

# Preventing injuries in public playgrounds through partnership between health services and local authority: community intervention study

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Public playgrounds are important for children's play and development. Safety is a prime concern not only to prevent injuries but also because families need the assurance that it is safe for their children to play.<sup>1</sup> One way of improving safety is for health services and local authorities to form a partnership in the surveillance of injuries and the making of improvements. We report the results of such a partnership in Cardiff.<sup>2,3</sup>

## Participants, methods, and results

Children injured in public playgrounds in Cardiff were identified from the accident and emergency department and linked to the playground, equipment, and surface. We estimated exposure of children to injuries from the numbers of children recorded to be playing in individual playgrounds by inspectors visiting them at random as part of their work.<sup>3</sup> From this information we calculated injury rates per observed child.

In June and July 1995 the council made several changes to its largest playgrounds on the basis of our surveillance programme.<sup>2,3</sup> A greater depth of bark (600 mm instead of 300 mm) was introduced in Roath Park and the four other large playgrounds in the north area of the council's sports and leisure department. This was because of the pattern of arm fractures from falls we had found in our previous studies.<sup>2,3</sup> In Roath Park monkey bars (overhead horizontal ladders) were replaced by a rope climbing frame. This was because the fracture rate for monkey bars was twice that for other climbing frames. We used as controls the 14 playgrounds surfaced with bark and the four surfaced with rubber in the two other areas in Cardiff (west and south east) where the council had not made any changes during 1994-6.

We assumed a Poisson model for the injury rate, and we compared injuries and the injury rate per observed child in the 18 months before and after the changes were implemented and between the three groups of playgrounds. Exposure data for the control playgrounds in the second 18 months were patchy, and we have assumed that usage was unchanged. Data from the playgrounds with good exposure data showed that usage remained roughly constant throughout the study, and we have therefore assumed this where data were limited.

The changes we made did not lessen the popularity of the playgrounds, and no injuries were recorded for the rope climbing frame. The table shows that the

injury rate per observed child was significantly reduced in the five playgrounds where changes had been made. There were also significant differences when Roath Park was taken on its own but not with the four playgrounds with changes to bark depth alone.

In assessing our surveillance system we compared for 1994-6 the children ascertained by us with those reported to the council. In 1994, 152 injuries were recorded by our surveillance system and 33 by the council's reporting system. In 1995 the numbers were respectively 113 and 12 and in 1996, 112 and 20. There are clear differences.

## Comment

We believe that our surveillance programme has contributed to playground development and safety in Cardiff. We were concerned that replacement of monkey bars and the introduction of other safety measures would make playgrounds less popular, but this was not the case. This surveillance programme and partnership is comparatively simple to apply. It does not need expensive resources, and it could be introduced widely.<sup>4</sup>

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Competing interests: In 1998, after the period of this study, we had limited funding for our surveillance programme from playground equipment manufacturer (Hags Play, Sturminster Newton, Dorset).

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Injuries and injury rates per observed child in playgrounds in Cardiff

	1 Jan 1994-30 June 1995		1 July 1995-31 Dec 1996		P value	
	No of injuries (fractures)	Injury rate per observed child	No of injuries (fractures)	Injury rate per observed child	Before and after changes	Compared with controls
Playgrounds in north area with changes	53 (23)	0.719	21 (6)	0.297	<0.001	<0.03
Roath Park (monkey bars and bark depth)	31 (13)	0.929	11 (4)	0.271	<0.001	<0.005
Control playgrounds in south east and west area with no changes	35 (12)	0.433	28 (10)	0.346	—	—