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Original research

Improving the diffusion of safety initiatives in community sport

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ABSTRACT

Objectives: The “Mayday Safety Procedure” (MSP) is included in the Australian Rugby Union (ARU) Medical and Safety Recommendations and the mandatory SmartRugby training for coaches. Previous research indicates that translating the Mayday Safety Procedure into practice among community rugby coaches is challenging. This study investigated whether Mayday Safety Procedure translation could be enhanced by systematically planning and implementing a range of theory-informed and context-specific diffusion strategies.

Design: A controlled before-and-after study.

Methods: Coaches of senior community rugby teams in five zones in New South Wales (Australia) were invited to complete a questionnaire about their Mayday Safety Procedure knowledge and practice at the end of the 2010 and 2011 rugby seasons. During 2011, coaches in the intervention zone were exposed to a range of strategies to promote Mayday Safety Procedure diffusion which were planned by following Step 5 of the Intervention Mapping protocol. Coaches in the other four zones were exposed to usual strategies to promote Mayday Safety Procedure diffusion.

Results: Using the RE-AIM evaluation framework, statistically significant improvements were found among intervention zone coaches in: knowledge of most Mayday Safety Procedure key criteria; the number of coaches recognising their zone policy requiring them to train players in the Mayday Safety Procedure; frequency of provision of Mayday Safety Procedure training to players; coach perceptions of the quality of Mayday Safety Procedure training for players; and in confidence that referees could implement the Mayday Safety Procedure during a game if required.

Conclusions: The findings suggest that the translation of injury prevention policy into community practice can be enhanced by developing and implementing a theory-informed, context-specific diffusion plan, undertaken in partnership with key stakeholders.

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1. Introduction

It is well accepted that participation in sport and physical activity provides a range of health and social benefits. Nevertheless, injury is a concerning negative outcome of participation and a significant public health problem.^{1,2} As in other areas of public health, sports injury prevention requires a structured approach informed by research, progressing from identifying problems and recognising risk factors, to developing and implementing effective interventions.³ However, the process frequently falters at the final phase of translating interventions into widespread and sustained practice.⁴

To date, only a small proportion of general injury prevention research has focussed on translation,⁵ and there are few

published sports injury intervention implementation and effectiveness studies.⁶ If the gap separating research, policy and practice is to be bridged within the sports sector, then epidemiological and intervention research must be complemented by practice-based research that takes the “contextual determinants of success” into account.⁴

There are many challenges associated with facilitating community sports participant compliance with injury prevention interventions^{7–9} and the widespread uptake of safety interventions^{10,11} and policies^{12,13} in community sport. For example, a 2010 survey of community rugby union coaches in north eastern New South Wales (NSW, Australia) found that although the Mayday Safety Procedure (MSP) is included in compulsory SmartRugby coach training¹⁴ and the Australian Rugby Union (ARU) Medical and Safety Recommendations,¹⁵ coaches had poor written recall of the key MSP steps and they did not regularly train or assess the MSP competency of their players.¹⁶

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The MSP is an evidence-informed safety technique¹⁷ used when a player believes that he/she is in a potentially dangerous position in a scrum.¹⁵ Its correct application requires that all players in the scrum (and the referee) are competent in the MSP. The 2010 survey findings suggested that the translation of the MSP from ARU procedure/policy to coach delivery of regular training to players could be improved by: ensuring coaches had the resources and skills in 'how' to train their players in the MSP to complement their existing knowledge on 'what' to train them; setting expectations that coaches provide regular MSP training for players; and regularly monitoring player MSP competency.¹⁶

Having recognised the challenge of translating safety interventions into improved community coach and participant safety practice and behaviour,^{18–20} and the importance of taking a systematic and planned approach to this process, community-level ARU representatives worked closely with the authors to develop a MSP diffusion plan based on Step 5 of Intervention Mapping (IM),²¹ with the aim of encouraging and supporting community rugby union coaches to train their players in the MSP during the 2011 season.

Given that the intervention (i.e. the MSP) was available and the need for MSP-related behaviour change among coaches had been identified,¹⁶ this research focused solely on evaluating the implementation of the intervention rather than intervention development or effectiveness. IM is a health promotion program planning tool with a step (Step 5) that is dedicated to planning for program adoption, implementation and sustainability.²¹ This step was used to inform the development of an MSP diffusion plan.

The application of IM Step 5, and the steps taken to develop the MSP diffusion plan are described elsewhere.²² A summary of strategies from the plan is provided in Table 1. The plan focussed only on MSP adoption and implementation. Planning for sustainability was to be undertaken if the diffusion plan was found to be successful during the 2011 season. To our knowledge, this is the first time that a recognised health promotion implementation planning process has been used to develop a diffusion plan for a sports safety intervention in community sport. This study aimed to evaluate the effectiveness of a strategic approach to improving the translation of injury prevention policy into practice within community sport.

2. Methods

A quasi-experimental study (before and after design with control group) was undertaken to evaluate the effectiveness of an MSP diffusion plan in improving MSP knowledge and behaviour among community rugby coaches.

Prior to the 2011 rugby union season, two ARU representatives responsible for administering community rugby and the authors followed IM Step 5 to develop a MSP diffusion plan targeting community coaches in one NSW community rugby union zone (the "intervention" zone). An MSP implementation advisory group (with representatives from: the regional rugby union administration [an employed administration officer]; the regional referees' board [also an active referee]; a coach; a player; and a club administrator) reviewed the plan and assisted in identifying contextually relevant, practical ways of translating the plan into specific activities within the intervention zone (Table 1).

During the 2011 season the specific activities listed in Table 1 were implemented by the ARU representatives within the intervention zone in north eastern NSW. Usual MSP diffusion practices were followed in the other four zones (the "control" zone).

To evaluate the effectiveness of the MSP diffusion plan, 166 registered coaches of senior community rugby union teams in the five zones were invited via email to complete an online follow-up survey at the end of the 2011 season. The questionnaire contained identical questions to those used in a baseline survey undertaken

at the end of the 2010 season in which 179 coaches were invited to participate, the results of which are reported elsewhere.¹⁶ The questionnaire was designed around the five RE-AIM dimensions.²³ These were the primary endpoints of the study and included items to assess: reach (MSP awareness and knowledge); *perceived* effectiveness of the MSP; and coach adoption, implementation and maintenance of MSP training for players. To assess MSP knowledge, coaches were asked to provide free-text descriptions of the key points of the MSP. Responses to this question were independently assessed against six key criteria¹⁶ by four people (both authors and two ARU representatives) with discrepancies discussed and agreed upon.

Coaches in the intervention and control zones were invited to participate in the survey by the ARU development officer responsible for supporting and liaising with community clubs and coaches in their zone. All responses were anonymous and submitted online. Potential participants received an initial email invitation plus two email reminders, followed by a phone call or text message reminder. Participants could also enter a draw for individual and club rugby-related prizes to encourage participation.

A short post-survey semi-structured telephone interview was undertaken with a random sample of intervention zone coaches, to identify which of the activities listed in Table 1 they had encountered, and which they had found to be effective.

Data was analysed using SPSS version 18, and STATA version 11. Descriptive analysis of numeric data included frequencies, means (standard deviation) and medians. Cross tabulations (two-by-two) of coach recall of the six MSP key criteria, and responses on the five RE-AIM dimensions for control or intervention zones by season were tested using the Pearson Chi-square test or the Fisher exact. Where numbers permitted, a binomial generalised linear model (GLM) with an identity link function was used to determine the significance of differences between baseline and follow-up. This model, which contained two main effects (zone and season) and one interaction term (zone × season), tested the significance of the increase in knowledge or activity reported by the intervention zone at the end of the 2011 (follow-up) season compared to the control zone, adjusting for the levels of knowledge or activity reported in each zone at the end of the 2010 (baseline) season.

The Medical and Community Human Research Ethics Advisory Panel at the University of New South Wales Ethics approved the study.

3. Results

Seventy coaches provided baseline data (maximum response rate 39%) while 88 coaches provided follow-up data (maximum response rate 53%). The number of responses ("n") varied across questions so the n for each question is indicated in the text as necessary.

At baseline and follow-up the average age of coaches was 45 years (sd = 11, n = 70) and 46 years (sd = 11, n = 88) respectively; they had an average of 12 years (sd = 10, n = 69; sd = 7, n = 88) of coaching experience; and on average coached 39 (sd = 23, n = 67) and 38 (sd = 23, n = 78) players respectively.

Intervention and control zone coaches were aware of the MSP at both baseline (intervention 100%, n = 29; control 100%, n = 38) and follow-up (intervention 100%, n = 30; control 98%, n = 48). Most or all intervention and control zone coaches also reported that they had attended MSP training at baseline (intervention 93%, n = 27; control 95%, n = 37) and follow-up (intervention 100%, n = 30; control 93%, n = 41).

MSP knowledge was assessed by asking coaches to describe the MSP in their own words. The number of responses correctly identifying the six key MSP criteria at baseline and follow-up is presented

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