

The Use of Metal Detectors as One Approach to the
Enhancement of Safety and Security in Vancouver Coastal
Health Emergency Departments: A Review of Feasibility,
Practicality, Effectiveness and Advisability

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The views expressed in this report are solely those of the author and are in no way meant to reflect the views, policies or practices of Vancouver Coastal Health Authority. Rather, the intent of this report is to provide background information and advice that might assist in future decision-making and policy development within Vancouver Coastal Health Authority.

Mark W. LaLonde, MA
Licensed Security Consultant, Province of British Columbia
Managing Partner, Canpro Training Resources Inc.
www.canprotri.net

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The Issue

Recently, a loaded handgun was found in the possession of a patient admitted to the Emergency Department at Vancouver General Hospital (VGH). Incidents of this nature, while rare in Canadian healthcare, are obviously alarming. This particular incident has provided an opportunity for employer and employee stakeholders to review current security related policies, procedures and practices at VGH.

Arising from this recent incident, a suggestion has been made that metal detectors be considered as one additional approach to the enhancement of personal security at the Emergency Department (ED) within VGH. The purpose of this report is to examine the practicality, appropriateness and advisability of such an approach.

It should be noted that this review has been undertaken as an independent review of the appropriateness of metal detectors in ED's, and includes an examination of the existing literature, telephone interviews with healthcare security professionals in Canada and the United States, and an objective assessment of the value and practicality of this particular approach to security and safety.

As this review is not meant as an examination of the actual recent incident at VGH, Vancouver Coastal Health Authority staff were not interviewed for this particular report.

Reports of Violence in British Columbia Healthcare

To provide some context, it is important to note that according to a Workers' Compensation Board (now known as WorkSafeBC) report, 40% of all violence related claims in British Columbia are filed by healthcare workers. These workers lose more days of work, due to workplace violence, than any other group in the province.¹ Yet this work group makes up less than 10% of the workforce in the province.

When examining acts of violence against specific types of workers, nurse aides and orderlies reported 1,015 incidents of workplace violence in the 1999-2003 accumulated WCB reports, with the next highest reporting group being social service/community workers with 565 reported incidents. Registered nurses and nursing aides account for an additional 523 reported incidents. Unfortunately, WorkSafeBC does not capture data identifying if a tool/object is used to injure workers in acts of workplace violence. In most instances, violence is related to verbal abuse or physical attack, such as hitting, punching and slapping. Hence, we do not know how often various types of weapons are used in incidents of workplace violence, or how many incidents actually took place in the ED.

In terms of where workplace violence occurs within health care in BC, long term and acute care each account for slightly more than 30% of workplace violence claims, with short term care coming in a distant third at just over 10%. Nurse aides file just over 40% of workplace violence claims in BC, well ahead of any other health care provider classification.²

¹ *Preventing Violence in Healthcare: Five Steps to an Effective Program* (undated). Workers' Compensation Board of British Columbia.

² Paine, M. & Lauritzen, T. (2005). *Workers' Compensation Board Perspective: Violence & Aggressive Behaviour in Health Care and Social Assistance*. June 7, 2005, Violence Prevention Conference, Richmond, British Columbia.

As with many professions, incidents of violence often go unreported in health care. In a 2001 report on workplace violence at Langley Memorial Hospital, 55% of survey respondents stated they report only some or none of their exposure to workplace violence.³ One can presume this underreporting also applies to incidences of weapons in the healthcare workplace.

The three most recent homicides in British Columbia healthcare are:

- May, 2003 – Shooting death of Sherry Hearn and her mother Anna Adams at Mission Memorial Hospital. This was a targeted attack by the estranged husband of Ms. Hearn.
- January, 2005 – stabbing death of David Bland, a vocational therapist from Vancouver Coastal Health. He was attacked by a former patient outside the Richmond Mental Health office as he left work.
- April, 2006 – Beating death of Phyllis Harris at Campbell River Hospital. This was a random attack by a mentally ill young man of an elderly volunteer working in the lobby gift shop.
- August, 2006 – Shooting death of Lorna McCadden, on a ward at Penticton Regional Hospital, by her distraught husband, who then shot himself fatally.

Each of these is a uniquely different, tragic, horrific event. While two involved firearms, none have resulted in recommendations from professional associations or a coroner's jury that metal detectors be placed within healthcare sites.

Weapons Possession and Violent Crime: Setting the Context

To provide a common understanding, the term “weapon” should first be defined.

In an attempt to articulate what clients and staff are permitted, or not, to carry in to a healthcare site, some hospital security departments have attempted to list items that are prohibited. Invariably, these lists are lengthy, detailed, and can lead to confusion on the part of some readers.

Similarly, the Canadian Air Transport Security Authority (the federal government authority responsible for air transportation security and safety) has a publicly available, comprehensive list of items air travellers are not permitted to pass through airport screening points with⁴.

The danger with such lists is twofold: they lead to confusion; and, invariably, they miss some items.

Perhaps, for the purposes of healthcare safety and security, it would be simpler to use the *Criminal Code of Canada* definition of a “weapon”:

“weapon” means any thing used, designed to be used or intended for use
(a) in causing death or injury to any person, or
(b) for the purpose of threatening or intimidating any person
and, without restricting the generality of the foregoing, includes a firearm;

³ Brinton, D., Boyd, N., Cheveldave, C., Govorchin, M., Hudson, S., Logie, A., McKay, J., Noone, J., & Perceval, L. (2001). *Workplace Violence Risk Assessment: Langley Memorial Hospital*: Vancouver, BC. Advance Workplace Management Inc.

⁴ Refer to http://www.catsa-acsta.gc.ca/english/travel_voyage/list.shtml#firearms1

In essence, this definition while including firearms, also includes any object a person might use, or intend to use, to harm or threaten another person. In other words, a coffee mug is an innocuous item until one holds it above their head in a threatening manner and by words or gestures conveys the message they wish to harm another. This clearly poses challenges for any policy attempting to ban “weapons” from a specific site.

A policy relating to weapons could paraphrase the above definition and include language that while listing a variety of prohibited items (e.g.: usual array of knives, clubs, etc.) includes the proviso that management and security personnel have discretionary authority to respond to unique circumstances and items.

Policy, however, will be challenged by the need to accommodate items that could be viewed in some circumstances as weapons. These include religious symbols such as the Sikh kirpan, small pocket/utility knives commonly carried by many (e.g.: Swiss Army pocket knives on key chains), and trades worker tools legitimately brought into a site.

Canada's national crime rate, based on incidents reported to police, fell 5% last year — despite increases in serious crimes such as homicide, attempted murder, serious assaults and robbery. Having said that, the rate of offensive weapons charges increased 5% from 2004 to 2005.⁵ Unfortunately, under Statistics Canada guidelines, individual police agencies are not required to collect nor report rates of firearms seizures. As well, there are no Canadian statistics that capture the incidence of weapons possession within healthcare sites.

Police however do capture and report rates of reported “offensive weapons” incidents, which include possession of prohibited weapons and possession of weapons for an unlawful purpose.

It is important here to note that these are incidents reported by police, not actual incidents within any one community.

According to the Police Services Division, BC Ministry of Public Safety and Solicitor General, police reports of offensive weapons incidents increased from 699 in 2002 to 1393 in 2005. Province wide, there was a 3% increase in violent crime from 2004 to 2005, and a 6% increase in reported incidents of offensive weapons.⁶

The creation of special police units for targeted enforcement (e.g.: anti-gang units, firearms interdiction units) can skew these numbers. In fact, the Vancouver Police Department 2004 – 2008 Strategic Plan specifically calls for the creation of a Firearms Interdiction Team and an increase in firearms seizures.

This same Strategic Plan notes that in 2002, Vancouver Police seized forty-one firearms, and forty-nine in 2003. The creation of a Firearms Interdiction Team will no doubt result in these numbers rising dramatically. What is not known is if the actual rate of illicit firearms possession is increasing, and if it is, by how much.

⁵ Statistics Canada, retrieved online Dec. 6, 2006 at <http://www.statcan.ca/Daily/English/060720/d060720b.htm>

⁶ *Police and Crime Summary Statistics 1996-2005*. Province of British Columbia. Retrieved online Dec. 8, 2006 at www.pssg.gov.bc.ca/police-services/publications/index.htm#other

Actual lawful possession of handguns in Canada is actually quite rare, especially when compared to our southern neighbours.

According to a 1996 study, only 2.3% of Canadian households own a handgun. In the United States, that number jumps to 25.12%⁷. This is especially noteworthy when one compares the overall population of Canada (roughly 32,000,000) to the United States (a little over 500,000,000).

Reports of Weapons Possession by Patients in British Columbia Healthcare

Unfortunately, there is no current mechanism for documenting and reporting the incidence of weapons possession by patients in British Columbia healthcare. We simply do not know the rate or frequency of weapons, including firearms, being brought in to hospitals. Hospitals do not keep full, easily accessible records of this data, and not all incidents are reported to police. Records are not kept differentiating who brought the item (e.g.: visitor, patient, contractors, staff, intruders) or by which entrance the item entered the site. Thus, it is difficult to make an informed decision on where best to enhance security protocols in a particular site, and if such approaches are in fact justified by the facts.

What we do know is that from October, 2004 to December, 2006, security staff at Vancouver General Hospital has recovered and reported a total of eighteen “weapons”. All, except the recent incident of the handgun in VGH ER, were edged weapons (e.g.: knives, machetes, etc.) or bludgeoning weapons (e.g.: clubs, hammers, etc.). What is not known is where at VGH these items were recovered, and under what circumstances.

The discussion now turns to metal detectors as one approach to enhancing the safety of patients, staff and visitors within ED's across Vancouver Coastal Health Authority.

Security Options in Response to Handguns in the Emergency Department

In law enforcement, contact with an individual carrying a firearm (or believed to be in a possession of a concealed firearm) is considered to be a high-risk situation, even more so if the individual is anxious, agitated, under the influence of drugs or alcohol, suicidal, or suffering from a mental illness.

Law enforcement officers prefer to approach and manage these contacts with two or more colleagues, each of who typically would have their own firearm drawn at the time. A great deal of training, knowledge and skill development is required to properly and safely manage these encounters.

Given all of this, how is an unarmed, minimally trained security guard, often acting alone, expected to respond to a report of an armed person in a healthcare setting? Added to this, consider what will happen if an armed person passes through a metal detector. What will the subject do now that they have been detected? Will they pose more of an immediate threat? It is entirely possible that they might.

The response of security guards to the presence of an armed person, especially within the confines of a hospital ER, may well exacerbate the situation.

⁷ Block, Richard. (1997). *Firearms in Canada and Eight Other Western Countries: Selected Findings of the 1996 International Crime (Victim) Survey*. Canada Firearms Centre, Department of Justice Canada.

In the United States, where handgun possession and use is far more common than that experienced in Canada, it is common for hospital security departments to be augmented by armed, uniformed, off-duty police officers working a second job. This brings highly trained and armed professionals in to a site security department. It is also common for hospital proprietary security guards to be armed in the United States. Neither of these approaches to healthcare security is seen in Canada.

Prudence would suggest that in the event a firearm is detected, suspected, or reported within a healthcare setting, there should already exist an established policy and procedure that is well known and well adhered to, and which involves local police.

A detailed discussion of such an appropriate response is not within the purview of this report. Suffice it to say that an enhanced security approach to firearms in the ER may in fact lead to more frequent, and potentially more severe, incidents that pose a threat to security personnel and others in the immediate area.

The Law: Privacy, Searches, and Seizure

It is not within the purview of this report to examine or comment on the law as it applies to privacy considerations arising from searches or the use of metal detectors. Nor is it within the scope of this report to discuss the law as it applies to the search of those passing through a metal detector, or the seizure of items resulting from such searches.

In any such review of the law however, it should be noted that the intent of the search is critical. In the context of healthcare, the intent is the safety and security (injury prevention) of those entering the site. The intent is not law enforcement or the gathering of evidence for a later prosecution. In this regard, the courts are more likely to allow the use of this form of search. Additionally, nobody is being forced to undergo a search. It is entirely voluntary, such the same as that conducted at an airport prior to passengers boarding a plane. People are free to leave the area and forgo the search.

Metal Detectors in Other Contexts: Operational Considerations

Metal detectors do just that – they detect metal. It is the accompanying policy, procedures, staffing and staff training, along with complementary security protocols that lend a great deal of complexity to the use of metal detectors as an approach to security.⁸

Metal detectors used for security typically take the form of one of two technologies: walk-through units that resemble door frames, and are most commonly associated with airport security, and hand-held portable devices, also commonly associated with airport security. A third commonly seen type of metal detector is used to detect sub-surface items. These are used by beachcombers, and by law enforcement forensic technicians at crime scenes. For the purposes of this discussion, only the first two types will be discussed.

The technology is fairly simple and easy to operate once calibrated and set up. The device creates an electromagnetic field, and responds in the presence of any conductive objective. Devices used for security can emit an audible alert tone, or respond with a silent signal (e.g.: flashing light, or in the case of handheld units, vibrate) when a metal object is detected.⁹

⁸ Davis, K., Kelsey, J., Langellier, D., Mapes, M., & Rosendahl, J. (undated). Surveillance in Schools: Safety vs. Personal Privacy - Metal Detectors. Retrieved online December 2, 2006 at <http://students.ed.uiuc.edu/jkelsey/surveillance/index.htm>

⁹ Tyson, J. (undated). How Metal Detectors Work. Retrieved online December 11, 2006 at www.howstuffworks.com/metal-detectors.htm

All types of detectors have adjustable sensitivity settings, and are designed to detect metal objects. This approach to the security of persons and facilities is best when placed in conjunction with well-trained personnel and other, additional security practices and policies uniquely designed to the site in question.¹⁰

Metal detectors are commonly used in North America at:

- Airports
- Courts
- Correctional facilities
- Government buildings
- Schools (not in Canada)
- Healthcare facilities (most commonly in the United States)
- Large sporting venues/events (dependant on the event)
- Night clubs

The decision to install a metal detector security system is based most often on an informed review of the level of risk relating to the site, the characteristics of those who visit the site, prior related site and user history, and the projected frequency of the risk.

Establishing the use of some form of metal detector technology to scan for weapons is not as simple as one might think. The technology itself is susceptible to changes in climate. The technology can and does interfere with other electrical systems (e.g.: medical devices). A great deal of policy and operational procedures must be developed. And, additional staff must be identified and trained.

When establishing a metal detector system, the sensitivity of the technology requires that it be kept at a constant temperature for optimum operational results. This means that it should not be installed in close proximity to an exterior building entrance. It should also not be placed in areas where other existing electrical devices might interfere with it. Additionally, the presence and proximity of other conductive materials in the adjacent floor, walls or ceiling may affect the reliability of the device.

Metal detector systems require initial site calibration and testing, followed by periodic regular testing to ensure the proper functioning of the system. Each time a system is physically relocated, this testing and calibration must be repeated. These testing procedures must be properly documented so as to establish standardized approaches to testing and quality assurance. Such procedures obviously vary between walk through and handheld devices.

Once a system is installed, it should be calibrated to detect the top three or four items most commonly anticipated and identified as threats. Once this is done, the system can be fine-tuned and repeatedly tested to ensure it is operating properly.

Even with this calibration, there will be false-positive alerts. Anyone who has passed through an airport metal detector has witnessed alerts set off by belt buckles, pens, watches, coins in pockets, cell phones, etc.

Walk-through (also known as “portal”) metal detectors operationally scan “zones”, meaning the top or bottom half of a person. This means that proper testing of a portal device will require a person to walk through the portal multiple times (some suggest up to twenty sequential tests) carrying items of a similar size/mass to those already identified as being a threat.

¹⁰ Jimenez, A. (2006). Metal Detection Worth Its Mettle. *Campussafetymagazine.com*, Nov/Dec 2006.

Accompanying the technology must be policy and procedure development that addresses how the system is to be used, where, when, by whom, and specifically what items are to be allowed to “pass”, and when carried/possessed by whom. Will some persons be permitted to bypass the device? If so, how do you identify those persons, and based on what criteria?

Additionally, operators and supervisors must be trained in the proper use of the technology, accompanying policies and procedures, and on how to manage conflicts with those passing through the detector.

Establishment of a metal detector “station” requires careful consideration. The station is pointless from a security standpoint if access to the site can be gained by other means. For multiple entry sites, this may mean the establishment of multiple metal detector stations. Or, public access could be limited to a few metal detector stations, while staff are permitted site access via additional, non-screened, avenues (e.g.: card reader access points).

Space will have to be allocated for the safe storage of seized items. This then requires that policy address what is to be done with seized items. Will some be kept for safe storage and eventual return? If not, what is done with the item? And, how can security staff lawfully possess items defined by the *Criminal Code of Canada* as being “prohibited”?¹¹

In any site, consideration must be given to number and placement of security check stations, and what the impact of this approach would be to foot traffic congestion, pre-screening line-ups, personal safety, and the continued optimum operation of the facility.

The physical “foot print” of a metal detector screening station is substantial. Space must be allocated for line-ups, the actual portal, tables for bag searches, and a second search station for frisks or handheld wandings of persons who the detector alerts on.

It is suggested that prior to full implementation of a metal detector screening station in a hospital, a beta site be established first. This site can be used to test the technology, train staff, develop policies and procedures. Additionally, the beta site can be used to raise awareness across the facility of the purpose and practice of metal detector screening.

Such a beta site can additionally be used to establish protocols that are free from any suggestion of bias in who is screened, and how screening is conducted.

A metal detector station, to be effective, will require persons being asked to remove all metal objects from their persons. Metal detectors are not designed to screen bags, briefcases or purses. This will require some form of individual basket repository and table or conveyor the basket can be placed on, scrutinized by security, and passed past the actual detector.

An accompanying issue is bags carried by persons approaching the station. Will they be hand searched? Will there be a differentiation between backpacks and purses? If not hand searched, will an X-ray scanner then be installed? This raises a whole other set of technical considerations, policy issues, and training. Not to mention facility / spatial considerations.

Operationally, consideration must be given to “flow through” (the planned rate people will pass through the metal detector screening station) and how this can be optimally achieved.

¹¹ This means that simple possession of the item is a crime – e.g.: a switchblade knife, or brass knuckles.

At a minimum, two people are required to operate a metal detector checkpoint that does not include an X-ray machine. One to manage incoming foot traffic flow and conduct bag searches, and the other to operate the device. This however means that the line will stop every time there is an alert. Optimum flow through is accomplished with three to four staff operating the station.

An additional staffing consideration is in the ratio of males/females assigned to the checkpoint. If somebody is to be “wanded”, it may be appropriate for this to be done by a security officer of the same gender as the person being checked. This is even more important if somebody is to be subjected to a frisk.

Upon an alert being noted, it must have already been established what the response will be. Will the subject in question be frisked? Will they be asked to empty their pockets? If so, additional operating space and furniture are required. Or, will they be subjected to a hand-held metal detector wand scan? And if this secondary wand scan alerts, what is then done? Will some be refused access beyond the station, and if so, based on what criteria?

Metal Detectors in Healthcare

Facility operators and employers are bound by various statutes and common-law principles in regards to staff, visitor/client, and site safety¹². This duty of care includes the identification and mitigation of risk of harm, including harms caused by violence. While this duty of care does not expect all harms to be totally eliminated, it does impose a burden to take reasonable steps to address risks. The question then is, what is “reasonable”?

Security of clients, staff, assets and data, including within the context of healthcare, is not directly attributable to any one system, tool, policy or approach. Rather, safety and security is established through a multi-layered, collaborative approach. These approaches include education and training, site environmental factors such as physical design, creation of policy and procedures, access control systems and procedures, close liaison with local police, and the provision of trained security personnel.¹³¹⁴

Hospitals, much like colleges, shopping malls, and sporting venues, are widely viewed as places the public has unimpeded access to. All such public spaces experience threats to security, sometimes including the use or possession of weapons.

In healthcare, more so than other public spaces, there is the additional feature of the immediate psychological nature of those entering the facility. This is especially of concern in emergency departments where the very nature of the visit suggests some form of personal crisis and an elevated level of anxiety and stress.

Upon entering an emergency department, ambulatory visitors are often faced with a period of waiting, queuing up to begin the admission process, and perhaps more waiting. This can raise their already existing level of anxiety. To be faced then with the prospect of passing through a metal detector security station could additionally raise the level of stress being experienced, and for some, this could result in aggressive, threatening or violent behaviours.

¹² E.g.: WorkSafeBC Regulations, Criminal Code of Canada s. 217.1, and civil law respecting occupiers liability.

¹³ Stirling, G., Higgins, J. E., & Cooke, M. W. (2001). Violence in A&E departments: a systematic review of the literature. *Accident and Emergency Nursing*, 9, 77-85.

¹⁴ Ellis, G. L., Dehart, D. A., Black, C., Gula, M. J., & Owens, A. (1994). ED Security: A National Telephone Survey. *American Journal of Emergency Medicine*, 12(2), 155-159.

While this addition to visitor/patient anxiety has not been researched, staff and visitor/patient general response to the presence and use of metal detectors has. Three independent survey-style studies have shown overwhelming support for, and acceptance of, the presence of portal style metal detectors.¹⁵¹⁶¹⁷ Survey respondents stated that the presence of the metal detectors made them “feel safer”. This sentiment was expressed by both staff and patients/visitors.

These reports cite the level of violence in US hospital emergency departments and the related staff fears over their personal safety. By way of example of the scope of the problem, the McNamara *et al* report notes one hospital that seized “33 handguns, 1,324 knives and 97 mace-type sprays in the first six months of operation” of the portal metal detector.¹⁸ This is totally out of the realm of known experience in Canadian healthcare.

Unfortunately, none of the three studies are Canadian. Two are from Tennessee and one is from Philadelphia. We simply do not know how Canadian healthcare visitors/patients and staff would respond to the presence of metal detectors as there are no similar published studies.

The McNamara *et al* report notes that the American Psychiatric Association has recommended the use of metal detectors for all emergency departments as a means of improving safety in the ED.¹⁹ The American College of Emergency Physicians has also recommended such approaches to site and personnel security. Neither the Canadian Healthcare Association nor the Canadian Medical Association, to date, has publicly addressed the issue of metal detectors in healthcare settings.

A search of the literature yielded only three academic papers related to the effectiveness of metal detectors in reducing the incidence of weapons in an emergency department.²⁰²¹²²

The Irwin & Habas review took place in Detroit, Michigan in 1994/1995 and focused on an approach to weapons interdiction that included bag searches, metal detector portals, signage and staff training. The approach saw reduction of overall weapons possession from 88 weapons per 1,000 patient visits to 78 weapons per 1,000 patient visits. The continued presence of weapons was hypothesized to be a result of people who didn't see the posted signs warning of a weapons detection system, couldn't read the signs, forgot they were carrying a weapon, or did not consider the item in question to be a weapon. While the

¹⁵ McNamara, R., Yu, D. K., & Kelly, J. J. (1997). Public Perception of Safety and Metal Detectors in an Urban Emergency Department. *American Journal of Emergency Medicine*, 15(1), 40-42.

¹⁶ Meyer, T., Wrenn, K., Wright, S. W., Glaser, J., & Slovis, C. M. (1997). Attitudes Toward the Use of a Metal Detector in an Urban Emergency Department. *Annals of Emergency Medicine*, 29(5), 621-624.

¹⁷ Mattox, E. A., Wright, S. W., & Braicikowski, A. C. (2000). Metal detectors in the pediatric emergency department: Patrol attitudes and national prevalence. *Pediatric Emergency Care*, 16(3), 163-165.

¹⁸ McNamara *et al* citing: Thompson, B. M., Nunn, J., & Kramer, T. (1988). Disarming the department: Weapon screening and improved security to create a safer emergency department environment. *Annals of Emergency Medicine*, 17, pp. 419 (Absr).

¹⁹ McNamara *et al* citing: Perrone, J. (1993). Doctor shootings force hospitals to reconsider security. *American Medical News*, 1, pp. 9.

²⁰ Irwin, C. B., & Habas, R. C. (1999). Weapon Changes Over time After Initiation of a Comprehensive Weapon Surveillance System. Letter to the Editor. *American Journal of Emergency Medicine*, 17(3), 323-324.

²¹ Rankins, R. C., & Hendey, G. W. (1999). Effect of a Security System on Violent Incidents and Hidden Weapons in the Emergency Department. *Annals of Emergency Medicine*, 33(6), 676-679.

²² Simon, H. K., Khan, N. S., & Delgado, C. A. (2003). Weapons Detection at Two Urban Hospitals. *Pediatric Emergency Care*, 19(4), 248-251.

overall rate of weapons seizures continued to be significant, a 600% decrease in the seizure of handguns was noted.

While these numbers are significant, it should be remembered that the context of this study is Detroit, a city often times ranked as having one of the highest violent crime rates in America. As well, over the course of the study period, there were just over 33,000 patient visits to the ER in question.

What the Irwin & Habas report does not indicate is the impact to staff and patients/visitors of the rate of weapons possession within the setting.

Similar to Irwin & Habas, the Rankins & Hendey paper sought to determine the number of weapons confiscated before and after the implementation of a security system which included metal detectors. Additionally, the paper examines the change in incidents of assaults to staff, before and after. Taking a longer-term view, this paper examined a fifty-four month period. Taking place in Fresno, California, the enhanced approach to security included metal detectors, surveillance cameras, access control, and a staffed security station, all within the ED.

Rankins and Hendey report no change in the rate of assaults on staff with the newly implemented security approaches, but do report a 50% decrease in the number of weapons confiscated in the patient area. However, the overall rate of weapons confiscation rose substantially. What is interesting in this study is the realization that a significant number of weapons (41%) were confiscated from patients brought in by ambulance, who normally would bypass the metal detector station. This issue, one would assume, would be common to all ED's.

Here it should be noted that patients brought in on a gurney cannot pass through a metal detector station. The gurney itself will set off the detector. The same applies to wheelchairs. Similarly, a handheld device would be alerted by a gurney or a wheelchair. Hence, metal detectors in healthcare are only suitable for use with ambulatory patients, visitors, and staff. In the case of a patient on a gurney, the only reliable methods of weapon detection are to frisk the patient, or remove and search their clothing.

The Simon, *et al*, report on weapons detection does not examine the linkage between detection systems, such as metal detectors, and the rate of weapons being found in the healthcare setting. Rather, their report examines the differences in the rate of weapons being found in a general hospital and paediatric hospital, both in the Atlanta, Georgia, area. It is alarming to note that in one eight month period in 2000, a total of 3,706 metallic weapons were seized at the two hospitals. Most were edged weapons (e.g.: knives, box cutters, etc.).

While metal detector walk through portals are being used in many American hospital emergency departments, there is no known current use of walk through metal detector portals in Canadian emergency departments.²³ However, there are anecdotal reports of a few Canadian hospitals making selective use of handheld detectors, most notably in emergency psychiatric admissions where a threat/danger is perceived. In these instances, the handheld units are most commonly set to vibrate when alerted to a metal object.

²³ Source: telephone interviews in Canada and the United States with healthcare security managers who are members of the International Association of Healthcare Security and Safety.

Unique to healthcare settings, the use of metal detectors poses some special problems.

As the metal detector device does emit an electromagnetic impulse (EMI), it can interfere with other sensitive electronic equipment. In healthcare, this can pose a problem. The EMI can potentially impact pacemakers, defibrillators, nerve stimulants, and other medical devices.²⁴ Thus, placement of the device is critical to patient safety.

Additionally, depending the level of sensitivity the device is set to, some surgical implants (e.g.: plates, joints, etc.) can set off the detector alarm. This is largely dependent on the metal content of the device (e.g.: Richards cannulated screws).²⁵ Given the higher incidence of persons with surgical implants being found in healthcare settings as opposed to an airport, it can be anticipated that security personnel will encounter this form of screening alert on a somewhat regular basis. Such alerts will further slow foot traffic through the check station.

There are other challenges to the use and placement of metal detector stations in a healthcare setting. As already mentioned, to be effective as a security practice, access to the site must be restricted such that all persons pass through the station. Depending on the flow and rate of foot traffic, such access restrictions not only require facility re-design, but they may also contravene fire codes and other safety regulations. Current site design may also make this approach impractical.

Additionally, in the case of security check points in healthcare, what will be done with a patient who obviously requires treatment, but refuses to submit to a metal detector search? Will they be denied treatment?

If a handgun is detected at a security check point or found while a patient is being treated, staff must already be trained in the safe and appropriate handling of the firearm, and how to make it "safe" (e.g.: check if it is loaded, and if so, how to safely unload it). Additionally, it can be expected that in some instances, such as the initial exam of an emergency patient, the person finding the firearm or weapon could be a healthcare professional, not a security person. In such events, what will immediately be done with the item, and by whom?

Security staff who would presumably be tasked with the seizure and storage of firearms require training. This is a matter of employer liability and law. Persons in Canada who possess and/or handle firearms are required to attend and successfully complete a nationally mandated training program, which includes an exam.

In order to learn the basics of safe handling of both non-restricted (e.g. rifles and shotguns) and restricted (e.g. handguns) firearms, the training takes on average sixteen hours to complete. This includes instruction on the basics of how to make a firearm "safe". In other words, how to safely unload a firearm so that it does not pose an immediate danger/threat.

Making a weapon "safe" requires that the weapon be pointed down and away from other persons. Such handling of a firearm in a healthcare setting raises obvious concerns in the event of a potential accidental discharge. In fact, the concern over accidental discharge of semi-automatic pistols is so great amongst law enforcement agencies (where it is presumed personnel are better trained in safe weapon handling than security personnel) that most employers have placed specially designed steel pipe receptacles in locker rooms. Officers are required to stand at the station, with the muzzle of their firearm placed in the receptacle when loading or unloading their weapon. Such stations are advisable for healthcare venues where security personnel are expected to seize firearms.

²⁴ Jimenez, A. (2006). Metal Detection Worth Its Mettle. *Campussafetymagazine.com*, Nov/Dec 2006.

²⁵ Rudis, J. (2006). True or False: Surgical Hardware in the Body Sets Off Airport Metal Detectors: Main Line Health: Health Library.

Along with training staff in how to operate a metal detector screening station and equipment, and in how to safely handle seized firearms, the hospital must take into consideration replacement staff who are also fully trained. These staff would replace the primary security staff while on break, vacation, or sick leave. Given the rate of turnover in security, continuous training would need take place.²⁶

An additional physical concern is the secure storage of seized firearms. In Canada, federal legislation requires that all firearms be stored in locked containers, separate from any ammunition, which is also kept in a locked container. Additionally, the firearm must be made inoperable. Typically, this is accomplished by placing a trigger lock device upon the firearm. Seized firearms at a healthcare venue would have to adhere to this legislation.

The presence of a metal detector station in a hospital can create a secondary risk. Visitor or ambulatory patients who are carrying a weapon, including a handgun, may conceal the item in a public waiting area for later retrieval upon learning that a metal detector security check point is in operation. Potentially, another visitor, including a curious child, could then find this concealed item later on by accident. In the case of a handgun, this could pose a serious risk to the person finding the item, and those in the immediate area.

According to telephone interviews conducted for this report, only two hospitals in the United States subject all persons and packages entering the site to metal detector screening. Most other hospitals who use metal detectors do so only at emergency entrances. These hospitals do not all use metal detectors 24 X 7. Some use the devices on a situational basis, while others use them only at peak periods (e.g.: Friday / Saturday afternoon and evenings).

It should be noted that the industry association dedicated to healthcare facility security, the International Association for Healthcare Security and Safety (IAHSS), does not specifically endorse the use of metal detectors in healthcare facilities. The IAHSS articulates a set of facility security guidelines that includes protocols, training and education around access control, identification and protection systems, program measurement, and documentation, but not mention the use of metal detectors as an approach to site security.²⁷

Similarly, the US based Emergency Nurses Association, in a position statement of violence in the emergency care setting, advocates amongst other things “trained and equipped security personnel and structural/environmental controls to provide deterrents and barriers against acts of violence”, but does not specifically advocate for metal detectors.²⁸

Metal Detectors in Vancouver General Hospital

In any discussion of security, especially one that involves technology new to the site, one has to ask first what the goal is. What is the intent behind this new approach? What are we intending to protect ourselves from? Is the technology/approach needed/required? Will it be effective and efficient? What is the likelihood of the security threat in question? And, are there alternative approaches to achieving the goal?

²⁶ Colling, R. L. (2001). *Hospital and Healthcare Security*. Woburn, MA: Butterworth-Heinemann.

²⁷ IAHSS Guidelines Committee. (2006). *Healthcare Security: Basic Industry Guidelines*. Glendale Heights, Illinois. Retrieved online January 4, 2006 <http://www.iahss.org/pdf/IAHSSGuidelines1206.pdf>

²⁸ Emergency Nurses Association. (2006). *Emergency Nurses Association Position Statement: Violence in the Emergency Care Setting*. p 6. Des Plaines, Illinois. Retrieved online January 4, 2006 <http://www.ena.org/about/position/PDFs/CFAC59534C2B4BFF8C23F1972A2E00FF.pdf>

Total security and safety of all patients, visitors and staff is the ideal strived for in all healthcare settings. Yet, this is impossible to achieve. People are fallible, as is the security technology. Procedures are not always followed, and even when they are, aggressors can and do find ways around well-designed security protocols. Metal detectors are no exception.

Currently, there are at least nine different unrestricted ways to enter the emergency department at Vancouver General Hospital. Even if some were modified to require possession of a magnetic security card for access, there are still multiple access points. Additionally, when doors are opened via a swiped card, people can follow along behind the staff person who is legitimately entering the area. Given the nature of the services provided in an ED, access control can be counter productive.

To be truly effective in keeping firearms out of VGH, or any other VCH healthcare facility, metal detector stations would have to be established at all entrances. All patients, visitors, trades people, and their bags, would have to be searched. To truly ensure safety, an argument can be made that all staff should also be required to pass through the stations. After all, a not uncommon origin of extreme workplace violence is work-based personal relationships.

One has to question the impact of such an extreme approach to security on the ability of the institution to provide timely and appropriate services. Additionally, the additional costs associated with staff, materials and site re-design suggest such an approach is not cost-effective.

An enhanced approach to weapon vigilance raises additional issues, including if a handgun, or other weapon, is found on a patient, who is immediately responsible for that item? Who will take preliminary possession of the weapon? Will it eventually be returned to the owner? These are questions best answered by VCH.

As already noted, patients brought in to an ED on a gurney cannot pass through a metal detector station. The gurney itself will set off the detector, as will a wheelchair. Similarly, a handheld device would be alerted by a gurney. Hence, metal detectors in healthcare are only suitable for use with ambulatory patients, visitors, and staff.

In the case of a patient on a gurney or in a wheelchair, the only reliable method of weapon detection is to frisk the patient, or remove and search their clothing. Going back to the previous paragraph, who will be responsible for these patient searches? How and where will they be conducted?

While it is outside the purview of this report to examine specific costs associated with the implementation of metal detector screening stations, one can safely assume the greatest cost is in the additional staff required to properly operate such stations. Additional costs can also be found in the purchase and maintenance of the equipment, site re-design/structural changes, staff training, development of accompanying policies and procedures.

To date, the data does not indicate that weapon possession with the ER, let alone the rest of VGH is a significant issue. Frequency of weapon seizures is low, especially so when compared to larger US hospitals who do use metal detector systems. There has been no demonstrated, ongoing threat to patients, visitors or staff as a result of weapons in the ED.

Security Options Relating to Firearms in the Emergency Department

There are a number of possible approaches to enhancing security approaches to potential weapon possession within the ED, at any VCH hospital. Each has its own drawbacks. These options include:

- No use of metal detector systems, and instead utilize an enhanced reliance on existing and new policies, procedures, staff awareness and training (includes all healthcare, security and support staff) relating to weapon awareness and interdiction
- Metal detectors (walk through portals, supported by handheld units for secondary screening) at all site entrances, at all times
- Require all persons accompanying BCAS patients (e.g.; family of the patient) to pass through a metal detector screening system
- Metal detectors (walk through portals, supported by handheld units for secondary screening) only at select entrances, at all times
- Discretionary situational use of hand-held detectors that vibrate when an item is detected
- Combination of metal detectors at some entrances only at select times
- Visitor management – off the shelf software that issues ID cards (photo optional) and tracks visitors over time, including narrative comments noting comments/observations regarding past behaviour/issues. This is however costly, unwieldy, and adds another layer of staff time and logistics management. An option is to use reader technology that would take basic tombstone data from the individuals government issue ID (e.g.: drivers license). This however assumes the individual has such ID.
- Duress alarms installed at convenient staff locations, and supported by an enhanced staff (security and others) response
- Bullet resistant glass installed in public waiting areas to separate staff from others
- Enhanced public and semi-public area surveillance – formal and informal, including use of CCTV
- Public area signage declaring that weapons are prohibited within the site and grounds
- Require BC Ambulance Service to search all incoming ED patients they transport
- Modify ambulance entrance such that access is only via swipe card and/or buzzer
- Limit ED access points to buzzer and/or swipe card access only
- Wider physical review and redesign of ED access and physical security

Recommendations for Vancouver General Hospital and Vancouver Coastal Health Authority

In conducting the telephone interviews of healthcare security managers in Canada and the United States, one made a very telling comment: *“Be careful what you implement as you may not like what you end up with, and it may be too late to go back and eliminate it later. Go slowly and carefully examine actual needs and issues before coming to any decisions.”* This is sage advice.

The actual incidence of handguns being found in the ER at VGH does not warrant, at this time, the implementation of a portal style metal detector system. However, the discrete and situational use of handheld devices may be warranted, and is an appropriate response to the current rate of weapons seizures.

Any use of metal detectors must be accompanied by fair and public posting of signage alerting visitors to the use of such devices, their purpose, and that submission to such screening is a condition of entry.

Prior to establishment of any metal detector use, VGH and VCH are advised to review their policies on weapons, including how prohibited items are defined, staff/security responsibilities, and how firearms are to be handled and stored. Such a policy review should also examine who will be subjected to metal detection screening, on what criteria the decision will be made, and similarly, who will be exempted from such screening.

The current documented rate of weapons seizures at VGH does not suggest an immediate need to change the physical site design, current practices or policies.

At present, what is suggested is:

1. Discrete and situational use of handheld metal detectors, supported by staff training, policy and procedures
2. An enhanced system for documenting and reporting weapons seized in the ED, and across the entire site, which articulates the specific item in question, the nature of the incident, details of the person carrying the item, and if any threat/assault took place
3. Weapons awareness, identification/familiarity training for ED staff
4. Discussions with BC Ambulance Service with the aim of establishing a mutually agreed upon protocol for screening patients who may be thought to be carrying a weapon, including prompt sharing of this information in an appropriate manner with ED staff and site security
5. Review existing policies, procedures and staff training (VCH and contract security) relating to workplace violence, weapons, security, and reporting of incidents
6. Review physical approaches that might reasonably be carried out to enhance patient, visitor and staff security within the ED
7. Annual review of security incidents, including weapons seizures, and if current policies, procedures, practices and training need revision in light of this review.