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# Ethical, legal and administrative implications of the use of video and audio recording in an emergency department in Ontario, Canada

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Received 21 February 2020

Revised 25 August 2020

Accepted 28 August 2020

Published Online First

28 September 2020

## ABSTRACT

While video and audio recording (VAR) of patients is well described for clinical research, its application to quality improvement in the emergency department has thus far been limited and hindered by potential obstacles. We believe this technology holds promise to incite marked systems improvement but only if deployed in a thoughtful and principled manner. Experts in clinical, regulatory, legal, quality improvement, patient safety and ethical domains collaborated to articulate the salient considerations and challenges to implementation of a VAR programme. We describe this implementation using the lens of legislation and other principles specific to our current context. The landscape of ethical, legal and regulatory barriers and a case example of how a VAR programme has been implemented in an emergency department in Ontario, Canada are outlined. The potential to harness VAR data to drive quality and to improve safety is remarkable. Articulating the most contentious issues and illustrating how they can be addressed may guide others hoping to implement similar VAR programmes.

Video and audio recording (VAR) is well described in clinical research. Fully implemented, prospective VAR programmes for quality improvement (QI) are relatively novel. A future and perhaps inevitable direction for patient safety programmes and QI initiatives is live recording of clinical encounters, allowing subsequent review and analysis. The potential to harness VAR data to drive quality and safety is remarkable.<sup>1</sup> We believe this tool holds tremendous promise to catalyse meaningful system evaluation in

healthcare. In this paper, we describe the landscape of contentious issues during implementation within the context of a tertiary care emergency department (ED) in Ontario, Canada.

Currently, prospective VAR data collection is used in Canadian operating rooms and has been described in trauma team simulations in a Canadian ED.<sup>2,3</sup> However, the widespread implementation of VAR programmes in the clinical milieu is constrained by several hurdles, including but not limited to employee concerns, privacy risks and the lack of a clear ethical and regulatory framework.

Because of recognised potential for resuscitation improvement, and viable future collaboration with human factors engineers, some of the authors are implementing a VAR programme in the resuscitation suites of a Canadian tertiary care ED. We describe some of the key considerations for the implementation of VAR and illustrate a potential approach using our VAR programme as a case study. See [table 1](#) for an overview of provocative assertions within this domain; these arguments require nuanced understanding and interpretation through multiple lenses. Herein, a team with expertise in clinical, regulatory, legal, QI, patient safety and ethical domains has been created to reflect on these critical considerations which lack clear guidance.

## THE USE OF VAR IN MEDICINE

Relying on the traditional medical record to identify patient safety events and contributing factors is fraught with the many limitations of the contemporaneously



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**To cite:** Douglas SL, McRae A, Calder L, *et al.* *BMJ Innov* 2021;**7**:224–230.

**Table 1** Contentious issues that require resolution prior to successful emergency department VAR programme implementation

Statement	Supporting argument(s)	Counterargument(s)	Relevant sources
Patient consent is required for VAR data collection for QI purposes.	VAR in resuscitation likely poses 'more than minimal risk' to the patient. VAR data involve collection of private information. VAR data involve collection of PHI for a primary purpose other than direct clinical care.	Use of collected PHI for QI purposes does not require patient consent. Consent in resuscitative situations is impractical. Participation in healthcare QI is generally in the patient's interest and is less risky than altering the healthcare system without evaluation. Efficacy of QI initiatives requires participation of all eligible patients. Notice, subsequent opportunity to withdraw data from QI analysis and robust data security safeguards are possible substitutes for patient consent.	19 21 22 24 25 35
Healthcare provider consent is required for VAR data collection for QI purposes.	VAR data constitute collection of private information given the provider(s) is/are able to be identified. This may pose 'more than minimal risk' to providers.	Participation in QI initiatives is an expectation of employment. Video recording is commonplace in public spaces, including hospitals.	21 25 26
VAR data should be part of the patient's chart.	VAR data offer supportive evidence in the case of medicolegal action.	If patient encounter is otherwise documented to agreed on standards, VAR need not be included in the patient record. This offers stricter control over VAR data, with shorter retention requirements to improve data security. VAR data may be considered confidential, under quality assurance privilege.	22 28 29 35, Canadian Medical Protective Association (personal communication, 2019)
VAR data should be used for physician evaluation.	VAR offers rich opportunity for feedback and improvement if feedback presented in constructive fashion.	Physicians have the concern of being 'too exposed'. Healthcare providers will only accept VAR if the objective is system improvement, and not for individual punitive assessment.	25 32 33

PHI, personal health information; QI, quality improvement; VAR, video and audio recording.

generated written chart, particularly in complex and/or time-pressured clinical environments.<sup>3</sup> Currently, case analysis data consist largely of practitioner recall and written clinical documentation, long recognised to be sparse if not incorrect.<sup>1 4</sup> For example, rates of correct immediate recall following surgical procedures have been reported to be as low as 61%.<sup>5</sup>

VAR of patient encounters was first described in the 1940s and has been used in QI methodology since the 1960s, particularly in trauma.<sup>6-10</sup> VAR collects reliable, rich data even during complex or chaotic clinical situations, regardless of time of day, without the limitations of incomplete documentation or recall bias. These high-fidelity data can be the substrate for robust QI initiatives. In one example, video review has been shown to have greater richness than direct observation for improving discrete tasks such as endotracheal intubation.<sup>11</sup> The potential benefits of VAR as a means of obtaining direct observation data for QI programmes have been widely acknowledged with the growth of patient safety culture.<sup>12-16</sup> These benefits include lack of intrusion, mitigation of the Hawthorne effect and the relative convenience of video analysis.<sup>13</sup>

Looking forward, video evaluation of clinical settings has the clear potential to be effective for monitoring collaboration, analysing communication and detecting teamwork errors.<sup>17</sup> VAR also allows for assessment of system factors that contribute to patient outcomes, factors lacking from traditional data capture methods.<sup>2 16 18</sup> This method of data collection can be highly sensitive and can detect minor deviations which cumulatively contribute to poor patient outcomes.<sup>3</sup> Not only does VAR collect objective

quantitative information including highly accurate time stamps, but it also allows complex qualitative analysis of systems via human factors analysis.<sup>2</sup> Human factors engineering is a scientific discipline focused on understanding interactions between humans and other elements of a system and is directed towards optimising system design based on strengths and limitations of human performance.<sup>2</sup> Prospective analysis of complex clinical events with this lens manifests an opportunity to strive for continuous system improvement without the need for a catalyst critical incident.

## CONSENT AND NOTICE

The *Personal Health Information Protection Act* (PHIPA) is the legislation in Ontario that governs the collection and use of personal health information (PHI). PHIPA allows for the collection and sharing of PHI for care purposes without express patient consent. When a patient comes to the hospital, unless they are told otherwise, care providers may assume they have the patient's consent to collect and share PHI among treating healthcare workers insofar as necessary to provide care.<sup>19</sup> Accordingly, most of the collection and sharing of PHI within the care team occur with the patient's implied consent. Once PHI is collected for care purposes, so long as appropriate safeguards are in place, PHIPA permits care providers to use the PHI for authorised QI and education purposes without requiring further patient consent for this use.<sup>20</sup> From a policy perspective, this enables QI and education activities to occur, which are both necessary to deliver the best possible care. However, under PHIPA, it is less clear that PHI may be collected without express patient

consent where the primary purpose for the recording is QI, that is, the primary purpose of the recording is not to assist in providing care to the patient being recorded.

In the setting of emergent care delivered in resuscitation bays, seeking informed consent prior to or even after recording the episode of care raises challenges. Logistically, seeking consent for a VAR for QI purposes could be intrusive to the care being provided. Moreover, patients are likely to have diminished or no decision-making capacity, and consent information is unlikely to be well understood by a distressed patient or substitute decision-maker. As it is impossible to consent to an event that has already happened, seeking consent after the episode of care can only refer to the ongoing use of collected VAR data; it is not a valid substitute for prospective informed consent.

Furthermore, VAR of resuscitation events for QI involves the collection of identifiable personal information of both patients and care providers. It is important to note that 'personal' need not mean sensitive information—it refers to any information over which an autonomous individual typically retains control.<sup>21</sup> Personal information necessarily includes an individual's health information, but also simply includes an individual's recorded likeness. Because VAR records both patients' and providers' images, research ethics guidelines would typically require informed consent for VAR from all those identifiable. In an ED resuscitation suite these may reasonably include police officers, housekeeping and family members, for example. Considerations regarding consent extend also to these persons.

The requirement for informed consent may be waived or modified provided that certain conditions are met. Research ethics guidelines typically include a provision for a waiver of informed consent when the following conditions are met: (1) that the research poses no more than minimal risk (ie, the kinds of risks involved in daily life); (2) that the research would not be feasible without a waiver; and (3) that patients/substitute decision-makers provide consent to data utilisation when a consent conversation can take place.<sup>21 22</sup> For QI programmes specifically, consent for the use of routinely collected data is not required.<sup>23</sup> However, VAR data are not routinely collected as part of standard care and would only be collected as part of a QI programme. Published recommendations for the ethical conduct of healthcare QI programmes suggest that patients' consent for data collection is not necessary, provided that the data collection poses no more than minimal risk.<sup>24 25</sup> Ethically, whether a waiver of patients' consent is permissible for VAR for both research *and* QI hinges on the question whether VAR poses more than minimal risk. While video recording for security and consumer behaviour in public settings (eg, banks, retail centres) is commonplace, recording patients in resuscitation situations (ie, in extremis, in

various states of undress) may not be consistent with this everyday experience and thus may pose more than minimal risk. The question of whether VAR in resuscitation scenarios poses more than minimal risk remains unaddressed in the bioethics literature. Therefore, it is unclear whether VAR for resuscitation QI or research programmes can proceed without a mechanism to seek patient consent.

With respect to healthcare providers, seeking consent from these individuals for VAR data collection is feasible and thus a waiver of consent for *research purposes* is not appropriate. It has been argued that QI is a routine part of healthcare operations and healthcare providers have professional obligations to improve practice; thus, consent from healthcare providers need not necessarily be routinely obtained for VAR use for *QI programmes*.<sup>26</sup> Because of variable interpretation of this argument and facilitating change management during programme implementation, it behoves individual organisations to consult medical staff and legal counsel for an individualised consensus on staff member consent. With regard to additional resuscitation participants (eg, Emergency Medical Services providers), seeking prospective consent may not be feasible as their identities may not be easily anticipated.

#### RETENTION, ACCESS AND DISCLOSURE

There are various potential requesters of VAR data. Under PHIPA, a patient has a right of access to their own PHI. Accordingly, a patient could ostensibly request access to a recording, and if that request was received within the retention period for the recording, there would be a duty to preserve the recording and process the access request.<sup>19</sup> The likelihood of a PHIPA access request may be diminished with clear notice and consent and open communications with patients who come forward with questions or concerns. The Information and Privacy Commissioner of Ontario suggests that should video be released to an involved party measures should be taken to redact exempted information, such as blurring images or removing voice audio to protect the privacy of others captured in the recordings.<sup>27</sup>

There are other circumstances in which a recording taken for QI or education purposes, and not intended to be used for any other purpose, may nonetheless be compelled by law. For example, if a VAR captures a death that is reportable to the coroner, the coroner may request all information related to the resuscitation.<sup>28</sup> In the event of a civil legal action relating to care that is the subject of a VAR, there is an obligation to retain evidence once the hospital becomes aware of a legal proceeding. In addition, the police may produce a warrant to seize the relevant VAR in the course of an investigation. As demonstrated, there are potential situations in which it is necessary to acknowledge a legal duty to maintain a recording that would

otherwise be deleted pursuant to the intended retention policy. It would be helpful to develop a clear escalation process to ensure adherence to legal processes; refer to the case study for an illustrative example of such a process.

### QUALITY ASSURANCE PRIVILEGE

It is essential both to safeguard PHI collected for QI purposes and to foster the psychological safety necessary to engage in a robust review of VAR collected for QI purposes. Both imperatives can benefit from quality assurance privilege. In Canada, in common law, quality assurance privilege operates to render inadmissible records confidentially collected and maintained for QI purposes, except where the benefit of their admissibility in a given proceeding would outweigh the harm to the public good. This privilege ensures that care providers and hospitals can robustly engage in patient safety work including retrospective review of care episodes.<sup>29 30</sup> In Ontario, this privilege has been enshrined in the *Quality of Care Information Protection Act*, although interpretation of the scope of the privilege and the resulting institutional policies are variable.<sup>23</sup> Ultimately, the goal is to find the right balance between safety improvements and privacy interests to ensure the maximal protection of privacy interests while fostering advances in patient safety science.

### PROFESSIONAL RISK, PHYSICIAN PERSPECTIVE

Given the breadth of potentially identifiable persons within a resuscitation suite recording, the focus on professional risk of this paper is limited to the physician. Consideration of other persons goes beyond the scope of this article.

With the advent of the patient safety movement, the focus of physician risk management has shifted from medicolegal avoidance to improving the quality of care. Canadian data support the merits of transition, with evidence demonstrating a reduction of patient safety incidents is associated with reduced physician medicolegal risk.<sup>31</sup> From a physician medicolegal risk management perspective, engagement in programme QI initiatives seems to be a powerful tool against medicolegal liability. Particular to VAR programmes, physicians may perceive increased vulnerability to litigation and patient complaints.

Credentialing and evaluation pose another perceived physician risk. Physicians may limit their own participation in these programmes for fear of punitive actions.<sup>32</sup> This said, VAR audit and feedback represent a powerful tool and effective mechanism to enhance the quality of care.<sup>33</sup> We recommend that physicians engage in the development of VAR data protocols to ensure appropriate use. Executive-level contributions to psychological safety and patient safety culture are important to ensuring a focus on system-level processes. Well-established protocols for the goals of

data collection and use and appropriate engagement of hospital administrators are strongly recommended for the viability of a VAR programme.

Should VAR data be used as part of physician credentialing, a well-established system of evaluation and constructive feedback should exist. The method by which the findings from VAR are summarised, de-identified and presented to healthcare providers will influence whether the process is perceived as punitive or supportive.<sup>33</sup> To minimise risks to providers while maximising opportunities for improving care, the primary focus of a VAR QI programme should be on systems improvement and formative feedback to providers, rather than on providing data for managerial performance reviews.

### SAFEGUARDING PHI

Appropriate safeguards and security measures to manage privacy risks are essential whenever PHI is collected, and especially when it is being used for a purpose other than to provide immediate care to the patient.

It is a PHIPA requirement that only as much PHI as is necessary to accomplish the QI or education purpose is collected and used.<sup>19</sup> Practically, this means that data should be de-identified whenever possible, for example by blurring identifiable features or timely deleting of all but essential data components of the VAR. It is also a PHIPA requirement to take reasonable security measures to protect the confidential nature of PHI,<sup>19</sup> such as ensuring secure storage (eg, encrypted and password-protected), limiting access to the recordings and maintaining short retention periods. Additional safeguards might also include broad public notice (eg, information posters in the ED), publicly accessible information about approved departmental QI activities, a process for responding to questions and requests, an opportunity to decline participation retrospectively, and de-identification of patient data captured on VAR.

Adherence to PHI safeguards is imperative in order to maintain and continuously foster public confidence in healthcare institutions that use patient information for the broader public good. Importantly, the public reports a general comfort level with the use of recordings in care settings for QI and education purposes.<sup>20</sup> Sustaining this support is contingent on transparency through vehicles such as notice and informed consent, as well as strict security safeguards that adequately mitigate the risk of a privacy breach.

### CASE STUDY: CANADIAN ED RESUSCITATION BAYS

In consultation with local stakeholders and building on the experience of other international centres,<sup>32</sup> some of the authors have developed and implemented a VAR programme in the resuscitation bays of a tertiary care ED in Ontario, Canada. This academic ED sees an

**Table 2** Governing bodies engaged during development of an emergency department resuscitation bay VAR programme in Ontario, Canada

Type of engagement	Governing body	Membership/representation	
Sought approval	Department of Emergency Medicine. Department of Critical Care Medicine. Department of Medicine. Division of General Internal Medicine. Trauma Programme. Hospital Advisory Committee.	Physicians and department heads.  Head of trauma programme and trauma team leaders. Allied health representation, including nurses and respiratory therapists, with respective union representation.	
	Hospital executives. Joint Program Council. Medical Advisory Committee. Emergency department managers.	CEO, VP research, chief of staff, director of medical affairs. Programme medical directors. Senior administrative body for all medical staff within the organisation. Director, ambulatory clinics and emergency care, operations manager.	
	Engaged during development and introduction	Joint Quality and Utilisation Improvement Committee	Hospital committee with mandate to support and enable quality improvement initiatives across the organisation. Members include departmental QI leads, director of patient safety, quality and risk, director of decision support, and VP quality.
		Emergency department nurses.	Emergency department nursing clinical educator, charge nurses and nursing leaders.

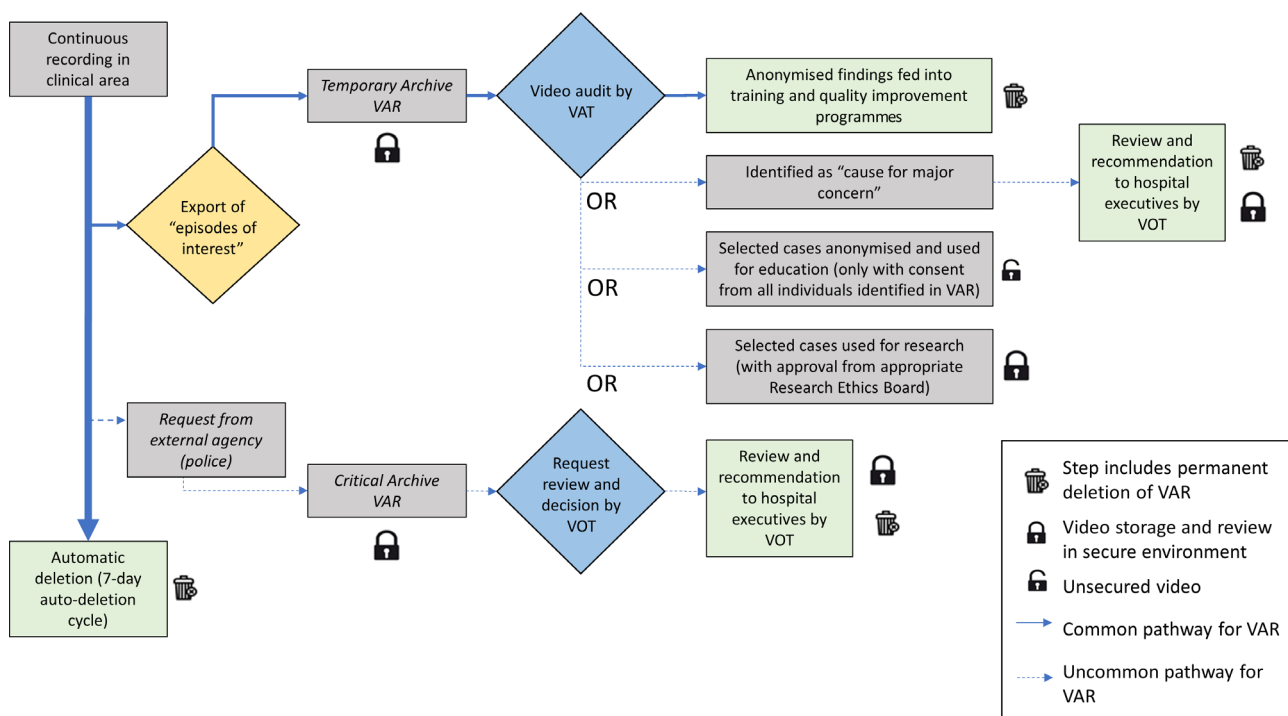
CEO, chief executive officer; QI, quality improvement; VAR, video and audio recording; VP, vice president.

annual census of approximately 53 000 patients, is the university’s primary specialty training venue for post-graduate medical education, and is the receiving site for the region’s level 1 trauma centre.

Table 2 lists the bodies that were consulted and provided formal feedback, and the various groups with whom we engaged during this process. Speaking to the issues listed in table 1, the VAR programme has institutional approval to not require the explicit, advance consent of patients, healthcare workers or

other individuals who may be recorded, and VAR data are not integrated into the patient’s medical record, nor will they be used for physician feedback or credentialing.

An algorithm that outlines the details of VAR data collection and management is shown in figure 1. Although VAR occurs 24 hours a day, recordings not flagged as clinically relevant to active, preapproved departmental QI initiatives will be automatically deleted within 7 days. For data security, video from the



**Figure 1** Algorithm of VAR data management in a potential VAR Programme. VAR, video and audio recording; VAT, video audit team; VOT, video oversight team.

resuscitation rooms is transferred over an encrypted hard-wired system to a local, securely locked computer. Clinically relevant recordings will be identified using either the existing electronic medical record, trauma registry or critical incident reporting. These recordings will be temporarily, securely stored for a maximum of 2 months before deletion. Within this time, trained data analysts will extract the relevant information and feed the aggregate data back to the initiative steering committee.

A video oversight team, with representation from hospital executives, nurses and allied health, and physicians, will oversee implementation and maintenance of the VAR programme. Part of their mandate will be to deal with unforeseen VAR issues. Egregious criminal acts witnessed on VAR will be flagged and fed to this team, as will requests for video from external bodies, including police warrants.

## CONCLUSION

The paradigm shift of modern patient safety programmes is not to focus on preventing things from going wrong, but rather on enabling them to go right.<sup>34</sup> We believe that VAR data will be critically important in the transition away from limited, retrospective analyses of incomplete health records to collecting and reviewing more comprehensive and accurate data, especially during critical clinical events, to feed into organisational quality and patient safety programmes.<sup>2 18</sup> Considerations that need to be addressed prior to initiation of a VAR programme are not limited to obligations relating to consent, the storage and distribution and ownership of VAR data, legal regulations, and providers' medicolegal risk aversion.

We have described the current state of understanding in key areas identified during implementation of such a programme in Ontario, Canada. These key considerations are broad, and there is wide jurisdictional variability in legislation, regulatory and ethics frameworks within and outside of Ontario. VAR recording programmes in different settings may arrive at different solutions to the aforementioned challenges. Nonetheless, we intend this to serve as initial guidance for VAR implementation and to introduce key considerations to guide future work.

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**Contributors** SLD conceived of the manuscript, recruited the expert team, chaired the development of the manuscript, contributed to content and oversaw the revisions. SLD serves as guarantor. AM, LC, MdW and AS contributed to content and revisions. MLAS contributed to recruitment of the expert team and revisions. DH and SCB contributed to revisions.

**Funding** The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

**Competing interests** None declared.

**Patient consent for publication** Not required.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data availability statement** No data are available.

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