



A review of injury records and injury recording processes for Basketball NSW to develop evidence-based prevention strategies.

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Basketball is the sixth most popular organised sport for people aged 15 and over. In NSW in 2005-6 over 98,000 people aged 15 and over reported participating in basketball (ABS, 2007). In that same year, 325 people in NSW were hospitalised as a result of basketball-related injuries (Mitchell, Boufous & Finch, 2008).

This research involved reviewing the injury records and injury recording processes for Basketball NSW to inform recommendations for developing evidence-based prevention strategies. To be effective, sports injury prevention strategies must be based on a sound understanding of injury trends in a particular sport, including the incidence and severity of injury, as well as the mechanism of injury (Nan Mechelen, W. 1997).

As part of a broader Sports Safety campaign Basketball NSW will implement a variety of strategies in 2011. Based on a risk management approach, soft tissue injuries and concussion/head injuries were identified as the two key areas of focus for Basketball NSW in 2011. A new injury reporting form and procedure were also identified as areas of priority for Basketball NSW. This Sports Safety campaign will include a 'RICER' promotion for soft tissue injuries and a 'Safe Return to play' head injury promotion.

Aim: To review Basketball NSW's injury records and injury reporting processes to inform the development of injury prevention strategies and improve future injury data collection.

Objectives:

- i) To analyse Basketball NSW's existing injury data to inform the development of an evidence-based, targeted safety strategy.
- ii) To review Basketball NSW's existing injury recording mechanisms against best practice principles and identify improvements that could be made to the recording system to allow for further refinement and targeting of safety strategies.

Background:

In Australia, basketball is the sixth most popular organised sport for participation among people aged 15 and over (Australian Sports Commission, 2003). In NSW in 2005-6 over 98,000 people aged 15 and over reported participating in basketball (ABS, 2007). That same year, 325 people in NSW were hospitalised as a result of basketball-related injuries (Mitchell, Boufous & Finch, 2008).

"For widespread injury prevention at sports clubs, organisations and facilities it is imperative to collect sport specific, descriptive data about the injury and its circumstances. Recommendations then need to be fed back to the appropriate personnel at the club level in each specific sport. Generic data collection and recommendations will not aid widespread sports injury prevention" Sports Safety in Australia, Department of Health and Ageing, 2004.

To be effective, sports injury prevention strategies must be based on a sound understanding of injury trends in a particular sport, including the incidence and severity of injury, as well as the mechanism of injury (Van Mechelen, 1997).

Basketball NSW is committed to the ongoing promotion of safety at all basketball events and at all levels of the sport. Currently Basketball NSW collects injury records and uses these for insurance reporting purposes. With the assistance of Youthsafe, Basketball NSW reviewed their injury reporting records and from this were able to identify injury prevention activities. These are outlined in the section Results and Recommendations Figure 5.

Method

- Hard copies of all injury records for the last 5 years were collected from Basketball NSW. These injury reporting forms had not been filed in any systematic way so time was spent reviewing and collating forms and removing duplicates. Injury record forms were coded to provide consistency between the two different versions of injury reporting forms used by Basketball NSW. 394 injury reporting forms were included in the data for analysis.

- Injury reporting form data was reviewed after being coded into an Excel spreadsheet. Five key areas were identified for analysis: gender, nature of injury, cause of injury, severity of injury and treatment type.
- Review of the records identified four key inconsistencies in the injury records data collection that limited interpretation of the recorded data.

These inconsistencies are:

- Forms were not always fully completed
 - Forms were not always completed by people with qualifications in health/safety
 - There were a variety of forms used- making comparisons between reporting difficult
 - There was a tendency to use either broad or vague descriptions when completing the forms.
- A review of literature and resources on injury reporting systems, head injuries and concussion and RICER (Rest, Ice, Compression, Elevation, Referral) was completed. Contact was made with Dr Alex Donaldson of Monash University, a specialist in sports injury prevention and Dr. Andrew McIntosh, Associate Professor at the University of NSW and a specialist in head injuries in sport, to assist in identifying best practice for the recommendations to Basketball NSW.
 - A risk management approach was used to identify priorities areas for Basketball NSW. This approach considers the likelihood and severity of an injury occurring.
 - Recommendations were presented in a PowerPoint presentation to Basketball NSW's General Manager- Operations & Head Office Administration and IT and Registration Manager. Key strategies were identified as priorities for Basketball NSW to implement in 2011.

Results & Recommendations

Objectives & outcomes

- i) To analyse Basketball NSW's existing injury data to inform the development of an evidence-based, targeted safety strategy.

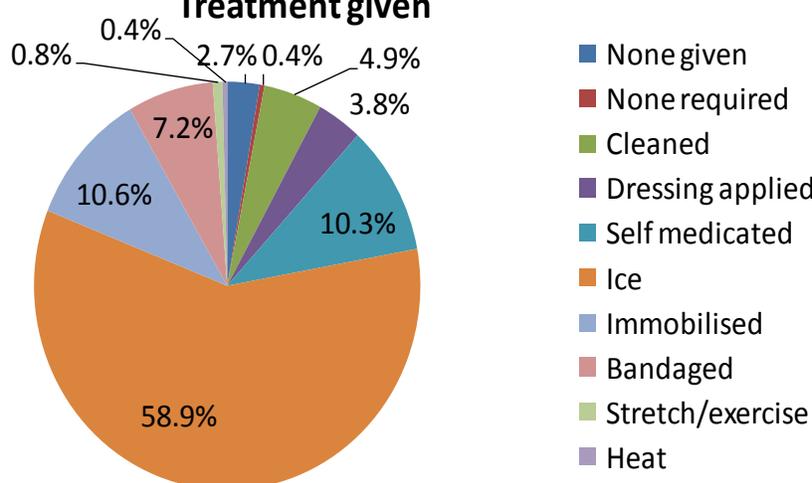
After reviewing the injury reporting form data the following key findings were identified around each of the key areas:

1. Key findings from injury reporting forms

<p>Gender</p>	<p>56% of injuries were reported in males and 44% of injuries were recorded in females.</p> <div data-bbox="646 716 1224 1079" style="text-align: center;"> <p>The pie chart, titled 'Gender', illustrates the distribution of injuries by gender. The blue segment represents males at 56%, and the red segment represents females at 44%. A legend to the right of the chart identifies the colors: a blue square for 'Male' and a red square for 'Female'.</p> <table border="1"> <thead> <tr> <th>Gender</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Male</td> <td>56%</td> </tr> <tr> <td>Female</td> <td>44%</td> </tr> </tbody> </table> </div> <p style="text-align: center;">Figure 1- Gender</p>	Gender	Percentage	Male	56%	Female	44%
Gender	Percentage						
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Female	44%						
<p>Nature of injury</p>	<p>In many cases more than one injury was reported. The percentages below are based on the overall number of injuries reported (n=575). The leading types of injuries recorded were</p> <ol style="list-style-type: none"> 1. Sprains - 27% 2. Inflammation - 17% 3. Bruising - 14% 4. Fractures - 11% 5. Strains - 8% 6. Dislocations - 6% 7. Concussion - 4% 8. Open wound – 3% 9. Abrasion – 2% 10. Unspecified medical condition - .4% 11. Overuse - .3% 12. Respiratory - .3% 13. Other – 7% <p>71% of injuries recorded were soft tissue injuries</p>						

Cause of injury	<p>The leading causes of injury were:</p> <ol style="list-style-type: none"> 1. Collision with person 2. Fall/stumble 3. Collision with object <p>The two most frequent causes of injury in basketball were collisions with a person (37%) and falls or stumbles (30%). For injuries that resulted from collision with a person, the records do not indicate whether this was with a referee, spectator or player, or where the incident occurred. Almost a quarter of the injury reports did not record the cause of injury. From an injury prevention perspective this is a very important area to record so that preventative strategies can be developed.</p> <div data-bbox="446 625 1412 1102" style="text-align: center;"> <p>Cause of injury</p> <table border="1"> <caption>Data for Figure 2- Cause of injury</caption> <thead> <tr> <th>Cause of injury</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Collision with person</td> <td>37.0%</td> </tr> <tr> <td>Fall/Stumble</td> <td>30.0%</td> </tr> <tr> <td>Collision with object</td> <td>7.0%</td> </tr> <tr> <td>Fall from height</td> <td>2.0%</td> </tr> <tr> <td>Overuse</td> <td>0.2%</td> </tr> <tr> <td>Temperature related</td> <td>0.2%</td> </tr> <tr> <td>Other</td> <td>1.0%</td> </tr> <tr> <td>Not recorded</td> <td>23.0%</td> </tr> </tbody> </table> </div> <p style="text-align: center;">Figure 2- Cause of injury</p>	Cause of injury	Percentage	Collision with person	37.0%	Fall/Stumble	30.0%	Collision with object	7.0%	Fall from height	2.0%	Overuse	0.2%	Temperature related	0.2%	Other	1.0%	Not recorded	23.0%
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Severity of injury	<p>Over half of all injury reports that recorded severity rated the injury as very severe or severe, pointing to the very real need for effective injury prevention strategies to be adopted by the sport. The single most frequently recorded injury severity was in the category of 'severe' (39%). Almost one in ten injuries did not have their severity recorded.</p> <div data-bbox="479 1438 1307 1848" style="text-align: center;"> <p>Injury severity</p> <table border="1"> <caption>Data for Figure 3- Injury severity</caption> <thead> <tr> <th>Injury severity</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Life threatening</td> <td>0%</td> </tr> <tr> <td>Very severe</td> <td>11%</td> </tr> <tr> <td>Severe</td> <td>38%</td> </tr> <tr> <td>Moderate</td> <td>28%</td> </tr> <tr> <td>Minor</td> <td>14%</td> </tr> <tr> <td>Not recorded</td> <td>9%</td> </tr> </tbody> </table> </div> <p style="text-align: center;">Figure 3- Injury severity</p>	Injury severity	Percentage	Life threatening	0%	Very severe	11%	Severe	38%	Moderate	28%	Minor	14%	Not recorded	9%
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Treatment of injury	Treatment of injury was the category of information most poorly recorded, making it difficult to develop recommendations for this area and to determine whether the treatment given matched the injuries sustained. Over half of the forms reviewed did not contain injury treatment data, and those that completed it often ticked multiple treatments. Ice was the most commonly adopted for injury treatments. Missing data has made it difficult to determine whether the treatment given matched the injuries sustained.																						
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- ii) To review Basketball NSW’s existing injury recording mechanisms against best practice principles and identify improvements that could be made to the recording system to allow for further refinement and targeting of safety strategies.

Priorities for Basketball NSW sports safety practices were identified based on a risk management approach which considers likelihood and severity of an injury occurring. The two areas identified according to these criteria were:

- **Soft tissue injuries**- 71% of all recorded injuries were soft tissue injuries. Due to the likelihood that these types of injuries may occur it is reasonable to prioritise this area highly.
- **Concussion/head injuries**- 4% of recorded injuries were concussion or facial injuries. While this injury type is not as common as soft tissue injuries, this area has been prioritised based on the severity of this type of injury. Basketball NSW currently have no policies or resources available and acknowledged they would benefit from some promotion in this area.

The recording system which currently is in use by Basketball NSW would benefit from some improvements. Improvements could be made around the consistency and procedures in completing injury reporting forms. Some of the limitations of the current system include:

- Forms are often not being fully completed
- Forms are often not completed by people with qualifications in health/safety which makes it difficult to ensure consistency in injury identification and treatments being recommended.
- There were a variety of forms being used- by different associations which has made comparisons more difficult.
- Broad/vague descriptions that were being used on many of the forms.

Youthsafe has recommended that Basketball NSW implement one consistent injury report form that is easy to use. It has also been suggested that all associations need to be made aware of the injury reporting procedure and recording system and the benefits in maintaining this.

Basketball NSW would benefit from encouraging associations to take some responsibility for injury reporting and prevention at a local level which would assist with the wider monitoring and promotion of safer sports practices.

Figure 5 includes the recommendations made by Youthsafe to Basketball NSW. The strategies from these recommendations that will be implemented by Basketball NSW in 2011 have also been included.

Youthsafe Recommendations	Basketball NSW implementation 2011
<p>1. RICER promotion- focus on soft tissue injuries</p> <ul style="list-style-type: none"> - Memo to associations - Distribute resources (posters, fact sheets) - Offer subsidised level 1 sports first aid courses - Provide/promote first aid kits and correct use - Include information on Basketball NSW website 	<p>1. RICER promotion</p> <ul style="list-style-type: none"> - Distribute resources (posters, fact sheets)- poster and A4 - Include information on Basketball NSW website <p>RICER resource- see appendix 2</p>

<p>2. Safe 'Return to play' after head injury promotion- focus on concussion/head injuries</p> <ul style="list-style-type: none"> - Memo to associations - Distribute resources (posters, fact sheets) - Offer subsidised level 1 sports first aid courses - Policy development - Include information on Basketball NSW website 	<p>2. Safe 'Return to play' after head injury promotion</p> <ul style="list-style-type: none"> - Distribute resources (posters, fact sheets)- poster and A4 - Policy development based on resource - Include information on Basketball NSW website <p>Return to Play resource- see appendix 3</p>
<p>3. Consistent injury report form that is easy to use-</p> <ul style="list-style-type: none"> - Memo to associations - Easy to follow instructions, including how to return form to Basketball NSW - Include an online reporting system - Injury data to be collated and reviewed at least annually 	<p>3. Consistent injury report form that is easy to use</p> <ul style="list-style-type: none"> - Memo to associations - Easy to follow instructions, including how to return form to Basketball NSW- distribute updated injury reporting form. - Data collated and reviewed at least annually <p>Updated injury reporting form- see appendix 4</p>
<p>4. Encourage local responsibility over injury recording and prevention</p> <ul style="list-style-type: none"> - Encourage injury forms to be collated and reviewed locally as well as providing the information to Basketball NSW - Consider offering training to associations on managing risk at their local venue - Promote local association 'success stories' when new safety initiatives are introduced. 	<p>4. Encourage local responsibility over injury recording and prevention</p> <ul style="list-style-type: none"> - Encourage injury forms to be collated and reviewed locally as well as providing to Basketball NSW - Consider offering training to associations on managing risk at their local venue - Promote local association 'success stories when new safety initiatives are introduced.

Figure 5 Recommendations for Basketball NSW

Basketball NSW will implement these strategies as part of a Sports Safety campaign in 2011 directed at all 100 associations in NS. Resources will be uploaded to the Basketball NSW website and will be distributed as hard copies to all associations in A4 and poster formats

Conclusions

A review of injury records and injury recording processes for Basketball NSW revealed that there was a need to develop greater consistency and clearer procedures for associations to implement in recording injuries. This finding led to the development of a new injury reporting form. This revised injury reporting form (see appendix 4) will be distributed to all 100 associations in NSW with an accompanying memo on how and when to complete the form. Having a consistent form will assist Basketball NSW when reviewing future injury records.

Based on a risk management approach soft tissue injuries and concussion/head injuries were identified as the two key areas of focus for Basketball NSW in 2011. As part of a broader Sports Safety campaign Basketball NSW will implement a variety of strategies in 2011. To promote better treatment for soft tissue injuries a RICER promotion will occur. This will include distribution of a poster and fact sheet to all 100 associations in NSW and relevant information being included on their website. See RICER resource appendix 2.

The strategies that will be implemented as part of the concussion/head injuries campaign is a 'Safe Return to play' after head injury promotion. This will involve distribution of a poster and factsheet (see appendix 3) to all associations, including relevant information on their website and the development of a head injury policy to support the resource.

As part of the overall safety campaign, Basketball NSW will start to encourage local responsibility from associations over injury recording and prevention. This will assist Basketball NSW in achieving the objective of an annual review of injury records which will link to the development of ongoing sports safety prevention strategies. To achieve this objective Basketball NSW are currently investigating allocating this activity to the job description of one of their staff.

Project Limitations

As mentioned earlier a key limitation in this research was the consistency and procedure around the completion of the injury reporting form.

It is hoped that by now having a consistent procedure in place for all associations most of these limitations will be eliminated. Offering subsidised level 1 sports first aid courses to all associations in the future would be of great benefit to increasing the consistency of the reporting procedure.

Funds usage

Expenses for this project have been in line with the budget. Costs have included part of the Project Officer salary, the Project Manager salary, Data Manager salary, literature search and resource development.

Acknowledgements

Youthsafe would like to acknowledge Basketball NSW and specifically Kim Murphy (General Manager Operations & Head Office Administration) and Tom Moore (Senior Manager Growth of Sport & Member Support) for their advice, involvement and support with this project.

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