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Body-Worn Cameras: Using the Wealth of Data Effectively
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It seems like every time one looks at the news these days, there are disturbing videos of community-police interactions. On every channel, pundits weigh in on the legality of these interactions and the impact they have on society. Although police departments have been recording video for decades via in-car video cameras, the explosion of community member–recorded interactions has changed the discussion about law enforcement in recent years. The proliferation of body-worn cameras is adding even more video to the field, and video undoubtedly plays a key role in U.S. policing initiatives. Generally, the video has been viewed as an important accountability measure, but the footage can also be used to proactively identify good policing practices or de-escalation strategies. It is vital to provide timely feedback for performance improvement and reinforcement of positive practices.

At a recent White House Police Data Initiative (PDI) meeting, the use of body-worn camera technology was a central topic. The PDI was created to further the goals of the President's Task Force on 21st Century Policing. The PDI was formed as a partnership of cities and private organizations across the United States to focus on two commitment areas: (1) using open data to build transparency and increase community trust and (2) increasing internal accountability and effective data analysis. Body-worn cameras are germane to both areas of focus.[1] The discussion provided here began in a break-out session during the PDI meeting, and it is hoped that it will spur further thoughts about ways to make the best use of body-worn camera technology.
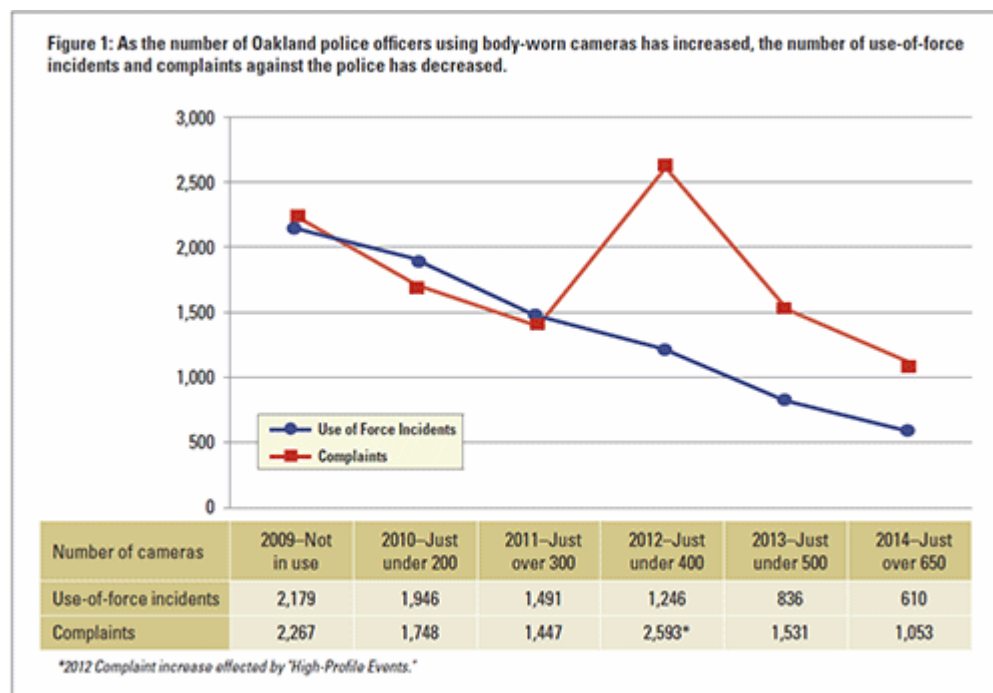
Current Level—Accountability

Today, body-worn camera video is generally used for accountability purposes, such as

- documenting circumstances of how and when force is used;
- documenting everyday interactions between the police and community;
- proving or disproving allegations of misconduct against officers;
- documenting evidence; and
- recording witness or suspect statements in the field.

It is commonly accepted that the use of body-worn cameras can increase accountability by documenting officers' actions, thus contributing to greater transparency in policing. It can also be argued that the use of cameras during police interactions makes police staff and members of the public who are being recorded more accountable for their behavior. In essence, most people who know they are being recorded will behave more appropriately. The full effect of all participants' knowledge of body-worn cameras on the scene deserves further analysis.

Like many other agencies, the Oakland, California, Police Department (OPD) attributes a significant portion of a reduction in use-of-force incidents and complaints against police personnel to the use of body-worn cameras. The OPD began deploying body-worn cameras in 2010. Initially, the department deployed slightly fewer than 200 body-worn cameras; currently, 611 body-worn cameras are in use for a total sworn staff of 722 officers. Figure 1 presents six years of data showing the correlation between an increase in the number of body-worn cameras and a 72 percent decline in police use-of-force incidents and a 54 percent decline in complaints against the police. Although more research across more agencies is required, this effect is consistent with other research conducted to date.[2]

Figure 1: As the number of Oakland police officers using body-worn cameras has increased, the number of use-of-force incidents and complaints against the police has decreased.

Number of cameras	2009–Not in use	2010–Just under 200	2011–Just over 300	2012–Just under 400	2013–Just under 500	2014–Just over 650
Use-of-force incidents	2,179	1,946	1,491	1,246	836	610
Complaints	2,267	1,748	1,447	2,593*	1,531	1,053

*2012 Complaint increase effected by "High-Profile Events."

Over the past 10 years, body-worn cameras have become smaller, cheaper, and better. According to a 2013 U.S. Department of Justice, Bureau of Justice Statistics, survey of camera use in local police agencies of all sizes, about 68 percent of agencies surveyed used in-car video; 32 percent used body-worn cameras; and approximately 6 percent used weapon-attached cameras.[3] The survey indicated that 76 percent of departments used "in-car, body-worn, or weapon-attached cameras."[4] Because federal, state, and local governments have made funding body-worn cameras a priority, the number of body-worn cameras deployed across the United States is growing and will continue to grow rapidly.

Three Levels of Analysis and Review

With the introduction of body-worn cameras, a wealth of information has become available. Those with access to the videos now have the ability to examine elements like facial expressions, body language, and word patterns. The richness of these data has created opportunities for deeper analysis of police-community interactions and has the potential to improve policing by identifying best practices and then using the knowledge gained to train current and future officers.

Although approaches to analysis are still being developed by many agencies, three levels of review are likely to be used by law enforcement agencies in the near future.

- First level: Straightforward analysis performed by agency supervisors, commanders, and internal affairs or uditing personnel.
- Second level: A more in-depth review conducted through formal engagement with an external academic institution or evaluation group.
- Third level: Computer-assisted analysis of large amounts of video data.

First Level: Basic Analysis or Supervisory Review

The first level of analysis occurs when supervisors or other assigned personnel review footage for a specific purpose, such as to establish the facts and circumstances of an event under review because a complaint was made or force was used or to observe on-camera interviews taken at the scene of a crime. In addition, as a proactive risk management strategy, videos may be randomly chosen for review to identify exemplary performance, areas for improvement, and compliance with policy or practice. While basic analysis uses videos in a proactive way, it can be time-consuming. The person most likely to review the videos, a supervisor with eight or more assigned officers and multiple responsibilities, is already stressed for time.

Second Level: Deep Analysis

The second level of analysis requires formal engagement with an external assessment or evaluation group with the capability to conduct a more rigorous review of the video. An example of this kind of engagement is found in the partnership between the Oakland Police Department and Stanford University Professor Jennifer Eberhardt, a 2014 MacArthur fellow. Dr. Eberhardt investigates the consequences of the psychological association between race and crime.

Initially, the partnership focused on analysis of existing data related to vehicle and pedestrian stops. In the past, formal analysis of these kinds of stops was limited to written documentation of the interaction in a police report or on the specific forms officers were required to complete for each stop they made. However, as the work on analysis of enforcement and stop data continued, it quickly became apparent that the large reservoir of rich body-worn camera footage now being taken at discretionary enforcement stops could also provide invaluable data about police-community interactions. In addition to a formal analysis of stop data, Dr. Eberhardt and her team are now focusing on using these data to increase everyday positive interactions between the police and community by identifying potential disparities in treatment among various racial groups and providing recommendations to mitigate identified disparities.

Because it is completed by a third party, second-level analysis provides the agency with an independent review by experts, which can mean that findings will be perceived as significantly more credible by the public. Second-level analysis can also include larger amounts of video data than first-level analysis. However, as with the first-level reviews, in-depth reviews are time-consuming. Therefore, the scope of review will most likely be a sampling limited to a specific time period. The downside to this is that video not sampled may contain valuable information that will not be included in the analysis.

Third Level: Full Analysis

The partnership between OPD and Stanford raised the possibility of a third type of analysis. What if it were possible to have a basic review of all footage captured? The Stanford team is working to create automated technology that can rapidly analyze large amounts of body-worn camera data. The goal of the project is to provide officers and supervisors with timely, high-quality feedback regarding their interactions with community members. This information could potentially also be used in early warning systems to track officer behavior, both positive and negative, alerting supervisors to positive behavior as well as potentially problematic conduct.

While an artificial intelligence system may someday be used to flag behavior on a video based on select indicators, the flagged video still requires human review. An automated system of analysis could help focus a supervisor's or manager's attention on the most relevant video involving their subordinates, which may be more effective than hoping to catch key indicators through an audit of a small portion of the video. Rather than replace the need for supervisory (first-level) review, this third type of analysis would enhance a supervisor's ability to analyze relevant videos.

Using the Three Types of Review to Improve Training

The ability to evaluate and improve training through judicious use of all three types of reviews is of major importance.

For example, video can provide invaluable information about the impact of training on communication techniques. Significant knowledge is available about verbal and non-verbal communication, and effective communication training on a regular basis is required for California law enforcement officers. In the basic academy, trainees learn communication techniques such

as paraphrasing, expressing empathy, and other techniques to diffuse tense situations. Officers are trained in escalating and de-escalating force depending on changing circumstances. More recent training has also emphasized the importance of incorporating the tenets of procedural justice (voice, neutrality, respect, and trustworthiness) in all police interactions.

Why not evaluate significant amounts of police enforcement actions to determine if the training is having a positive impact? Reviewing pre- and post-footage would go a long way toward providing a much richer analysis of training efforts and ultimately positively affect everyday enforcement interactions between police and the community. Video of real-life positive policing could be used to help trainees see the value of such interactions.

White House Police Data Initiative

As stated earlier, the PDI has two goals: (1) using open data to build transparency and increase community trust and (2) increasing internal accountability and effective data analysis. The partnership, which includes the International Association of Chiefs of Police, is also working towards greater transparency by opening up significant segments of police data to the public so that "communities [can] gain visibility into key information on policing/citizen encounters."[5] Although there are some limitations, body-worn cameras can often provide the best documentation of police encounters.

The implications of releasing body-worn camera videos are still being debated across the United States. Automated systems that can analyze footage have the potential to produce performance and accountability reports, which would provide the community with a summary of key performance indicators. A summary of the information could provide the community with the information they desire while respecting privacy rights by not releasing all raw footage.

Conclusion

As body-worn camera programs continue to grow across the United States, many issues remain to be addressed, including storage, use requirements, technological limitations, appropriate level of viewing by officers prior to report completion, privacy rights of those recorded, and policy implications. Each of those identified topics is worthy of study and discussion, which will continue to take place within law enforcement organizations, legislative bodies, and communities across the United States. Of particular note, the continued inclusion of labor representation in policy formulation is critical to ensure all perspectives are heard during the policy formulation and implementation. To assist agencies with the rapidly evolving field, the U.S. Department of Justice, Bureau of Justice Assistance, has created a website to provide a central location as a resource for agencies to use as a toolkit for effective implementation (www.bja.gov/bwc).

Recent conversations about body-worn cameras have focused on their use for accountability, and rightfully so. However, the opportunity to identify and reward good policing practices should not be overlooked. Reviews must begin to shift from focusing on correction and accountability to a greater emphasis on identifying good policing practices. This simple change will go a long way toward maximizing the use of this technology by all in law enforcement.

Many chapters of the body-worn camera story remain to be written. The massive amount of video that is being collected represents a rich source of data never before available in the field. In the new reality of heavy scrutiny of police, it is vital that law enforcement leaders use this wealth of information to proactively improve safety and provide quality service to the community. After all, that is the core mission. ?

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Notes:
[1]Roy Austin Jr. and Megan Smith, "Launching the Police Data Initiative," *The White House Office of Science and Technology Policy* (blog), May 18, 2015,

https://www.whitehouse.gov/blog/2015/05/18/launching-police-data-initiative (accessed November 24, 2015).

[2]Michael D. White, *Police Officer Body-Worn Cameras: Assessing the Evidence* (Washington, D.C.: Office of Community Oriented Policing Services, 2014), https://www.ojpdiagnosticcenter.org/sites/default/files/spotlight/download/Police%20Officer%20Body-Worn%20Cameras.pdf (accessed November 24, 2015).

[3]Brian A. Reaves, *Local Police Departments, 2013: Equipment and Technology,* United States Department of Justice, Office of Justice Programs, Bureau of Justice Statistics, http://www.bjs.gov/content/pub/pdf/lpd13et.pdf (accessed November 24, 2015).

[4]Ibid., 4.

[5]Austin and Smith, "Launching the Police Data Initiative."

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