SESLHD PROCEDURE COVER SHEET

Health
South Eastern Sydney
Local Health District

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SUMMARY	Procedures for the response to external emergencies involving radioactivity or exposure to ionising radiation

COMPLIANCE WITH THIS DOCUMENT IS MANDATORY

Feedback about this document can be sent to SESLHD-Policy@health.nsw.gov.au

Radiation safety - Response to external emergencies involving radioactivity or exposure to ionising radiation

SESLHDPR/545

1. POLICY STATEMENT

The South Eastern Sydney Local Health District (SESLHD) is committed, through a risk management approach, to protecting employees, contractors, students, volunteers, patients, members of the public and the environment from unnecessary exposure to radiation arising from systems and processes which use radiation apparatus and radioactive substances, whilst maintaining optimum diagnostic and therapeutic quality, therapeutic efficacy and patient care.

This document provides procedures for the response to external emergencies in which persons are contaminated with radioactivity or exposed to ionising radiation.

2. BACKGROUND

2.1 Possible types of incidents

Radiological emergencies

Radiological emergencies are those emergencies involving radioactive material that can occur anywhere and include:

- uncontrolled, high activity radioactive sources including those lost, missing, or stolen
- loss or destruction of shielding around a high activity radioactive source arising from an accident in an industrial facility or a laboratory
- destruction of a high activity sealed source and the subsequent dispersion of contaminants in the immediate neighbourhood, the environment generally or into products used by the public
- uncontrolled releases from unsealed radioactive materials
- malevolent use of conventional explosives or other mechanisms to disperse radioactive or nuclear material with widespread radiological consequences
- transport accidents involving radioactive material
- uncontrolled releases of radioactive contaminants from a nuclear reactor, with dispersion of the contaminants over a region downwind from the reactor
- uncontrolled releases from the nuclear reactor on a visiting ship, with dispersion of the contaminants over a region downwind from the ship and into the harbour
- “burn-up” of a nuclear reactor in a satellite out of control during re-entry to the earth’s atmosphere, where radioactive contaminants might be distributed over a long, narrow region of a few thousand square kilometres.

Radiological exposures

A radiological exposure occurs when a person comes in contact with radioactive material or receives x-rays from an x-ray tube. This may occur through:

- a radiological dispersal device with an explosion (but not a nuclear explosion)

- a hidden radioactive source
- sabotage of a nuclear reactor leading to a spill
- a transportation accident
- an industrial accident

Radiological contamination

Victims may be contaminated (contamination occurs when a radioisotope as gas, liquid, or solid is released into the environment and then ingested, inhaled, or deposited on the body surface) or exposed (all or part of the body receives penetrating radiation).

3. RESPONSIBILITIES

3.1 District Health Service Functional Area Co-ordinator (HSFAC)

The District HSFAC will be the initial point of contact within a Local Health District for an emergency and will notify the State HSFAC of any emergency that may require State level co-ordination or support under HEALTHPLAN.

3.2 Facility Disaster Controller

The Facility Disaster Controller must ensure that these procedures are in place and that these plans are exercised.

3.3 The Radiation Safety Officer (RSO) and Medical Physicists

The RSO and other medical physicists will assist the Facility Disaster Controller in the response to the incident and will ensure the reception area is appropriately prepared and provide medical physics guidance in assisting the clinical management of patients. The RSO will be responsible for liaising with the NSW Environment Protection Authority (EPA).

3.4 Radiation Oncologists

Radiation Oncologists can provide advice regarding the management of people with acute radiation injuries.

3.5 The Nuclear Medicine Department

The Nuclear Medicine Department can assist in monitoring patients for external and internal contamination.

4. PROCEDURE

4.1 Clinical Effects and Assessment

The medical stabilisation of casualties has first priority and takes precedence over any radiological consideration.

The risk to health care staff in treating contaminated patients is a negligible risk if appropriate precautions are followed.

4.1.1 Recognition of cases

Victims may be exposed or contaminated:

- **Contamination** occurs when a radioisotope as gas, liquid, or solid is released into the environment and then ingested, inhaled, or deposited on the body surface or onto clothing.
- **Exposure** occurs when all or part of the body receives penetrating radiation (eg, gamma rays or x-rays, or high-energy beta particles) from an external source.

4.1.2 Time to onset of symptoms

Time to onset of symptoms will depend on the dose received and the method of exposure/contamination. A very rough way to indirectly calculate dosage exposure for the casualties is the time to emesis (TE).

Time to Emesis	Likely whole-body dosage
<1 hour	>4 Gy
1-2 hours	>3 Gy
2-4 hours	1-3Gy
>4 hours	Around 1 Gy

Exposure to radiation can cause two kinds of health effects. Deterministic effects are observable health effects that occur soon after receipt of large doses. These may include hair loss, skin burns, nausea, or death. Stochastic effects are long-term effects, such as cancer. The radiation dose determines the severity of a deterministic effect and the probability of a stochastic effect.

4.1.3 Local radiation injury

Most radiation injuries are “local” injuries, frequently involving the hands. These local injuries seldom exhibit the classical signs and symptoms of acute radiation syndrome.

Consider local radiation injury in the differential diagnosis if the patient presents with a skin lesion without a history of chemical or thermal burn, insect bite, or history of skin disease or allergy. If the patient gives a history of possible radiation exposure (such as from a radiography source, X-ray device, or accelerator) or a history of finding and handling an unknown metallic object, note the presence of any of the following:

- erythema
- blistering
- dry or wet desquamation
- epilation (i.e. loss of hair)
- ulceration.

Local injuries to the skin evolve very slowly over time and symptoms may not manifest for days to weeks after exposure.

Conventional wound management is usually ineffective in these cases. Consultation with experts regarding definitive diagnosis, assessment of tissue dose, treatment and prognosis is recommended. This advice can be obtained from a Radiation Oncology Department.

4.1.4 Acute Radiation Syndrome (ARS)

Acute radiation syndrome (ARS) is an acute illness caused by irradiation of the whole body (or a significant portion of it). It follows a somewhat predictable course and is characterised by signs and symptoms that are manifestations of cellular deficiencies and the reactions of various cells, tissues and organ systems to ionising radiation.

The absorbed dose of radiation is the amount of energy absorbed by biologic tissue, measured in gray (Gy).

Immediate, overt manifestations of the acute radiation syndrome follow a large dose (i.e. at least a few Gy, usually-whole-body) of penetrating radiation delivered over a short period of time. Penetrating radiation comes from a radioactive source or machine that emits gamma rays, X-rays or neutrons. The signs and symptoms of this syndrome are non-specific and may be indistinguishable from those of other injuries or illness.

The biological effects of different types of radiation vary significantly. Each type of radiation may be assigned a weighting factor (e.g., gamma=1, beta=1, alpha=20). By multiplying the absorbed dose by the radiation weighting factor an equivalent dose can be calculated. This dose is expressed in sieverts (Sv).

ARS: Clinical features

The clinical features are described in detail in the Australian Clinical Guidelines for Radiological Emergencies (Commonwealth of Australia, Department of Health and Ageing, 2012).

The Acute Radiation Syndrome (ARS) is characterised by four distinct phases:

- a prodromal period, where symptoms last for a limited period of time
- a latent period, where there may be a time gap between exposure and appearance of symptoms
- a period of illness, followed by
- recovery or death

ARS: Prodromal period

The acute effects will vary, according to the dose received. Early effects of radiation are seen after large doses of radiation are delivered in a short period of time.

The prodrome can last up to 48 hours and involves anorexia, nausea, vomiting, fatigue, diarrhoea, intestinal cramps, salivation and dehydration. After extremely high doses symptoms such as fever, fatigue, respiratory distress and hyperexcitability can occur.

ARS: Latent period

The prodromal symptoms may disappear after one-two days, and a symptom-free latent period follows, varying in length depending upon the size of the radiation dose.

ARS: Period of acute illness

The period of overt illness can be characterised by infection, electrolyte imbalance, diarrhoea, bleeding, cardiovascular collapse and, sometimes, short periods of unconsciousness. Death or a period of recovery follows this illness.

In general, the higher the dose the greater the severity of early effects and the greater the possibility of late effects. Table 1 highlights the dose/symptomatology relationship.

Broadly, depending on the dose the following syndromes can be manifest:

- **Haematopoietic syndrome** (dose range 1-5 Gy) – characterised by deficiencies of leucocytes, especially lymphocytes, and platelets, with immunodeficiency, increased infectious complications, bleeding, anaemia and impaired wound healing. The crisis period may not occur for some weeks, especially at low doses.
- **Gastrointestinal syndrome** (dose 5-20 Gy) – characterised by loss of cells lining intestinal crypts and loss of mucosal barrier, with alterations in intestinal motility, causing vomiting and diarrhoea, fluid and electrolyte loss. There is loss of normal intestinal bacteria, and damage to the intestinal microcirculation resulting in sepsis; in addition to the haematopoietic syndrome. Doses >10Gy are invariably fatal.
- **Cerebrovascular/Cardiovascular syndrome** (dose range ~8 Gy and up) – primarily associated with effects on the vasculature and resultant fluid shifts. Signs and symptoms include vomiting and diarrhoea within minutes of exposure, confusion, disorientation, cerebral oedema, hypotension, and hyperpyrexia. High doses (>30 Gy) can be fatal in a short time (24 – 48 hour).
- **Skin effects** - can occur with other syndromes; characterised by loss of epidermis (and possibly dermis) with "radiation burns".

High whole body radiation exposures delivered rapidly – effects in dose ranges			
Less than 1 sievert - Usually asymptomatic	**1-5 sievert – Haematopoietic syndrome**	**5-20 sievert – Gastrointestinal syndrome**	**More than 8 sievert – CNS/CV syndrome**
Symptoms mild or absent	Anorexia, nausea, vomiting and fatigue, 1-4 hours after exposure, timing and severity dose related	Early nausea, vomiting, diarrhoea, anorexia and fatigue	Almost immediate projectile vomiting, explosive bloody diarrhoea, headache, collapse, confusion, loss of consciousness, agitation and burning sensation on skin
Episodic nausea, vomiting in the first 48 hours in 1-10%	Latent period: 2 days- 4 weeks	Latent period: Hours-1 week	May be lucid interval (hours)
Mildly depressed White Cell Count at 2-4 weeks	Bone marrow depression: Leukopenia, low platelets	Severe gastrointestinal symptoms (abdominal pain, cramps, watery diarrhoea, fever, haemorrhage, dehydration) couple with bone marrow depression	Neurological and cardiovascular symptoms predominate: convulsions, coma, hypotension, shock
Counselling needed if pregnant and effective dose more than 100mSv	3-4 Sv: hair loss at 2-3 weeks		Death within 2-3 days
	No foetal effects if effective dose less than 100mSv		
Whole body doses less than 0.5 Sv are unlikely to cause acute symptoms			
Partial body exposure may occur and lead to reduced or localised effects (eg, skin damage, burns, ulcers)			

4.2 Designated Assembly Point

An assembly point external to the hospital should be set up for the purpose of monitoring of casualties for radiological contamination (radiation monitoring point) before entry to the building.

In the event of a mass casualty explosion of unknown or suspicious origin, it is advisable to screen casualties for possible radiological contamination.

4.3 Radiation Monitors for the Emergency Department (ED)

One or two radiation monitors (hand-held or portal monitors), should be set up at the entrance to the ambulance delivery point and, if appropriate, the public entrance at the

ED of the hospital. These are designed to alarm upon a casualty being brought into the ED with a significant amount of radioactive contamination.

The monitors will probably not detect casualties with low levels of external radioactive contamination and will not alarm in this situation, nor will they detect previous external radiation exposure to the casualty. In this situation, the only way that ED staff will know that casualties have been involved in a radiation incident is if they have been so advised by either emergency response agencies or those responsible for the incident. However, with the exception of the Chernobyl accident, survivors, even if contaminated, have posed no threat to accident responders, provided simple precautions and procedures are followed.

4.4 Contaminated Casualties

Where radioactive materials are known to be involved in the incident, it is important to monitor casualties for contamination (after stabilising life-threatening medical conditions are addressed) to ensure that radiation doses to both casualties and medical staff are kept as low as reasonably achievable.

4.5 Set up of room for receiving contaminated patients

Each hospital is to identify an area which is capable of controlled access to hold contaminated casualties – the controlled area. This should be large enough to hold the anticipated number of victims and should be away from the main traffic through the department.

- Set up portal or other monitoring equipment.
- Establish control lines and prevent the spread of contamination.
- Temporary barriers should be erected to exclude others entering the designated corridor and treatment area.
- Arrange for the hospital entrances other than the emergency department entrance(s) to be secured (i.e. locked down)
- Floor of corridor to treatment area, and treatment area itself, should be covered with heavy-duty paper or plastic to minimise spread of radioactive material. The covering materials should be secured to the floor with tape.
- Large bins double lined with disposable plastic bags are to be provided for the disposal of contaminated waste such as clothing, linens, dressings, etc. Bags to be sealed and tagged for subsequent monitoring by a hospital medical physicist or radiation safety officer (RSO).
- Non-essential equipment should be covered or removed from the controlled area.
- There is no need to control air ventilation of areas receiving contaminated casualties as there is minimal aerosolisation of radioactive material.

Special floor covering is not a necessity for treatment of casualties contaminated with radioactive material. The sole purpose of placing floor covering down is to make cleanup of contamination easier afterwards. Medical treatment must not be delayed because there is no special floor covering in place. Plastic floor coverings may also become slippery and

hazardous to staff. If any floor surface is subsequently found to be contaminated, it should be removed and replaced.

4.6 Protective Clothing

Protective clothing should be worn by all persons in the controlled area. In general, the normal clothing used in theatres should suffice – surgical gowns, masks, caps, gloves and overshoes. Gowns should be waterproof, but if not, large plastic aprons worn over them are satisfactory. Plastic bags can be taped over shoes if waterproof overshoes are not available.

Two pairs of gloves should be worn. The inner gloves should be surgical gloves taped on to the sleeves of the surgical gown and should remain there for the entire procedure unless damaged. The outer gloves may be surgical or plastic gloves and are not taped in place as they should be changed whenever they become contaminated. Gloves should be changed between examining each patient to prevent transfer of contamination between patients.

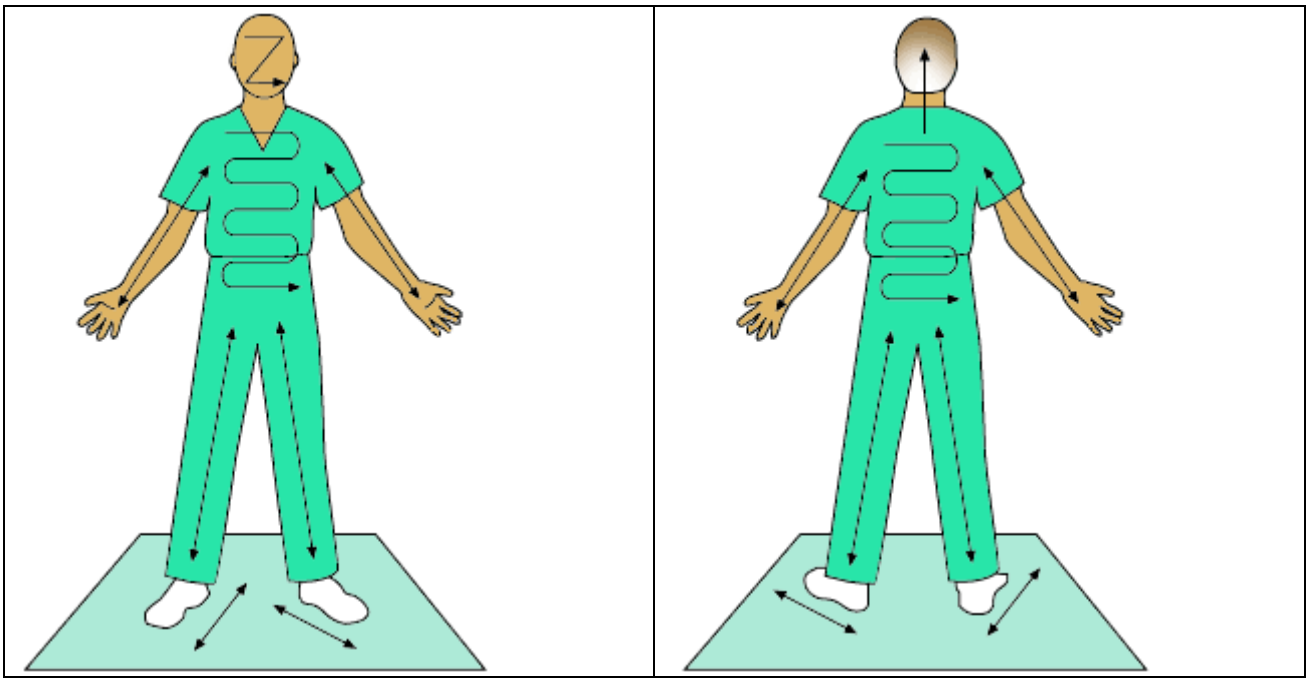
All protective clothing must be considered as potentially contaminated and bagged for radiation monitoring once removed. Overshoes should be removed last, placing the uncovered shoe over the controlled area boundary.

4.7 Contamination Monitoring Procedure

<u>Skin and Clothing</u>

- Cover the probe; for example with a surgical glove.
- Ensure that the instrument is used in fast response mode, where this is possible.
- Set the instrument selector switch to the most sensitive range of the instrument.
- Set to audible mode if circumstances allow permitting easy identification of “hot spots” (NB This may need to be explained to the patient and staff).
- Hold the probe approximately 1 to 2 cm from the person’s skin and systematically. survey the entire body from head to toe on all sides.
- Move the probe slowly (a few cm per second).
- Do not let the probe touch anything.
- Try to maintain a constant distance from the patient’s skin.
- Pay particular attention to body orifices, skin folds, neck (because of radiosensitivity of the thyroid gland), hands, face and feet.
- An increase in count rate or dose rate above background indicates the presence of radiation.
- Document areas of contamination on a body map together with monitor details, monitor readings for the various body areas that are contaminated, and details of the casualty.
- When necessary, adjust the range of the instrument by moving the range selector switch.

Note that some instruments cannot detect alpha radiation and some low-energy beta radiation. Because alpha radiation is non-penetrating, it cannot be detected through even a thin film of water, blood, dirt, clothing, or through probe cover.



Body Orifices and Wounds

- Nasal and oral swabs should be collected using moist, clean cotton tipped applicators.
- Any sputum, vomitus, or tissues from nose blows should be collected.
- Any initial wound dressings should be collected.
- Swabs, dressings, etc. should be placed in separate double plastic bags and labelled with patient details, site, and time for later analysis.

4.8 Contamination Monitoring Procedure

- Contaminated clothing on patients should be removed (cutting from the head to the feet if necessary) and folded inside out as the inside is not so likely to be contaminated.
- Any equipment used in the controlled area, such as x-ray units and x-ray film cassettes should be covered in plastic and the plastic removed and the items checked for contamination on leaving the area.
- All entry to and exit from the controlled area must be strictly controlled. One member of the team should stand on the clean side of the barrier to hand in items as required and to check items and people leaving the controlled area.

4.9 Decontamination Procedures

- Decontamination of wounds and orifices should be undertaken as a matter of priority after other life-saving procedures have been effected.
- Decontamination usually involves several repeat procedures. After each procedure, drapes, absorbent pads and towels should be removed and placed in the waste bags and then the area monitored to assess the success of the procedure.
- Complete decontamination can rarely be achieved. However, repeat procedures should be carried out until monitoring shows no further reduction is being achieved or until the skin shows signs of damage.
- Decontamination of intact skin should be made by washing, rinsing, blotting dry and monitoring. Lukewarm water with a mild soap should be used.
- The cleaning should start at the periphery of the contaminated area, working towards the centre, to prevent the spread of the contamination to other areas.
- If washing with soap is not successful, the process should be repeated using a mild detergent.
- Hair should be shampooed several times with the head deflected backwards over a basin to keep water from the eyes and ears.
- If near-whole body contamination occurs, the patient should be showered several times using mild soap, monitoring in between. Washing should always start at the hair, working downwards.
- In general, wounds can be decontaminated in the same manner as cleaning dirt, bacteria, etc from them using sterile water or saline solution.
- In some instances free bleeding of the wound should be encouraged to flush the contamination out of the wound.
- Body orifices should be cleaned out as for any other contaminant.

4.10 Role of the Nuclear Medicine Department

St George and Prince of Wales Hospitals have a Nuclear Medicine Department, which can assist in the following manner:

- After medical treatment, external decontamination and stabilisation, the imaging equipment may in many cases be used to identify the extent and location of any internal contamination
- Gamma camera imaging with no collimator can be used initially to determine the extent of internal uptake, and to obtain a gamma radiation spectrum to help determine the identity of the radionuclides
- If the uptake levels are sufficiently high, further imaging can be performed with the appropriate collimator to localise the radionuclide uptake. Counting for fixed periods can be used to determine excretion.
- If internal uptake is present, then body excretions must be collected until or unless there is no significant radioactive content, or a further treatment plan is devised.

- The detector must be covered with plastic to avoid it becoming contaminated.

4.11 Waste Management

Bagged Waste

- At the conclusion of the decontamination of the patient, soiled linen, dressing materials, etc. should be surveyed by the hospital Radiation Safety Officer for residual contamination.
- Contaminated linen and waste should be double-bagged and labelled “radioactive”.
- Bagged contaminated waste should then be stored in a secure, isolated area, free from human interference, until decay has occurred naturally, rendering the waste no longer radioactive. The time for this to occur is dependent on the specific radionuclide.

Contaminated Buildings and Equipment

- Cleaning staff should wear the same PPE as the decontamination team.
- Disposable floor coverings and other coverings should be rolled up and placed in plastic bags.
- The entire area should then be thoroughly surveyed for residual contamination.
- In most cases, normal cleaning methods will remove the material.
- Vacuum cleaners that can handle wet material and have high efficiency filters are useful.
- Some surfaces may require repeated scrubbing and vacuuming before they are free of contamination.

Liquid Waste

- Liquid waste can arise from patient urine and from waste water following decontamination procedures.
- Small amounts of radioactivity can safely be disposed via the hospital sewerage system.
- Larger activities may require storage (including the use of delay tanks if available). The advice of the RSO must be sought before liquid waste is disposed.

4.12 Initial Emergency Management

Serious medical problems always have priority over radiological concerns and immediate attention is directed to life-threatening problems. Radiation injury rarely causes unconsciousness or immediate visible signs of injury and is not immediately life threatening; therefore other causes of injury or illness must be considered.

- If trauma is present, treat.
- If external contaminants are present, decontaminate.

Do not delay definitive treatment because of radiological concerns.

4.13 Diagnosis

History of exposure

Consider acute radiation syndrome in the differential diagnosis if any of the following are present:

- History of a known or possible radiation exposure (for example, entering an irradiation chamber when the source is unshielded).
- History of proximity to an unknown (usually metallic) object with a history of nausea and vomiting, especially if the nausea and vomiting are unexplained by other causes.
- Tendency to bleed (epistaxis, gingival bleeding, petechiae) and/or respiratory infection with neutropenia, lymphopenia, and thrombocytopenia, with history of nausea and vomiting two to three weeks previously.
- Epilation (loss of hair), with a history of nausea and vomiting two to three weeks previously.

Symptoms

Note type of symptom, time of onset, severity, and frequency.

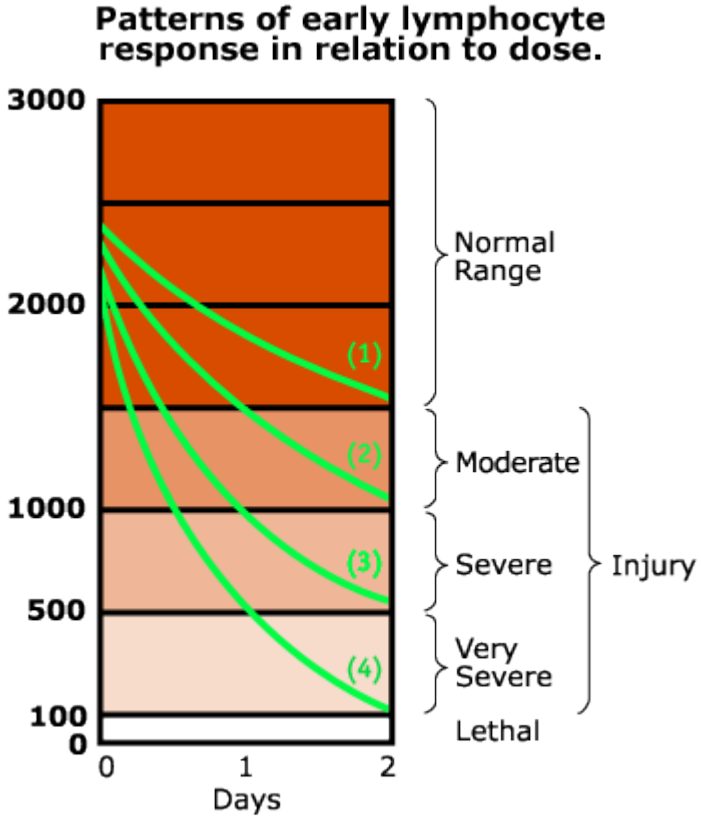
Diagnosis

- IMMEDIATE Full Blood Count with differential.
- Repeat FBC in 4-6 hours, then every 6 to 8 hours for 24 to 48 hours.
- Look for a drop in the absolute lymphocyte count if the exposure was recent (see diagram).
- If the initial WCC and platelet counts are abnormally low, consider the possibility of exposure a few days to weeks earlier.

A dose estimator based on lymphocyte depletion kinetics is available at

https://remm.hhs.gov/aboutlymphocytedepletion.htm

Additional graphs that describe the changes in haematopoietic system can be viewed at https://remm.hhs.gov/radeffectblood.htm



Patterns of early lymphocyte response in relation to dose Curves 1-4 correspond roughly to the following whole-body doses: curve 1 - 3.1 Gy; curve 2 - 4.4 Gy; curve 3 - 5.6 Gy; curve 4 - 7.1 Gy. From Goans, Ronald E., Holloway, Elizabeth C., Berger, Mary Ellen, and Ricks, Robert C. "Early Dose Assessment Following Severe Radiation Accidents," Health Physics 72(4): 1997.

Chromosome Dosimetry

The UK Health Protection Agency provides a specialist biological dosimetry service to evaluate people known or suspected of being overexposed to ionising radiation. It is based on analysing chromosome damage in blood cells. The standard chromosome test provided is the dicentric assay, which can indicate a recent radiation exposure that occurred within about two years. Cells carrying dicentric chromosome damage are unstable and they are eliminated from the blood being replaced by undamaged cells. The charge per analysis (with effect from April 2011) is £440.00 for the standard dicentric assay.

Blood samples for analysis may be sent to the Centre for Radiation, Chemical and Environmental Hazards at Chilton from anywhere in the world. Exact details of what, when and how to dispatch are available on request via email to: CHI-Cytogenetics@hpa.org.uk

The UK HPA prefers to liaise with the appropriate physician and discuss the specific circumstances of each case to establish whether it is appropriate for chromosome

analysis to be carried out. Refer to:
http://www.hpa.org.uk/ProductsServices/Radiation/ChromosomeDosimetry/

Another resource for any radiological response in the Radiation Emergency Assistance Center/Training Site (REACT/S) at the Oak Ridge National Laboratory in Oak Ridge Tennessee USA, Contact details are as follows:

Contact REAC/TS

General information865-576-3131

General emailreacts@orau.org

After-hours number865-576-1005 (Ask for REAC/TS)

4.14 Treatment

4.14.1 Management of Acute Radiation Syndrome: Dose Less than 2 Gray

Nausea and vomiting due to radiation are seldom experienced unless the exposure has been at least 0.75 to 1 gray of penetrating gamma or X-rays and it has occurred within a matter of a few hours or less. The prospective patient who has been asymptomatic within the past 24 hours will most certainly have had less than 0.75 gray of whole-body exposure. Hospitalisation generally will be unnecessary if the dose has been less than 2 gray.

- Close observation and frequent FBC with differential.
- Outpatient management may be appropriate.
- Provide instructions regarding home care.

4.14.2 Management of Acute Radiation Syndrome (Dose >2 Gray)

Initial management:

- Treat trauma.
- Vomiting - use 5-HT3 receptor antagonists e.g. ondansetron, granisetron
- Consider initiating viral prophylaxis.
- Consider tissue, blood typing.
- Consider prompt consultation with haematologist and radiation experts, re: dosimetry and prognosis, use of colony stimulating factors, stem cell transfusion, and other treatment options.
- Draw blood for chromosome analysis; use heparinised tube.
- Note areas of erythema and record on body chart. If possible, take photographs.

Begin, as indicated:

- SUPPORTIVE CARE in a CLEAN environment (reverse isolation if available).
- Prevention and treatment of infections.
- Stimulation of haematopoiesis (use of growth factors, i.e., GCSF, GMCSF, interleukin 11).
- Stem cell transfusions: cord blood, peripheral blood, or bone marrow.
- Platelet transfusions if bleeding occurs, or if platelet count too low.
- Psychological support.
- Observe carefully for erythema (document locations), hair loss, skin injury, mucositis, parotitis, weight loss, and/or fever.
- Consultation with experts in radiation accident management is encouraged.

4.15 Admission Criteria

Admission criteria will be based on state-wide ability to cope with the emergency. Persons who are unlikely to survive the exposure should be offered, as a minimum, palliative care with effective analgesia.

4.16 Contact Details for District RSOs

	Work Hours	After Hours
SESLHD RSO	9382 8067	POWH Switchboard
SESLHD St George Hospital RSO	9113 3130	SGH Switchboard
Common RSO Email	SESLHD-RadiationSafetyOfficer@health.nsw.gov.au	

5. DOCUMENTATION

None.

6. AUDIT

Not required

7. REFERENCES

[1] Australian Clinical Guidance for Radiological Emergencies (2012)

[2] NSW Health Guideline GL2018_017 - Major Incident Medical Services Supporting Plan (NSW MEDPLAN)

8. VERSION AND APPROVAL HISTORY

Date	Revision No.	Author and Approval
April 2011	draft	Richard Smart, Radiation Safety Officer in conjunction with the Area Radiation Safety Committee
September 2011	0	Richard Smart, Radiation Safety Officer
September 2011	1	Approved by SESLHD Clinical and Quality Council
December 2015	2	Periodic review
November 2016	2	Review undertaken and updates approved by Executive Sponsor
December 2019	3	Review undertaken and updates approved by Executive Sponsoer
14 July 2023	3.1	Minor review: hyperlinks updated. Approved by Executive Sponsor