

REDUNDANCY AND DISASTER PLANNING IN HEALTH'S CAPITAL WORKS PROGRAM

Introduction

Critical infrastructure (CI) is defined as that infrastructure, which, if destroyed, degraded or rendered unavailable for an extended period, would significantly impact on social or economic well-being or affect national security or defence. In 2003, the National Counter Terrorism Committee (NCTC) reported to the Prime Minister that health is considered to be critical infrastructure. In Western Australia (WA), ongoing management of critical infrastructure issues resides with the Department of Premier and Cabinet. There are two components of Health's CI:

1. resilience of infrastructure, including redundancy available on site; and
2. the ability to respond to a major CI event resulting in mass casualties.

Since 2003, as new capital works have been undertaken and planned for in Health, the 'Redundancy and Disaster Planning in Health's Capital Works Program and Hospital Development' guidelines have been applied.

The Department of Premier and Cabinet of WA have requested that the Department of Health (DOH) WA review this guideline to further delineate the planning and redundancy infrastructure guidelines to align with hospital descriptors in the WA Country Health Service (WACHS) 'Foundations' strategic plan.

It is acknowledged that the conversion of existing facilities to the following requirements is likely to be cost prohibitive. However, in the event that the facility is part of the capital works development plan or is part of a new development, then it is expected that the following guidelines will be included in the planning and building process.

Reliability and Redundancy Criteria

All hospitals shall have at least reliability and redundancy in the provision and delivery of engineering services to comply with statutory specifications and Proprietor duty of care. In addition:

- Hospitals required to withstand cyclones, tornadoes, or with a post disaster role, (i.e. the entire facility is expected to operate through any local disaster):
 - Be built to withstand credible disasters, as determined by risk analysis and defined by the Proprietor.
 - Have redundancy, consumables storage, operator and maintainer skill training to maintain safe health care services, to the extent required to be provided during disasters, through all credible contingencies.
- Hospitals that will continue to offer invasive surgery or emergency medical services, through failure of normal utility services, shall:

- Have redundancy, consumables storage, operator and maintainer skill training to maintain safe health care services, to the extent required to support the surgery and emergency stabilisation and post surgery or post stabilisation medical care, through all credible contingencies.
- Hospitals that will close down surgery and emergency stabilisation on failure of normal utility services shall:
 - Have redundancy, consumables storage, operator and maintainer skill training to maintain safe health care services, to the extent required to safely close down current surgery and emergency medical care and then maintain non interventional patient medical care, through all credible contingencies.
- Contingencies to be covered shall be determined as part of the risk management process and shall include but not be limited to:
 - Normal utilities source failure
 - Normal consumables source failure
 - Equipment and plant module failure
- During contingencies, non critical medical and medical support services that can be safely closed down may be so closed down if this is required to divert capacity or reliability to required critical services. Such diversions of services shall be part of the Facility Risk Management Plan, which will define:
 - circumstances in which the diversion is permitted;
 - conditions and precautions associated with the diversion and reinstating normal operation;
 - who is authorised to make the diversion; and
 - training of operators.

Mass Casualty Planning

Hospitals do not provide the same level of clinical services and, as such, will not all provide the same level of disaster response. Hospitals in Western Australia have been role delineated into five distinct groups, dependent upon their clinical service delineation and the risk of response required to terrorism determined by the presence of significant CI within the hospital's catchment area.

Group 1	Tertiary and specialist institutions within Perth with emergency departments. Royal Perth Hospital (RPH), Sir Charles Gairdner Hospital (SCGH), Princess Margaret Hospital for Children (PMH), Fremantle Hospital, and the planned Fiona Stanley Hospital and expanded Joondalup Hospital
Group 2	The secondary hospitals within Perth, with emergency departments, and the major private hospitals that are identified in the Metropolitan Business Continuity and Disaster Plan (Attachment 1). The WACHS has identified six regional resource centres ¹ and the following hospitals in high risk CI areas, such as Nichol Bay (Karratha) Hospital, Ravensthorpe and Esperance.

¹ Foundations 2007 – 2010, pg 34 identify the six regional hospitals as being Albany, Broome, Bunbury, Geraldton, Kalgoorlie and Port Hedland.

Group 3	Perth hospitals, without emergency departments. Speciality hospitals such as RPH Shenton Park Campus, Graylands and King Edward Memorial Hospital are considered in Group 3 for disaster planning and Group 1 for redundancy planning. WACHS has identified 15 integrated district health services (Attachment 2).
Group 4	WACHS has role delineated 53 hospitals as small hospitals. Many of these small hospitals have changed their focus from providing acute inpatient care to a stronger role in providing residential aged care. Within this role delineation, three levels have been identified. Refer to Attachment 2 for further details.
Group 5	Level 2 and level 3 small country hospitals. These small hospitals have less than 250 acute inpatient discharges per year (Refer to Attachment 2 for further details).

Disaster planning and preparedness considerations will include the requirements to respond to a mass casualty situation and the specific requirements for a chemical, biological or radiological release health response. As per Westplan Health, hospital plans will include the procedure to deploy medical teams, the composition of the medical team and whether the team is deployed as part of a local or regional deployment plan.

The general requirements are as follows:

Mass casualty situation	<ul style="list-style-type: none"> ▪ Any kind of mass casualty situation potentially involves a significant degree of trauma / burns injury management. ▪ Response subplans for emergency departments, intensive care/high dependency units, theatres, recovery areas, burns treatment and the walking wounded shall be in place.
Chemical casualties	<ul style="list-style-type: none"> • Decontamination facilities with the ability to cater for large numbers of ambulatory and smaller numbers of non-ambulatory contaminated cases. • Personal protective equipment (PPE). • Staff trained in PPE use. • An area to manage potentially large influx of patients. • The ability to isolate patients in the ED without contaminating the rest of the ED. • The ability to secure the perimeter of the hospital to prevent potential further contamination. • L3 intensive care unit (ICU) facility. • Staffed available theatres. • Laboratories, with trialled procedures for collecting and transporting chemical specimens. • Mortuary facilities with a capacity for expansion.

Biological casualties	<ul style="list-style-type: none"> • ED and general ward negative pressure rooms • Respiratory L5 or quarantine standard. • The ability to isolate air conditioning in a designated ward cohort area. • Laboratories with trialled procedures for collection and transporting of biological specimens. • ICU (e.g. SARS would require ICU / Smallpox would not).
Radiological casualties	<ul style="list-style-type: none"> • Decontamination facilities for large exposures. • Personal protective equipment (PPE). • Staff trained in PPE use. • Dosimeter or other hand held monitoring device at entrances. • Specific mortuary plans are required for the storage of contaminated bodies. • The ability to isolate patients in the ED without contaminating the rest of the ED. • The ability to secure the perimeter of the hospital to prevent potential further contamination.

MASS CASUALTY DISASTER PLANNING REQUIREMENTS

	Group 1	Group 2	Group 3	Group 4	Group 5
State Health Emergency Operations Centre	<ul style="list-style-type: none"> ▪ Two pre-designated locations in different geographical areas (ideally on separate power supply grids). ▪ Physical (including document templates and information management processes) and IT infrastructure to be mirrored at both locations. ▪ DoH radio network communications, mobile phone, satellite phone, PABX and non-PABX phone lines. ▪ Dedicated email address to be used for information receipt and dissemination. ▪ Incoming and outgoing FAX lines. ▪ Television with cable/pay TV and video recording capabilities. ▪ Emergency power and UPS back up. ▪ Direct line to FESA, SJA operations and RFDS operations. 	<ul style="list-style-type: none"> ▪ Not required <p>WA Country Hospitals will establish regional emergency coordination centres for the purposes of coordinating a regional (district) response. Requirements will be as for a hospital emergency incident centre.</p>	<ul style="list-style-type: none"> ▪ Not required 	<ul style="list-style-type: none"> ▪ Not required 	<ul style="list-style-type: none"> ▪ Not required

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	Group 1	Group 2	Group 3	Group 4	Group 5
<p>Individual Hospital Emergency Operations Centre (EOC).</p> <p><i>Note: Every hospital requires a nominated EOC.</i></p>	<ul style="list-style-type: none"> ▪ Two pre-designated locations in different geographical areas (ideally on separate power supply grids, and in different fire zones). Area to be large enough to accommodate up to 10 work stations. ▪ Internal hospital 2 – way radio communications; ▪ DoH external 2- way radio network communications; ▪ Direct telephone lines (non-PABX) as well as PABX lines. ▪ PABX connected to UPS. ▪ Ability to receive and make mobile phone calls. ▪ Dedicated email address to be used for information receipt and dissemination. ▪ Incoming and outgoing FAX lines. ▪ Television with cable/ pay TV and video recording capabilities. ▪ EOC to have redundancy in power supply i.e. essential, non-essential and UPS. ▪ Direct telephone line to FESA. ▪ Dedicated disaster satellite phones for EOC and deployed medical teams. (May require 	<p>As group 1 in Perth metropolitan areas.</p> <p>WA Country Health:</p> <ul style="list-style-type: none"> ▪ Internal hospital radio network. ▪ PABX line, with back-up direct line and UPS. ▪ Dedicated mobile phones for disaster preparedness with number internally advertised. ▪ Dedicated disaster preparedness satellite phones for HEIC and medical teams deployed. ▪ Dedicated email address to be used for information receipt and dissemination. ▪ HEIC connected to the essential power. ▪ Incoming and outgoing FAX lines. ▪ Plans to include FESA providing hand-held radio to 	<ul style="list-style-type: none"> ▪ PABX line, with back-up direct line and UPS. ▪ Single fax line for ECC. ▪ Nominated ECC is connected to essential power. ▪ Plans to include FESA providing hand-held radio to ECC for link to FESA during a disaster. ▪ Radio (to listen for community alerts). ▪ Minimum of 2 network connections. ▪ Dedicated email address to be used for information receipt and dissemination 	As for group 3	As for group 3

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	Group 1	Group 2	Group 3	Group 4	Group 5
	<p>external Satellite aerial.)</p> <ul style="list-style-type: none"> ▪ Computer network switch to have the capacity to accommodate up to 10 network points for the EOC computers. (Wireless network communications are acceptable) ▪ Ability to digitally record telephone (PABX and non-PABX) and 2-way radio communications. ▪ EOC to have easy access to rest and refreshment area in the event of a protracted incident. (Kitchenette co-located with EOC is acceptable) 	<p>HEIC for link to FESA during a disaster.</p> <ul style="list-style-type: none"> ▪ Radio (to listen for community alerts). ▪ Minimum of 4 network connections. ▪ Preferable TV capacity in the HEIC. ▪ Videoconferencing capacity on site. 			
Decontamination Showers	<p>6 – 8 Decontamination showers with continuous warm water supply. Ability to segregate showers for gender. Ingress and egress pathway with easy staff access to the showers, which will not contaminate the main ED entry or block ambulance access to ED. Single mobile shower system for those patients that require assisted decontamination on a trolley with ED staff (can be located in ED Ambulance Bay).</p>	<ul style="list-style-type: none"> ▪ 4 decontamination showers with warm water for “walking wounded”. ▪ Ability to segregate showers for gender. ▪ Ingress and egress pathway with easy staff access to the showers, which will not contaminate the ED entry. ▪ Single mobile 	No specific showers required.	As for group 3.	As for group 3.

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	Group 1	Group 2	Group 3	Group 4	Group 5
	Loud speaker system. Signage and voice recordings in different languages. Area for collection of patients' belongings.	shower system for those patients that require assisted decontamination on a trolley. <ul style="list-style-type: none"> ▪ Loudspeaker system. ▪ Area for collection of patients' belongings. 			
		Need to base the above factor on local risk assessment relating to local industry	Need to base the above factor on local risk assessment relating to local industry	Need to base the above factor on local risk assessment relating to local industry	Need to base the above factor on local risk assessment relating to local industry
ED Disaster storage area for equipment	Secure room either within ED or in close proximity with shelves, rails and cupboards for storage of disaster equipment for deployment with medical teams. Area to include charging station (Essential and UPS power supply) for satellite phones, 2-way radios, CBR suits. (It is preferable that this area is co-located with ED Disaster Team preparation area). If not co-located with Disaster Team Preparation area, it will require telephone points (PABX	Specific area designated with shelves and cupboards for storage of disaster equipment for deployment with medical teams.	Specific area and cupboards designated for storage of disaster equipment for deployment with medical teams, for those sites designated to deploy a medical team.	Need to base this factor on local risk assessment relating to local industry	Need to base this factor on local risk assessment relating to local industry

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	and non-PABX) and a computer network terminal.				
ED Disaster Team Preparation area.	Area for staff to robe and disrobe pre and post disaster events, preferably near a shower area so there is no requirement to walk long distances in PPE. Staff area will require shower area and toilet facilities, with drinking facilities available, such as water fountain or bottled water. This room requires telephone access points (PABX and non-PABX) and a computer network point.	Area for staff to robe and disrobe for disaster events, preferably near the shower area, so there is no requirement to walk long distances in PPE. Staff area will require shower area and toilet facilities, if possible with drinking fountain available.	Not required unless in a high risk industrial area.	Need to base this factor on local risk assessment relating to local industry	Need to base this factor on local risk assessment relating to local industry
Inter hospital radio communications system	EOC must be able to communicate with the different metropolitan hospitals via 2-way radio as well as the SHEOC	EOC must be able to communicate with the SHEOC WACHS Regional EOCs (however titled) – must be able to communicate with the SHEOC. Whilst desirable it is acknowledged that it is probably cost prohibitive to have regional inter-hospital radio networks.	HEIC must be able to communicate with the SHEOC.	Not required	Not required
Internal hospital radio network	EOC staff must be able to communicate with internal hospital teams via 2-way radio in times of	HEIC staff must be able to communicate with internal hospital teams in	Not required, use other means for internal communication such as	As for group 3	As for group 3

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	Group 1	Group 2	Group 3	Group 4	Group 5
	crisis.	times of crisis.	internal phones, mobiles or runners.		
Negative pressure rooms in ED	2 negative pressure rooms that comply with the Commonwealth quarantine requirements as stipulated for SARS.	1 negative pressure room that complies with the Commonwealth quarantine requirements as stipulated for SARS.	Not required	As for group 3	As for group 3
Ward capable of isolated cohort management use	1 ward (>20 beds) capable of having AC isolated so that infected patients can be “co-cohorted”. In addition, the AC system should be hepafiltered to remove particulate matter.	1 x 4-bedded (or larger) room capable of having AC isolated so that infected patients can be “cohort managed”.	Not required.	As for group 3	As for group 3
Perimeter security – i.e. immediate lockdown	Perimeter of hospital must be able to be secured electronically to prevent contaminated or armed persons entering the building. Perimeter security systems to be connected to UPS and Essential Power supplies.	Perimeter of hospital must be able to be secured electronically to prevent contaminated or armed persons entering the building	The perimeter of the hospital shall be able to be secured manually. WACHS hospitals should base this requirement on local risk assessments.	As for group 3	As for group 3
Dosimeter monitoring device in ED and main hospital entrances	Radiological monitoring device at ED and main hospital entrances	Radiological monitoring device at ED and main hospital entrances	Not required for the purposes of disaster preparedness.	As for group 3	As for group 3
Closed	Continuous real time digital	As for group 1.	CCTV monitoring at	Not required for	Not required for

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	Group 1	Group 2	Group 3	Group 4	Group 5
Circuit Television (CCTV) monitoring	recording of CCTV monitors with a capacity to store data for 10 - 14 days. Each storage box to have capacity to record no more than 20 cameras simultaneously (The more camera's per storage box, the less capacity to view real time data.) CCTV cameras are to be located at designated entry and exits, pharmacy and nuclear waste storage area. (As per Australian Standards 4485.2 – 1997, Security for health care facilities 5.24. and Australian Standard 2201.) Security systems to be connected to UPS and Essential Power supplies.		designated entry, exits, and pharmacy.	the purposes of disaster preparedness.	the purposes of disaster preparedness.
Security monitoring	Footage from each camera and several cameras concurrently shall be recorded. Monitoring from each camera shall occur by a competent person able to respond to incidents or report incidence to someone who can respond.	Footage from each camera shall be recorded.	As for group 2.	Not required for the purposes of disaster preparedness.	Not required for the purposes of disaster preparedness.
Appropriate access and egress pathways	Separate roads for entry and exiting hospitals so that emergency services vehicles do not get hampered by the hospital decanting or emergency evacuation protocols, which will	Must be one entry/exit other than the ED that is capable of managing large numbers of people and large vehicles (i.e. buses / ambulances etc)	It would be desirable to have an alternate entry/exit that is capable of managing large numbers of people and vehicles.	Not required for the purposes of disaster preparedness.	Not required for the purposes of disaster preparedness.

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	Group 1	Group 2	Group 3	Group 4	Group 5
	involve ambulances and large vehicles, such as buses.	so that the hospital can be decanted to make room for mass casualties.			
Chemical contamination room in the ED (charcoal filters required)	Single isolation room for chemically contaminated victims, which requires activated charcoal filters.	Single isolation room for chemically contaminated victims, which requires activated charcoal filters.	Not required unless in a high risk industrial area.	Not required for the purposes of disaster preparedness.	Not required for the purposes of disaster preparedness.

Resilience and Redundancy Planning

Redundancy planning includes addressing the risk and consequence of internal failure, the loss of service and the extent or impact of the loss of service. Redundancy planning includes assessment of the hospital's dependency upon major utilities and also the resilience of the hospital's own infrastructure against any type of attack, whether it is deliberate or accidental. While many of the requirements are outlined by Australian Standards, others are not.

Electricity supply is considered in the context of critical service delivery, which if discontinued, will result in loss of life immediately or within a short-space of time, such as critical care services and theatre services. Renal dialysis services are included for country areas, where there is limited ability to transfer and accommodate patients at other services.

Communications systems are essential to be able to maintain services. Successful internal hospital responses to clinical emergencies are dependent upon efficient communication systems. Australian Standards determine that a minimum of two independent communication systems are required. In a disaster situation, the literature notes that communications fail often and it is essential that multiple systems and modes of communication are available, both internal and external to the facility.

Provision of fresh water is essential, not only to maintain life but also for other essential services provided in hospitals, such as laboratory, cleaning, catering and sterile supply service.

Fuel supply (i.e., LPG or natural gas) is required for such things as sterilising and cooking. The ability to utilise fuels inter-changeably is highly desirable.

Provision of oxygen is essential to maintaining lives and the required redundancy is well covered under the Australian Standards.

Health services are increasingly dependent upon information systems for quick and easy access to all patient information. Interruption of information flow severely impedes the speed with which patients can be treated and cared for and may adversely affect patient safety.

The increasing toll of natural disasters worldwide is a significant consideration for building infrastructure in WA, given potential disasters from the Meckering fault line, cyclones in the north-west and storm surges and tornados in Perth and Bunbury. Hospital developments will follow industry standards when construction is undertaken. Hospital developments shall be built to withstand the one in one hundred year occurrence, whether that be an earthquake, flood or cyclone.

Detection, isolation and emergency exits in the event of fire are well documented in the Australian building codes and standards.

REDUNDANCY PLANNING REQUIREMENTS

	Group 1	Group 2	Group 3	Group 4	Group 5
Electricity supply	Minimum of 2 power feeder lines through different substations. Separate generators for different areas of the hospital with sufficient capacity to replace power supply. Ability to load shed requirements from one generator to another. UPS supply for critical care areas.	2 Power feeder lines through different substations. Separate generators for different areas of the hospital with sufficient capacity to replace power supply. Ability to load shed requirements from one generator to another. UPS supply for critical care areas.	Single power feeder line with essential power back up. UPS to be installed in all theatres, labour rooms and for emergency lighting in the patient areas.	Single power feeder line with essential power back up. UPS to be installed for emergency lighting in the patient areas.	Single power feeder line with essential power back up. UPS for emergency lighting in the patient areas.
Diesel storage	Storage of diesel fuel for generators should be in a concealed location (e.g. underground) to reduce the risk of deliberate sabotage.	Storage of diesel fuel for generators should be secured.	As for group 2.	As for group 2.	As for group 2.
Communications system	<ul style="list-style-type: none"> ▪ Power fail lines (non PABX lines) present in all key areas of the hospital. ▪ PABX supported by UPS with a minimum of four hours duration. ▪ Internal radio 	<ul style="list-style-type: none"> ▪ Power fail lines (non PABX) present in all key areas of the hospital. ▪ PABX supported by UPS with a minimum of four hours duration. ▪ Internal radio 	<ul style="list-style-type: none"> ▪ Power fail lines (non PABX lines) present in key areas of the hospital, including HEIC, emergency department, reception and ward. ▪ PABX supported by UPS with a minimum 	<ul style="list-style-type: none"> ▪ Power failure lines (non-PABX line) to the hospital. ▪ PABX supported by UPS with a minimum of four hours 	As for group 4.

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	Group 1	Group 2	Group 3	Group 4	Group 5
	<p>network and mobile phones to support paging system failure.</p> <ul style="list-style-type: none"> ▪ External communications via DOH radio network. ▪ Dedicated email address to be used for information receipt and dissemination. ▪ Satellite phone. 	<p>network and mobile phones to support paging system failure.</p> <ul style="list-style-type: none"> ▪ External communications via Metro HEOC / DOH radio network (Perth only). ▪ WACHS - Satellite phone for deployed teams ▪ Dedicated remote access laptops available for critical health support functions, such as human resources, patient information systems, payroll, finance 	<p>of four hours duration.</p> <ul style="list-style-type: none"> ▪ Internal radio network. ▪ Hospital intercom system to support paging system failure. ▪ Mobile phones to support paging system failure or satellite phone for non-mobile areas. ▪ Satellite phone for Field Medical Commander (if nominated to deploy medical team) 	<p>duration.</p> <ul style="list-style-type: none"> ▪ Secondary internal communication system in place, such as intercom, mobile phones or satellite phones in non-mobile areas. 	
Water	Multiple supply lines with different points of entry or sufficient water storage capacity for 24 hrs usage and re-supply arrangements in place. Individual sites must have water redundancy	Dual supply lines with different points of entry and / or sufficient water storage capacity for 24 hrs usage and re-supply arrangements in place. Individual sites must have water redundancy	Single supply line – storage facility to supply drinking water requirements for 24 hrs usage and re-supply arrangements in place. Individual sites must have water redundancy	As for group 3	As for group 3

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	requirements in their business continuity, disaster plans.	requirements in their business continuity, disaster plans.	requirements in their business continuity, disaster plans.		
Fuel supply	Ability to interchange fuel source for hospital requirements. If using LPG, have 1 week's storage capacity.	LPG storage [or other fuel storage] capacity for 7 days.	LPG storage [or other fuel storage] minimum capacity for 7 days. <i>Note: many country hospitals will provide storage for a greater time due to local risks, such as closure of roads from flooding.</i>	As for group 3	As for group 3
Oxygen Supply	<ul style="list-style-type: none"> ▪ Reticulated oxygen supply with ability to insert F Packs and cylinder backup at every critical bedspace and in every required area. ▪ Storage tank should be located away from patient care areas. ▪ Tank should be securely stored (i.e. perimeter security measures to ensure that tampering with the tank cannot occur). 	<p>As for group 1.</p> <p>In country hospitals, any Business Continuity Plan (BCP) is to also include redundancy for the supply of home oxygen services.</p>	<ul style="list-style-type: none"> ▪ Single supply of oxygen i.e. reticulated or cylinder with back up supply in the required area. ▪ Cylinders are to be restrained. ▪ Bulk storage of spare cylinders is to be secured and away from patient areas. ▪ Individual sites are to have oxygen supply redundancy requirements in their BCP, including the supply of home oxygen 	As for group 3	As for group 3

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	Group 1	Group 2	Group 3	Group 4	Group 5
Information systems	Hospital servers on UPS and essential power, information backed up each day and information stored in more than one location off site. Server room AC supplied by generator in the event of power failure.	Hospital servers on UPS and essential power, information backed up each day and information stored off site. Server room AC supplied by generator in the event of power failure.	Hospital servers on UPS and essential power, information backed up each day and information stored off site. Server room AC connected to essential power in the event of power failure.	As for group 3	As for group 3
Building design and construction materials	<ul style="list-style-type: none"> ▪ Building must conform to the appropriate building specifications for potential risk to the area (i.e., if in a cyclone area must be cyclone proof etc). ▪ Ability to isolate air conditioning in different clinical areas for infectious diseases and cohort management purposes. ▪ Separate blocks of the hospital must be able to be run 	As for group 1	As for group 1	As for group 1	As for group 1

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	Group 1	Group 2	Group 3	Group 4	Group 5
	<p>independently.</p> <ul style="list-style-type: none"> ▪ In addition to architectural and Australian Standards, AC engineering should conform to DOHA SARS Infection Control Guidelines. ▪ AC intake vents should be above ground level to reduce risk of deliberate release via the AC system. 				
Waste disposal systems	<ul style="list-style-type: none"> ▪ All sewer outlet systems must be connected to emergency power and if there is a risk of contamination due to failure of power supply then UPS should also be installed to the system. 	All sewer outlet systems must be connected to emergency power and if there is a risk of contamination due to failure of power then UPS should also be installed to the system.	All sewer outlet systems must be connected to emergency power, in the event of failure and subsequent contamination there must be evacuation and relocation plans for residents and staff.	If there is contamination, there must be evacuation and relocation plans for residents and staff.	If there is contamination, there must be evacuation and relocation plans for residents and staff.

Attachment 1

1. Armadale Health Service
2. Hollywood Private Hospital
3. Joondalup Health Campus
4. Mercy Hospital
5. Mount Hospital
6. Rockingham - Kwinana District Hospital
7. St John Of God Health Care Murdoch
8. St John Of God Health Care Subiaco
9. Swan District Hospital
10. Peel Health Campus

Attachment 2: WA Country Health Service Role Delineation

Regional Hospitals (6)

Broome Hospital
 Port Hedland Hospital
 Geraldton Hospital
 Kalgoorlie Hospital
 Albany Hospital
 Southwest Health Campus (Bunbury)

Summary of Services

Diagnostic, Secondary-level acute and procedural services
 Emergency and outpatient care
 Specialist services and the coordination of outreach specialists

Integrated District Health

Services (15)

Busselton
 Carnarvon
 Collie
 Derby
 Esperance
 Katanning
 Kununurra
 Margaret River
 Merredin
 Moora
 Narrogin
 Newman
 Nickol Bay (Karratha)
 Northam
 Warren (Manjimup)

Summary of Services

Diagnostic, emergency, acute inpatient and minor procedural services
 Low-risk obstetrics (where skilled workforce in place)
 Aged care services (where required)
 Coordination for acute, primary & mental health services at the district level

Small Hospitals (53)

Summary of Services

Emergency care services
 Residential aged care services
 Some minor medical and minor surgical services
 Primary care services

Level 1 [16]

250 acute inpatients per year

Bridgetown
 Dalwallinu
 Denmark
 Donnybrook
 Exmouth
 Fitzroy Crossing
 Halls Creek
 Harvey
 Kellerberrin
 Kununoppin
 Laverton
 Meekatharra
 Plantagenet (Mt Barker)
 Roebourne
 Tom Price
 Wyndum

(>

Level 2 [26]

(100 - 250 acute inpatients)

Augusta
 Beverley
 Boddington
 Boyup Brook
 Bruce Rock
 Corrigin
 Cunderdin
 Gnowangerup
 Goomalling
 Kojonup
 Kondinin
 Lake Grace
 Leonora
 Narembeen
 Norseman
 Northampton
 Onslow
 Paraburdoo
 Pemberton
 Quairading
 Ravensthorpe
 Southern Cross
 Wagin
 Wongan Hills
 Wyalkatchem-Koorda
 York

Level 3 [8]

(<100 acute inpatients per year)

Dumbleyung
 Morawa
 Mullewa
 Nannup
 North Midlands (Three Springs)
 Pingelly
 Wickham
 Yarloop