

RESEARCH REPORT

IMPLEMENTING BODY WORN CAMERAS TO REDUCE VIOLENCE AGAINST AMBULANCE CREWS: A QUALITATIVE INVESTIGATION OF THE PERCEPTIONS OF AMBULANCE CREWS AND MANAGERS

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ABSTRACT

Objectives: Following the launch of its 'Long Term Plan' in 2019, the English National Health Service (NHS England) started piloting body worn cameras (BWCs) in ambulance services. The rationale was that BWCs would act as a deterrent and facilitate the prosecution of assailants, thus improving the safety and wellbeing of ambulance crew. This paper explores views on the purpose and value of BWCs among ambulance crews and leadership staff who used them or were involved with their implementation.

Methods: We conducted a qualitative investigation with ambulance crew and leadership staff (N=16) in the first 7-10 months of the BWC pilot. Semi-structured interviews were held online between August 2021 and November 2021. Normalisation Process Theory was used to guide and structure the data analyses.

Results: There was only partial shared understanding between crew members and leadership staff on the purpose and value of BWCs. Drawing on their practical professional experiences of using BWCs, crews challenged the theory that BWCs function as deterrents while recognising their potential to facilitate prosecutions. Crews also highlighted technical, operational and social factors that are likely to mitigate the proposed positive effects of implementing BWCs.

Conclusions: Violence reduction policies for health services should take heed of the variation in theories of change put forward by different stakeholders. Further research is required to better understand the range of factors that affect the occurrence and management of assaults against ambulance crews. In addition, the operational challenges and cost-effectiveness of body worn cameras need to be examined relative to other interventions.

INTRODUCTION

Globally the prevalence of workplace violence amongst health care workers is high (Liu et al., 2019). In the UK, well-being of ambulance crews is among the lowest of all staff in the National Health Service (NHS), with high rates of burn-out and stress (NHS Staff survey, 2020). According to the 2020 NHS staff survey, 46.7% of ambulance trust staff reported experiencing bully-

ing, harassment, or abuse from patients, their relatives, or other members of the public in the last 12 months compared to the national average of 26.7% among NHS staff. Similarly, more ambulance trust staff reported at least one incident of physical violence from patients, their entourage, or the general public in the last 12 months (33.4%) compared to the 14.5% national average figure (NHS Staff survey, 2020).

One potential solution that has been put forward is the wearing of body worn cameras (BWCs). These are small video and audio recording devices that workers wear on the body or head with a variety of mounting options. While BWCs have only recently entered discussions about reducing violence against health professionals, they have already been widely adopted by police forces around the world (Lum et al., 2019). They were introduced on the assumption that recording officers and their interactants will deter both parties from displaying inappropriate behaviors in actual encounters. Furthermore, that relations between the police force and the general public would improve overall as awareness grows that an objective audio-visual record is being generated that can be used to hold people from either side to account (Lum et al., 2019; Ariel 2018a).

As with any proposed “solution” to a social problem, a key question to consider is whether the solution works, i.e., is effective at solving “the problem”. Research on the effects of the BWC in policing have found inconsistent results. These include both increased and decreased assaults on the wearers and questions have been raised about the rigour of existing studies. (Lum et al., 2019; Ariel et al., 2016; Ariel et al., 2018b; Wilson et al., 2022). A quasi-experimental evaluation of BWCs in mental health care settings reported mixed results in different ward settings, including an increase in low level aggression, a reduction in the severity of aggression and a reduction in the use of tranquilisers on patients (Ellis et al., 2019). However, this was a small-scale implementation with 50 cameras across 7 wards using a study design that provides only limited support for a causal claim. In the railway setting, a cluster randomized trial found a significant 47% reduction in the odds of an assault against study station railway employees wearing BWCs, compared to their control station counterparts (Ariel et al., 2019). Two systematic reviews of BWCs, one on their use across public sector services and the other on their impact on the incidence of violence on ambulance crew, identified poor methodological rigour across the current BWC evidence base and returned an “empty review” respectively (Wilson et al., 2022; Bruton et al., 2022).

The different operational contexts and social interactions of police officers, nursing staff within mental health in-patient care, and railway employees means the transferability of any impact across services cannot be assumed. It is therefore important that further evaluations are undertaken to clarify the impact of BWCs in different contexts.

In 2019 NHS England offered to fund a pilot of BWCs across the 10 ambulance trusts in England as part of its Violence Reduction Strategy, allocating a £8-£10m budget. While the policy paper announcing this initiative (Department of Health and Social Care, 2019) did not spell out a theory of change, it suggested that BWCs can act as a deterrent, preventing escalation (by increasing risks for perpetrators), and helping to facilitate the prosecution of those who verbally or physically attack ambulance crew.

The authors of this paper collaborated with one of the first Ambulance Trusts in England where BWCs were piloted. This paper presents the findings of the qualitative study of this pilot that aimed to explore views on the purpose and value of BWCs as well as the experience of using BWCs. Participants were sought among ambulance crews and leadership staff who had used them or supported their implementation, to help inform any potential further rollout of BWCs among ambulance crews in England and elsewhere.

METHODS

In the Trust where the study was conducted, BWCs were introduced at two group stations from among those with the highest levels of assault. Between 1st April 2019 and 31st March 2020, ambulance crews reported 139 physical and 81 verbal assaults across the two sites (Data available from internal reports provided by the ambulance Trust). A total of 329 crew members were based in the two stations that were equipped with BWC docking stations. There were enough BWCs (VB40 Motorola) for all ambulance crew (including those in the roles of paramedic, emergency ambulance crew, and assistant ambulance practitioner) on shift to sign one out with ID cards at the start of each shift. All crew were given a mandatory 45-minute training session (which two crew members refused). Ambulance crews were told that the cameras were being trialled “as part of a National Pilot to assess their impact in incidents of violence and aggression” Crew were given guidance that BWC were to be activated “when the wearer feels at risk of violence and/or aggression or when a situation escalates or is at risk of escalating and the wearer feels vulnerable or at risk, in order to either de-escalate the situation or capture evidence that might be passed on to the police.” The guidance also stated that “the decision to record or not record any incident of violence and abuse remains at all times of the trained user” and that “if the situation allows, a verbal warning should be issued to alert those at scene” (cited from guidance provided to staff by the Trust). Each BWC activation required the ambulance crew to complete a pre-existing NHS electronic form (Datix) used to officially report incidents of physical assaults and verbal abuse.

There were key individuals in the Trust advocating for the BWCs. The Health, Safety and Security Team, with funding from NHS England, ran the BWC pilot. A project manager was appointed, and two clinical team managers were identified to be BWC site leads to conduct training and to cascade it to other clinical team managers designated as BWC champions.

A wide range of qualitative data collection was planned but because of the protection requirements of the COVID-19 pandemic, they had to be modified or curtailed. Individual interviews were carried out on MS Teams to explore the beliefs and experiences of ambulance crews with access to BWCs and those involved in the process of introducing, implementing, and facilitating their use.

Interview participants were identified using purposive sampling. Ambulance trust staff working at the pilot sites (approximately 329 total) were informed about the interviews via e-mail and study posters in the ambulance stations. These included a thumbnail photo of the interviewer, MG (a female research fellow with over 15 years of qualitative

research experience). At one site, the BWC site lead sent the study information sheet (including MG's photo) to all crew members at the station. At the other, the BWC site lead provided the research team with the emails of those who expressed interest in the evaluation so MG could contact them directly. Similarly, the security management and violence reduction specialist provided the emails of individuals involved in the pilot implementation process. Subsequently, MG sent weekly reminders asking for volunteers directly or via the BWC site lead.

All interested individuals were offered the opportunity to be interviewed. Nineteen volunteers made initial contact with MG, via their site lead or in response to a direct study email reminder and were sent the study information sheet and consent form. Sixteen (approximately 5% of eligible sample) took part in interviews arranged via email, with three initial volunteers lost due to non-response after three e-mail attempts to schedule an interview. Interviews were conducted between August 2021 and November 2021 by MG using a topic guide. BWCs had been available at the study sites for 7 to 10 months. We were unable to interview any ambulance crew who refused to wear BWCs from the start of the pilot as they did not volunteer to be interviewed. We were able to recruit individuals in each category of our purposive sampling matrix (See Table 1) and we reached data saturation when no new themes about BWC were reported among the BWC users. Ethics approval was granted by the UCL IOE Research Ethics Committee (reference number 1532).

Participants were given the choice of audio only (N=5) or video recordings (N=11) on MS Teams while they were at their selected location (home, office, car). The interview files (duration 27-106 minutes) were transcribed by reviewing and correcting the MS teams interview captions. The transcriptions and interview fieldnotes were then coded inductively using thematic analysis by MG with a selection reviewed by MN. This produced disjointed themes.

The next step of analysis was informed by Normalisation Process Theory (NPT) to structure the themes. NPT focuses on action (social and individual), namely, what people do and how they work, and the mechanisms through which these actions are formed, in order to understand the embedding of complex interventions (May & Finch, 2009). NPT has been applied to analyse the implementation of complex health interventions, including new models of care for chronic and acute conditions, e-health and telehealth initiatives, and perioperative care, in a range of health care settings and countries including the UK, Canada, and the Netherlands (McEvoy et al.,

Primary Quotas	Number of Participants
Role	
Ambulance crew	10
Leadership staff/Clinical team managers†	3
Leadership staff/Implementation team*	3
Sex	
Male	10
Female	6
Age	
25-34	5
35-45	5
45+	6
Years of Experience	
Up to 5	3
6-10	5
10+	8
†Clinical team managers who were mainly office-based but also occasionally covered ambulance shifts and wore BWCs	
* Implementation team members included the Health, Safety and Security Team/IT department/Programmes and Project Directorate	

Table 1: Sampling frame

2014; Sutton et al., 2018).

NPT assigns four main constructs to the Normalisation Process. Coherence is the sense-making work people do individually and collectively when presented with operationalising a set of practices. It requires participants to invest in meaning.

Coherence	
The sense-making work people do as individuals and a collective when presented with operationalising a set of practices. It requires participants to invest in meaning.	
Component	Topic Questions
Differentiation	Is there clarity about how using BWCs is different to the usual ways of working?
Communal Specification	Is there a shared understanding of the aims, objectives and expected benefits of BWCs?
Individual Specification	Are individuals clear about how BWCs affect their ways of working and what their responsibilities are?
Internalisation	How do individuals perceive the value benefits and importance of BWCs?
Cognitive Participation	
The relational work that people do to encourage participation, build, and sustain practices around a new technology/complex intervention. It requires commitment investments from participants.	
Component	Topic Questions
Initiation	Who are the key people driving BWC use forward and getting people involved?
Enrolment	How do participants become involved in using BWCs Are participants open to working in new ways to adopt BWCs?
Legitimation	Are BWCs seen as a legitimate part of the role of Ambulance Crew? How are BWCs made to be valid additions to risk reduction?
Activation	Are participants willing to continue supporting BWCs?
Collective Action	
The operational work people do to perform the new practices and fit them into existing ways of working. It requires effort investment to be made by participants.	
Component	Topic Questions
Interactional Workability	How do BWCs fit in with/ impact existing ways of working and existing relationships?
Relational Integration	How are confidence in BWCs and accountability for BWCs increased? How do BWCs fit into existing relationships and how well are colleagues able to use them?
Skill Set Workability	What is the work allocation? Are BWCs assigned to those with the skills to use them?
Contextual Integration	How have BWCs been integrated into the Ambulance Trust (i.e., resource allocation, policies, procedures, availability of additional support)?
Reflexive Monitoring	
How a practice is understood and assessed by those using it in terms of use and effectiveness. It requires participants to invest in appraisals.	
Component	Topic Questions
Systemisation	What informs how people appraise success, and how is this information obtained?
Communal Appraisal	How do participants work together to appraise the intervention?
Individual Appraisal	How do participants evaluate the impact of the intervention individually?
Reconfiguration	Can participants modify aspects of the intervention and if so, how?

Table 2. NPT framework constructs and mechanisms. Definitions adapted for our study (May & Finch, 2009; Bracher & May, 2019)

Coherence is the sense-making work people do individually and collectively when presented with operationalising a set of practices. Cognitive Participation is the relational work that encourages participation, builds, and sustains practices around a new technology. Collective Action is the operational work people do to perform the new practices and fit them into existing ways of working. Reflexive Action is how a practice is understood and assessed by those using it in terms of use and effectiveness (Bracher & May, 2019).

Given we did not start out with NPT, our analysis consisted of an adapted framework approach (Ritchie et al., 2003) using NPT to index and chart the themes. This was initially compiled by MG, then checked by MN. Each of the NPT constructs were translated into a set of analytical questions, details of which are shown in Table 2. The NPT constructs and components are not mutually exclusive or discrete and although we identified themes in all four NPT constructs, our most insightful findings fell under coherence, the sense-making work.

RESULTS

The interviews suggest that there is only partial coherence within and between the views of the Health, Safety and Security Team (who were acting on behalf of the Trust and commissioned to undertake the pilot by NHS England), the clinical team managers, and the ambulance crews, about the purpose of BWCs and how they might help reduce assaults. In what follows we present three main points of contestation:

- What type and level of adjustments to working routines and proce-

dures do the BWCs require?

- How plausible is it that BWCs aid prosecution and deter assailants?
- Do BWCs affect the professional autonomy of ambulance crew?

WHAT TYPE AND LEVEL OF ADJUSTMENTS TO WORKING ROUTINES AND PROCEDURES DO THE BWCs REQUIRE?

Members of the leadership staff suggested that the BWC is a simple tool with protection benefits which did not require changing ways of working. Some crews agreed, suggesting using BWCs just involved clipping them on and activating them when needed. Others highlighted that BWCs do affect their way of working, e.g., in that they have to remember to sign out an additional “piece of kit” (with a potential detour at the start of shift depending on the docking station location), wear the camera, remember to activate it, return it at the end of shift, and complete an incident report for every activation. BWC users also all had to stand down for a mandatory 45-minute training session to ensure awareness of the equipment and processes highlighting how and when to use the BWC.

Some crews reported that BWCs had no impact on their ability to do their work on a day-to-day basis, apart from having to remember to sign them out and in. Others found BWCs uncomfortable to wear due to their size and weight and the impractical attachments onto their uniforms:

I click it onto the shoulder, it goes round the epaulette...but when I wear it, it pulls right down... and it's heavy...the alternative is one that clicks on to the shirt. I've tried that and it just pulls the whole shirt down. Or there's one that goes in the middle of your shirt, which again pull your shirt down in sort of a cleavage way, which again is not appropriate. (Ambulance crew, A1)

The 12-hour length of shifts added to the discomfort, and while discomfort did not dissuade any interview participants, many empathized with such complaints and mentioned colleagues who reported it as the reason for not wearing BWCs.

Concerns were expressed that suggested more serious negative impacts on their work, related to BWCs getting in the way of treating patients by interfering with the oxygen backpacks and sometimes swinging and hitting patients in the head, albeit not with force.

If you are wearing that body worn camera and you then put on that rucksack. Uh, it is either digging into you, or is being pushed so that it's (BWC) not even facing what you would be then encountering anyway. And so for my job, with my thoughts being that the person I'm encountering and...turning up to, being more important, the rucksack won over the camera... So I haven't worn it for a while... for me it was the bag or the camera and the bag is essential for the job so. (Ambulance crew, B6)

BWCs interfering with duties led one participant to stop wearing BWCs but others found that the perceived benefits outweighed the interferences they identified and they had already reported their concerns to management hoping for the provision of more practical BWC attachment options or smaller and lighter cameras (in NPT, this falls un-

der “reflexive monitoring”).

Crew members also noted that BWCs require adjustments to Trust procedures, which had not yet been considered. For example, the expectation for crews to be on the road within 10 minutes of starting shift was highlighted as a tight timeframe to add a voluntary additional task to, without adjusting expectations:

“So we’re supposed to be ready to go 10 minutes after the legal beginning of our shift. I can tell you that does not give us enough time to sign out drugs, make sure we’ve got the right ambulance, make sure said ambulance is roadworthy, make sure it’s equipped, make sure we have all our paperwork, put on a camera, sign out drugs, get someone to witness our morphine... We can’t do all this in 10 minutes, and now they’re scrutinizing us more and more, and what they don’t realize is, it’s things like body worn video that will go by the wayside. People won’t see it as a benefit for them, they’ll see it’s just another thing to do.” (Ambulance crew, B13)

HOW PLAUSIBLE IS IT THAT BWCs AID PROSECUTION AND DETER ASSAILANTS?

BWCs were introduced to ambulance crews by the Health, Safety and Security Team and clinical team managers as an additional tool to prevent or reduce assaults on them. The proposed theories of change included deterring potential attackers by a) making them aware they are being filmed, capturing evidence of their behaviors, and b) increasing the likelihood of prosecution. BWC footage evidence was expected to lead to more successful prosecutions of assailants. This in turn was expected to increase general awareness about the serious consequences of attacking ambulance crews and to improve the existing low sense of justice for crews who were victims of assault.

Ambulance crew and leadership staff shared understanding of the value of obtaining footage to provide evidence of assaults to facilitate prosecutions and to get justice for assaulted crews. Participants expressed disappointment about the absence of successful prosecution stories to share and celebrate during the pilot, considering it a missed opportunity to further promote this shared goal and to improve BWC use:

“I think there’s certainly a feeling among staff...that we’re not very good at... getting justice for when people get abused. Anecdotally, again, my impression is that the police without evidence of an assault taking place...they’re not that keen to actually do anything about it.” (Leadership staff, A2)

Some participants, who had previous experience of violence, agreed that the footage would help expose the level of violence and aggression which they suggested were sometimes excused by drugs and alcohol:

“Yeah, a lot of people have had lesser sentences because they’ve been under the influence of drugs or alcohol. And therefore were perceived not to be in control of their actions, which is incredibly disappointing when they’re really capable of doing quite a lot of damage... I think it’s really good that they’ll see [with BWC footage] the kind of build up to what’s happened.” (Leadership staff, A7)

An additional important benefit identified was the use of BWC footage as evidence against false accusations by patients of inappropriate ambulance crew behaviors (e.g.,

when self-defence is reframed as an assault by patients):

"I've experienced it myself where I've been assaulted, but I've ended up in a disciplinary hearing because I defended myself when I was assaulted, because somebody made a complaint that I defended myself." (Ambulance crew, A12)

Opinions about BWC visibility and activation functioning to deter violence were the aspect of the theory of change that was most incongruent between ambulance crews and leadership staff. Crews were sceptical about the idea that BWCs would help reduce or prevent assaults because potential assailants would be deterred by the fact that their actions would be captured on film. Some ambulance crew and leadership staff instead presented a more complex account of the "assaults" as a social phenomenon.

Ambulance crew with experiences of dealing with violence in the course of their work suggested that assaults were caused mainly by patients being under the influence of drugs or alcohol, or as a result of a mental health problem. This they argued would make assailants unaware or indifferent to the presence of BWCs. Furthermore, this would also mean a lack of concern about the possibility of prosecution:

"It (the need to activate BWCs) is with people with drug-seeking behavior or intoxicated people and being told that they're being filmed, these people don't care... law abiding citizens obey laws. People who aren't scared about police certainly aren't scared about a camera." (Ambulance crew, A12)

Violence was also explained from the perspective of assailants, who may be feeling frustrated and unable to control their circumstances and environment:

"I think it's a really complex kind of cause. I think most causes are of people just being frustrated and angry. Not necessarily at us as people, but just at the situation they're in and quite a lot of it...I think involves kind of drink, drugs and mental health and I don't think people set out to be deliberately violent towards us...I don't know that that is something that we can solve, unfortunately. I think when people are unwell or have called an ambulance for whatever reason, then I think, you know things just can just kind of escalate and they just feel out of control and just lash out." (Ambulance crew, B16)

Participants also highlighted the often-challenging operational conditions for crews (and other support services) that increase the frequency of circumstances where crews are vulnerable and where patients and family members are frustrated with the service while also decreasing crew ability to cope and manage violence situations. One such challenge was that problematic addresses are not flagged quickly and that other relevant information about the settings they are called to is not received in time. There was also a broader concern about fatigue and the need for more staff and resources across emergency services:

"You've got staff that are...constantly fatigued. Uh, without additional manpower, there's nothing you can do. Yeah, and it's not just us... The hospitals don't have the beds, they don't have the staff. The police don't have the manpower. Yeah, our area, there's two... maybe three patrol cars in our area at any one time. And we're in a very high crime area." (Ambulance crew, A12)

Some participants expressed concern that BWCs may exacerbate the risk of violence:

"I could also see that it might actually aggravate some people if they're already riled up and you start to say, "I'm going to record". You know? That could actually instigate violence that might not have happened in the first place." (Leadership staff, A7)

The ambulance crews also highlighted their agency in deciding whether any given event constituted an assault that needed to be recorded, and the mixture of moral and pragmatic reasoning they go through when making such a decision. Some participants said they would not activate the BWC or report assaults that they attributed to medical problems:

"Umm And the only people who have like remained violent (after using de-escalation techniques)... it's medical reason for it, so I wouldn't activate the camera in that situation anyway because...it's a medical problem that's going on, not, they're not being deliberately violent. It's not a criminal matter...so uh, low blood sugar levels and dementia, that kind of thing." (Ambulance crew, A5)

The decision not to report an assault was also seen as a way for crews to avoid providing footage of their own potentially aggravating role leading to an assault. This option was also offered as a way for crews to control the narrative of the assault and to counter fears of BWCs being used for surveillance while maintaining their other benefits:

"The option is always there if you're in a position and you've activated the camera and somebody pushes your buttons sufficiently that you respond back, and you realize afterwards, "Oh dear, I've overstepped", well if you don't datix it, it doesn't get reviewed anyway..."
"So just because you've activated the camera and you've done something wrong, it doesn't necessarily mean it's going to be seen anyway. It's only going to be seen if you want them to see it." (Ambulance crew, A12)

Other responses highlighted the potential for the actions of ambulance crew to mitigate or escalate a situation where there is the potential for violence. They identified crew-related factors that can contribute to the escalation, including lack of experience, inappropriate attitudes, frustrations with the job, frustrations with patients misusing the ambulance service for non-emergencies, and an inability to relate to patients:

"Some people, maybe not having enough experience or potentially come across as antagonizing... they will say what they feel they wanna say rather than actually grit their teeth and try to still act professional and do the right thing." (Ambulance crew B14).

BWCs were also proposed as potentially mitigating assaults by exerting a restraining function on the action of ambulance crews in addition to or instead of patients:

"If anything, actually, when the camera is activated and it's a fringe benefit, you're actually a little bit more aware of what you're saying yourself. So you become a little bit more self-aware and a little bit more self-controlled ...we are consciously more restrained in our actions and our words which in itself provides a benefit to the scene, because if we're more restrained, we're more likely to deescalate the situation." (Ambulance crew, A12)

DO BWCs AFFECT THE PROFESSIONAL AUTONOMY OF AMBULANCE CREW?

The study participants had all decided to wear BWCs. However, they reported distrust among colleagues, who had voiced suspicions that BWCs were being used by management to “spy” on crews as a hidden or unofficial agenda. These suspicions were attributed to an ongoing organisational division between the “operations” (crew) and “corporate” (management) teams.

In the context of the BWC pilot these suspicions were evident in the perception of some ambulance crew that BWCs had been introduced and implemented in a top-down fashion with little consultation, more for the benefit of management than the crews. Whilst respondents accepted a certain level of scrutiny, given the responsibilities of emergency medical care, they also shared personal and colleagues’ feelings about excessive monitoring, historical feelings of distrust and past bullying:

“...in a high pressure job like this we are called to account for our movements a lot... The level of responsibility needs... that we’re gonna have closer scrutiny than somebody who’s just doing an admin role. And I think that makes people feel like they’re being watched... I mean, you know it’s hard to divorce the notion of a camera from the Orwellian rhetoric of Big Brother, isn’t it?” (Ambulance crew, B13)

“There was definitely a bullying culture and I think some people still have that in their heads. But as I said it’s definitely not like that now.” (Ambulance crew, B16)

Whilst respondents claimed that they themselves felt confident that the Trust did not desire or have capacity to “spy” on crews, they did acknowledge the changes in ambulance service operations that may generate or contribute to such feelings:

“They’ve (older staff) had to sort of go from being completely independent, completely autonomous, to having all of these sort of safety things gradually creeping in ...they remember the good old days where...we weren’t being tracked...there was no GPS in the ambulance... I can understand why they would sort of be sceptical and why they would sort of fear anything that can then be used to sort of spy on them, because there is that constant pressure from management and control to try to reduce your times, turn around patients at hospital quicker and quicker and quicker and try and stay on scene less and try and transport them quicker.” (Ambulance crew, 15A)

DISCUSSION

As far as we are aware this is the first piece of published research on the implementation of BWCs in an ambulance trust. The study only had a limited number of respondents from the potential pool of ambulance crew who could have been using the BWCs during the Trust pilot. As such we should be cautious about assuming that views expressed are shared by other ambulance crew.

However, it is also the case that all the ambulance crew study participants claimed that they had in fact worn the BWC with some acknowledging that they were using them inconsistently. The fact that even these “early adopters” of BWCs expressed beliefs that indicate incomplete coherence between leadership staff and ambulance crew may be

instructive for the ongoing implementation of BWCs both in the Trust and in any subsequent nationwide implementation.

We were not able to obtain any reliable data from the docking stations or activation data from the devices to gauge uptake of the BWCs by ambulance crew in the pilot sites during our data collection period. It was difficult to establish how many people were wearing a camera at any given time and how many people had the opportunity to do so but chose not to. From April 2021 to January 2022 between 1 to 17 incidents of violence and assault were reported every month at the pilot sites with 0-6 of those incidents captured on BWC. This included 5 occasions when there was footage for at least half of the monthly incidents. Our impression based on the discussions we had with crew and leadership staff was that only a small proportion of those who were given the opportunity were wearing the BWC during the period of our evaluation and that intentional activation was rare. If these impressions of low uptake are right, then the lack of coherence would help explain it.

In the context of the Trust pilot, we were told about consultations that had taken place with crews and with trade unions about the BWC implementation and how supportive all actors were of the initiative. We were also told about actions taken to involve ambulance crew in the decisions about which type of BWC clips to purchase e.g., in relation to wearing with uniform etc. However, it would appear that despite these efforts, there was still a lack of coherence between the understanding of the Health, Safety and Security Team, clinical team managers, and the ambulance crews about the causes of violence against ambulance crews which in turn was linked to a scepticism amongst crews about the deterrent potential of the BWC. Furthermore, the ambulance crews' perceptions about the implementation of BWC appears to have been informed by and fed into an ongoing and historical narrative of suspicion about surveillance informed performance management in increasingly difficult operating conditions for ambulance crews.

CONCLUSIONS

As noted above, robust evidence does not exist to support the claim that BWCs will reduce assaults on health care staff. Large amounts of public money will be spent on the purchase of BWCs with The NHS Long Term Plan (Department of Health and Social Care, 2019) reporting £8-£10m set aside for 2019-2024. Given this level of investment and BWCs ongoing running costs, e.g., camera maintenance and write-off, data management, and software licensing, it is important that the impact of BWCs on staff assaults is robustly evaluated. In the absence of comprehensive use of BWCs by ambulance crew where they are implemented, it will not be possible to obtain robust data on impacts, thus undermining the purpose of the introduction of BWCs in the first place.

Our study participants reported opportunities to provide feedback about the practical use of the BWCs and described some practical changes that had resulted from feedback and monitoring. However, our results suggest that to embed the use of BWCs into routine operation by all ambulance crew (i.e. to move beyond mere "roll-out" of cameras across ambulance trusts to actual, routine activation in all threatening situations), more focused efforts on sense-making work between clinical team managers, the Health, Safe-

ty and Security Team and ambulance crew will be needed in order to establish a shared understanding of the purpose and value of BWCs. This will require examining the complex operational and social conditions that contribute to assaults on ambulance crew and the contested narratives about trust between managers and ambulance crew, performance, and surveillance. When this is taken into account, BWCs should be viewed as a more complex intervention requiring more extensive consideration than is implied in their promotion as a simple technological fix. To make evidence informed policy decisions on reduction of violence against ambulance crew, a worldwide healthcare concern, more research on psychological, social, legal, and economic implications is needed for both the BWC and alternative interventions, such as conflict management training.

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