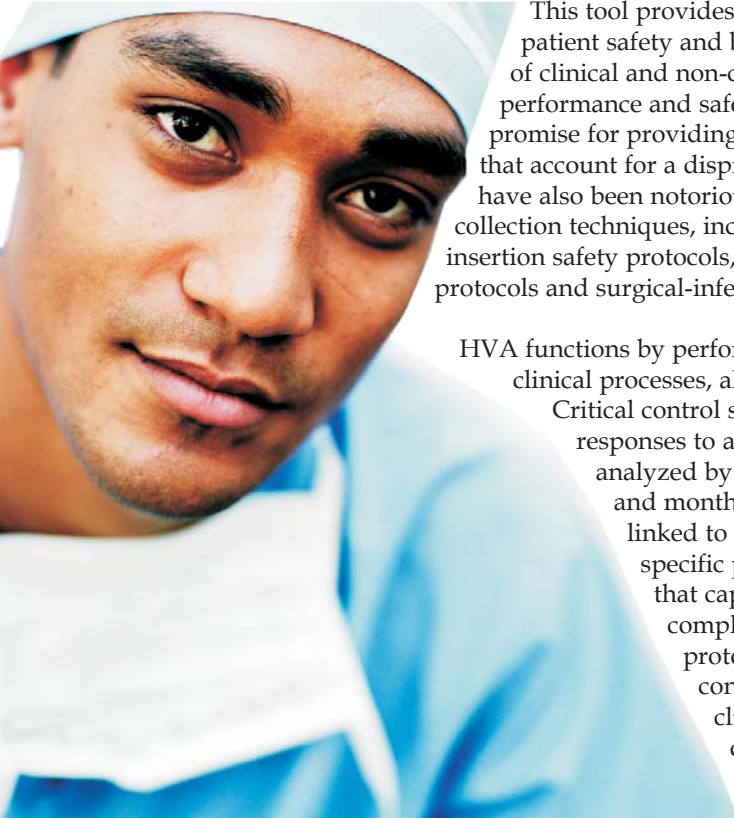


Hospital Video Auditing: The New Patient-Safety Paradigm For Healthcare Institutions

New technology and new thinking bridge the chasm in patient care.

The healthcare community is acutely aware of the human toll exacted by preventable medical errors, with institutions struggling to identify an effective method to adequately monitor those critical procedures posing the highest risks to patients. **That struggle may end shortly with a new technology called Hospital Video Auditing (HVA) – a new patient-safety tool emerging in the hospital sector.** HVA utilizes remote-viewing technology, combined with safety process auditing, to continuously monitor high-risk clinical areas for safety and quality issues.



This tool provides hospitals with a new model for improving patient safety and benchmarking best-practices across a wide range of clinical and non-clinical processes – a near-real-time tracking of performance and safety in high-risk clinical activities. It holds great promise for providing objective, high-quality data on clinical processes that account for a disproportionate number of patient injuries, and that have also been notoriously difficult to track using conventional data collection techniques, including hand-hygiene activities, central-line insertion safety protocols, alarm-response timeliness, ventilator safety protocols and surgical-infection prophylaxis procedures.

HVA functions by performing continuous video monitoring of specific clinical processes, alarm-based events or physical environments. Critical control steps in the clinical processes, or specific responses to alarm-based events are then systematically analyzed by auditors. The auditors generate a daily, weekly and monthly report on safety performance. The reports are linked to actual video sequences; if the auditor identifies a specific problem, they provide direct links to the images that captured this event. In addition to enhancing compliance with existing, but difficult to track safety protocols, HVA statistics solve the pressing need for consistent, reliable and sustainable data collection on clinical process-of-care measures to meet requests of outside regulators and reporting agencies.

Recognizing the critical information and data void filled by remote viewing services, Alan Lisbon, M.D., FCCP, Vice Chair for Critical Care, Department of Anesthesia and Critical Care, Beth Israel Deaconess Medical Center and Associate Professor of Anesthesia, Harvard Medical School, explains, "Video reporting and audits supply physicians, clinicians and administrators with safety-critical data that have, until now, been inaccessible using conventional approaches. Through HVA, auditors can now pinpoint risks and provide video documentation of events—giving us the level of information necessary to minimize errors, reduce risk and lower costs across the institution."

Review
HVA Reports:
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continued...

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How It Works

Multiple Locations,
Multiple DVRs
Brands &
Multiple
Cameras

Web-Based User
Access from
Multiple Locations

Internet

Central
Management
Server

A new paradigm in patient safety

In preparing for outside agency audits, such as the Joint Commission for Accreditation of Healthcare Organizations (JCAHO) or the Department of Public Health (DPH), institutions typically perform exhaustive chart reviews to establish their baseline status with respect to safety, and subsequently ramp-up enforcement of patient safety protocols. Sustaining these efforts becomes difficult, over time; hospitals find that compliance with quality and safety measures may deteriorate, primarily because there is no ongoing feedback, tracking or incentive to front-line providers in the form of performance data. Dennis S. O'Leary, M.D., President of JCAHO implores, "We as a society must ramp up our efforts if we are to successfully bridge the chasm between the current state of health care and what is truly safe, high quality care."

According to Mark D. Aronson, M.D., FACP, Professor of Medicine, Harvard Medical School, Vice Chair, Quality Department of Medicine, Beth Israel Deaconess Medical Center, "Patient safety is a priority every minute of every day. What better method to bridge the patient-care chasm than by extending the auditing cycle from a biannual exercise to a 24-7-365 methodology?" Aronson continues, "Not only does HVA provide assurance that best practices, as outlined by JCAHO, IHI, and advocated by CMS and Leapfrog, are instituted; the service complements existing care initiatives and hospital technologies." With respect to quality and safety, remote viewing technology adds an important new dimension to the patient safety paradigm—continuous feedback for continuous optimization of performance so that we can provide the highest levels of safety for every patient, every day of the year.

Success in other safety-centric sectors

While new to healthcare, remote-viewing technology has been remarkably successful in other sectors where the health and welfare of the public is also at stake.

In the food processing industry, for example, where risks stemming from bio-terrorism, contamination and spoilage are significant, many plants are implementing remote-viewing technology developed by Arrowsight. In a matter of twenty-four months, remote viewing is already being hailed a leading food-defense strategy due to ensuring safety, compliance and quality guidelines are monitored (and met) at each point in the processing continuum, with reports measuring plant cleanliness, humane handling of livestock and meat-packing processes.

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Of particular note is how the plant's employees and customers are embracing remote-viewing services. Mike Rozzano, general manager of Plumrose USA, one of the nation's largest producers of sliced meats, deli hams and bacon, remarking on his experience

with remote-viewing services notes, "The reports enable us to make improvements to specific areas in the processing chain and reward employees for exemplary performance. Additionally, the third-party certifications support our plant exceeding food-safety standards, thereby improving our relations with sales agents, who regard remote viewing as a critical differentiator in deciding

which suppliers maintain the highest levels of safety, day in and day out."

Coined the "Video Advantage" in this sector, remote viewing is making the plant's administrators better managers—and the managers better marketers.

A thoughtful approach to privacy

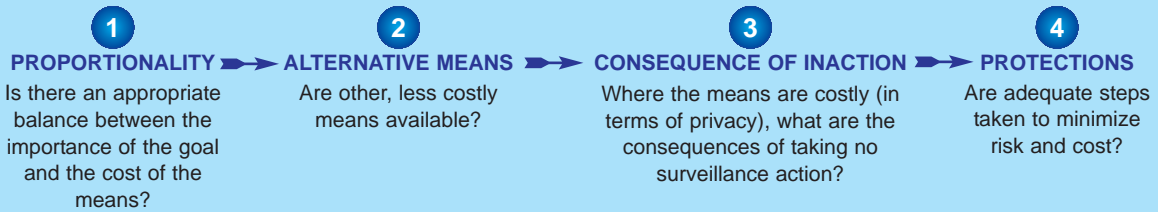
While the technical aspects of remote video monitoring were directly portable to the healthcare sector, special considerations were given to the privacy and confidentiality issues. All program tactics, from camera placement to data storage, should be reviewed by Hospital Ethics Review Boards to ensure that all practices align with the institution's standards. Institutions may find it useful to follow guidelines developed by Gary T. Marx, Professor Emeritus, Department of Urban Studies and Planning, MIT, as published in *The Ethics of Surveillance* (The Information Society, 14:171-85, 1998). Marx poses a set of comprehensive questions that serve as a framework for myriad surveillance-centric initiatives across a host of entities including public transportation hubs, retail venues and corporate campuses. Marx's four-point framework offers a rationale for the use of HVA in point-of-care settings by gauging:

- **Proportionality:** Is there an appropriate balance between the importance of the goal and the cost of the means?
- **Alternative means:** Are other, less costly means available?
- **Consequences of inaction:** Where the means are costly (in terms of privacy), what are the consequences of taking no surveillance action?
- **Protections:** Are adequate steps taken to minimize risk and cost?





HVA: Four-Point Privacy Framework



From a sociological perspective, open discussion of the goals and benefits of this quality and safety initiative are essential, as is early engagement of front-line staff in formulating changes and responses to performance data fed back to them from the monitoring. In these ways, the staff become active participants in what is a continuous quality improvement intervention, and can they gain a sense of control over the safety of their own patient care environments through this continuous feedback.

In summarizing HVA's objective to work for, not against, hospital staff, Dr. Charles Safran, M.D., FACP, Associate Clinical Professor of Medicine, Harvard Medical School, Chairman, American Medical Informatics Association, reasons, "When it's explained that the data serves a dual purpose of improving patient safety and supporting performance improvements – versus using the tool as a coercive method for detecting errors – HVA transforms from a mechanism installed to parent physicians to a method for improving patient practices. So the service actually reduces stress, instead of adding it."

New thinking inspires a new model

To fill this critical void in patient safety, we must be willing not only to tap new technologies, but also be prepared to adopt a new way of thinking. This includes looking to other safety-centric industries for successful tools that map to our own unique safety issues, re-assessing the potentially necessary tradeoff between privacy and patient safety, and successfully engaging hospital staff and administrators in this new way of thinking.

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Challenging problems demand innovative solutions. HVA and remote-viewing technology represents the type of innovation necessary to achieve the highest and most sustainable levels of performance and safety in the clinical environment. It is likely to play a critical and unique role in reshaping our approach to patient safety.

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SAMPLE HOSPITAL VIDEO AUDIT REPORT VIEWS

Audited video is summarized in formal video audit reports that are delivered daily, weekly and monthly. Reports provide hyperlinks to all video examined by auditors. By clicking the hyperlinks you have immediate access to actual video of each incident.

Overview Table

Top line statistical scores for each medical unit. This can include a summary of scores from all rooms in a unit.

Unit	Current Period Compliance 11/06/2005-11/12/2005	Previous Period Compliance 10/31/2005-11/05/2005	Average Compliance 10/16/2005-11/12/2005
Unit Rating #1			
SICU ↑	92%	89%	87%
Average Score	92%	89%	87%
Unit Rating #2			
OR ↓	84%	80%	82%
Average Score	84%	80%	82%
Total Average Compliance - All Units	88%	84%	85%

Audit Category Summary

Category summary scores for each unit. This can also include a summary of scores by category within a multi-room unit.

Unit	Category Procedure	Current Period Compliance 11/06/2005-11/12/2005	Previous Period Compliance 10/31/2005-11/05/2005	Average Compliance 10/16/2005-11/12/2005
Unit Rating #1				
SICU	↑ ↓			
	Central Line-Hand Hygiene	100%	95%	93%
	Central Line-Barrier Protection	96%	94%	91%
	Central Line-Use of Chlorohexidine Agent	97%	93%	93%
	Central Line-Sterile Dressing	93%	79%	80%
	Central Line-Assistant Present	90%	64%	80%
	Ventilator Safety-Alarm Response Time	89%	88%	86%
	Ventilator Safet-Proper Physician Actions Upon Alarm	86%	79%	86%

Audit Category Details

Sort by Category, Unit, then Audit Procedure


Breakdown of scores within categories on a room-by-room basis.

Category	Unit	Audit Procedure	Current Period Compliance 11/06/2005-11/12/2005	Previous Period Compliance 10/31/2005-11/05/2005	Average Compliance 10/16/2005-11/12/2005
Central Line-Hand Hygiene					
	SICU	↑ ↓			
		Room 1	99%	100%	96%
		Room 2	100%	90%	90%
Average Category Score			100%	90%	93%
Central Line-Barrier Protection					
	SICU	↑ ↓			

Audit Procedures

Hyperlinks to all video examined by auditors. By clicking the hyperlinks you have immediate access to actual video of each incident.

Unit	Audit Procedure	Dates
SICU ↑		Sun 11/6/2005
Central Line-Hand Hygiene	Room 1	Rating #1
Central Line-Hand Hygiene	Room 2	Rating #1
Central Line - Barrier Protection	Room 1	Rating #1
Central Line - Barrier Protection	Room 2	Rating #2



Ved	Thu	Fri	Sat
11/9/2005	11/10/2005	11/11/2005	11/12/2005
Rating #1	Rating #1	Rating #1	Rating #1
Rating #1	Rating #1	Rating #1	Rating #1
Rating #1	Rating #1	Rating #1	Rating #1
Rating #1	Rating #1	Rating #2	Rating #1

Notes:
Proper barrier protection
10:05:17 AM -
10:06:17 AM