Guideline

Decontamination of Paediatric Patients Guideline

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Supersedes	New				
Applicable to	Emergency staff managing patients who are contaminated with potentially hazardous materials				
Authorisation	Executive Director Clinical Services				

Purpose

This plan outlines the Children's' Health Queensland Emergency Department's approach to patients presenting to the facility require decontamination from potentially hazardous materials.

Scope

This guideline applies to all Emergency Staff who are managing patients who are contaminated with potentially hazardous materials.

Supporting documents

Procedures, Guidelines and Protocols

- CHQ-PROC-62420 Code Brown- External Emergency and Disaster
- Patient Decontamination Fact Sheet

Definition

Decontamination refers to the process of removing a hazard from an exposed person, property or environment. The goal of decontamination is to ensure that the hazard is no longer in contact with the person; this reduces exposure of the victim to the hazardous material and reduces the likelihood of transfer of the material to those personnel caring for the patient. The aim is to prevent further harm to the exposed person, and to prevent the occurrence of new exposures.

Principles

The principles underlying the decontamination process include:

- **Patient Safety and Well-being**
  - Immediate life threats take priority over decontamination; resuscitative measures will be attempted alongside decontamination procedures
  - Prevention of complications of decontamination such as hypothermia
  - Age-appropriate supervision including gender specific decontamination teams where indicated
  - Respect for privacy
  - Family-centred care - where more than one family member presents to the facility, maintain the family unit during decontamination unless medically inappropriate (for example seriously injured parent with uninjured child)
  - Prevention of harm to non-contaminated people in the ED
  - Consider psychosocial needs and follow-up
- **Staff Safety and Well-being**
  - Appropriate PPE will be available
  - Specific roles will be designated and role cards available
  - Staff exposure times and wellness will be monitored by others outside the decontamination hot zone
  - Staff will be supported in their decision if they feel unsafe or unwell and need to stand down
  - Prevention of contamination of the ED environment
- **All-Hazards Approach**
  - Where the agent is unknown, a universal all-hazards approach is taken
- **Preparedness**
  - Staff will be trained in the use of Level C PPE
  - Staff will be trained in the decontamination process
  - Decontamination team members will be identified at the start of every shift

The process for decontamination is outlined in the following Guideline.

Need for Decontamination[1]

The management of Hazardous Materials (HazMat) emergencies is the responsibility of the Queensland Fire and Emergency Service (QFES). In the event of a HazMat incident, QFES will manage the scene and direct decontamination procedures at the site. Once this has occurred, patients will be transported to health care facilities. These patients will not require decontamination at our facility and can be triaged and treated as per usual processes. However, it is well recognised that a number of patients may bypass the scene decontamination process, for example arriving via their own transport to hospital[2,3]. These patients will require decontamination at our facility prior to entrance into the emergency department.

Who Needs Decontamination?	Who does not need decontamination?
People who are visibly contaminated	No visible contamination of skin or clothing
People who are symptomatic of contamination	Asymptomatic – with negative radiological screening or no suspicion of same
Radiological screening indicates a radiation level of at least twice that of background radiation	History makes exposure unlikely (eg distant form source of exposure)
	They have been decontaminated at the scene by QFES

Decontamination procedure

Patient Flow

(1) A patient presents who is identified as needing decontamination

(2) Immediate assessment by Triage RN to ascertain whether there is compromise of airway, breathing or circulation. This is a rapid assessment and not a formal triage process.

(3) If identified as ABC compromised, the patient is managed in orange zone and decontamination occurs concurrently / as able with resuscitation.

(4) If identified as ABC intact, the patient is directed out of the department to the QAS bay to await arrival of the decontamination team, and decontamination is undertaken in the decontamination trailer. The 'clean' patient then re-enters the department for triage and management as per usual processes

(5) The 'dirty' decontamination team members shower in the trailer and don clean clothes

If it becomes clear that there are multiple presentations from a pre-hospital incident, QFES will need to be notified to provide on-scene decontamination and to provide assistance with decontamination of patients who present to QCH. If it is anticipated that numbers will exceed the capability of local facility decontamination processes, QFES should be called to aid on site at QCH.

Showering

The mainstay of decontamination is the use of large volumes of low pressure tap water – clean the skin without being painful. Water temperature should be tepid[4,5], taking care to avoid hypothermia particularly in susceptible infants; water which is too hot may result in increased dermal absorption of the toxin.

- Duration of showering should be 3 minutes unless expert advice recommends a longer duration[6]
  - Prolonged skin washing can result in a paradoxical increase in absorption of contaminants[7-9]
- The water temperature in the decontamination trailer is pre-set and does not require adjustment
- People who can self-decontaminate should do so
  - However, do not assume caregivers will be able to adequately decontaminate themselves and their children; staff will need to supervise / assist
- Use of **soap** enhances the efficacy of decontamination but is not essential[6, 10-12]

  - can be useful in that the need for removal of suds identifies whether part of body still requires rinsing; problematic if gets in eyes etc.
  - If soap is used, it should be a non-irritant soap; use of alcohol-based soaps or hand washes is not recommended due to the potential for irritation of skin and mucous membranes
  - The QCH Decontamination trailer is stocked with soap for use in a hand dispenser
- **Scrubbing of the skin is not required** and, in some instances, can increase exposure; for example radiological exposures are increased by presence of skin abrasions or trauma[13,14]
- Particular attention should be paid to rinsing of **open wounds** and cuts as these are portals of increased exposure, particularly for radiological incidents
- **Eyes** should be rinsed from the inner canthus to the outer canthus with water or saline
- Older children should be encouraged to rinse **mouth** out with water and even brush teeth if that facility is available
- Younger children should have the inside of their mouth rinsed with a wet swab if possible
- Where decontamination is occurring in parallel with resuscitation, **dry decontamination** can be performed[15,16]
  - Cut clothing to remove
  - Wipe over all patient surfaces with combine or other absorbent material
  - Provided in the CBR boxes in Orange Zone
  - If agent is caustic or visible contamination is still present, wipe the patient over with a wet combine and then wipe them dry
- **Clothing**
  - Removal of clothing accounts for removal of most contaminants (85%) [1, 17]
  - Should be removed and placed in labelled plastic bin bags in the pedal bin in the decontamination trailer
  - One person's clothing and items per bag
  - The bag should be placed in another plastic bag (double bagged) by the 'dirty' decontamination team member
  - The bag should be labelled with the tickets provided in the cupboard of the decontamination trailer; 1 ticket is given to the owner of the items and the other is zip lock tied onto the bag
  - Depending on the contaminant the bag may be able to move with the patient or may require secure storage; suggest liaison with Poisons Information phone 131126 if uncertain
  - If clothing is required for forensic purposes it will require secure storage by security prior to the arrival of the Forensic Police; contact Security in this circumstance
  - After showering and drying, the patient dons clean clothing. This clothing is stored in the cupboards within the decontamination trailer and includes footwear. Provision of this clothing is part of the responsibility of the decontamination team
- **Eye Glasses** [18]
  - Can be decontaminated with the patient and travel with the patient
- **Contact Lenses**

- Should be removed and placed in labelled zip lock bag and remain in the hot zone[1]

- **Hearing Aids**
  - Cannot be immersed in water
  - Must be removed prior to decontamination shower
  - Ideally labelled and placed in zip lock bag and left in hot zone
  - If the patient is dependent on the hearing aid for hearing then it should be removed prior to the shower, wiped over with a cloth, placed in a zip lock bag and be returned to the patient after their decontamination shower is complete; to be replaced in the clean ear in Warm Zone.
- **Cochlear Implants**
  - Cochlear implants should be removed prior to showering, wiped over and then reconnected after the patient has been decontaminated; there is no other difference in the decontamination procedure
- **Permanent Venous Access Lines**
  - Will not generally need to be replaced
  - Change dressing
  - Wipe over any exposed line and clean surrounding skin
  - Redress and cover with large tegaderm prior to entering the shower
  - Ensure sterile technique when dealing with central / permanent access lines
- **Prosthetic limbs [17]**
  - Can be decontaminated with the patient and travel with the patient
- **Stoma bags / PEG tubes or similar / NGT / IDC**
  - Will usually be able to be decontaminated with the patient rather than replaced
  - If it is easy to change part of the apparatus - for example the stoma bag or a drainage bag - then this could be removed in the hot zone and replaced in the warm zone.
- **Tracheostomy Tubes**
  - Will usually be able to be decontaminated with the patient rather than replaced
  - In the shower the tracheostomy tube should have a Swedish nose applied (stored in ED)
- **Wheelchairs or other mobility devices**
  - Equipment that has come from the scene and has not been through the site decontamination process should be presumed to be contaminated
  - 'Disposable' or non-essential equipment or equipment that the hospital can provide in the short term (eg crutches, prams, strollers) should remain – labelled with the patient's name /ID - in the hot zone; as time permits they should be wiped over with moist towel then dried (or placed in shower if appropriate) and returned to patient after approval by the decontamination team leader
  - Essential equipment eg motorised or personal wheelchair, should be wiped over with moist towel then dried, taking care to cover all surfaces and cause no damage
  - Permanent walking aids belonging to the patient and that the patient depends on for mobility eg cane, walker can be decontaminated with the patient

- **Mobile phones, handbags, wallets, keys, jewellery**
  - Belongings exposed to the environment should be presumed to be contaminated and ideally would remain in a secure monitored location within the hot zone
  - However, valuables such as keys, phone, wallet that have been inside a bag / handbag (ie not directly exposed) and that have no visible evidence of contamination may be decontaminated with the person / wiped over and move with the person into the cold zone
  - Mobile phones should have the cover and any translucent screen protector removed, and these removed items should remain in the hot zone
  - Jewellery should be removed and placed in a secure labelled zip lock bag; rings that are unable to be removed can be decontaminated with the patient. If jewellery cannot be safely stored it should be decontaminated with the patient
  - If preservation of chain of evidence is necessary for forensic investigation – for example after an explosion or suspected deliberate biohazard or chemical release – then the **process for forensic investigation must be followed**, which allows for strict control of all patient belongings – refer to the Forensic Investigation section.
- **Equipment**

Equipment that has come from the scene and has not been through the site decontamination process should be presumed to be contaminated and should not travel into the emergency department with the patient.

Procedures involving equipment pre-hospital such as ETT, IV or IO access, ICC **do not** need to be changed on arrival at the hospital. A common-sense approach that balances risk of contamination with patient safety is appropriate. Remember that simply removing the victim's clothing will remove 85% of contaminant.

Decontamination in Orange Zone

Patient is escorted into orange zone by an ED SMO in PPE, which may be minimal ie universal precautions

Meanwhile other staff members who will form the resus team are donning Level C PPE and preparing orange zone to receive the patient

Roles are delegated including the role of dry decontamination

- Access the CBR box in each orange zone anteroom
- 2 people should have the role of decontaminating the patient – follow the procedure as outlined in the CBR box

ALERT

If the CBR plan is activated as part of a Code Brown response, the aim should be to rapidly decontaminate the patient in parallel with resuscitation. Once the patient is decontaminated (ie BEFORE their resuscitation is complete) they should be moved out of orange zone into resus, to allow the room to be cleaned for the next contaminated patient.

Decontamination of Radiological Incident

Radiological contamination cannot be managed in the decontamination trailer at QCH. Decontamination of radiological casualties will occur in the decontamination shower located in Recovery Level 1 in the Medical

Imaging Department. The process for patient flow will be the same, except that those patients deemed able to undergo decontamination will be escorted up to the decontamination trailer to enter the hospital through the fire doors at the end of the corridor outside short stay. They will then travel into medical imaging recovery area for decontamination in the shower designated for radiological exposures. Activation of this response mandates notification of the Radiation Safety Officer and medical imaging staff. Pre-existing patients in recovery will need to be accommodated elsewhere. Refer to CHQ Chemical, Biological, Radiological Incident Plan - Sub plan of the CHQ Code Brown Plan for this decontamination procedure.

Decontamination Team Roles

The number of people required to form the decontamination team will depend on the number of casualties and their level of independent function. A minimum of three staff members is likely to be required – a hot zone team member, warm zone team member/s – a washer and a dresser/dryer, and a cold zone team member. If the CBR plan is activated as part of a Code Brown response, all relevant roles will need to be allocated.

The **hot zone** (or exclusion zone) is the area with actual or potential contamination and is the area where gross contaminants and clothing are removed. This is the zone with the greatest potential for exposure to hazardous substances. At QCH this encompasses the area at the back of the trailer, the ramp leading up to the back of the trailer, and the area for disrobing. Appropriate PPE for staff is Level C.

The **warm zone** is the transition area between the exclusion and support zones. This is the area where hazardous materials are removed from the patient and equipment ie where decontamination takes place. At QCH this encompasses the area inside the trailer for showering, and for drying and dressing. Appropriate PPE for staff is Level C.

The **cold zone** (or support zone) is the area of the site that is 'clean' and free from contamination. This is an area of normal operations. At QCH this encompasses the area at the front of the trailer including the side ramp. Appropriate PPE for staff in this area is universal precautions.

Hot Zone Team Member

This team member operates in the 'dirty' zone. This person must wear Level C PPE. The responsibility of this team member is to -

(1) Meet the patient/s in the triage ante-room and safely escort them to the decontamination trailer in the QAS bay

  (a) In the event of Code Brown activation more than 1 hot zone team member is likely to be required, with some providing escort and the other/s supervising the hot zone in the QAS bay

(2) Enforce the hot zone, ensuring people do not wander into or out of the zone

(3) Direct patients up to the back of the trailer

(4) Direct patients to remove their clothing (strip down to underwear) and place items into the plastic bag in the bin

(5) Direct patient to step into the shower

(6) Double bag patient belongings and ensure they are labelled with a unique ticket identifier (available in the decontamination trailer)

(7) Once the decontamination process is complete for all patients, the hot zone team member must shower in the decontamination trailer and change into clean clothing provided

See Appendix 1 for role card.

Warm Zone Team Member/s

This team member must don Level C PPE. This team member operates in the confines of the trailer itself. Responsibilities of the role include

(1) 'Washing' – direct the patient to turn on the shower and use the soap provided to wash all body surfaces starting from the head and moving down and including wetting the hair. Soap is not essential; if there is danger of dropping a slippery child, do not use soap. Gentle washing only is required; do not abrade the skin. Time a 3-minute shower. When 3 minutes is up direct the patient to turn off the shower, pass a towel through and direct them to step out.

   (a) If the contaminant has been identified as a water reactive agent, decontaminate using gauze or towels to pad-off gross amounts

(2) 'Drying / Dressing' – Assist with drying as required and provide clothing for redressing

   (a) If the patient needs assistance with showering, there will need to be two people allocated to this roles- one to wash and one to dry and dress.

(3) Double bag the used towel and keep it in the warm zone until disposal is arranged

(4) Provide a unique ticket identifier to the patient which matches the one placed on their bag of belongings by the hot zone doctor

(5) This team member does not need to shower in the decontamination shower unless there are concerns about secondary contamination

See Appendix 2 for role cards.

Cold Zone Team Member

This team member does not need to don Level C PPE and operates in the 'clean' zone. This team member is responsible for escorting the patient back into the department to undergo the normal triage process.

See Appendix 3 for role card

Decontamination Safety Officer

The Red Zone SMO (or their delegate) assumes responsibility for the safety of staff during the decontamination process. This means supervising the need for staff rotation (note that most recommendations for hospital hot zone workers in Level C PPE is 20-60 minutes[19]), monitoring any symptoms staff experience and policing the hot zone – monitoring traffic flow and looking for contamination issues / hazards. This role is hands-off, standing away from the hot zone as an observer. Level C PPE could be worn in case assistance or staff substitution is urgently required, otherwise use universal precautions. This role will not normally require decontamination.

See Appendix 4 for role card

Decontamination Team Leader

In the event of a CBR incident which involves multiple patients requiring decontamination and activation of the Code Brown mass-casualty subplan, a Decontamination Team Leader should be appointed. The

Decontamination Team Leader is responsible for coordinating the establishment and running of the decontamination area and process. This role reports to the ED Medical and Nursing Controllers.

See Appendix 5 for Duty Statement

Decontamination Trailer Set-up

Two Medirest staff members will be required to set up the trailer. These staff will not require PPE, as they will have no contact with contaminated patients.

See Appendix 6 for role card

Clean up

Decontamination Trailer

Clean up of the trailer is the responsibility of Medirest, to be done under the guidance of the QFES Scientific Officer. PPE may be required to clean and neutralise trailer and equipment. Waste water may require neutralising or specific disposal via external contractor as directed by QFES Scientific Officer. As such, all hoses and bladders are to remain in-situ until a decision has been made about appropriate decontamination/ disposal. Medirest will contact QFES by dialling 000; this process has been agreed upon with Fire Comms. Call 000 ask for QFES, advise that CHQ are dealing with a contamination related incident and require support, provide known details as requested and appropriate support personnel would be despatched. The trailer is deemed contaminated until declared safe by QFES Scientific Officer.

Affected Areas in the Emergency Department

Special cleaning processes will only be required if there is visible contamination of the floor or other surface with the contaminant. In this instance, liaison should occur with the QFES Scientific Office regarding the most appropriate means of cleaning and appropriate PPE. In all other instances cleaning can occur as per usual processes.

QFES Scientific Officer should be contacted by dialling 000

Clothing Disposal

Approach to clothing and personal belongings will depend on the nature of the incident and the type of contaminant, and if collection is required for evidentiary processes for a forensic investigation.

If there is no need for collection of items for forensic investigation and the type of contaminant is known, seek advice as required from Poisons Information or the QFES Scientific Officer regarding the most appropriate handling of contaminated clothing. Sometimes it may be appropriate to simply return the items in the double plastic bags to the patient/ family for cleaning at home.

Hazardous Waste

Towels and linen which have been used to decontaminate a 'dirty' patient in the ED should be double bagged and advice sought from QFES Scientific Officer regarding their cleaning or disposal. Advice regarding items used in the decontamination process of a radiological incident should be sought form the QCH Radiation Safety Officer- contact via switch.

Forensic Investigation

If the incident informs a forensic investigation (eg explosion / suspected terrorism event) the Forensic Police will attend the Queensland Children's Hospital and take over the collection and storage of evidentiary items. Until that time, it is the responsibility of QCH staff to consider the need for collection of evidence and to safely store and track items. All contaminated clothing and personal belongings[1] must be placed in a bag labelled with the person's details – a patient UR sticker is acceptable - and the time, date, name and signature of the person who bagged the items; use the decontamination ID tags provided, giving a copy to the patient. Whilst a paper bag is preferable for storage in the short term it is reasonable to collect items in the large plastic bin bags. Security are responsible for safe storage of items collected for forensic investigation unit the arrival of the appropriate police personnel.

Consultation

Key stakeholders who reviewed this version:

- Emergency Department SMOs
- Radiology SMO
- Toxicology SMO
- Operations Manager Clinical Support
- Director Disruption and Disaster Management Unit
- Medirest Operations Committee

Definition of terms

Term	Definition
CBR	Clinical, biological, radiological
PPE	Personal protective Equipment
ED	Emergency Department
SMO	Senior Medical Officer
ETT	Endotracheal tube
IV	intravenous
IO	Intraosseus
ICC	Intercostal Catheter

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Guideline revision and approval history

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1.0 23/04/2021	Director Paediatric Emergency	Divisional Director, Critical Care	Executive Director Clinical Services

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Accreditation references	NSQHS Standards (1-8): 1 Clinical Governance, 5 Comprehensive Care and 6 Communicating for safety ISO 9001:2015 Quality Management Systems: (4-10)

Appendix 1: ROLE CARD - Hot Zone Team Member

STRIPPER / BAGGER

Who Senior RN or Doctor; must have **TRIAGE CAPABILITIES**

Location – QAS bay at the back of the decontamination trailer

Wears – PPE Level C

Responsibilities - Supervision of patients in the hot zone

Actions – Don Level C PPE

(1) Meet the patient/s at triage and safely escort them to the decontamination trailer

  (a) If Code Brown with multiple patients will need more hot zone staff so the responsibility for escorting patients to QAS bay and supervising the patients awaiting decontamination in QAS bay is shared

  (b) Consider initiating dry decontamination if multiple patients are waiting (Fig 4)

(2) Provide decontamination in order of clinical priority

  (a) Prepare to provide clinical care as able

NOTE:

If multiple casualties the hot zone team member will need to provide decontamination in order of priority

Unless medically inappropriate, family groups should be decontaminated together, with the sickest family member determining the priority of decontamination

The hot zone team member must consider how to move a patient who deteriorates whilst awaiting decontamination

(3) Enforce the hot zone, ensuring people do not wander into or out of the zone

(4) Direct patients up to the back of the trailer

(5) Direct patients to remove their clothing (strip down to underwear) and place items into the plastic bag in the bin

(6) Remove items that may require separate decontamination- See table below

(7) Direct patient to step into the shower

(8) Double bag patient belongings and ensure they are labelled with a unique ticket identifier (available in the decontamination trailer)

(9) Take responsibility for patient belongings.

  (a) If required for forensic purposes, contact Security to arrange secure storage

  (b) If unknown contaminant, arrange secure storage.

(10) If know contaminant it may be appropriate for the double bagged clothing to accompany patient or preferentially to be given to a relative to remove from the site. Seek advice from Poisons Information (phone 13 11 26) or the QFES Scientific Officer (phone 000) as required.

(11) Once the decontamination process is complete for all patients, the hot zone team member must shower in the decontamination trailer and change into clean clothing

ITEM	PROCEDURE
Eye Glasses	Can be decontaminated with the patient and travel with the patient
Contact Lenses	Should be removed and placed in labelled zip lock bag and remain in the hot zone
Hearing Aids	Cannot be immersed in water Must be removed prior to decontamination shower Ideally labelled and placed in zip lock bag and left in hot zone If the patient is dependent on the hearing aid for hearing then it should be removed prior to the shower, wiped over with a cloth, placed in a zip lock bag and be returned to the patient after their decontamination shower is complete; to be replaced in the clean ear in Warm Zone 2.
Cochlear Implants	Cochlear implants should be removed prior to showering, wiped over and then reconnected after the patient has been decontaminated; there is no other difference in the decontamination procedure
Permanent Venous Access Lines	Will not generally need to be replaced Change dressing Wipe over any exposed line and clean surrounding skin Redress and cover with large tegaderm prior to entering the shower Ensure sterile technique when dealing with central / permanent access lines
Prosthetic Limbs	Can be decontaminated with the patient and travel with the patient
Stoma Bags **PEG tubes** **NGT IDC**	Will usually be able to be decontaminated with the patient rather than replaced If it is easy to change part of the apparatus - for example the stoma bag or a drainage bag - then this could be removed in the hot zone and replaced in the warm zone.
Tracheostomy Tubes	Will usually be able to be decontaminated with the patient rather than replaced In the shower the tracheostomy tube should have a Swedish nose applied
Wheelchair **(or other mobility devices)**	Equipment that has come from the scene and has not been through the site decontamination process should be presumed to be contaminated Disposable' or non-essential equipment or equipment that the hospital can provide in the short term (eg crutches, prams, strollers) should remain – labelled with the patient's name /ID - in the hot zone; as time permits they should be wiped over with moist towel then dried (or placed in shower if appropriate) and returned to patient after approval by the decontamination team leader

	Essential equipment eg motorised or personal wheelchair, should be wiped over with moist towel then dried, taking care to cover all surfaces and cause no damage Permanent walking aids belonging to the patient and that the patient depends on for mobility eg cane, walker can be decontaminated with the patient
ITEM	**PROCEDURE**
Mobile phones **Handbags** **Wallets** **Keys** **Jewellery**	Belongings exposed to the environment should be presumed to be contaminated and ideally would remain in a secure monitored location within the hot zone However, valuables such as keys, phone, wallet that have been inside a bag / handbag (ie not directly exposed) and that have no visible evidence of contamination may be decontaminated with the person / wiped over and move with the person into the cold zone Mobile phones should have the cover and any translucent screen protector removed, and these removed items should remain in the hot zone Jewellery should be removed and placed in a secure labelled zip lock bag; rings that are unable to be removed can be decontaminated with the patient. If jewellery cannot be safely stored it should be decontaminated with the patient
Equipment	Equipment that has come from the scene and has not been through the site decontamination process should be presumed to be contaminated and should not travel into the emergency department with the patient. Procedures involving equipment pre-hospital such as ETT, IV or IO access, ICC **do not** need to be changed on arrival at the hospital. A common-sense approach that balances risk of contamination with patient safety is appropriate. Remember that simply removing the victim's clothing will remove 85% of contaminant.

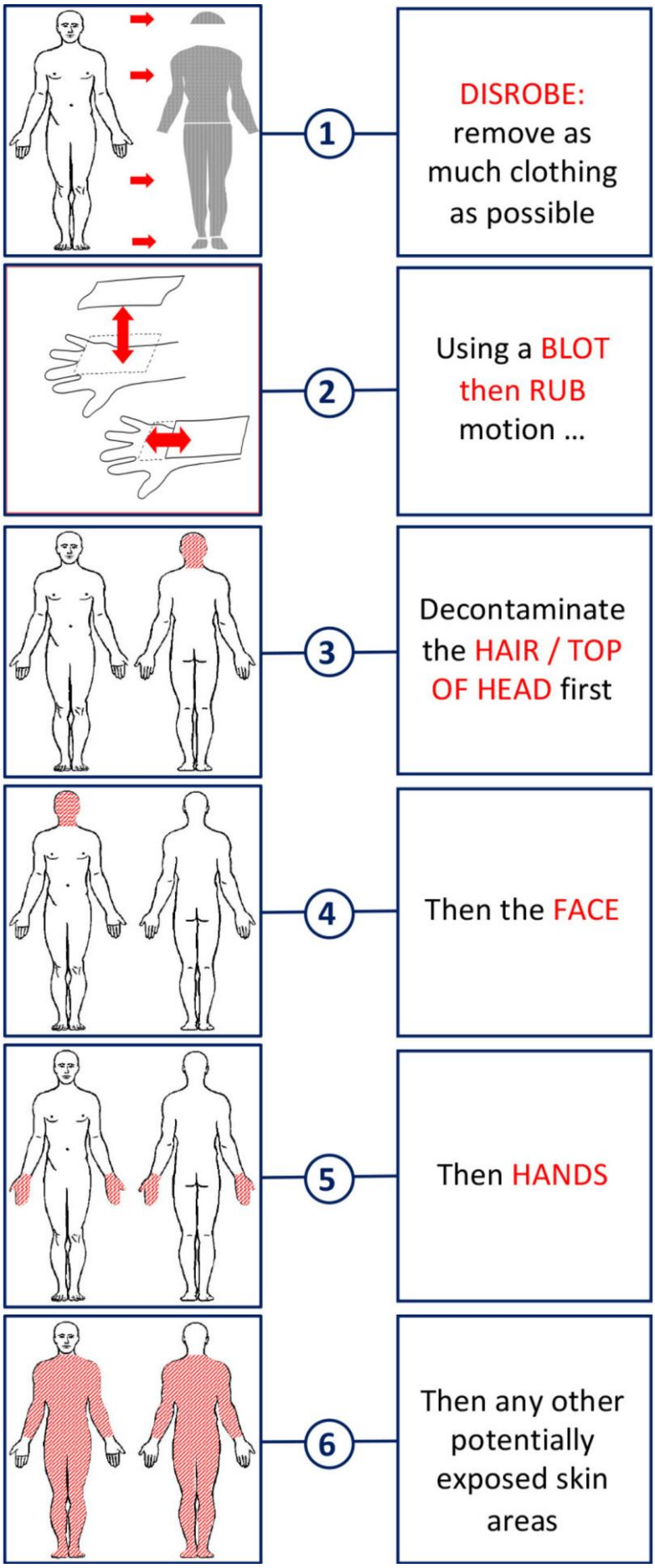

Figure 1
Pictogram demonstrating the blot and rub method for performing dry decontamination on casualties with scalp hair.

Following disrobe, use a 'blot then rub' technique to apply the decontamination material.

Clean the face first to remove contamination from around the eyes, nose and mouth.

The hands should be cleaned next, followed by any other skin areas that may not have been initially protected by clothing. Head hair should be contaminated last, as hair provides a high degree of protection against chemical contaminants.

Repeat steps 3–6 as necessary. Use clean decontamination material for each step (if available in sufficient quantity).

Used decontamination material should be placed by the casualties into a suitable waste receptacle (eg, clinical waste bag and bin liner) immediately after use.

Casualties with no appreciable head hair should be instructed to decontaminate the scalp skin immediately after the face, using clean decontamination material.

Figure and comment reproduced from- Chilcott RP, et al. UK's initial operational response to CBRN and Hazmat incidents: a primer on decontamination protocols for healthcare professionals. *Emerg Med J* 2018; 0:1-7

Appendix 2: ROLE CARD - Warm Zone Team Member/s

Who Doctor / RN

Location - Within the decontamination trailer

Wears - Level C PPE

Responsibilities - Washer / Dryer / Dresser

Actions

WASHER

(1) Set up the curtains inside the trailer to ensure privacy

(2) Check inventory - ensure appropriate washers, towels and clothing are available

(3) Do not touch patients unless they require assistance with the decontamination process

  (a) **NOTE:** If the Washer must physically assist the patient another staff member will have to be appointed to the Dryer/ Dresser role

(4) Set timer for 3 minutes from the start of the shower

  (a) Avoid longer durations; too long can increase contaminant absorption

  (b) 90 seconds may be sufficient -1 minute with soapy water followed by a half minute rinse

(5) Provide instruction for self-decontamination (as per instructions on poster on wall of decontamination trailer)

  (a) Turn on the shower; temperature is pre-set and does not require adjustment

  (b) Start at the face, wash with head back

  (c) Cleanse hair back from face

  (d) Wash and rinse from the top down

  (e) Use soap and washer to gently wash over every part of the body; do not scrub the skin

  (f) Soap is not essential; if there is a risk for example of dropping a slippery child do not use soap

  (g) Pay special attention to any open wounds

  (h) After cleansing, rinse well

(6) Maintain visual / verbal contact with the patient

(7) The warm zone team member/s should fill out an identical Decontamination ID Tag to the one the Red Zone staff member has placed on the bag of patient belongings and give that copy to the patient; tags are in the warm zone box in the trailer.

(8) Washing aids (sponge, face cloth) should be disposed of after a single use; store in plastic bags until safe disposal is arranged

ROLE CARD - Warm Zone Team Member/s

DRYER / DRESSER

(1) Provide towel to patient

  (a) Drying is critical step for removal of many chemical contaminants

  (b) Towles should be considered heavily contaminated and stored in plastic bags until disposal is arranged

(2) Maintain visual / verbal contact with the patient

(3) Ensure the patient does not travel back into the shower area or hot zone

(4) Assist in donning of clothing

(5) Provide patient with any cleaned items (such as spectacles) that have been wiped over as part of the decontamination process

(6) Direct patient out of the side door of the trailer to enter the cold / clean zone

(7) Ensure patient has been issued with a Decontamination ID Tag that links to their bag of belongings; tags are in the warm zone box in the trailer.

Warm Zone Team Member/s should self-decontaminate if there is thought to be a risk of secondary contamination

Appendix 3: ROLE CARD – Cold Zone Team Member

Location – At the front of the decontamination trailer, adjacent to the side door

Wears – Universal precautions

Responsibility – Escorting patient/s into ED for triage

Actions –

(1) Receive the decontaminated patient/s at the side door of the trailer and escort into the department along the side wall of the hospital as it runs down the QAS bays

(2) Ensure communication with triage so that the triage strategy is clear

  (a) A single patient presenting for decontamination may have already been formally triaged so after decontamination can enter the department for definitive care

  (b) In the event of a Code Brown the patients undergoing decontamination in the trailer may not have been formally triaged; these patients will need to be directed to triage in the first instance; it is crucial that the cold zone team member determine whether the patients have been triaged prior to decontamination so the patient can be directed appropriately on re-entry into the department. Failure to clarify this may result in patients being present in the ED but not triaged and therefore 'lost' on the system

(3) The cold zone team member should consider the need for wheelchairs / trolleys and direct porter staff as appropriate

(4) The cold zone team member should mobilise extra staff to assist with transfers as required. In the event of a Code Brown this will be done by contacting the ED Medical Controller

Appendix 4: ROLE CARD - Decontamination Safety Officer

Who Senior RN or SMO / Fellow

When Must be appointed if the CBR plan is activated

Consider appointing role if -

- multiple patients but Code Brown & CBR response not activated
- single or few patients but the contaminant is particularly toxic

Location – Orange Zone if patient is undergoing resuscitation

If needed for prolonged decontamination process / multiple casualties -

Outside the decontamination trailer in the Cold Zone, maintaining visual contact with the Hot Zone

Wears – Universal precautions; will need to don Level C PPE if contributes to patient cares

Responsibility – Staff safety during the decontamination process

Actions -

(1) Ensure staff are wearing appropriate PPE (Level C)

(2) Identify an emergency distress signal staff can use to indicate they require assistance

  (a) Brief staff on the importance of recognising fatigue whilst working in Level C PPE

  (b) Brief staff on the importance of not ignoring symptoms of secondary contamination

  (c) Ensure the team is informed regarding use of the distress signal

(3) Monitor self and staff for signs and symptoms of secondary decontamination

(4) Immediately remove any staff who display signs or symptoms of secondary contamination and arrange appropriate decontamination and medical review

(5) Monitor staff for fatigue

  (a) Check in with staff in Level C PPE at 15-30 minutely intervals

  (b) Consider mandatory swapping out of staff after 1 hour of work in Level C PPE; recommended work cycle 20-60 minutes[19]

  (c) Rotate staff as required

(6) Maintain written record of Decontamination Team staff documenting role/s, exposure times and presence or absence of any symptoms experienced by personnel

(7) The decontamination Safety Officer has the authority to suspend, alter or terminate any activity deemed to be unsafe

This role is hands-off, standing away from the hot zone or the resus as an observer and will not normally require decontamination

Appendix 5: DUTY STATEMENT: Decontamination Team Leader

Decontamination Team Leader

Code Brown Mass Casualty: **KEY TASKS**

Note: Only patients who have NOT been decontaminated at the scene will require decontamination at QCH

Purpose of Role:

Under the direction of the ED Medical Controller, coordinate the establishment and running of a Decontamination Area for victims of a Chemical Biological Radiological (CBR) Event during the mass casualty emergency period.

Key Tasks:

- Supply contact details to ED Medical Controller and ensure you receive a contact list of ED team members
  - Ensure decontamination team members know how to contact you for assistance
- Receive handover from ED Medical Controller about nature of incident, suspected hazards, ages and number of anticipated victims, presence of scene decontamination unit and expected injuries
- Access the *Emergency Department Decontamination Guideline* stored in Decontamination Shower room, ED Command Room (Meeting Room Level 1) & in the decontamination trailer
- Liaise with the ED Medical & Nursing Controllers to source staff
- Assign roles of
  - Stripper/Bagger - Hot Zone team members; likely to need 2-3 people if significant numbers
  - Washer/ Rinser - Warm Zone team member x1-2
  - Dresser/ Dryer – Warm Zone team member x1-2
  - Escorter – Cold Zone team members; combination of clinical staff and Medirest staff
  - **Decontamination Safety Officer** – this may form part of the role of the Decontamination Team Leader; delegate this task to another SMO or Fellow or Senior RN if workload demands
  - Distribute role cards
- Work with the Decontamination Triage Nurse to prepare Decontamination Area to receive patients
  - Establish Hot Zone, Warm Zone and the Clean-Dirty Line (turn over for location summary)
  - Anticipate equipment needs
  - Direct team members to familiarise selves with their area & to check their area of responsibility has sufficient supples
  - Ensure adequate supply of appropriate PPE
- Supervise and co-ordinate clinical care of patients undergoing or awaiting decontamination
- Monitor health of decontamination team & intervene as appropriate

- Maintain written record of Decontamination Team staff documenting role/s, exposure times and presence or absence of any symptoms experienced by personnel (role of Decontamination Safety Officer)

- Provide ED Medical Controller with regular sit reps re area status and needs
- Assist and attend the operational debriefing and follow up of incident including completion of Incident Analysis Report for review by the Emergency Management Committees.

Summary of Locations

Name	Location	Purpose
Hot Zone Site of contaminated patients or spill	**Ambulance Bay** • Area behind the decontamination trailer and the back entrance of the trailer where stripping and bagging occurs • Orange Zone Rooms	Triage patients for decontamination Gross contaminants and clothing removed here Ensure patient identification & maintain family groups; secure patient belongings Staff must wear PPE to enter here
Warm Zone 1 Shower	**Decontamination Trailer** • Area for showering	Removal of hazardous materials from patients and essential equipment • 3 minute warm shower Staff must wear PPE to enter here
Warm Zone 2 Dress & dry	**Decontamination Trailer** • Area for drying and dressing	Dry and dress patient in clean clothing Transfer to cold zone Staff must wear PPE to enter here
Clean Dirty Line	**Entrance to Decontamination Trailer** • Where the small ramp at the front side of the trailer abuts the trailer **Entrance to ED Proper** • For those patients who undergo decontamination in orange zone • The entry doors adjacent to resus 1&2, and the entry corridor into acute for those patients who leave orange zone	Demarcation between clean cold zone and dirty hot / warm zones Nothing / no one may cross without PPE or decontamination
Cold Zone	**Area from the front of the trailer extending down the side of the building** **ED except for Orange Zone**	Area of normal operations Appropriate PPE for staff is universal precautions

Appendix 6: ROLE CARD: Trailer Set-up and Clean-Up

Who QCH Medirest staff

Location – Decontamination Trailer

Orange Zone & triage if required for clean-up

Wears – No PPE required for trailer set-up

Seek advice from QFES re requirement for PPE during the clean-up

Responsibility – Set -up and clean-up of the decontamination trailer

Clean up of the ED if patient resuscitated and decontaminated in Orange Zone

Actions –

(1) Set-up the decontamination trailer under instruction from the ED Senior RN or SMO

(2) Once the decontamination process is complete, co-ordinate the clean-up of the trailer

(3) Dial 000 and speak to the QFEs Scientific Officer regarding requirements for clean-up of the trailer

  (a) Ensure the water is not disposed of until a plan has been made for its safe disposal, as recommended by the QFEs Scientific Officer

(4) Follow instructions for safe clean-up of the trailer, including seeking advice about donning PPE for the clean-up