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Filling the accountability gap:
principles and practices for implementing body cameras for law enforcement

Robert Muggah, Emile Badran, Bruno Siqueira and Justin Kosslyn

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Introduction

New technologies are revolutionizing the way governments provide services, including law enforcement. Around the world, police departments are investing in predictive analytics, digital forensics, data mining systems and crime mapping platforms to improve the effectiveness and efficiency of their work. They are also experimenting with mobile technologies to strengthen communication and outreach. One such device – on-officer recording systems, or body-worn cameras (BWC) – is catching on. Police are experimenting with "cop cams" in dozens of cities across North America and Western Europe while sparking debate and some controversy in the process. There are also small-scale pilots using open source and mobile phone-operated BWCs in Latin America and South Africa. There is growing awareness of their effectiveness.[1]

The introduction of BWCs has the potential to transform policing. If implemented with appropriate checks and balances, BWCs can potentially improve oversight over police officers and strengthen their accountability to citizens. Many civil liberties groups are already advocating for cameras due to their ability to check the abuse of power by police while also helping to protect them (and citizens) against false accusations.[2] What is more, cumulative data harvested by such devices can improve the targeting of crime prevention efforts as well as overall law enforcement performance. With safeguards in place, citizens, too, will benefit from these technologies since the use of cameras changes the nature of police-civilian interaction, most often for the better.[3]

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1 See Ariel, B., Drover, P., Henderson, R., Henstock, D., Megicks, S., Sykes, J., Sutherland, A. and Young, J. (2016) at http://link.springer.com/article/10.1007/s11292-016-9261-3.

2 See Stanley, J. (2013) [hereinafter Stanley (2013)] at https://www.aclu.org/technology-and-liberty/police-body-mounted-cameras-right-policies-place-win-all.

3 See Police Foundation (n.d.) at http://www.policefoundation.org/publication/self-awareness-to-being-watched-and-socially-desirable-behavior-a-field-experiment-on-the-effect-of-body-worn-cameras-on-police-use-of-force/.

Of course, there are also risks associated with cop cams. This is particularly the case if broader policy and institutional questions related to the deployment of the technology are not adequately thought through. On the one hand, if deployed inappropriately and without proper oversight, body cameras can violate citizens' rights to privacy.[4] Body cameras used without restrictions are tantamount to pervasive surveillance. They can be used invasively since police routinely enter citizens' homes and often encounter individuals in extreme situations. On the other, the use of body cameras without adequate consideration of how such tools will be implemented can lead to cost overruns (especially in relation to storing and redacting data) and, ultimately, the rejection of the tool itself. Guidance on the best practices of cop cams is urgently needed. Note too that the other end of the spectrum – complete officer discretion over when to activate a camera – has been shown to increase, not decrease, both officer use of force and assaults on police.[5]

This Strategic Note sets out some of the opportunities and challenges associated BWCs. It builds on several years of experience of the Igarapé Institute in testing body cameras in Brazil and South Africa, as well as consultations with dozens of specialists in law enforcement and civil liberties communities.[6] It focuses especially on key political and institutional questions regarding the management of these new tools. The first section highlights the emergence of new technologies in law enforcement and, in particular, the rise of cop cams. Section two underlines some of the controversies – both operational and ethical – associated with these technologies. The third section presents a shortlist of emerging principles for institutionalizing cop cams,

as well as practices that flow from them. The note is not exhaustive; it is a first pass over a complex and rapidly-evolving public policy area.

New technologies and law enforcement

Over the past two decades, dramatic transformations in policing have taken place. Law enforcement agencies are beginning to harness the potential of big data detection systems[7], forecasting tools[8], crowdsourcing[9], mobile scanners[10] and gunshot detectors[11] in order to improve their ability to anticipate, track and prevent crime. Some police forces have also started deploying BWCs. Of course, technology alone cannot keep crime at bay. But this is not preventing governments from doubling down on digital solutions. In the United States, many of these systems are now commonplace. Some draw inspiration from a computerized platform originally built by Microsoft for the New York Police Department (NYPD) to counter terrorism after 9/11. While regarded by some as intrusive surveillance, Domain Awareness System (DAS) mobilizes public and private closed circuit cameras to predict crime patterns and sound alerts.[12] Today there are more than 90 fusion centers and dozens of Real Time Crime Centers scattered around the country.

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4 The ACLU, for example, is against video surveillance of public places, but supports the use of cameras on police car dashboards, in prisons and during interrogations.

5 See the University of Cambridge's work at http://www.cam.ac.uk/research/news/body-worn-cameras-associated-with-increased-assaults-against-police-and-increase-in-use-of-force-if , described in greater detail below

6 The Igarapé Institute was supported by the UK Department for International Development in its work on designing and testing BWCs in Brazil and South Africa.

7 See Mor, Y. (2015) at http://www.wired.com/insights/2014/03/big-data-law-enforcement-minority-report-right/.

8 See Chammah, M. and Hansen, M. (2016) at http://www.theverge.com/2016/2/3/10895804/st-louis-police-hunchlab-predictive-policing-marshall-project.

9 See Large Emergency Event Digital Information Repository (n.d.) at http://www.leedir.com/.

10 See Peachey and Milmo (2014) at http://www.independent.co.uk/news/science/how-british-technology-could-keep-world-cup-fans-safe-from-gunmen-9456608.html.

11 See SST, INC. (2014) at http://www.shotspotter.com/.

12 See Ungerleider, N. (2012) at http://www.fastcompany.com/3000272/nypd-microsoft-launch-all-seeing-domain-awareness-system-real-time-cctv-license-plate-monito. See also Evans, B. (2012) at http://news.microsoft.com/2012/08/08/new-york-city-police-department-and-microsoft-partner-to-bring-real-time-crime-prevention-and-counterterrorism-technology-solution-to-global-law-enforcement-agencies/#sm.0014tpybd19vfd0ttva1uj2h9mm0g.

In the wake of highly publicized instances of police violence, the U.S. has seen a sharp rise in the use of body cameras. Indeed, President Barack Obama recently issued an executive order for more than 50,000 police to start using cop cams with a price tag of US$267 million.[13] While this represents a dramatic scaling up of their use, it is worth recalling that dozens of other American police departments have been experimenting with these technologies for years.[14] The Los Angeles police is rolling out a program with more than 7,000 devices. The first tranche of cameras was purchased with almost $1.5 million in private donations. Most of the officers initially skeptical of cop cams quickly became ardent supporters. They are credited not just with catching officers doing something wrong, but also changing behavior before abuses occur. Likewise, in Greensboro, North Carolina, police scaled up a pilot of body cameras to all serving officers. The initiative was launched with $130,000 in community donations, indicating impressive local buy-in from the outset.[15] In Oakland, California, the police began using cameras in 2009 and now all of its officers are wearing them.[16] Washington DC also started a pilot program testing cameras with 165 officers in 2014 at a cost of $1 million.[17]

The most celebrated instance of police-worn body cameras is from the Californian city of Rialto. There, randomized field experiments using just 54 mobile cameras in 2012 reported an 88 percent reduction in complaints filed against officers and a 60 percent drop in incidents of police use of force.[18] Police wore specially designed HD audiovisual recording devices that captured all police encounters with the public. Rather than introducing a chilling effect, the use of body cameras – or cop cams – actually increased positive officer-citizen contact. Meanwhile, startups in Latin America and Africa are also getting into the act.[19] Early findings from North America, Latin America and Africa suggest that the biggest cost driver may not be the cameras or mobile phones, but rather data storage, training of officers and the time required to manually review videos in response to public records requests.[20]

The technology revolution is not confined to the U.S.. In a series of remarkable pilots using body camera technology from London[21] and Calgary[22] to New Delhi[23], Kingston[24], Rio de Janeiro[25] and Cape Town[26], police are starting to experiment with new approaches to policing. Specially-developed technologies are being deployed to limit arbitrary arrest and extra-judicial violence. They are also being used to protect police officers themselves who are routinely accused of harassment, abuse or worse. And while still in the early stages, there are some promising results emerging. Arguably the most interesting aspect of all is that these tools are not only welcomed by citizens; police officers themselves are equally enthusiastic about adopting the technology.[27]

13 See Brandom, R. (2014) at http://www.theverge.com/2014/12/1/7314685/after-ferguson-obama-announces-funding-for-police-body-cameras.

14 See Kaste, M. (2011) at http://www.npr.org/2011/11/07/142016109/smile-youre-on-cop-camera.

15 See Williamson, S., N. (2013) at http://www.greensboro.com/news/local_news/article_552c1de6-08e7-11e3-924e-001a4bcf6878.html.

16 See Johnson, C. (2014) at http://www.sfgate.com/bayarea/johnson/article/Oakland-police-must-step-up-use-of-vest-cameras-5169946.php.http://www.sfgate.com/bayarea/johnson/article/Oakland-police-must-step-up-use-of-vest-camer.

17 See Debonis, M. & St.Martin, V. (2014) at https://www.washingtonpost.com/local/crime/dc-police-will-wear-body-cameras-as-part-of-pilot-program/2014/09/24/405f7f5c-43e7-11e4-b437-1a7368204804_story.html.

18 See Ariel, B., Farrar, & W., Sutherland, A. (2014) at http://link.springer.com/article/10.1007%2Fs10940-014-9236-3.

19 The Igarapé Institute, together with Jigsaw and partners in Africa, is also developing an Android app to run BWCs off mobile phones that runs on open source software. The app is currently being trialed with Brazilian and South African police and departments of public safety. It is worth underlining that open source cop cams are not only considerably less expensive than the "closed" system equivalents, they are also more versatile. As the Igarapé Institute has demonstrated in its trials, new functions can be readily built into the software to allow for local customization. What is more, harnessing smartphones virtually ensures that the device can serve multiple purposes.

20 See Lawrence, E.D. & Hall, C. (2016) at http://www.freep.com/story/news/local/michigan/2016/06/06/police-body-cameras-high-costs/85356518/.

21 See Peachey, P. (2016) at http://www.independent.co.uk/news/uk/crime/how-the-polices-body-worn-camera-technology-is-changing-the-justice-system-a6905691.html.

22 See Lorinc, J. (2014) at http://www.theglobeandmail.com/news/national/new-era-of-policing-will-the-benefits-of-body-worn-cameras-outweigh-the-privacy-issues/article21698547/.

23 See The Statesman (2015) at http://www.thestatesman.com/news/delhi/-body-worn-cameras-for-delhi-police/63295.html.

24 See Grange, M. (2014) at http://jamaica-gleaner.com/latest/article.php?id=50696.

25 See Toor, A. (2013) at http://www.theverge.com/2013/10/21/4861176/smart-policing-android-app-igarape-google-ideas-police-surveillance-rio-favelas.

26 See Perkins, G. (2015) at http://theconversation.com/south-africa-mulls-body-cameras-to-improve-police-accountability-safety-47286.

27 In a recent survey with 70 law enforcement agencies spread out across the United States, just five percent of agencies indicated that they do not intend to implement body cameras, or chose not to do so after completing pilots. Also, just 18 percent of agencies considered their body camera programs fully operational. See Maciag, M. (2016) at http://www.governing.com/topics/public-justice-safety/gov-police-body-camera-survey.html.

The UK-based testing of body cameras has been particularly instructive.[28] Following large-scale trials overseen by the country's premier policing college, Met Commissioner Bernard Hogan-Howe noted that "people are more likely to plead guilty" when they are aware that the incident in question was captured on video.[29] In his view, these technologies expedite the justice process, put genuine offenders behind bars and protect officers and would-be victims. There is also evidence of the so-called placebo effect, whereby the mere presence of a camera defuses potentially violent situations.

What is more, French Prime Minister Manuel Valls announced a national rollout of up to 4,500 cop cams in 2015. He stated that police officers would soon be required to use the devices as part of their standard equipment.[30] Other experiments are ongoing across France, Belgium, Spain[31] and Germany.[32] In India the New Delhi Traffic Police is preparing a pilot with as many as 200 cop cams to monitor interactions between officers and motorists. Officials argue that the cameras will ensure transparency and provide evidence to check disputes of both officers' misconduct and motorists' offenses.[33]

While comparatively inexpensive, there are still barriers to entry. Taser International, one of the companies marketing body cameras for law enforcement in Rialto, charges roughly $600 for each device and its accessories.[34] Vievu Cameras, another supplier, charges a similar amount to capture data from daylong shifts.[35] Server costs can be reduced by piggybacking off existing systems, but still run in the tens of thousands of dollars per year, and are sometimes bundled into packages that initially seem affordable but quickly balloon to unsustainable levels. Police forces do not appear deterred. Working with Taser, the London Metropolitan Police Service has a large-scale pilot, and law enforcement agencies everywhere are taking note.[36] They launched a randomized trial involving 814 officers assigned to wear cameras (i.e. the treatment group) and 1,246 without them (i.e. the control group). The police detected a decline in the frequency of complaints against officers, particularly in relation to abusive behavior. Both residents and officers were supportive, with the latter particularly interested in the potential of BWCs for intelligence sharing and professional development.[37]

Controversies and dilemmas

The rise of BWCs is not universally welcomed. While there is overwhelming support for cop cams, there is still significant criticism of these platforms by police forces and civil liberties groups alike. Critics describe their deployment as presaging a kind of dystopian future where "everyone is under suspicion" and Big Brother is watching.[38] They fear that if left unchecked, there is a risk that crime prevention turns into pervasive surveillance. Body cameras running 24/7 are invasive, since police officers often enter people's homes and interact with bystanders, suspects and victims.[39] There is a tension between their potential to invade privacy

28 See BBC (2014) at http://www.bbc.com/news/uk-england-london-27313500.

29 See Easton, M. (2013) at http://www.bbc.com/news/uk-24662243.

30 See Boring, N. (2015) at http://www.loc.gov/law/foreign-news/article/france-police-to-be-required-to-wear-body-cameras/.

31 See Coudert, F., Butin, D., & Le Métayer, D. (2015) at http://www.amphawa.eu/data/clsr-paper.pdf.

32 See Diehl, J. (2015) at http://panteres.com/2015/07/04/bodycams-for-policemen-field-trial-in-frankfurt/.

33 See Singh, A. (2016) at http://indianexpress.com/article/cities/delhi/to-check-arguments-with-motorists-delhi-traffic-police-to-get-body-cameras/.

34 See Taser (n.d.) at https://www.taser.com/products/on-officer-video.

35 See Vievu (n.d.) at http://www.vievu.com/vievu-products/hardware/.

36 See Silver, J. (2014) at http://arstechnica.com/tech-policy/2014/05/london-police-to-use-wearable-video-cameras-in-public-interactions/.

37 See Grossmith, L. (2015) at https://www.london.gov.uk/sites/default/files/bwv_report_nov_2015.pdf.

38 See Levinson-Waldman, R. (2015) at http://www.msnbc.com/msnbc/the-dystopian-danger-police-body-cameras.

39 See Sledge, M. (2013) at http://www.huffingtonpost.com/2013/10/09/police-body-cameras_n_4070935.html.

and their benefits vis a vis police accountability. Many privacy activists take a dim view of the proliferation of cop cams.[40] Even so, there has recently been a major shift of opinion on the use of cop cams, especially in the United States.[41]

Yet there are also rights campaigners who see a possible win-win outcome of supplying police with mobile cameras. The American Civil Liberties Union (ACLU) of Southern California – a regular critic of police abuse – came out in favor of the technology in 2013. Along with the national ACLU, they have argued that with the proper controls – including regularly deleting videos and keeping them private except for prosecutions – the gains in accountability outweigh privacy concerns. According to the ACLU, "police on-body cameras are different (from surveillance) because of their potential to serve as a check against the abuse of power by police officers".[42] There is also a considerable push in North America to begin equipping all police with body cameras, and this sentiment is finding resonance in other parts of Western Europe, notably the United Kingdom.

The controversy can be boiled down to a basic question: how to balance the right to individual privacy against the responsibility of police to ensure public safety? In the case of cop cams, a series of checks and balances are emerging to maximize safety while minimizing violations of citizen privacy. For example, the ACLU has advocated for the inclusion of citizen notification schemes and limiting filming in residents' homes. The rights organization advises against retaining data for longer than necessary and has called for guidelines around the use of recordings, and some degree of public

disclosure.[43] What is more, police departments are developing their own rules and procedures for deploying cop cams. While every context is different, a number of common good practices are emerging.

For one, public access to BWC footage is critical to balancing out the risks and benefits. The Reporters Committee for Freedom of the Press has mapped out the status of state legislation and police department policies in the U.S. As of mid-2016, 22 states have proposed, but not yet passed, legislation under public records laws. Washington DC and 14 states have already passed such legislation; 14 other states either do not have related legislation, or have passed BWC legislation that does not directly address the question of whom should have public access.[44] Poorly implemented public access policies can be expensive for police departments while also generating tensions between police and citizens. In Florida, the city of Sarasota was sued by the ACLU after the police department used $18,000 to pay for redaction costs of 84 hours of footage requested for public disclosure.[45] In Seattle, Washington, after receiving multiple requests for hundreds of thousands of hours of footage,[46] the police teamed up with local software developers to automatically redact dash-cam and BWC video. The software is being tested and refined.[47]

There are still lingering concerns over the merits of BWCs, including among its supporters. For example, the U.S.-based Urban Institute has proposed a set of policy guidelines for public disclosure of BWC footage to balance the interests of transparency and accountability

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40 See Privacy SOS (2013) at https://privacysos.org/blog/activist-protesting-police-militarization-exercise-says-police-used-surveillance-footage-to-get-him-fired/.
41 See Robertson, A. (2014) at http://www.theverge.com/2014/12/3/7327035/new-york-police-officers-to-start-wearing-body-cameras.
42 See Stanley, J. (2013), footnote 2.
43 Ibid.
44 See Reporters Committee for Freedom of the Press (n.d.) at http://www.rcfp.org/bodycams.
45 See Williams, T. (2015) at http://www.nytimes.com/2015/04/27/us/downside-of-police-body-cameras-your-arrest-hits-youtube.html?_r=0.
46 See Lee, J. (2016) at http://www.seattletimes.com/seattle-news/crime/body-camera-bill-lawmakers-weigh-officer-accountability-vs-citizen-privacy/.
47 See Carter, M. (2015) at http://www.seattletimes.com/seattle-news/spd-to-launch-youtube-channel-to-showcase-police-videos/.

with citizen privacy. In their view, footage must be made available to the public "in a controlled and non-reproducible manner" such as on video terminals located at courthouses or police departments.[48] In order to provide the most accurate account of events possible, they claim that footage must not be redacted and must be viewed in its entirety. An involved officer or witness must be required to provide a recorded account of the incident before being allowed to view any footage. Finally, if recording needs to be more broadly released to the public, a group of community members (such as a jury or commission) should determine whether releasing the footage appropriately balances any conflicting transparency and privacy interests contained in the footage.

Principles and practices

There are several principles and operational issues that police departments and civilian oversight groups should consider when integrating cop cams into their day-to-day operations (see Figure 1). Many of these are common sense observations based on several years of testing these new technologies in the United States[49], but also in Brazil and South Africa. Others are best practices emerging from experiences from North America and Western Europe.[50] Still others are recommendations distilled from civil liberties groups that monitor infringements of privacy and police abuse.

Figure 1. Recommended principles and practices for deploying body cameras

Practices	
Informed and controlled deployment	
Develop plan for system oversight	Including supervision, data management, data audits, training and public requests
Clearly explained protocols (rules and procedures) for purpose/use of cameras	Assigned Supervisor(s) for body cameras
	Policy manual directives for all police on how to use, save and store data
	Guidelines and training for managing phone distribution, batteries, equipment repair, safe storage
	Plan for routine testing/upgrading of body cameras
Clear and transparent penalties and disciplinary action for non-compliance	Appointed agencies and Supervisor(s) to manage police use of body cameras
	List of rules related to punishment for misuse, non-recording, disrupting and tampering with recordings
	Circulated disciplinary procedures for non-compliance with use of cameras

48 See McClure, D., & Lawrence, D., (2015) at http://www.urban.org/urban-wire/police-body-camera-footage-why-public-should-only-kind-mean-public.
49 See Miller, L., Toliver, J. & Police Executive Research Forum (2014) at (...)", mantendo essa parte final da referência..
50 See, for example, The Leadership Conference (2015) Police Body Worn Cameras Policy Scorecard at https://www.bwcscorecard.org.

Review legal/juridical implications of video/audio/GPS data for investigation/criminal justice	Commission legal review of body camera recordings in legal system
	Treat all data recordings as criminal offender record information so data is logged and subject to audit at any time
	Access to data on a right to know/need to know basis only, and with clear authorization
Clearly articulated budget strategy over the designated period of use	Develop plan for costing of equipment: phones, service, server, upgrade, repairs and other functions
Communications strategy for outreach to police and community representatives	Dedicated webpage with contact information for the public and a social media page explaining cop cams
Manage data recordings	
Introduce management structure for data management and review	Limited access by certified personnel
	Appointed Systems Manager with rules over operation/user administration
	Appoint Supervisor(s) with clearly mandated responsibilities
	Create centralized data management system that is password protected and subject to heavy oversight (e.g. evidence.com)
	Logging procedures for all data access and export including time-stamps/name records
Clear categories for data retention	Agreed upon listing of key categories and retention periods (including uncategorized, arrests, contacts and detentions, critical incidents, evidence, pursuits, traffic stops, training, use of force and citizen complaints)
Disciplinary protocols for misuse of data	List of rules related to consent from private citizens
	List of rules relating to reporting problems with body cameras to superiors and System Administrator
Encrypted data transfer to server and safe data management	Supervisor(s) responsible for uploading critical incidents to dedicated site
Clear rules for use of captured data as evidence	Handle data as per legislation pertaining criminal justice information
	Establish chain of custody of exported data

Limit encroachments on citizen privacy	
Citizen notification policies and techniques	Use by clearly marked officers/cars
	Officers wear visible signs indicating that cameras are in use
	Officer training and guidance ensuring that basic liberties are not infringed
Protocols for body camera recordings when there is reasonable expectation of privacy	Request permission to enter private spaces in non-emergency situations
	Request permission to record witnesses and victims of violent crime
Data retention and use protocols	Clear procedures for flagging video
	Clear standards for video retention and deletion
	Clear standards on who can access
	Back end systems coordinated to delete after expiry/prevent non-authorized deletion/audit trail
	Procedures for deleting accidental recordings
	Procedures for copying recordings subject to Supervisor(s) approval
	Protocol on use of data for training purposes, to be approved by Chief of Police
Manage controlled public access	
Guidelines for internal access to data	All departmental requests must be approved by System Administrator and Chief of Police
	All non-departmental requests processed on the basis of federal, state or city statutes and departmental policy
Public disclosure of rules and standards	Supervisor(s) mandated to resolve minor complaints by reviewing video/audio
	Maintenance of a log to document all citizen complaints resolved/outstanding
	Rules limiting Supervisor(s) access to recordings not explicitly related to specific complaints
	Media inquiries/requests received and processed in accordance with existing department rules
	Exported footage is redacted to prevent subject identification (e.g. blurred faces)

Informed and controlled deployment

BWCs are intended to promote police accountability and oversight, but also to improve police-citizen relations and ultimately their safety. The goal is to prevent body cameras from becoming a pretext for routine surveillance or intelligence-collecting operations. Police departments should be subjected to robust rules and procedures in terms of how they are used. According to the ACLU, recordings should be accessed only for internal and external investigations of misconduct or where there is a reasonable suspicion that a recording contains evidence of a crime.[51] Unless these basic criteria are met, there is no reason why stored data should be reviewed by anyone before its retention period ends and it is permanently deleted. In other words, a review of the data is only undertaken in exceptional cases.

Procedures should be issued that help guide police officers in the use of cameras. At a minimum, BWCs should be approved for official police duties only. They should under no circumstances be removed, dismantled or tampered with. Depending on the police service, there should be a general determination of what counts as an appropriate or inappropriate setting in which to use body cameras. A clear example of where cameras should be applied is during enforcement encounters where there is a reasonable suspicion a person is engaged in criminal activity. This can include dispatches and self-initiated interventions.[52] This said, cop cams should not be expected to be used during non-work activities in which a reasonable expectation of privacy exists, including locker rooms and restrooms.

Managing data recordings

Policies must ensure that all recorded media, images and audio are the property of the police force (and not to be released or disseminated without consent of the Police Chief). The management of collected video, audio and GPS data is critical. On the one hand, for cop cams to be effective, users cannot "edit on the fly". In other words, police officers cannot be allowed unlimited discretion over the use of the camera. If police officers can turn cameras off and on when they wish, its effectiveness as a check and balance is reduced. On the other hand, if police officers have the cameras on all the time, then they are tantamount to unmitigated surveillance. A major question confronting any police department, then, is how to manage the policies and practices of recording video.

A balance needs to be struck with regard to the level of control police exert over body cameras. While theoretically ideal from an accountability perspective, 24/7 recording is not appropriate, as it violates police and citizen privacy. There are also legitimate concerns that even if assurances are provided to the contrary, video could also be misused to incriminate some officers for minor violations. There are also risks that if police officers exercise too much discretion over the functioning of cameras, it could introduce the potential for footage to be manipulated.[53]

These concerns are substantiated by research conducted by the University of Cambridge. Researchers administered ten randomized control experiments in multiple locations and detected no significant changes in use of force rates when officers were granted full discretion over when to turn cameras on or off. They found that use of force rates were 37 percent lower when

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51 See Stanley, J. (2013), footnote 2.

52 See Rialto Police Department (2013) at https://rcfp.org/bodycam_policies/CA/Rialto_BWC_Policy.pdf.

53 It may be possible to develop "smart" body cameras that activate on the basis of the threat experienced by police officers, but such a technology has not yet been developed.

officers complied with experimental protocols (as opposed to relying on personal discretion). More surprisingly, use of force rates were 71 percent higher among officers assigned to use BWCs (when compared to those who were not assigned) in locations where officers did not comply with the protocol. The obvious recommendation is that officer discretion to turn cameras on or off should be minimized. The researchers also recommended that devices be kept on and recording should be announced to suspects at early stages of police interactions with the public.[53]

Figure 2: Summarizing multi-site randomized controlled trials of body camera use in the UK (2015-2016)

Between 2015-2016, the University of Cambridge supported randomized control trials of body camera use by 2,122 patrol officers across eight police departments in the UK.

Each week, shifts were randomly assigned to 'cameras on' or 'no cameras'.

- Officers in "Treatment Conditions" were assigned to use cameras and keep them recording at every encounter with the public. Reported use of force was measured during the period.

- Officers in "Control Conditions" were assigned to not use cameras. Reported use of force was measured during the period.

Not all police departments complied with the treatment and controlled conditions.

Level of Treatment Integrity	Description	Results
High-compliance	Officers in treatment conditions kept cameras recording at all times. Officers in control conditions did not use cameras at all.	Rates of use of force decreased by 37 % in treatment conditions.
Non-compliance	Officers had complete discretion on when and where BWCs should be used.	The overall effect was nil.
Compliance within control group only	Officers in treatment conditions had complete discretion on when to record with the cameras. Officers in control conditions did not use cameras at all.	Rates of use of force increased by 71 % in treatment conditions.

Source: Ariel, B., Sutherland, A., Henstock, D., Young, J., Drover, P., Sykes, J., ... Henderson, R. (2016) at http://link.springer.com/article/10.1007/s11292-016-9261-3.

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54 See Ariel, B., Sutherland, A., Henstock, D., Young, J., Drover, P., Sykes, J., ... Henderson, R. (2016) at http://link.springer.com/article/10.1007/s11292-016-9261-3.

However police departments decide to implement the use of BWCs, it is clear that the regime they use should be consistently enforced. If police officers deviate from the prescribed rule, then disciplinary action should be taken. The ACLU also recommends that an "exclusionary rule" be introduced for any evidence obtained in an unrecorded encounter (for police who have been issued cameras). Another possible way of incentivizing use is by stipulating that when officers wearing cameras are accused of misconduct but fail to record the incident, there is an evidentiary presumption against the officer.[54]

Measures must also be taken to prevent the editing of exported video recordings. This may include watermarking each frame of the video with the name of the person who exported the video. Watermarks can move location from frame to frame, making it effectively tamper-resistant. Evidence management systems can also generate serial numbers with encrypted keys (also known as hash keys) for every file. This ensures that the hash key will change if a single frame or byte from the exported file is edited and is incompatible with the original version stored on the police department's secure server.

Managing data storage

Another critical issue related to the use of body cameras is the management and retention of data. There are two key factors to consider. First, in order to maximize privacy, it is recommended that data not be retained for longer than is absolutely necessary for the purpose for which it was originally collected. For the vast majority of police interaction, there are few reasons to hold on to video evidence, and footage can be deleted relatively swiftly. This can ensure that data is not

abused, but also will save on data storage costs, which can be onerous in most cases. Second, all individuals recorded by cameras should have access to the video for however long the police retains the data. This should also apply to a third party if the subject consents, or to criminal defense lawyers requesting relevant evidence.

Civil liberties experts recommend that data retention be limited to the bare minimum and that related procedures be publicized. In the case of the Igarapé Institute's CopCast, the maximum time horizon is 90 days, unless recordings are flagged. Once a specific incident is flagged (i.e. incidents involving the use of force, leading to detention or arrests, or involving formal complaints), it receives a longer retention schedule. In the case of certain states in the US, this can be as long as three years. Meanwhile, back end systems are required to manage video, audio and GPS data so that data can be retained and deleted when the expiration date is reached. There must also be clear provisions to prevent deletion by individual officers, as well as a transparent audit trail to protect the chain of custody. Moreover, retention procedures should be made publicly available and posted on the police department's website. This should allow those who have had encounters with the police to understand how they can file a complaint or request access to footage.

There are also critical technical questions associated with data storage that must be considered and addressed. Specifically, systems must be designed to ensure that video segments cannot be destroyed. There are routinely cases where incriminating video/audio goes missing – hardly surprising considering that officers implicated in wrongdoing will have an incentive to destroy the evidence. Any cop camera technology must be resistant to this kind of tampering or intervention. What is more, all access to video

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55 See Stanley, J. (2013), footnote 2.

records should be automatically recorded with audit logs. The storage system must also ensure that data retention and destruction schedules are properly maintained. This requires clear guidelines on who is permitted to access stored data and under what circumstances.

Limit encroachments on citizen privacy

The use of body cameras can provide documentary evidence for criminal investigations, internal or administrative investigations and civil litigation. Notwithstanding the potential of cop cams to increase oversight and accountability over police, they may also exacerbate risks for personal privacy and fair trial rights. This is because even consensual recordings in and outside of people's homes can have significant privacy implications, especially if there are no clear controls on the management and storage of this information. A number of human rights advocates have called for limiting the extent of data collection to what is "reasonably" required. There are still open questions about the technological feasibility of automating such checks and balances.

There are several precautionary functions that can be built into body cameras to limit these risks to privacy. For example, citizen notification is essential. This includes limiting body camera use to uniformed officers and marked vehicles. It may also require officers to notify people verbally that they are being recorded and/or the use of a clearly visible icon or LED indicating that a camera is in operation. Constraints should also be introduced around the use of body cameras in private residencies – including the possibility of officers asking residents if cameras should

be turned off, except in unusual circumstances. There must also be clear guidelines adopted by law enforcement that the body cameras will not be used to gather intelligence that infringes on free speech, freedom of association, religion or other Constitutional provisions and fundamental rights. For instance, policies must restrict or even forgo the use of automated vehicle license plate readers and facial recognition software since these technologies can lead to mass surveillance. Privacy International defines mass surveillance as any system that indiscriminately monitors a group or a population, collecting personal data without attempting to restrict the dataset to well-defined targeted individuals.[55]

Managing controlled public access

There are many outstanding questions about when the public should have access to cop camera data. This is a complex issue and underlines the challenges of managing the need for government oversight with the requirements of individual privacy protections. These are values that require careful balancing and constant revisions if they are to achieve the original objectives of body cameras. There are several basic practices – including normative and technical guidance – that are recommended to ensure these values are upheld.

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56 See Privacy International (n.d.) at https://www.privacyinternational.org/node/52.

At the outset, public disclosure of any recordings should be permitted with the consent of subjects. This said, safeguards are strongly recommended. Where possible, redaction of video records – including blurring, pixelating or blacking-out video and distorting audio to obscure subject identity – should be adopted. Audio should not even be reviewable unless an investigation with a specific cause is underway. Video and audio recordings that are not redacted should not be publicly disclosed without subject consent. Meanwhile, flagged recordings are only those where there is a high likelihood of misconduct or crime and where public oversight is most urgently required.

Conclusions

While there is much to be gained by tapping into the digital revolution, there is also peril. The outfitting of police with body cameras is to some extent inevitable, but still raises complex ethical and legal questions for law enforcement and citizens. So far, the introduction of body cameras is being pursued cautiously and only a small selection of impact studies have been undertaken.[56] The long-term success of these tools depends, in large part, on public confidence in the integrity of the technology and the way it is implemented. If crime victims do not call for help due to a fear that their interactions will become public, then the experiment will fail. But if implemented effectively, then future abuses might well be prevented before they occur.

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57 See Stross, R. (2013) at http://www.nytimes.com/2013/04/07/business/wearable-video-cameras-for-police-officers.html?pagewanted=all&_r=1&.

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