SOUTHERN CROSS PROTECTION
CPTED STRATEGY

Nepean Hospital and Integrated Ambulatory Services Redevelopment – SSDA
NSW Health Infrastructure
Derby St, Kingswood NSW 2747

3 April 2018

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1. Distribution

V1	Draft report	30 November 2017	Richard Myers
V2	Draft report to Project Team	4 December 2017	Cameron McClement
V3	Final Report	3 April 2018	Cameron McClement

2. Disclaimer

The findings and recommendations contained within this document are based on information provided to Southern Cross Protection by various sources at the time of the review. All reasonable attempts have been made to verify the information we were provided, based on the information available at the time. Southern Cross Protection reserves the right to adjust recommendations in response either to new information or to dialogue with key stakeholders.

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3. Executive Summary

Southern Cross Protection conducted a Physical Security & ICT Risk Assessment at Nepean Hospital in September/October 2017. The purpose of the assessment was to gain an understanding of current, on-going challenges at Nepean Hospital, then use that knowledge to better inform planning efforts for the Redevelopment Project.

Our previous report was focused on existing operations and infrastructure, which included Crime Prevention Through Environmental Design (CPTED) as one of the physical security strategies engrained within our methodology. This new report now takes the recommendations from that Risk Assessment and focuses on developing an over-arching CPTED Strategy for the design of the Redevelopment Project, emphasizing CPTED principles as a critical component of the new architectural design.

The full Risk Assessment Report is confidential. For security reasons, as this CPTED Strategy document will be included as an attachment to the SSDA and therefore available to the public, we have removed all confidential information.

We recommend this CPTED Strategy be further refined and developed through a process of iterative, on-going consultation between our Risk Advisers and the relevant planners, architects, designers, hospital security managers, clinical staff, and all other stakeholders.

We used the Australian Standard ISO 31000:2009 Risk Management process to assess threats and risks identified during our visits and through subsequent analysis and research. We assessed and analysed the risks, and we rated each one in terms of consequence to Nepean Hospital along with the probability of its occurrence. We then conducted extensive further research and analysis to identify relevant and effective solutions, treatments and recommendations.

The number one risk we found was violence and aggression, by far, which is quite serious at Nepean Hospital and the broader NSW Health. This is not surprising given that Nepean Hospital is located in the middle of a lower socioeconomic area with crime rates that far exceed the state average for assaults, assaults on police, drugs, etc. The risk of absconding/missing patients was the second issue of greatest concern, especially if those patients are from the mental health or maternity units. These risks must remain front-of-mind through the design of the Redevelopment Project.

Our proposed CPTED Strategy is based primarily on the findings from our Physical Security & ICT Risk Assessment, as well as the extensive research we have conducted within the realm of manipulating physical environments to reduce incidents of violence and aggression in healthcare settings.

Violence and aggression in healthcare settings is not a new phenomenon, and it certainly is not isolated to Nepean Hospital, New South Wales, or even Australia. Violence and aggression in Emergency Departments, Mental Health Units, and other healthcare settings has been widespread throughout every major city in the world for many years. The benefit of this widespread incidence is that the problem

has been extensively researched by many reputable institutions, and there is a great body of knowledge out there which we can benefit from to assist with this design.

Going to an Emergency Department is a source of stress, anxiety and frustration even for non-violent individuals without the influence of drugs or alcohol. The most successful approaches to reducing violence and aggression in health centres have been those which focused on enhancing each patient's experience throughout their visit, particularly with strategies that aimed to reduce stress, anxiety and frustration in what is often a very painful, stressful event in the patient's life.

The Stage 1 building, within its current concept design stage, is in line with these principles insofar as the allocation of space has taken into consideration the functional relationships between wards. This report now provides an analysis of existing infrastructure to better inform the Redevelopment's requirements.

Since the present hospital's opening in 1956, several major additions and redevelopments have been made to accommodate an ever-increasing bed base and the growing range of clinical services offered. The requirement to take Risk Management as well as CPTED principles into consideration prior to a major addition or redevelopment in healthcare projects is relatively recent, possibly as late as the 2013 publication of *Protecting People and Property: NSW Health Policy and Standards for Security Risk Management in NSW Health Agencies*. Nepean Hospital facilities, therefore, were not previously required to take these principles into consideration, and we see the evidence of that many of the legacies that stand today.

Summary of Strategy Recommendations

Activity & Space Management

1. Create a positive, friendly, welcoming environment that promotes healing and relaxation

2. Implement strategies to reduce the stress and frustration associated with the often inevitable long waits in the ED Waiting Room

3. Devise a nature-based theme that uses indoor/outdoor plants and water to create a feeling of calmness and relaxation. Create the feeling or illusion of an indoor park within the ED Waiting Room and other wards sensitive to violence, with access to a small, outdoor park area as well

4. Choose comfortable seating suitable for long waits. Use heavy furniture or anchor the furniture to the floor, taking special care of any components which could be removed or broken to be used as weapons

5. Include an independent paediatric ED Waiting Room, not directly accessible from the General Public's Waiting Room, and with an enclosed, directly accessible playground

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6. Provide multiple recreation/entertainment options to prevent boredom: access to books, films, magazines, music, etc.

7. Place a modern, boutique Café directly adjacent to the ED Waiting Room, with 24/7 access to quality coffee, quality food, and free Wi-Fi

8. Provide access to 2-3 courtesy telephones in sound-proof, see-through enclosures

9. Provide clear signage discouraging violence and aggression

10. Provide clear wayfinding signage

11. Provide a designated smoking area—this will require further policy discussions with the LHD

12. Avoid designs that include sharp corners that could cause injury

13. Seek materials that provide some level of noise cancellation

14. Seek softer flooring materials able to reduce the severity of injuries resulting from trips, falls and take-downs within the ED Waiting Room

15. Design for comfortable climate and ventilation

16. Install a zoned Public Announcement system to allow nurse staff to easily page patients

17. Include visually appealing artwork and décor, taking care not to use any picture frames that could be used as weapons

18. Engage clinical staff to reduce unnecessary steps in the patient journey, and to optimise the timeliness of all the essential components of the journey.

Access Control

19. Design a single, main, celebrated hospital entry for patients and visitors; separate, secure entries for staff; and multiple emergency exits in accordance with industry best practices for fire safety

20. Design separate patient and staff entries into the ED and other sensitive areas to reduce the possibility of tailgating

21. Design a screening area at the main entrance to ensure patients and visitors within the building do not possess weapons or other prohibited items. Include clear signage that communicates what is considered a prohibited item and communicates the requirement for consent to search as a condition of entry. The screening area must be functional and effective, but it must also be designed in such a way that it does not intimidate patients and visitors. Manipulate the environment to achieve this through soft, aesthetically pleasing measures rather than hard, imposing, intimidating measures

22. Design an independent paediatric waiting room within the ED; design passage ways to avoid accidental access by public in the main ED waiting room

23. Install reed switches on all exterior doors as well as all interior/exterior doors equipped with electronic access control. Implement Door Open Too Long (DOTL) video alarms back to the Security Office

24. Avoid the use of traditional locks and keys as much as possible. Instead implement a carefully designed electronic access control system. Carefully plan the integration of existing systems into a single, modern system centrally managed from the Security Office. This will improve reliability and usability compared to the multiple, independent systems currently in place

25. Secure any supplies and medical equipment small enough to be used as weapons within the ED and other areas sensitive to violence. Use electronic access control with two-factor authentication to allow access, as much as practical. Use heavy or anchored furniture, paying special attention to any components which could be broken or removed. Enclose artwork within laminated panels and not picture frames. The intent is to deny violent patients access to any objects which they could use as a weapon

26. Design secure nursing stations to protect staff in the event of an incident, but design it to promote a friendly, welcoming atmosphere for patients and visitors

27. Design strict access control into secure and staff only areas, with clear boundaries and signage to delineate the two. Restrict access only to areas where restriction is essential. Otherwise, the aim is to give patients and visitors a feeling of openness and transparency. This will require collaboration with clinical staff

28. Design multiple Safe Assessment Rooms within the ED. All Safe Assessment Rooms must have two doors to prevent entrapment of staff, and tempered glass or Perspex windows to allow natural surveillance; they must be designed to give patients the illusion of freedom. Safe Assessment Rooms must be perceived as a secure place of healing and relaxation

29. Design clear wayfinding signage to assist patients and visitors in arriving easily at their desired destination

30. Implement a carefully thought-out visitor management system that satisfies the requirements of NSW Health Policy and allows security staff to have situational awareness of who is in the building at all times. Design an ability to effectively enforce visiting hours and visitor passes. Consider using Facial Recognition technology

31. Implement an ability to unlock toilets from the outside in the event of an emergency

32. Design a risk-based, centrally managed, automated lock-down facility using the building's access control system

33. Design a method to prevent access to unauthorized vehicles, including hostile vehicles, around the building and into the ED drop-off area while allowing access to ambulances and other authorized vehicles

34. Install a firearm safe in the ED. Consultation with NSW Police would be ideal

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35. Engage a specialist in Physical and Electronic Security to assist with design and specification

Surveillance

36. Design clear lines of sight throughout key areas such as ED, PECC, NICU, Birthing, and Maternity IPU. Continually interrogate the ability to "see and be seen" throughout the entire design

37. Implement adequate lighting to prevent any opportunities for concealment

38. Consider using warm white lighting to achieve a more calming effect

39. Install CCTV at all entries/exits, duress alarm locations, waiting rooms, and other key areas; give all cameras a correct, logical, descriptive label; organize them into a logical sequence within the Security Office's Video Management System

40. Implement use of video analytics, video alarm monitoring, and facial recognition as a force multiplier to enhance Security Staff

41. Integrate video alarm monitoring facilities with a carefully zoned Public Announcement system to give the ability to remotely issue verbal warnings from the Security Office during the early stages of a potential security incident, if and when a verbal warning is a suitable response

42. Integrate video alarm monitoring with the fire alarm system to allow video monitoring from the Security Office, in addition to traditional fire alarm monitoring trough a suitable fire alarm monitoring centre

43. Integrate video alarm monitoring with hard-wired and wireless duress alarm systems, allowing the Security Office to receive immediate video footage from the camera nearest to the event. Pay special attention to the requirements for wireless duress alarms, considering coverage and possible RF interference that may reduce reliability. Use 2-button hard-wired duress alarms where practical to prevent accidental activation. Utilize a system that allows for automated testing of each device throughout each shift

44. Design a celebrated Security Office adjacent to the ED, with clear view to and from the ED waiting room

45. Install reed switches on all exterior doors as well as all interior/exterior doors equipped with electronic access control. Implement Door Open Too Long (DOTL) video alarms back the Security Office

46. Carefully plan the integration of existing systems into a single, modern system centrally managed from the Security Office

47. Engage a specialist in Physical and Electronic Security to assist with design and specification

Territorial Reinforcement

48. Design strict access control into secure and staff only areas, with clear boundaries and signage to delineate the two. Restrict access only to areas where restriction is essential. Otherwise, the aim is to give patients and visitors a feeling of openness and transparency. This will require collaboration with clinical staff

49. Design clear transitions and boundaries between public, semi-private, and private spaces. As much as possible, aim to achieve this via creative use of soft, friendly, welcoming methods

50. Design with a view towards sustainable upkeep and maintenance that clearly indicates the presence of proud, capable guardianship

4. Background

Nepean Hospital Overview

Nepean Hospital is located at the base of the Blue Mountains in Penrith NSW, Australia. Penrith lies on the Nepean River and is one of the fastest growing areas in Sydney. There is easy access by car or public transport to Sydney City and to all the attractions of the Blue Mountains National Park, such as the Three Sisters or further west again the world-famous Jenolan Caves.

Services include maternity, gynaecology, neonatal intensive care, emergency, diagnostics, paediatric, surgical, intensive care, coronary care, rehabilitation and mental health.

Also on the Nepean Hospital campus are a Tresillian Family Care Centre, Menopause Service, Nepean Cancer Care Centre, Diabetes Service and the Wentworth Centre for Drug and Alcohol Medicine.

Nepean Hospital is a teaching hospital of the University of Sydney for medical students and also provides nursing and allied health training for many other universities.

(Nepean Blue Mountains Local Health District Website, 29 Sep 2017)
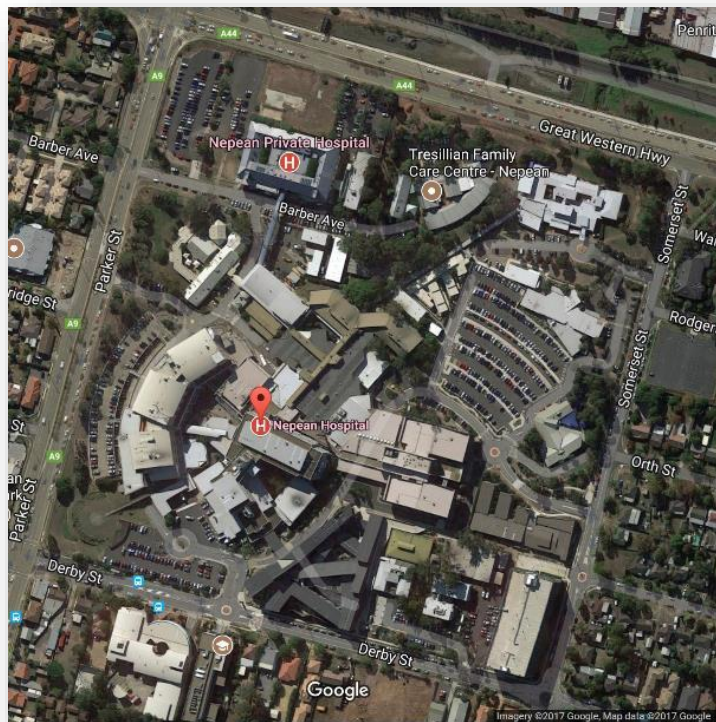
Nepean Hospital is a NSW Health facility under the authority of Nepean Blue Mountains Local Health District. Located within a residential area of Kingswood NSW, the site occupies an area of approximately 14.25 hectares bordered by Great Western Highway to the North, Somerset Street to the East, Derby Street to the South, and Parker Street to the West. Hospital staff indicated the residential area across Somerset Street includes Commission housing and a homeless shelter. The hospital campus is located within 250 metres from Kingswood Train Station.

The present hospital opened in 1956. Since then, several major additions and redevelopments have been made to Nepean Hospital to accommodate an ever-increasing bed base and the growing range of clinical services offered.

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Facility Core Functions

With over 500 beds, the hospital provides a comprehensive range of health services. The following is a non-exhaustive list of these services. A full list of services is available from the from the Nepean Blue Mountains Local Health District website.

- Emergency Department

- Intensive Care Unit

- Mental Health

    o Acute Mental Health Unit
    o Anxiety Disorders Clinic
    o Assessment and Acute Care Services
    o Child & Adolescent Service
    o Clozapine Clinic
    o Community Mental Health Service
    o Community, Liaison and Assessment Centre
    o Consultation Liaison Psychiatry
    o Psychological Medicine

- Drug and Alcohol

    o Assessment and Referral
    o Central Intake
    o Drugs in Pregnancy
    o Forensic D&A
    o MERIT Program and Drug court program
    o Health promotion
    o Hospital Consultation Liaison services

    o Inpatient & Outpatient Detoxification
    o Nepean Youth D&A service (NYDAS)
    o Pharmacotherapies Clinics
    o Psychology and counselling services

- Women's and Children's Network

    o Adolescent Support Midwife
    o Domiciliary Midwifery Program (DMP)
    o Maternity Services
    o Neonatal Intensive Care
    o Paediatric Services
    o Outpatients Department
    o Women's Health Services

- Surgical

- Sexual Health

- Community Health Centres

- Aged Care Services

- General Outpatient

- And more…

Crime Assessment

The NSW Department of Justice delivers a suite of legal, court and supervision services to the people of NSW that includes among many things the collation, analysis, and dissemination of crime statistics, under the Bureau of Crime Statistics and Research (BOCSAR).

BOCSAR's crime data consist of criminal incidents reported to, or detected by, police and recorded on the NSW Police Force's Computerised Operational Policing System (COPS). While this system is used for record-keeping for all police operations, not just for criminal matters, BOCSAR only reports on criminal incidents. BOCSAR's crime statistics therefore do not capture crimes that are not recorded on COPS. The Australian Bureau of Statistics conducts regular crime and victim surveys which attempt to capture a snapshot of both reported and unreported crimes.

Whilst there are limitations to the accuracy and therefore usefulness of the statistics, they present a useful tool in crime awareness of areas within NSW. Issues affecting accuracy are the number of visitors entering the area (such as Sydney CBD & Waterfronts), Local Police policy, willingness to report crime, and locations where population rates are low.

The area which contains the Nepean Hospital campus is known as Kingswood, within the boundaries of the Great North Rd to the West, Richmond Road to the North, Caddens Road to the South, and a boundary to the East of Caddens oval and the University of NSW grounds. In addition to the hospital and University of NSW campuses, the area also contains some properties for NSW TAFE.

The following crime statistics are compared to the NSW averages per 100,000 people. Due to the size of the measured area and the inclusion of educational campuses, the statistics are not necessarily true for grounds within the hospital. They are however a strong indicator of the surrounding demographics and potential visitors to the hospital site. ***Of note are drug incidents nearly three times higher than the State average, robbery without a weapon approximately five times the State average, and Assault on Police nearly six times the state average.***

Criminal offence	Kingswood (per 100,000 people)	NSW (per 100,000 people)
Drug incidents	2141.9	772.6
Malicious Damage	1499.3	817.3
Steal motor vehicle	922.0	526.0
Assaults (non-Domestic)	838.1	418.6
Disorderly conduct	521.5	274.0
Motor vehicle theft	381.8	176.1
Assault on Police	176.9	30.5
B&E non-dwelling	139.7	144.9
Steal from person	111.8	61.8
Robbery without weapon	102.4	18.6

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5. Crime Prevention Through Environmental Design (CPTED)

As previously indicated, the number one source of physical security risk at Nepean Hospital is violence and aggression, by far. That risk is quite serious, and it must remain front-of-mind throughout the design of the Redevelopment Project.

This is not a new phenomenon, and it certainly is not isolated to Nepean, New South Wales, or even Australia. Violence and aggression in Emergency Departments, Mental Health Units, and other healthcare settings has been widespread throughout every major city in the world for many years. The benefit of this widespread incidence is that the problem has been extensively researched by many reputable institutions, and there is a great body of knowledge out there which we can benefit from to assist with this design.

Going to an Emergency Department is a source of stress, anxiety and frustration even for non-violent individuals without the influence of drugs or alcohol. The most successful approaches to reducing violence and aggression in health centres have been those which focused on enhancing each patient's experience throughout their visit, particularly with strategies that aimed to reduce stress, anxiety and frustration in what is often a very painful, stressful event in the patient's life.

NSW Health Policy, Protecting People and Property, calls for the use of the Australasian Health Facility Guidelines as well as CPTED principles. The Nepean Hospital Redevelopment, within its current concept design stage, is in line with these principles insofar as the allocation of space has taken into consideration the functional relationships between wards. What follows is an analysis of existing infrastructure to better inform the Redevelopment's requirements.

Since the present hospital's opening in 1956, several major additions and redevelopments have been made to accommodate an ever-increasing bed base and the growing range of clinical services offered. The requirement to take Risk Management as well as CPTED principles into consideration prior to a major addition or redevelopment is relatively recent, possibly as late as the 2013 publication of *Protecting People and Property: NSW Health Policy and Standards for Security Risk Management in NSW Health Agencies*. Nepean Hospital facilities, therefore, were not previously required to take these principles into consideration, and we see the evidence of that in the many legacies that stand today.

The Australasian Health Facility Guidelines Revision 6.0, published by the Australasian Health Infrastructure Alliance on 1 March 2016 is loose on guidance for security design. Some of the key references called out in this document are obsolete, such as:

- AS4485.1: Security for health care facilities - General requirements (Stds Aust 1997c)
- AS4485.2: Security for health care facilities - Procedures guide (Stds Aust, 1997c)
- AS4607: Personal response systems (Stds Aust 1999c)

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- Policy Directive 2005_234: Effective Incident Response Framework for Prevention & Management in the Health Workplace, NSW Health

In that regard, the Protecting People and Property document itself is much more accurate, but not comprehensive.

For purposes of this assessment, we have limited our recommendations only to those which can be implemented at an infrastructure design level within the Redevelopment Project.

Activity & Space Management

Existing facilities at Nepean Hospital are generally clean and well maintained. The space is used exactly as one would expect of a large, metropolitan hospital. However, the campus is not particularly attractive, and wayfinding can be extremely challenging to those who are unfamiliar with the layout.

We believe the key to success with the Redevelopment Project is to transform Nepean Hospital into what patients and visitors can perceive as a *sanctuary of healing*. Activity and space management should be geared at providing outstanding quality of clinical care while taking active measures to minimize stress and anxiety.

Strategy Recommendations

1. Create a positive, friendly, welcoming environment that promotes healing and relaxation

2. Implement strategies to reduce the stress and frustration associated with the often inevitable long waits in the ED Waiting Room

3. Devise a nature-based theme that uses indoor/outdoor plants and water to create a feeling of calmness and relaxation. Create the feeling or illusion of an indoor park within the ED Waiting Room and other wards sensitive to violence, with access to a small, outdoor park area as well

4. Choose comfortable seating suitable for long waits. Use heavy furniture or anchor the furniture to the floor, taking special care of any components which could be removed or broken to be used as weapons

5. Include an independent paediatric ED Waiting Room, not directly accessible from the General Public's Waiting Room, and with an enclosed, directly accessible playground

6. Provide multiple recreation/entertainment options to prevent boredom: access to books, films, magazines, music, etc.

7. Place a modern, boutique Café directly adjacent to the ED Waiting Room, with 24/7 access to quality coffee, quality food, and free Wi-Fi

8. Provide access to 2-3 courtesy telephones in sound-proof, see-through enclosures

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9. Provide clear signage discouraging violence and aggression

10. Provide clear wayfinding signage

11. Provide a designated smoking area—this will require further policy discussions with the LHD

12. Avoid designs that include sharp corners that could cause injury

13. Seek materials that provide some level of noise cancellation

14. Seek softer flooring materials able to reduce the severity of injuries resulting from trips, falls and take-downs within the ED Waiting Room

15. Design for comfortable climate and ventilation

16. Install a zoned Public Announcement system to allow nurse staff to easily page patients

17. Include visually appealing artwork and décor, taking care not to use any picture frames that could be used as weapons

18. Engage clinical staff to reduce unnecessary steps in the patient journey, and to optimise the timeliness of all the essential components of the journey.

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Access Control

In general terms, access control is the critical issue that is most important to review at almost any site. The goal is to allow access to users who are authorized, and deny access to users who are not; how to achieve that can vary considerably between one site and another.

According to NSW Health Policy, people entering the NSW Health Agency must be made aware of the conditions of entry, through clear and appropriate signage. As an alternative to searching visitors, the NSW Health Agency may provide lockers and require belongings to be placed in the locker prior to the visit or ask the visitors to show staff anything they want to bring into a clinical area.

Our primary recommendation to improve access and egress control is to simplify the problem and focus on fundamental concepts of security. Within the high-risk areas such as the Emergency Department, Mental Health Unit, Drug & Alcohol, etc., we have to build a clear and absolute delineation between a secure and non-secure area. One of the conditions of entry should be, in our opinion, the person's consent to a search. Every person who presents at a high-risk area must kindly consent to search prior to being allowed into the waiting room. This will give staff and visitors some *reasonable* assurance of security within the waiting room and other secure areas.

The next fundamental concept, after securing an area, is to implement the necessary measures to guarantee every secure area remains secure. Staff-only areas must be well and truly staff-only. Patients authorized to proceed beyond the waiting room should be allowed to proceed, naturally. Patients who have not yet been cleared to proceed should not allowed to do so. We recommend implementing a combination of manpower and electronic security solutions to protect the integrity of each area.

Lastly, there needs to be some form of electronic visitor management system. Simple, quick, and reliable check-in/check-out procedures are obviously important. In the healthcare setting, egress control is equally as important, because hospital staff must be able to quickly identify the location of any patients not authorized to leave, and be instantly alerted if one of them attempts to abscond. This will allow hospital staff to have improved situational awareness of who is and who isn't in their area. We recommend considering facial recognition technology as a possible alternative.

Key Control

According to NSW Health Policy, facilities are required to conduct a key stocktake, at least annually, record results, report any unaccounted keys to the appropriate supervisor, and where practicable, conduct spot checks at intervals not exceeding six months.

Due to the size and breadth of the hospital campus, access control onto the property is quite challenging. Within the context of 1956 standards, access control was not a major consideration at the time. At a facility design level, Nepean Hospital has many possible entry points, the buildings are spread out, the layout is confusing to new visitors, and there is no attempt to manage the flow of patients in one direction or another.

Security of Property

There have been no significant incidents of theft reported. Therefore, we do not assess theft to be significant risk. Hospital staff have expressed concerns over security of patient property. The simplest recommendation would be to install lockers throughout the site. The only caution would be to ensure lockers are placed inside secure areas, and patients have consented to a bag search prior to locking up their belongings. Further review is required.

Strategy Recommendations

1. Design a single, main, celebrated hospital entry for patients and visitors; separate, secure entries for staff; and multiple emergency exits in accordance with industry best practices for fire safety

2. Design separate patient and staff entries into the ED and other sensitive areas to reduce the possibility of tailgating

3. Design a screening area at the main entrance to ensure patients and visitors within the building do not possess weapons or other prohibited items. Include clear signage that communicates what is considered a prohibited item and communicates the requirement for consent to search as a condition of entry. The screening area must be functional and effective, but it must also be designed in such a way that it does not intimidate patients and visitors. Manipulate the environment to achieve this through soft, aesthetically pleasing measures rather than hard, imposing, intimidating measures

4. Design an independent paediatric waiting room within the ED; design passage ways to avoid accidental access by public in the main ED waiting room

5. Install reed switches on all exterior doors as well as all interior/exterior doors equipped with electronic access control. Implement Door Open Too Long (DOTL) video alarms back to the Security Office

6. Avoid the use of traditional locks and keys as much as possible. Instead implement a carefully designed electronic access control system. Carefully plan the integration of existing systems into a single, modern system centrally managed from the Security Office. This will improve reliability and usability compared to the multiple, independent systems currently in place

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15. Design a method to prevent access to unauthorized vehicles, including hostile vehicles, around the building and into the ED drop-off area while allowing access to ambulances and other authorized vehicles

16. Install a firearm safe in the ED. Consultation with NSW Police would be ideal

17. Engage a specialist in Physical and Electronic Security to assist with design and specification

Surveillance

The hospital's natural surveillance capabilities are minimal. There are many opportunities for concealment throughout the grounds where potential offenders can engage in undesirable/anti-social behaviour, such as car parks, Needle Exchange, Drug & Alcohol Service, Cancer Care, and Childcare Centre.

Alarm Systems

There are approximately 300 single-button, fixed duress alarm buttons throughout the site. Industry best practice is to use two-button fixed duress alarm devices. This prevents many false alarms.

Electronic security maintenance is conducted by GS Security, a local firm who look after Nepean's CCTV, access control and duress alarms apart from Ascom.

For consideration within the future redevelopment project, the Nepean Hospital Redevelopment Project Team should, as a minimum, consider the following issues in accordance with NSW Health Policy:

- Size, layout, and location of the facility/service

- Potential for violence against staff, patients or others within and in the grounds of the facility

- The type of work being carried out by staff

- Type of service being provided

- Potential sources, causes of and locations for violence

- Whether the service is facility based or community based

- Whether the staff members are working in isolation

- Whether the staff members are involved in cash handling

- Goods and equipment stored in the area

- Security of pharmaceuticals

- Level of external security risks

- Level of internal security risks

- The potential for exits to be left open by staff, patients, or visitors

- The security needs of 'at risk' patients such as wandering elderly patients in wards, or children at risk of unauthorised removal from the facility

- Potential for use of emergency exits (e.g. fire escapes) by thieves to remove assets

- Potential for break in via doors and/or windows to remove assets

- Potential for break into and theft of vehicles

- Potential for assault of persons (e.g. staff or visitors) in the facility grounds and car park areas

- Potential for use of grounds and other spaces for illicit drug consumption

- Potential for violence and other crimes to result from the facility precinct being used as a thoroughfare

Lighting

The 2012 external risk audit identified some shortfalls in lighting. A thorough lighting audit was outside the scope of our assessment, but there have been improvements implemented since 2012. There are still some areas of the campus that require lighting improvements. Security lighting will need to be carefully designed to remove concealment opportunities. Within the ED and other areas at risk for violence, we recommend warm white lighting to produce a calming effect, being careful to ensure it will not negatively affect colours on CCTV footage.

Workplace Camera Surveillance

There are cameras throughout the site, all monitored via four different Video Management Systems.

There is currently a Milestone upgrade in progress, though configuration details were not available. There is a plan to integrate new Ascom mobile duress alarm devices into Milestone, and this will be a huge benefit.

It is imperative that the Milestone upgrade undergo proper planning prior to installation, and it should have oversight from a qualified Project Manager who understands Nepean Hospital's overall objectives.

We recommend a thorough CCTV audit, to include mapping and re-labelling every camera. Milestone is a very high-end, very costly, enterprise-level, video management system. However, the effectiveness of the solution is only as good as the planning and preparation that goes into it.

For consideration within the future redevelopment project, the Nepean Hospital Redevelopment Project Team should, as a minimum, consider the following issues in accordance with NSW Health Policy:

- What is to be the primary purpose/s of the camera surveillance (e.g. crime deterrence, recording of evidence, verifying identity of persons presenting at doors, assessing risk associated with persons presenting at doors, monitoring of poorly visualised patient areas (e.g. patient courtyards), or spaces such as car parks and driveways

- Is there a history of violence in the area?

- What expectations might the presence of the camera reasonably create in those using the area?

- What level of monitoring is necessary (e.g. monitoring by security staff as well as digital recording), and what is the availability of appropriately licensed and trained security personnel to undertake the monitoring?

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- What information should be contained in the notification signage?

- What type of camera, lens and mounting are best for the purpose and what lighting is needed to support proper functioning?

- Does the introduction of camera surveillance create new or different security risks (e.g. moved potential illegal activity to other surrounding areas)?

- All CCTV cameras must be continuously recording and be connected to a digital storage device with the capacity to store at least one week's images

- Where CCTV is installed as a security measure, it should be continuously monitored or managed in a way that ensures an appropriate response is activated in the event of a violent incident. Images should also be recorded so that evidence is available in the event of an incident

- The following factors must be considered when assessment is being made on the placement of overt CCTV:

  o Where a security risk assessment results in the decision to use overt camera surveillance in a particular location, effective placement of the camera within this location is critical to the success of a surveillance strategy aimed at controlling security risks

  o Expert advice on the type and location of cameras. This could be provided by internal security personnel or by external parties such as installers and private security companies

  o Areas where there is a higher likelihood for violent incidents to occur (i.e. building entrances, waiting rooms, reception and cashier desks, etc.)

  o Location of CCTV should not encroach on patient privacy and confidentiality (i.e. no view of clinical procedures or physical examinations). CCTV must not be placed in any change room, toilet facility or shower or other bathing facility

  o Lighting levels, including shadowing, minimum lux levels, type and height including varying lighting levels in open areas as opposed to under awnings, etc., and obstructions to fields of view

  o Placement to ensure elimination of any concealment opportunities. Where the CCTV is being used as an access control strategy, if there is a possibility of line of sight not being maintained or a suggested placement of a camera does not fully cover the entry point allowing for visual identification prior to allowing access of a person, a second camera or a change of lens needs to be considered

  o Landscaping, including line of sight, type and growth rate of trees and vegetation

  o Pedestrian and vehicular thoroughfares, including analysis of the amount of pedestrian and vehicular access throughout each day

  o The recommended height of equipment above ground to deter potential vandalism and damage caused by vehicular traffic (while noting that position height of cameras needs

to allow adequate identification of persons). The use of purpose-built anti-vandal casings or cages can be considered

- o The view from the recommended camera height, taking into account building structures and awnings

- o Direction of the sun, including sunrise and sunset 'blooming' and the possible effect on the cameras

- o Whether cameras need to be attached to private or public property, and if in the case of a private property, whether such approval is likely to be granted by owners

- o Whether private premises would come within the view of the camera

- o The accessibility of equipment for maintenance purposes including any safety issues for staff undertaking the maintenance

- o Possibility of accompanying lighting intruding upon the surrounding area

- o Access to power supply

- o Cabling routes and distances

- o Availability of existing cables and conduits

- o Trenching and reinstatement costs

- o Compatibility with current installations. Can the equipment be networked to allow monitoring at another campus or larger hospital? Access to off the shelf replacement equipment

- o Placement of hard drive and monitors – password protection of hard drive, password protected ability to down load images

- o Placement of monitors with consideration to right to privacy, confidentiality considerations–to include placement of main monitor able to discourage inappropriate viewing or monitoring of staff, patients and visitors

- As far as possible, CCTV must be placed at a position that allows for full facial recognition.

- Review of the placement of CCTV must occur to ensure it remains appropriately placed, and continues to be pointed in the necessary direction

- A maintenance log must be kept

Strategy Recommendations

1. Design clear lines of sight throughout key areas such as ED, PECC, NICU, Birthing, and Maternity IPU. Continually interrogate the ability to "see and be seen" throughout the entire design

2. Implement adequate lighting to prevent any opportunities for concealment

3. Consider using warm white lighting to achieve a more calming effect

4. Install CCTV at all entries/exits, duress alarm locations, waiting rooms, and other key areas; give all cameras a correct, logical, descriptive label; organize them into a logical sequence within the Security Office's Video Management System

5. Implement use of video analytics, video alarm monitoring, and facial recognition as a force multiplier to enhance Security Staff

6. Integrate video alarm monitoring facilities with a carefully zoned Public Announcement system to give the ability to remotely issue verbal warnings from the Security Office during the early stages of a potential security incident, if and when a verbal warning is a suitable response

7. Integrate video alarm monitoring with the fire alarm system to allow video monitoring from the Security Office, in addition to traditional fire alarm monitoring trough a suitable fire alarm monitoring centre

8. Integrate video alarm monitoring with hard-wired and wireless duress alarm systems, allowing the Security Office to receive immediate video footage from the camera nearest to the event. Pay special attention to the requirements for wireless duress alarms, considering coverage and possible RF interference that may reduce reliability. Use 2-button hard-wired duress alarms where practical to prevent accidental activation. Utilize a system that allows for automated testing of each device throughout each shift

9. Design a celebrated Security Office adjacent to the ED, with clear view to and from the ED waiting room

10. Install reed switches on all exterior doors as well as all interior/exterior doors equipped with electronic access control. Implement Door Open Too Long (DOTL) video alarms back the Security Office

11. Carefully plan the integration of existing systems into a single, modern system centrally managed from the Security Office

12. Engage a specialist in Physical and Electronic Security to assist with design and specification

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Territorial Reinforcement

Territorial reinforcement around the hospital grounds is unremarkable. There is a partial fence approximately 1 - 1½ metres tall surrounding part the campus. The rest of the campus is open. We would expect legitimate patients to travel through and between only the intended areas via the intended paths. However, non-patients have the ability to access hospital grounds from any direction.

Once inside, staff-only areas are well identified.

The property is generally well cared for. Some lighting maintenance and graffiti removal is required. Maintenance is contracted to Total Asset Management. Nepean Hospital managers routinely conduct site walk-throughs with Total Asset Management managers to identify items that require maintenance or repair. There may be some delays with conducting maintenance or repairs within the car park areas, managed by Secure Parking. This requires further review.

Strategy Recommendations

1. Design strict access control into secure and staff only areas, with clear boundaries and signage to delineate the two. Restrict access only to areas where restriction is essential. Otherwise, the aim is to give patients and visitors a feeling of openness and transparency. This will require collaboration with clinical staff

2. Design clear transitions and boundaries between public, semi-private, and private spaces. As much as possible, aim to achieve this via creative use of soft, friendly, welcoming methods

3. Design with a view towards sustainable upkeep and maintenance that clearly indicates the presence of proud, capable guardianship

6. About the Assessors

Ben Beville
Risk Adviser & Electronics Engineer

Qualifications
- Bachelor of Science Electrical Engineering, United States Air Force Academy
- Diploma Security & Risk Management; Cert IV Training & Assessment; Cert II Security Operations
- Certificate, NSW Police Safer by Design
- Security Consultant's Licence: NSW, ACT, VIC

Career Synopsis
- 2 years at Southern Cross Protection in multiple Risk Advisory, electronics, and sales roles
- 11 years as an officer in the United States Navy, with Military roles including Commanding Officer, Operations Centre Watchfloor Supervisor, Operations Planner, Electrical Engineering Officer, Boarding Officer, Non-lethal Weapons Instructor, and others
- 1.5 years as a Watchfloor Supervisor at a U.S. Government Network Operations Centre
- 1 year as an Electronic Design Engineer working on R&D contracts for the U.S. Government
- Active self-defence instructor at Krav Maga Defence Institute in Surry Hills

Highlighted Experience
- Recruited, trained and developed three U.S. Navy Boarding Teams. Led more than 130 successful boarding operations during Iraq deployment
- Conducted extensive research and analysis in the development of ground-breaking, ultra-low power radiation detection technologies for Sandia National Labs, the U.S. Defense Threat Reduction Agency and the U.S. Air Force
- Coordinated training of 300+ West-African servicemen in numerous Maritime Security topics
- Spearheaded the U.S. Maritime Assistance Officer program in Djibouti, successfully improving the quality and effectiveness of relations between the Djiboutian Navy and the U.S. Government; Played key role in standing up new Djiboutian Maritime Operations Centre
- Managed over $5 billion in U.S. Department of Defense communications assets across 20,000+ circuits at 265 sites throughout the Pacific area of operations
- Led a Coalition Joint Operations Centre, providing critical oversight for 200+ missions throughout East Africa. Tracked and reported on all U.S. Department of Defense activities in Djibouti and Ethiopia, continuously assessing political developments and security risks
- Organized and supervised non-lethal weapons certification training (Use of Force, Restraint, Batons, Handcuffs and OC Spray) for all security forces aboard USS Chosin deploying to Iraq in 2002

Expert Writing & Presentation:
- Published six editorial articles in ASIAL's Security Insider Magazine, 2016-2017
- Drafted Firefighting as well as Maritime Boarding Tactics Manuals for USS Chosin, 2002

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Richard Myers
General Manager, SX Risk Advisory

Qualifications

- Master of Policing, Intelligence & Counter-Terrorism: Macquarie University, Sydney
- Bachelor of Science (Security): Edith Cowan University, Perth
- Security Consultants Licence: NSW, ACT, VIC, QLD
- Member of ASIS International

Career Synopsis

- General Manager SX Risk Advisory, 2015
- Managing Director Eymet Security Consultants, 2011 - 2014
- 7 years at National / General Manager level with two of Australia's major physical security and mobile patrols business
- 8 years General Management and Risk Management – Cash in Transit industry
- 14 Years NSW and Federal Police, including specialist investigative roles

Highlighted Experience

- Critical Infrastructure & major Manufacturing facilities - completed comprehensive facility Security Risk Audits with recommended mitigation treatments – Reports to Board level
- Design & Construct the Corporate Resilience Plan and strategy for a major electricity, water and gas infrastructure provider, including development of Disaster Recovery and Business Continuity plans
- Cash in Transit operations – identification, assessment and mitigation treatments for extensive network of ATM's & cash points for major Banks
- Immigration Services – led the intelligence, investigations and security components of major bid for offshore detention centres
- Remote Coal Mines – full security risk assessment of site suffering moderate theft levels. Assessment and recommendations given regarding design of CCTV, lighting, access controls, processes and procedures

Expert Reports

- Cash in Transit robbery from soft-skin vehicle – assess the incident, training, procedures and controls from best-practice perspective. Theft of vehicle left for repair and subsequent Police report – probable fraud
- Assault in high-risk licensed premises. Assess the incident from a Duty-of-Care perspective and make recommendations for risk mitigation treatments & strategies

Corporate Protection

- Logistics management for 2011 visit of major international business leader
- Head local detail for major international business leader – 2012

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Daniel Kind
General Manager, SX Technologies

Career Synopsis

- Senior IT & Electronic Security Consultant, Southern Cross Protection
- 4 yrs, General Manager, CAGE Security Alarms
- 8 yrs, Consulting ICT Design and Administration
- 12 yrs, Consulting ICT Administration

Recent ICT and Electronic Security Consulting

- Perpetual Trustees Limited
- Suez Water and Treatment Solutions
- Police Bank
- St Vincent's College Sydney
- Tokio Marine Nichido
- Wyong Council "The Art House"
- Interlink Roads "M5 Motorway"

Highlighted Experience

- ICT and Electronic Security Audit and Design – Performed multiple audit consulting projects, delivering comprehensive and future-proofed design for tender, post installation quality review
- Security Alarm Monitoring Facilities – Designed and maintained a boutique alarm monitoring facility located in Sydney NSW
- Remote CCTV Alarm Verification – Selection, project management and design of high quality remote alarm verification and response product
- At risk individual – Maintenance of a high-risk individual's complete home security integration (CCTV/duress/video response)
- Education – Consulting and design of ICT relocation, Electronic Security System relocation and refresh
- Commercial – Design of HVAC and Building Management System interface with electronic security and ICT systems

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7. Suggested References

We recommend the following list of references—by no means exhaustive—be taken into consideration throughout the design process for this project:

1. Appendix 15 – Draft NHR ICT Strategy "Nepean Hospital ICT Infrastructure Strategy"

2. AS/NZS ISO 31000:2009. "Risk Management - Principles and Guidelines". November 2009

3. Australasian College for Emergency Medicine (ACEM). "Emergency Department Design Guidelines". October 2014

4. Australasian Health Infrastructure Alliance. "Australasian Health Facility Guidelines Rev 6.0". 1 March 2016

5. Australian Medical Association Victoria. "Inquiry into Violence and Security Arrangements in Victorian Hospitals". 2011

6. Business Risks International. "NSW Health Emergency Department Security Review Report". 15 August 2016

7. Counter Terrorism & Special Tactics Command: Business Contact Unit. "NSW Police Force White Level Inspection Procedures". July 2010

8. Crowe, Timothy D; revised by Lawrence Fennelly. "Crime Prevention Through Environmental Design 3rd Edition". 2013

9. Design Council, A&E Design Challenge (London). "Reducing Violence and Aggression in A&E Through a Better Experience". 2011

10. Mair, Julie Samia and Mair, Michael. "Violence Prevention and Control Through Environmental Modifications", Annual Review of Public Health Volume 24. 7 November 2002.

11. McPhaul, Kathleen M, et al. "Environmental Evaluation for Workplace Violence in Healthcare and Social Services", Journal of Safety Research, National Safety Council (USA). 26 March 2008

12. Mental Health Act 2007 No8. 31 August 2015

13. Nepean Hospital Security Department Policy and Procedure Manual. Revised July 2009

14. NSW Department of Urban Affairs and Planning. "Crime Prevention and the Assessment of Development Applications, Guidelines Under Section 79C of the Environmental Planning and Assessment Act 1979". April 2001

15. NSW Health – NSW Police Force Memorandum of Understanding for Mental Health 2017

16. NSW Health GL2012_005. "Aggression, Seclusion & Restraint in Mental Health Facilities - Guideline Focused Upon Older People". 26 June 2012

17. NSW Health GL2013_002. "Management of NSW Police Force Officers' Firearms in Public Health Facilities and Vehicles". 12 June 2013

18. NSW Health GL2015_007. "Management of patients with Acute Severe Behavioural Disturbance in Emergency Departments". 10 August 2015

19. NSW Health GL2015_009. "Psychiatric Emergency Care Centre Model of Care Guideline". 3 September 2015

20. NSW Health IB2017_047. "Health Care Facility Lockdown – A framework for developing procedures". 23 November 2017

21. NSW Health PD2010_033. "Safety and Security of Children and Adolescents in NSW Acute Health Facilities". 02 June 2010

22. NSW Health PD2012_008. "Violence Prevention & Management Training Framework for the NSW Public Health System". 27 January 2012

23. NSW Health PD2012_035. "Aggression, Seclusion & Restraint in Mental Health Facilities in NSW". 26 June 2012

24. NSW Health PD2013_033. "Electronic Information Security Policy". 11 October 2013

25. NSW Health PD2013_050. "Work Health and Safety: Better Practice Procedures". 16 December 2013

26. NSW Health PD2015_001. "Preventing and Managing Violence in the NSW Health Workplace - A Zero Tolerance Approach". 8 January 2015

27. NSW Health PD2015_004. "Principles for Safe Management of Disturbed and /or Aggressive Behaviour and the Use of Restraint". 28 January 2015

28. NSW Health PD2015_043. Risk Management - Enterprise-Wide Risk Management Policy and Framework. 13 October 2015

29. NSW Health Policy. "Protecting People and Property: NSW Health Policy and Standards for Security Risk Management in NSW Health Agencies". June 2013

30. NSW Minister of Health Media Release. "Roundtable Delivers Hospital Security Action Plan". 8 February 2016

31. Occupational Health & Safety Agency for Healthcare in British Columbia. "Preventing Violent and Aggressive Behaviour in Healthcare: A Literature Review". June 2005

32. Parliament of Victoria: Drugs and Crime Prevention Committee. "Inquiry into Violence and Security Arrangements in Victorian Hospitals and, in Particular, Emergency Departments". December 2011

33. Security Industry Act 2007. 25 July 2013

34. Workplace Surveillance Act 2005 No 47. 19 May 2014

35. Zahm, Diane. "Using Crime Prevention Through Environmental Design in Problem-Solving", US Department of Justice, Office of Community Oriented Policing Services. August 2007.