula	9	Three fractures internally fixed. Others for observation following MUA
Ankle fractures	2	Both fractures internally fixed
Head injury with loss of consciousness	2	For head injury observations
Supracondylar fracture	1	Observation following MUA
Fracture of vertebrae	1	Bed rest

in 83 patients (21%) and 53 patients sustained injuries to various other parts of the body (Table 2). A total of 26 patients were admitted to the hospital (Table 3) and five fractures were internally fixed.

Cost of roller skating injuries

In assessing costs, certain assumptions had to be made. The figures below are only the direct costs and do not allow for administrative back-up, e.g. medical records or overheads:

Patients admitted (note 1)	£3,606
Attendance in A and E	£9,216
Radiographs taken (note 2)	£1,920
	£14,742

Follow-up clinics (note 3)	£6,390
Physiotherapy (note 4)	£17,280
Total cost	£38,412
Average cost per patient	£100.03

Note 1

These costs were calculated using:

Five patients for average stay of 5 days plus 1 hour in theatre	£2,430
21 patients admitted over-night only	£1,176
	£3,606

Note 2

It is assumed that 55% of patients attending the A and E department had a radiograph performed and all patients who sustained a fracture had at least two radiographs.

Note 3

The costs were calculated using the following assumptions:

All fractures and dislocations attended two follow-up clinic sessions
30% of all soft tissue injuries attended a single follow-up session

Note 4

These were calculated on the basis of two sessions per week for 4 weeks for all fracture patients only.

Costs used for calculations

Cost per attendance in A and E	£24
Cost per radiograph	£5
Attendance at follow-up clinic	£15
In-patient cost per day	£56
Theatres – cost per hour	£206
Physiotherapy – cost per session	£12

Note 5

These figures have been worked out by the accounts department, Southend Health Authority, and are based on the cost of treating these injuries in 1985/86.

Discussion

The pattern of injuries in our study compared favourably with other reports in the literature^{3–6}, and illustrates that, regardless of geography, the impact on acute services is fairly uniform and the cost implication considerable.

In estimating the cost considerations of these injuries, it was necessary for us to make certain assumptions which have been explained. However, our cost implications are formidable. The average cost to the A and E department of every patient attending following an injury at the roller skating rink averaged £100. Our costings are by necessity vague as the

National Health Service is not item-of-service orientated. If the Government is to enforce the recommendations of the White Paper⁷, every A and E department will have to look carefully at the budget implications when a new leisure facility is opened.

Where should the additional funding come from? Will the hospital or A and E department have to fund the resources internally, or will the local authorities provide extra funds to cover the cost of its improved leisure facilities? One of the more attractive proposals is that the leisure industry itself should contribute to the cost of its casualties.

Recent studies⁸ have advocated 'safe skating' by provision of separate supervised areas or special time for the beginners and unskilled skaters, use of crash helmets and wrist splints and better rink discipline. The leisure industry will be reluctant to follow these recommendations as this would lead to decreased profits. Therefore, we will continue to have a steady inflow of preventable accidents. However, if the leisure industry were expected to contribute to the cost of injuries sustained in their facilities, they would have a cost incentive to improve safety standards and thus would reduce the costs to the local A and E department.

Local planners should also be made aware of the medical implications associated with leisure facilities. Consultation with A and E departments before granting planning permission might allow additional safety recommendations to be built into the planning consent.

If hospitals and individual departments are to have budgets imposed on them, it is necessary for the

A and E departments to look carefully at existing and proposed leisure facilities in their catchment area and to ensure that additional funds are available to maintain the essential back-up for the leisure industries. In so doing it is hoped that the A and E department will develop closer co-operation with local planners and leisure industries to improve safety standards and promote safer leisure.

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