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*This is an Authors' Accepted Manuscript of a chapter accepted for publication in the book '*The Palgrave Handbook of Sport, Politics and Harm', *edited by Stephen Wagg and Allyson Pollock, Palgrave Macmillan, FORTHCOMING 2020/2021.*
(Publishing details to be updated on subsequent versions of this manuscript)

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Introduction

The provision of medical care within competitive sports contexts has emerged as a discrete area of research interest for sport sociologists over the past few decades. Sitting at the juncture of sport studies, the sociology of professions, medical sociology and medical ethics, this work has critically explored the role played by various types of medics within a range of contexts, informed by debates and theoretical insights from these disparate areas of literature. The relatively recent publication of a theoretically-driven monograph (Malcolm, 2017), an edited collection of empirical work (Malcolm and Safai, 2012), and agenda-setting literature review articles (e.g., Malcolm, 2014) indicates the developing maturity of this research area.

One point upon which the majority of studies in this field tend to concur is that medical work in sport cannot be understood outside of the social conditions of its production. Following the oft-cited work of Elliot Freidson (1970) on the sociology of medicine more broadly, it is generally accepted that the execution of medical work in practice is less a matter of how skilled, professional or well-educated any given physician might be, and more a consequence of how well that particular physician is able (or willing) to perform within specific social contexts. As such, exploring pertinent sociocultural factors within sports environments becomes vital in understanding the working practices of sports medics. This would include such phenomena as the well-evidenced notion of the 'culture of risk' that shapes athletes' health-related behaviours (Donnelly, 2004; Nixon, 1992; Matthews and Jordan, 2019; Pike, 2004; Safai, 2003; Theberge, 1997, 2008); the influence of commercial pressures on individual athletes, coaches and teams to prioritise performance over health (Hoberman, 1992; Malcolm, 2017; Malcolm and Scott, 2014; Safai, 2003; Young, 1993; Waddington and Roderick, 2000; Theberge, 2006); and the wider political economy shaping various sports organisations' ability to provide particular types of medical care to athletes (Boyd, 2007; Hanson, 2018; Malcolm, 2006; Malcolm and Safai, 2012; Malcolm and Sheard, 2002; Waddington et al., 2001).

With respect to these latter two points, numerous studies have highlighted both clinical shortcomings and ethical failures that are facilitated by the political economic organisation of competitive sport. Here, the compromised loyalties of 'team doctors', whose employment by their patients' bosses generates potential conflicts of interest, has been evidenced numerous times (Malcolm, 2006; Malcolm and Safai, 2012; Waddington et al., 2001). Commercial pressures produced by the 'spectacularisation' of televised sport, or the high premiums associated with winning for securing sponsorship deals, may diminish the situational importance of medics when their advice runs contra to athletes' ability to produce exciting and effective performances (Anderson and Jackson, 2012; Hanson, 2018; Malcolm, 2017; Malcolm and Sheard, 2002). In less-commercialised sports, budgetary restraints combined with the relatively expensive nature of medical support has been shown to impact upon the quality of care athletes can expect to receive (Liston et al., 2009; Malcolm, 2017; Walk, 1997). Elsewhere, the lack of formal governance structures in some sports means medical care is conducted without clear guidance or rules to ensure that any sort of clinical or ethical standards are adhered to (Channon et al., 2019).

In this present chapter, we extend these enquiries by exploring the provision of medical care at two different levels of competitive mixed martial arts (MMA) in the United Kingdom. To date, ours is the first investigation of medical provision within organised combat sports, as well as only the second study within this field to use an observational methodology (see Kotarba, 2001). To gather data on medical care in this environment, we shadowed medical professionals at 27 different competitive combat sports events, accumulating 200 hours of observational fieldwork in total. The majority of these were MMA events (n=13), or mixed-discipline events that mostly featured MMA bouts (n=5), but also included boxing (n=5), kickboxing (n=2) and Brazilian jiu jitsu events (n=2). While the clear majority of these were understood within the field to be at the 'regional' level of competition, three of the MMA events we visited were internationally televised, professional, elite-level shows[1]. In addition, we also carried out formal, semi-structured interviews with 25 medical professionals, 7 referees and 9 promoters and commission staff[2], as well as numerous informal, conversational field interviews during our observations. The resulting data, analysed using an iterative thematic analysis protocol, generated diverse insights into the work of medical professionals within a largely unregulated sport (Channon et al., 2019), wherein athletes' risk taking is both normalised and celebrated (Channon, in press). Due to the preponderance of our findings concerning the sport of MMA, as well as the recent emergence and rapid development of this sport, we focus on the data from our study that specifically pertains to MMA for the remainder of this piece.

Contextually speaking, MMA events almost always consist of competitions between opponents of similar weight, which take place in front of paying audiences as a sporting spectacle (hence the use of the term 'show', which is common parlance in the field). Fights most often take place in an octagonal cage under the supervision of a referee. They last for a fixed time period, usually up to three rounds of either three or five minutes (for amateurs and professionals respectively), although matches for championship belts or other 'main event' fights may last for five rounds. Victory is earned through either 'stoppages' – most often resulting from knockouts, technical knockouts or submissions – or from judges' scorecards after the completion of the final round. During bouts, opponents may strike each other with fists, elbows, knees, shins and feet; they may throw and wrestle each other; and can apply a wide variety of joint locks or chokes. MMA is not a 'no-holds-barred' sport – many techniques are forbidden under its 'unified rules'[3] – but the diversity of techniques it does permit gives rise to a wide spectrum of potential injuries. In this sense, fights are often bloody affairs, and fractures, joint dislocations, concussions and other types of kinetic injury are common (see Jensen et al., 2017).

Medical staff are typically employed at MMA events to provide immediate, cage-side care following such injuries, as well as perform pre- and post-fight medical screening. However, in the UK, the exact nature of their work is not formally mandated by any overarching governing body – indeed there is no effective regulation of the sport in the UK at the time of writing – and instead rests on what any given show promoter asks (or permits) them to do. As such, this gives rise to considerable variation in actual practice across the sport, as was recorded throughout our fieldwork observations. In what follows, we discuss how this variation manifests with respect to the wider structural organisation of MMA, commenting on how the commercial imperatives currently shaping the sport either facilitate or constrain the medical care that athletes receive. We do so in two distinct sections, concerning firstly 'regional' and secondly 'international'-level shows.

Medical care on the regional circuit: The structural alienation of medics

At the regional MMA events we visited, the provision of medical care varied widely between shows, with different types of medics employed, in teams of varying sizes, who performed their duties in a variety of different ways (see Channon et al., 2019). At one event for instance, the medical team consisted of one doctor, two paramedics and one emergency medical technician (EMT); at another

event, it was composed of one nurse, one paramedic and one EMT; and at another, only two EMTs were present[4]. Each of these teams followed fairly distinct procedures; while all of them performed pre-fight medical checks for each fighter and gave emergency cover throughout events, not all of them did routine post-fight checks of every competitor, and the treatments they provided to injured fighters varied substantially.

This lack of standardisation in staffing and procedures is largely a consequence of there being no formal regulations which event organisers must follow, leaving the determination of such things largely in the hands of promoters. At the level of each individual show, it is also indicative of a relatively 'hands-off' approach on the part of those promoters, who typically left medics to their own devices after hiring them. Although many of the medics we interviewed appreciated the degree of autonomy this gave them, most recognised this as a consequence of promoters' problematic lack of interest in medical cover, rather than healthy professional respect:

> It's a mixed bag, some are good but some promoters just don't wanna even speak to you. One I worked for, if I approach him to say, 'ok I've done this and that', he's like, 'ok yeah, whatever, make sure you have a good night, yeah, yeah, yeah.' OK? So he's not overly interested in us, he doesn't come over and be like, 'any problems?' He just books us and leaves us to it.
>
> *And like you said, he could be booking anyone, right? Presumably it wouldn't make any difference if you were professionals or like, St John's Ambulance volunteers?*
>
> Exactly! It wouldn't make any difference to him. (Victoria[5], A&E nurse)
>
> That naivety comes into it when the promoter just goes for the ticking-the-box process of what he needs to cover the event… When you find a businessman promoting something, you generally don't get that love and attention, it's a money-making scheme, tick-tick-tick-tick, they're all here, done. I've done my bit, now let's watch what the cash register does. (Steve, EMT)

That the specifics of medical cover received little of promoters' attention could give rise to a number of problems. Two particularly consistent observations in the field were the implications this bore for both the physical staging of events and the types of medics hired. While significant effort was almost always put into creating environments that would generate the atmosphere of professional fight shows their audiences will have seen on television, with numerous (presumably expensive) embellishments in place to do so, medical provision was often given minimal consideration – or, indeed, directly marginalised as a consequence of these other priorities. For example, at one well-attended amateur show, we noted extensive 'showbiz' staging and staffing, but a largely underqualified and poorly located medical team:

> The venue for this event is a multi-court sports hall in a leisure centre located in the suburbs of a large city. Inside, the huge space of the hall is dominated by a full-size cage, surrounded in a ring by a VIP seating area. A huge projection screen almost covers the entire far wall, while a raised walk-in stage lies along one side, with access to this area fenced off from the spectators' standing zone around the rest of the perimeter. The cage area itself is also fenced off from the ring of VIP tables, with a decent amount of space for the professional camera crew and officials (several of whom, the promoter was keen to emphasise to me, had worked at the highest level of the sport) to move around the outside. As I arrive, the lights are already dimmed, with brightly coloured spotlights dancing around the ceiling and walls while hip-hop music blares over the sound system. Later on, smoke machines and walk-out music add

impact to the arrival of fighters on the stage. The two ring girls, whose seats are closer to the cage door than are the medics', are professional models.

Prior to the commencement of the event, the promoter asked the medics to begin their pre-fight checks in the short, narrow hallway outside the squash court that was supposed to be their medical area – but had at that moment been inexplicably repurposed for the referees' rules talk. Lawrence, an unqualified, trainee paramedic, took a folding table and set it up in the only space available to him, directly in front of the corridor's fire escape. Here, he and his colleague (the only fully-qualified paramedic in this team of four) began seeing to fighters. I wasn't able to observe the procedure as the hallway, where I had earlier been standing while talking with Lawrence, quickly filled with bodies. The checks seemed to progress much more quickly than at other shows, and the corridor was crowded and cramped, with no attempt made to split fighters from their opponents or provide any kind of confidentiality during the process. I couldn't understand why the organisers hadn't provided more adequate space for medical screening in this large sports complex. (Field notes, regional MMA show)

Promotions' relative lack of investment in and attention to medical care was frequently complained about by medical staff with experience of working at this level of the sport. In explaining this, the most consistent point we heard was that medical provision was sacrificed in the pursuit of profit, as per Steve's quote above. Penny, a nurse with over ten years' worth of experience working in combat sports, made this particularly clear when discussing shows that employed unqualified or unreliable medics:

You've carried on with the show knowing that you have people that wouldn't be able to deal with a knockout. That's really appalling. Appalling. And so sad, that they're willing to put people's lives at risk for money.

I'm wondering, is it just naivety? That these guys don't know what they don't know about medical staff, that sort of thing?

No. Definitely no. It's about the money. I went to another show with my friend in the summertime, we were going to watch the fights, and my trainer was coaching there, and he rang me up and went, 'they haven't got any medics, can you be the medic?' And both of us were in clothes to go out in, and I went, 'let me see if I can get some kit'. Long story short, I managed to get kit up to the event and everything, and we covered the show. I did it barefoot because I couldn't wear heels in the cage. And then when it came to the end of the night, the promoter kind of went, 'so, how much?' And I didn't even put any extra money on it (over my normal price) and he was like, 'how much?!' And I was like, 'we've just saved your bacon, completely here. Completely!' And we've never heard from them again, and he does loads of shows. And you just think, we totally saved your bacon there and yet you'll still go back to the same people who'll let you down, because they're cheaper. And that's the thing with all of this. Money. (Penny, A&E nurse)

Perhaps unsurprisingly, the promoters we managed to interview[6] did not directly echo this sentiment, but they did frequently acknowledge the financial pressures that they faced in staging events, and admitted that this was one consideration when deciding how many medics they would employ as well as what profession those medics would be (i.e., expensive doctors versus relatively cheap EMTs). Such concerns were always contextualised by promoters with reference to the financial risks that they took with running regional-level shows, which could easily incur losses due to depending largely on unpredictable ticket sales for their revenue:

Do you mind me asking, your first show, did you make much from that?

> Not much at all. I think I made something like a thousand pounds. Which for me was awesome. I think it went fantastic and also I made this grand, as a side thing. I didn't have to pay any extra. But do you know what? It was very, very, very time consuming. It's very hard, so then if you are considering that you have made that thousand pounds from the last three months' work you've put in, it's not worth it. But looking at the bigger picture, increasing your tickets sales in the future, and maybe increasing the people in there, because I have seen that you can easily squeeze in another hundred people there. Then you could make some real money. (Jakub, regional-level promoter)

As indicated here, besides short-term concerns over protecting the viability and profitability of any given event, most promoters were also concerned with developing their brands over time, building a sustainable audience at the local and wider regional level. For some, this involved being willing to make the occasional financial loss in order to establish or maintain their credentials within an increasingly busy marketplace. The payoff for such acceptable losses always needed to be a show that people would talk about and remember; that sponsors would be interested in putting their name next to; and that talented, up-and-coming fighters would want to perform on. In this sense, for some promoters the presence of (expensive) doctors and private ambulances was of relatively little importance compared to bright lights, loud music, exciting fights and glamorous ring girls[7], which were considered to be more immediately impactful on an audience – whose presence would, in turn, draw the wider attention that event sponsors and aspiring fighters sought.

As well as clarifying why medical teams were often staffed with cheaper, lower-grade professionals who often did not have access to the best available equipment or facilities, this may go some way in helping to explain a more troubling phenomenon that we witnessed several times, wherein promoters ignored or directly overruled medical staff during events. Indeed, we saw one promoter interfere with medics to prevent a fight stoppage (see Channon et al., 2019), and another who urged an injured fighter to move backstage before ambulance paramedics could arrive to assess his dislocated knee joint. In another incident, we saw a promoter arguing with a medic about allowing a fighter who'd been knocked out to compete again less than an hour later, to keep a fight on the card after another competitor hadn't shown up. In each case, a clear motivation to ensure that the show went on ran directly against medical advice, disrupting medics' ability to work in the interests of their patients. Several interviewees told us of similar incidents at other shows, confirming that promoters' priorities could, at times, bring them into conflict with medics, placing athletes at potentially great risk as a consequence.

Although these examples highlight some of the more egregious problems we encountered during our study rather than providing an overview of all ('good' as well as 'bad') practices in the field, they nevertheless illustrate that medical staff risk being structurally alienated from the central operational concerns of the enterprise of regional-level MMA shows[8]. Thus, within lower-level MMA competition in the UK, the provision of medical care to athletes can become directly constrained by the short-term management of limited economic capital, along with a concurrent priority on the part of promoters to invest in developing their promotions' brands. That these largely economic concerns interfered with medical provision is not altogether surprising in light of previous research on the commercialisation and commodification of sport (Hoberman, 1992; Malcolm, 2017; Safai, 2003; Waddington and Roderick, 2000). Thanks to such processes, the protection and promotion of athletes' welfare is diminished in importance insomuch as it does not provide a direct benefit in terms of generating or protecting an event's revenue. So long as the specific, individual athletes competing on lower-level shows are not integral to their commercial success, there is limited incentive to ensure that their health is adequately protected (Malcolm, 2017), particularly when measures to do so

preclude spending on other things. As such, the competitors' bodies, upon which athletic spectacle is built, are afforded minimal support and protection in these environments.

Sports medics at professional shows: An alignment of interests

However, the professional, international-level MMA shows we observed were very different from those at the regional level. While the physical risks to athletes' health remained largely the same[9], the provision of medical care was substantially more robust. During the period of our study, it was widely understood within the field that all international MMA shows in the UK were covered by one highly-regarded medical firm, whose large, experienced and professionally diverse body of staff followed the same protocols and adhered to the same standards of practice at each event. Always composed of multi-disciplinary teams of doctors and paramedics, with a minimum of two private ambulances in attendance to transport fighters to hospital if needed, these teams were far better equipped than any we saw operating at the lower levels of competition:

> At all points of the night this team has controlled the physical space that they work in. Their well-stocked, fit-for-purpose medical room is secure and private. They have cage-side seats next to the door, and when they go into the cage, the commission staff won't allow anyone else to follow. They accompany fighters out of the cage directly to their dedicated treatment room, via a walkway neatly separated from the crowd by security fencing. Every step is controlled, every decision recorded, every process rehearsed, all managed and performed by a team under the charge of Jason and Luke, two senior doctors. Theirs is a well-defined, functional hierarchy operating within clearly demarcated space; they have effectively recreated a hospital environment within the arena, and it seems that nothing escapes them because of it. (Field notes, August 2018)

Unlike medics working at lower-level events, the staff employed by this firm demonstrated a significant degree of control over the staging and procedure of the events they worked at. Tellingly, these staff never experienced challenges to their autonomy from the promoters employing them, and were very clear on the extent of their authority within the social milieu of a fight night. Discussing the ability to prevent fights from taking place – which could be a key point of tension in relations between medics and others in this field – they told us the following:

> We pull at least one match on pretty much every [top level promotion] show, for one reason or another. And [the promotion] are happy with it. If we don't think they're medically fit to fight, they don't fight. That's it. (Luke, A&E consultant)

This team were keen to emphasise to us in interviews that their authority at events superseded that of other staff, including commissioners, coaching teams, and broadcast media. Specifically, in this respect, they insisted on medically assessing all fighters immediately after their matches, prior to their engagement in television interviews – which, in this team's experience, had been a key problem in previous work they'd undertaken in boxing (see Anderson and Jackson, 2012):

> I've just had a chat with the media guy from [top-level promotion], so we've got an arrangement now that the fighters are picked up cageside, go out back for their post-contest medical, and then he will pick them up at the medical room and take them to the media room. Whereas in pro boxing the interview happens first, [medical work is] all dictated by TV. (Luke, A&E consultant)

The importance of carefully managing the presence of the media in top-level MMA was a consistent theme in our interviews with medics working at this level. Interestingly, the presence of TV cameras at their events, combined with the public influence that media exposure could wield, meant that the stark differences in medical care at higher and lower levels of MMA can be explained with reference to the same phenomena: commercial imperatives and brand development. While such issues facing promoters at the regional level shows could obstruct the provision of high-quality medical care, at this level of competition it was understood to do the opposite, as illustrated in the following exchange:

> Because [British media companies] are piling money into [top promotions] in the sport, they can't afford to make mistakes with safety because the TV companies aren't going to want to show it if things are going horribly wrong. So with that money you get that added sense of urgency, this must be done right, so we don't lose the income sort of thing. (Davi, orthopaedic surgeon)

> And don't forget the ambulances. At [televised events] you need to have more ambulances [at the venue] to help you maintain the show, because if you send off your ambulance, it means you can't really start the next fight until it's back and so if you've got only one ambulance then the event could be seriously disrupted. (Michael, orthopaedic surgeon)

Furthermore, with MMA's public image walking something of a tightrope between spectacular sport and unpalatable violence (see Brett, 2017; Mayeda and Ching, 2008), a perceived need to demonstrate good ethical credentials whilst minimising the apparent physical risks of competition was recognised as important in protecting the longer-term reputation and political viability of the sport. This was thought to be particularly the case in the aftermath of the widely-publicised death of the Portuguese MMA fighter, João Carvalho, following a bout in the Republic of Ireland in 2016 (see Roseingrave, 2018). With expectations of increased public scrutiny following this tragedy, both medical and promotion staff recognised the extent to which fears about protecting MMA's reputation could drive proactive involvement in improving standards of care:

> I was saying, we need everyone to get brain scans, and now after the Carvalho death in Ireland, people are saying ok, we need brain scans, everyone has to do it, because they're scared now of it happening here, what people will say about the sport. (Jason, general practitioner)

> We have got to protect our sport. We have got to protect our brand, and a lot of people are just looking for an angle to diminish what we do, to put a headline out there that shows that MMA is as bad as everyone thinks it is. (Rich, international-level commissioner)

> [Medical and safety provision] is again first of all to help the sport, but also to make it more palatable to venues, to audiences and to fighters to compete. (Stuart, international-level promoter)

In this light, an oft-repeated notion throughout all of our sample of medics, including those who had only worked on regional shows, was the recognition that medical work had a role to play in helping MMA to grow as a sport. Medics working below the international level were generally happy with this, and some openly expressed their desire to "keep [MMA] growing and make it more and more professional" (Ravi, paramedic). Indeed, expanding the amount of medical provision at their shows was thus understood as a sign of a (regional) promoter's aspiration to become a larger player on the scene, mimicking the practices of higher-level shows:

> This show has evolved from being in [a small leisure centre], with two medics, to the [large arena] with two medics, to the [large arena] with three medics and a cutman, and you know,

> the reputation of the event is now such that they enjoy having those resources to ensure that they maintain credibility. There's a level of kudos with this, like this event is a big event now, well known. And I like being a part of it myself actually, and I like how they've evolved. (Victoria, A&E nurse)

Among both promoters and medical staff then, medical care could be positioned as being in the service of sport development, rather than solely concerned with the welfare of athletes. Although it is tempting to sound the alarm over the potential for conflicts of interest this presents (e.g., Walk, 1997; Waddington and Roderick, 2002), the exact nature of the contribution medics made to the success of MMA and its promotions is worth considering here. Specifically, it was medics' ability to work autonomously, to be visible and be shown exercising power, and to work squarely in the athletes' interests (even at times when athletes may not want to listen to them – see Channon et al., in press) that made them valuable to promoters in this sense. As illustrated above, the need to be seen to be proactive and comprehensive in caring for their competitors is what drove these promotions to invest in medical care.

As such, we argue that this arrangement constitutes more of an *alignment* of interests than a conflict between them. As Kotarba writes, sports-related occupational healthcare serves "extraproductivity objectives such as public relations or employer image" (2001, p.768) as much as it works to promote the health of athlete-workers. In his study of professional rodeo, he argues that promoters "can readily claim legitimacy by displaying to their audiences and critics" (p.777) that they take good care of their cowboys, an observation which clearly resonates with our findings here. Indeed, we could go so far as to say that the development of a visible and robust medical support system in televised shows – which for better or worse constitute the public face of the sport – have become a component of how promoters defend MMA's mainstream legitimacy. Ironically then, while the commercial forces driving sport development are typically critiqued for their harmful implications for elite athletes' health in general (Hoberman, 1992; Messner, 1991; Young, 1993) and for the autonomy of sports medics in particular (Anderson and Jackson, 2012), in this instance there is good reason to believe that they may also be responsible, at least in part, for going some way to help protect these things.

Conclusion

To conclude, we argue that the disparity in medical care between the regional and international levels of MMA competition illustrates the simultaneously enabling and constraining impact of commercial imperatives. While on the one hand, a lack of resourcing in favour of either cutting costs or spending money on developing a recognisable brand may undercut medical provision, on the other hand those same interests can facilitate its prominence in the sport. While the absolute cost of medical professionals is definitely a factor here (i.e., large teams of doctors are prohibitively expensive for smaller shows), it would be incorrect to assume that just because international-level promotions can afford to hire the best cover available, they will. As Malcolm reminds us, "the assumption that significant financial resources necessarily entail the development of elite occupational healthcare" is not borne out in other sports contexts (2017, p.108).

More specifically then, it is the wider political-economic environment within which large-scale, international-level promotions operate which has the greatest impact on the medical work done within them. Here, the high stakes associated with fighters' injury mean that promoters' concerns become more closely aligned with those of medics, as Arthur, whose experience was limited to working on international shows, succinctly summarises:

> Oh I do think the big promoters are aware of it, quite acutely, because if a fighter dies on their show, or has a massive injury and there's no medic there, there's no doctor there, it reflects very, very badly on them. The promoters are acutely aware that they need the medical staff there before the fight, both for their own show's continuation and for the fighters' safety. (Arthur, advanced paramedic)

Yet while we might see an important and promising alignment of priorities here, which at least within our data set seems to promote attention being cast towards fighter safety and health, it is important to acknowledge potential problems that accompany the economic imperatives that drive this process. Such 'market forces' can be capricious and, as such, are not a strong foundation upon which to advocate greater provision of medical care to athletes. What happens for example, if the current public attention to head trauma as a consequence of concussions in sport shifts (see Malcolm, 2019)? If the importance of appearing to manage such damage to athletes is removed or downgraded in the public consciousness, we may expect to see a downturn in the motivation of promoters to support highly visible, empowered medical staff at events. Likewise, as was recently the case in a highly-anticipated international-level MMA show, doctors' involvement can at times be interpreted by fans and the wider MMA community as an unwelcome and anticlimactic interference (see Marrocco, 2019). Should the audiences that are so central to the sport's financial wellbeing turn against doctors' involvement in calling off or preventing fights, this too may negatively impact on promoters' willingness to empower them so.

Furthermore, whenever finance drives this process there is increased space for promoters to focus on the symbolic appearance of well-developed medical supervision. While such symbolism does not inherently result in poor medical resources and practice, it could act as a veneer over such a reality. Of course, the majority of the promoters we spoke with attached great significance to fighter safety, but this was certainly not the case at all times throughout the rest of our fieldwork. And, as such, the appearance of medical safety without the costly expense, or at least a reduction in cost, might well be of interest to some, especially in times of economic hardship. If individual promoters are left to decide the nature and level of medical supervision at sporting events, this economic imperative, with its associated foundational problems, can act as a basis from which athlete safety and health is undermined.

Notes

1. Roughly defined, 'regional' shows are more likely to feature amateur rather than professional fights, and are seen to serve a developmental role in providing a platform for 'up-and-coming' fighters to gain experience or exposure. They are run by smaller organisations, usually involving volunteer labour, and are likely to be reliant on small, local sponsors as well as ticket sales for revenue. They operate on tight budgets as a consequence of the uncertainty this involves. By contrast, 'international' shows are run by larger, more professional organisations who benefit from broadcaster income, merchandising, and sponsorship deals. They showcase established, professional fighters whose bouts draw large global audiences.
2. In MMA, 'commissioners' are staff tasked with responsibility for stage-managing events. They ensure fighters' equipment is adequate, monitor the conduct of coaching teams at ring or cageside, walk fighters to and from the arena, and so on.
3. For details of amateur and professional rulesets, see IMMAF (2019) and ABC (2017) respectively.
4. Each of these types of staff are qualified (and thus insured) to perform different duties. Of all of them, EMTs are the lowest ranked within typical medical hierarchies in the UK, and unlike doctors, paramedics or nurses, 'EMT' is not a protected title and there is no statutory professional register for EMTs in the UK. This makes verifying the currency of their qualifications – should private employers wish to do this – more difficult.
5. Pseudonyms are used throughout the chapter.

[6] It is fairly likely that our interviewee sampling of promoters was affected by selection bias, insomuch as, in the words of promoter Jim, 'if anybody said "no" when you wanted to talk to them about promoting and about doctors, things like that, if they just flatly refused it is probably because they have got something to hide'. Indeed, several promoters did refuse (or ignore) our request for interviews.

[7] Interestingly, ring girls were frequently cited by medics in interviews as an example of superfluous extras that promoters would rather spend money on than invest in better medical cover.

[8] This problem is further compounded at times by the uncooperative behaviours of athletes and their coaches, who may perceive medics as outsiders or even threats to their ability to perform (see Channon et al., in press).

[9] Or in fact, were arguably reduced by the better training the fighters received, along with more adequate matchmaking and more robust support systems preparing athletes for their matches.

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