1. **Purpose**
   1.1. To establish common criteria to develop, implement, assess, maintain and make resilient all aspects of Healthcare Emergency Preparedness of Abu Dhabi.
   1.2. To establish the Emergency Planning Cycle (see Appendix 8) consisting of assessment, planning and preparation, monitor response, continuity, recovery, mitigation and prevention of Major Incidents (as defined in HAAD policy) & Disasters in healthcare.
   1.3. To ensure continuity of critical services during Major Incidents/Disasters.
   1.4. To develop healthcare CBRNE preparedness (Chemical Biological Radiation Nuclear and Explosives).

2. **Scope**
   2.1. This Standard applies to all healthcare providers (Facilities and Professionals) licensed by HAAD in the Emirate of Abu Dhabi.

3. **Duties of Healthcare Providers**
   3.1. All licensed healthcare providers must:
      3.1.1. Have a system and processes in place for Major Incident and Disaster Preparedness in accordance with this standard and be able to demonstrate active ongoing process of such a system;
      3.1.2. ensure a team of individuals have been identified and delegated with clear roles and responsibilities of achieving maintaining and improving Major Incident Disaster preparedness process and Plan of the facility;
      3.1.3. provide copies of the facility Major Incident/Disaster Plan with call-out charts, risk assessment, gaps being addressed, and floor plan/CAD drawing.
showing location of frontline and key areas of the facility must be sent to HAAD EDM for review validation and approval and updates as changes are made;

3.1.4. ensure an All Hazards approach is used in the emergency planning cycle and regular update, evaluation, feedback and improvement of processes are in place;

3.1.5. organizational structure of ICS - Incident Command System/HICS Hospital Incident Command system must be adopted for Major Incident and Disaster Management, to achieve uniformity of structure throughout healthcare;

3.1.6. ensure financial plan and adequate funding is made available to the facilities' team responsible for Major Incident and Disaster preparedness;

3.1.7. provide all associated services and patient care in accordance with the requirements of this Standard and be consistent with internationally recognized evidence based clinical best practice;

3.1.8. notify, comply and submit information, data, updates and claims to HAAD in accordance to HAAD Policy and Standards;

3.1.9. have a Major Incident Plan with clear command and communications chain within the facility;

3.1.10. ensure that appropriate resources including equipment and staff are available;

3.1.11. ensure that staff are appropriately qualified, trained and equipped with suitable resources; and

3.1.12. immediately notify HAAD via its 24 hour Emergency and Disaster Management Operations Center in the event of a Major Incident, disaster or if a threat of such is perceived. (Refer to Major Incident definition in HAAD policy)

3.2 This Standard is related to, and has effect together with HAAD Policy on Managing Major Incidents, Disasters & Large Scale Public Health Emergencies in the Emirate of Abu Dhabi: HAAD/04/10 and HAAD Standard for Medical Emergency Preparedness at Mass Gatherings: HRM/MG/VO.9;

4. Where a group of healthcare facilities are managed by an organization, company or group, the organization and its members must ensure:

4.1. Uniformity in strategy, policies, plans, preparedness, and processes in facilities that are collectively managed by an organization or company;

4.2. standardization of emergency medical equipment and emergency drugs within its facilities to facilitate exchange, transfer or restock between its facilities if needed;

4.3. facilities are in state of preparedness to manage incidents as per risk assessment of each facility and as a collective; including that of CBRNE e.g. decontamination and lock down capabilities (Ability to lock down and self-sustain any of its facilities at risk of CBRNE for a 72 hour period, when directed to act with immediacy);

4.4. adequate funding is made available for Emergency Preparedness initiatives;

4.5. continuity of critical services is maintained in facilities, maintenance of supply chain and capability to transfer resources between facilities in accordance with Appendix 4;

4.6. ability maintained for facilities to rapidly recover and return to normal activity;

4.7. ability and tested plan to decant patients, staff, equipment and resources from one of its facilities to another;
4.8. mechanisms are in place to track patients, medical records, patient notes, investigations, results, documentation, equipment and costs during Major Incidents and disasters in its facilities;

4.9. all its facilities are in compliance with HAAD Standards and Policies with regards to Major Incident and Disaster management and related policies and standards;

4.10. HAAD EDM Operations Center is given unrestricted access to information from its facilities with regards to data related to Major Incidents, Disaster Preparedness, critical healthcare resources and matters of National security involving healthcare which it monitors;

4.11. Facilitation of HAAD’s Critical Resource Monitoring (Beds, Staff, drugs & equipment) in healthcare facilities by Business Automation - electronic linking of data and electronic records from facilities, pharmacy and stores to HAAD EDM Operations Center;

4.12. gaps in preparedness, capacity and capability are addressed at both facility level and as a collective, taking into account risk assessments; threats, transfer times and access to emergency and specialized services; and

4.13. copies of Major Incident and Disaster Plans of all its facilities are provided to HAAD Emergency and Disaster Management EDM and kept updated by the facilities on regular basis.

5. HAAD Role

5.1. HAAD coordinates the Emirate’s healthcare response to Major Incidents, Disasters or threats of overwhelming healthcare resources of nearest healthcare facility due to type, nature, location, severity, or number of casualties involved. It communicates and coordinates directly with the points of impact in healthcare and the agencies and organizations involved.

5.2. Multiagency planning, preparedness and response to Major Incidents and disasters involving NCEMA, Emergency services, Military, Critical National Infrastructure organizations and essential services organizations both Federal e.g. MOH and National involving healthcare of Abu Dhabi Emirate, is coordinated via HAAD.

5.3. HAAD works closely with NCEMA, Federal and National organizations and agencies across various sectors to achieve multiagency coordinated response, share information, provision of mutual support, and established networking practices in preparedness development.

5.4. Aim of HAAD in leading and coordinating healthcare preparedness and response for the Emirate:

5.4.1. Increase patient survival and facilitate better clinical outcome, without conflict of interest, but with authority and ability to deploy early, any aspect of the entire healthcare spectrum as appropriate, to counter the level of threat or scale of Incident and engage with organizations across various sectors;

5.4.2. prevent escalation and overwhelming of facility and healthcare resources;

5.4.3. reduce Impact by dispersal, distribution and appropriate counter measures;

5.4.4. getting the Right patient to Right facility or the Right treatment at the right time and doing the most for the most;

5.5. HAAD merges the structure of Incident Command System (ICS) – FEMA, with management based on Major Incident Medical Management System (MIMMS- UK) see Appendix 7
5.6. HAAD Emergency and Disaster Management consist of 24 hour Operations Center, its Emergency and Disaster Management Department and HAAD Incident Command which is a restructuring of HAAD into the modified ICS structure of FEMA (appendix 7). Preparatory work is also done in addition, through work groups and committees involving healthcare facilities and organizations across various sectors.

5.7. HAAD’s modified ICS structure brings together at HAAD, the CEO’s Office, Media, Safety, Liaison, EDM Operations, Planning, Logistics, Finance, Compliance and experts from HAAD Public Health - Infectious Disease, Occupational & Environmental Health, Pharma & Medical products, Poison & Drug Information, Public Health Promotion, Mortuaries, Blood banks & Laboratories with representations from SEHA & AHS.

5.8. The HAAD ICS is formed on declaration of Major Incident by HAAD, and each component has its roles and responsibilities as in HAAD Plan and tasks are issued to relevant components to help manage Major Incidents and Disasters.

5.9. When not activated, ICS staffs and key organizations are kept aware of threats, incidents, levels of healthcare resources and capacities on a regular basis by the HAAD Operations Center.

5.10. Internal alerting and communication mechanisms are also in place between various sections of HAAD (e.g. Infectious Disease & surveillance, OEHS and PDIC), to be able to escalate an event to Major Incident status by internally alerting EDM via HAAD Operations Center.

5.11. Access to activating, alerting or putting on Stand-by, the HAAD Major Incident/Disaster response mechanism is only available to organizations and healthcare, i.e. not open to individuals or members of the general public.

5.12. HAAD may deploy healthcare assets from Government, Semi-Government, Military or Private sectors, as needed; to appropriately match response required for the scale of Incident or threat and may direct patients to appropriate care in any of the above facilities.

5.13. HAAD coordinates distribution of material from Strategic Stores to appropriate facilities during Incidents.

5.2 Role of HAAD 24 hour EDM Operations Center:

5.2.1 Point of activation of HAAD’s coordinated healthcare response to Major Incidents and Disasters;

5.2.2 Alert, put on Stand-by or activate pre-determined healthcare assets in response to threats or Incidents;

5.2.3 Monitors, gathers and disseminates status of critical healthcare assets;

5.2.4 Monitors and disseminates information and updates on Major Incidents and Disasters affecting healthcare;

5.2.5 Helps process and collate information, supports and facilitates incident management;

5.2.6 Helps build database of information relevant for Major Incident Management;

5.2.7 Mass communications to Healthcare facilities, Emergency Services and other related organizations.

6 Enforcement and Sanctions

6.1 HAAD may impose sanctions in relation to any breach of this standard in accordance with the [HAAD Policy on Enforcement and Sanctions]. Decisions on
suspending and/or revoking of licenses will be determined by considering the circumstances of the case and consistent with the terms and procedures of the HAAD Licensing Committee and in accordance with measures under the law.

7 Definitions, Abbreviations and Terminology.

7.1 Major Incident – an incident which overwhelms or threatens to overwhelm the resources of the nearest healthcare facility due to its nature, type, location, severity or number of casualties involved. Such incidents require the mobilization of extraordinary resources both from the facility itself and often from elsewhere.

7.2 ICS Incident Command System (FEMA)
7.3 HICS Hospital Incident Command System (FEMA)
7.4 MIMMS Major Incident Medical Management System (U.K)
7.5 HMIMMS Hospital Major Incident Medical Management System (U.K)
7.6 Emergency Preparedness - an ongoing process to prevent, mitigate, prepare for, respond to, and recover from an Incident that threatens life, property, operations, or the environment.
7.7 Response - Immediate activities, tasks, and systems to manage the effects of an incident.
7.8 Emergency Planning Cycle – A dynamic process of assessment, planning and preparation, response, continuity, recovery, mitigation and prevention

7.9 Business Continuity – Measures undertaken to ensure availability of critical healthcare services and continuity of operational functions of the facility to patients, staff, regulators, and other entities that must have access to those functions during Major Incidents.

7.10 Mitigation – measures undertaken to limit or control the consequences, extent, or severity of an incident, reduce vulnerability and lessen impact. It should be based on the results of hazard identification and risk assessment, impact analysis, program constraints, operational experience, and cost-benefit analysis.

7.11 Recovery - Activities and programs designed to return conditions to a level that is acceptable for the facility, prior to Incident.

7.12 Stakeholder - Any individual, group, or organization that might affect, be affected by, or perceive itself to be affected by the Incident.

7.13 Situation Analysis - The process of evaluating the severity and consequences of an Incident and communicating results.

7.14 Major Incident Plan - A written plan that reflects the overall strategy, tactics, risk management, member safety and communications in the event of an Incident.

7.15 Risk Assessment – identification, assessment, analysis of likelihood of threats or hazards and its impact/consequence affecting the provision of healthcare and function of the facility

7.16 Triage Sieve and Triage Sort – Patient prioritizing methods in Major Incidents – initial, rapid easily reproducible type (Sieve) followed by more elaborate physiology and physical injury assessment based type (Sort).

7.17 HAAD IMS – HAAD Incident Management System – Software system that HAAD EDM uses to help in Major Incident Management and communications that can be linked to targeted areas in healthcare.
7.17 **Impact Analysis** – Identification of vulnerability and assessment of consequences that may occur from sudden loss of or overwhelming of function, resources or loss of supporting infrastructure for the facility due to Major Incident/ Disaster or a threat of such.

7.18 Message formats used for Pre-alert and handover of individual patients between emergency medical services:

7.18.1 **ATMIST** – Age, Time of Incident and Expected time of arrival, Mechanism of Incident, Injuries suspected Signs and Treatment given. (Recommended in Trauma); and

7.18.2 **ASHICE** - Age, Sex, History, Interventions, Condition of patient, ETA expected time of arrival.

8 **Major Incident Message terminology from HAAD**

8.1 **Alert** – A threat or possible threat of Major Incident to the entity identified. Actions needed - Inform Emergency Management staff and key personnel of the facility and assess risks.

8.2 **Stand-by** – Imminent threat or evolving Major Incident or Major Incident that may affect entity in progress. Actions needed - All of the above, plus, identify and earmark resources, prepare to activate Major Incident plan and call cascade.

8.3 **Major Incident Declare** – Major Incident has occurred and facility expected to require mobilization of extraordinary resources to manage. Actions needed - Activate Major Incident Plan and deploy Major Incident resources

8.4 **Alert Down** – return to normal activity from alert status

8.5 **Stand Down** – return to normal activity from Stand-by status or can begin to return to normal activity from Major Incident declared state when possible.

8.6 **Cancelled** – Cancel incident message

8.7 **METHANE message** – Standardized message format for communicating Major Incident notification. **Major Incident**, **Exact Location**, **Type**, **Hazards**, **Access & Egress**, **Number of casualties or number estimated**, **Emergency services present and those required**.

9 **Major Incident Exercise and drill terminology**

9.1 **Abort**- Stop exercise. Early termination of exercise

9.2 **Hold** - Pause or suspend exercise for a period of time

9.3 **Safeguard message** - Real Incident message or Message outside of Exercise

9.4 **Start Exercise** - Beginning of exercise (Startex)

9.5 **End Exercise** - End of exercise (Endex)

10 **Planning and establishing Emergency Preparedness**

10.1 **Role Responsibilities of facility planning team**

10.1.1 This team should comprise of the necessary personnel and staff including managers, physicians, nursing and allied health professionals with the requisite mix of qualifications and skills and experience to provide services in alignment with this standard.

10.1.2 Facilities with Emergency Medicine capabilities should ensure involvement and active role of Emergency Medicine staff in preparedness planning of the facility.
10.1.3 Set out responsibilities for implementing the Preparedness Strategy and Emergency planning cycle.
10.1.4 Establish procedures and policies with stakeholders for coordinating response, continuity strategy, recovery and return to normal activity.
10.1.5 Create preparedness strategy and Major Incident plan which describes specific organizational roles, titles, responsibilities and function.
10.1.6 Set levels, extent of activation and mobilization of own resources in response to Major Incident status Alert/Stand-by, and Declared.
10.1.7 Ensure that assessment of Major Incident triggering mechanisms are aligned with HAAD definition of Major Incident as defined in policy and in accordance with this standard. (Overwhelming or threatened overwhelming of the facility's resources due to the number, type, onset, severity, location of casualties involved)
10.1.8 Ensure staffs are made aware of and become familiar with the plan and its associated procedures.
10.1.9 Create communication plans and call cascades to alert, exchange information, and activate resources.
10.1.10 Identify functional roles and responsibilities of internal and external agencies, organizations, departments, and positions.
10.1.11 Identify lines of authority for the above agencies, organizations, departments, and positions.
10.1.12 Establish financial and administrative procedures to support and sustain the preparedness program and emergency planning and response cycle in its entirety. This includes establishment of responsibilities for the program financial planners, procurement and maintain logistical supply procedures, payroll and additional pay mechanisms for staff called in during incidents, creating accounting systems to track and document costs and management of funding from external sources
10.1.13 Carry out risk assessment, identify hazards, monitor those hazards, the likelihood of their occurrence, and identify the vulnerability to those hazards.
10.1.14 Ensure staff are trained and regularly updated to meet these responsibilities.
10.1.15 Develop and implement a training/educational curriculum to support the Emergency Preparedness program.
10.1.16 The objective of the training is to create awareness and enhance the skills required to develop, implement, maintain, and execute the program.
10.1.17 The training and education curriculum shall comply with all applicable HAAD requirements and CME.
10.1.18 Frequency and scope of training shall be identified.
10.1.19 Training records shall be maintained.

11 Hazard Identification, Risk assessment and Impact analysis
11.1 All Facilities must undertake a comprehensive risk assessment, identification of hazards, analyzing the scale of impact with consultation with
stakeholders and entities as appropriate on a regular ongoing basis, using sample matrix and chart provided in Appendix 1.

11.2 All facilities must establish risk context, identify risks, analyze and monitor risks, evaluate risk and vulnerability and treat risk accordingly.

11.3 Strategy, policy plans and processes of preparedness must incorporate and address identified risks, hazards and impact.

11.4 Internal Health and Safety issues must be addressed in accordance with HAAD OEHSMS Policy and Standards.

11.5 **Factors to consider in risk assessment and planning:**

11.5.1 Nature, type, severity location and number of casualties that may present to facility;

11.5.2 safety of facility staff managing incidents;

11.5.3 patient safety;

11.5.4 impact on facility, staff, ‘customer’, patients/in-patients and delivery of critical patient services;

11.5.5 types of Major Incidents e.g. Road Traffic Collisions, Deliberate Incidents;

11.5.6 environmental and weather;

11.5.7 industrial and Chemical Hazards;

11.5.8 outbreaks;

11.5.9 CBRNE;

11.5.10 incidents with Mass Fatality;

11.5.11 risk of Resource depletion, Resource management and logistics (equipment, professionals, pharmaceutical supplies) supply chain management see Appendix 4);

11.5.12 mass Patient transport and referral;

11.5.13 facility decant, evacuation, lock down;

11.5.14 facility infrastructure and essential services – e.g. water, fuel, electricity and supply during incidents;

11.5.15 economic and Financial;

11.5.16 reputation of or confidence in the Facility;

11.5.17 regional, national, and international considerations; and

11.5.18 business Continuity of critical service operations
Using the Risk Assessment Matrix.
When assessing a risk for the first time you should assume there are no controls already in place. The subsequent two assessments are completed with 1) those controls already in place and 2) with any additional controls needed to reduce the risk further. The assessor should assign values for the identified ‘likelihood’ of occurrence (A) and the severity of the ‘Impact’ (B). By multiplying ‘A’ and ‘B’ together you get the rating score, which gives an indication of how important the risk is. The thick black line is the “line of tolerance”. Those risks that are plotted above the line (score 10 – 25) are “out of tolerance” and should be referred to Emergency Management for further consideration.

<table>
<thead>
<tr>
<th>LIKELIHOOD (A)</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
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<tbody>
<tr>
<td>Very Likely</td>
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<td>Likely</td>
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<td>Feasible</td>
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<td>Slight</td>
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<td>Very unlikely</td>
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<td></td>
<td>Insignificant</td>
<td>Minor</td>
<td>Significant</td>
<td>Major</td>
<td>Critical</td>
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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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Green = Low risk, Amber 9 = Medium risk, Amber 10 –12 high risk, Red = High risk
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<tr>
<th>Subject Area</th>
<th>Hazards and Effect</th>
<th>To Whom</th>
<th>Severity of Impact Rating x Likelihood = Primary risk based on no controls $B \times A = R$</th>
<th>Existing Control Measures</th>
<th>Severity Impact Rating with control x Likelihood = residual Risk $B_c \times A = r R$</th>
<th>Action Required Where Risks are Not Adequately Controlled</th>
<th>Any other Comments or notes to be highlighted</th>
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<table>
<thead>
<tr>
<th>Likelihood of Occurrence (A)</th>
<th>Severity of Impact (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Very unlikely (hasn’t occurred before)</td>
<td>1 - Insignificant (have no effect)</td>
</tr>
<tr>
<td>2 - Slight (rarely occurs)</td>
<td>2 - Minor (little effect)</td>
</tr>
<tr>
<td>3 - Feasible (possible, but not)</td>
<td>3 - Significant (may pose a problem)</td>
</tr>
<tr>
<td>4 - Likely (has before, will again)</td>
<td>4 - Major (Will pose a problem)</td>
</tr>
<tr>
<td>5 - Very Likely (occurs frequently)</td>
<td>5 - Critical (Immediate action required)</td>
</tr>
</tbody>
</table>
Appendix 2

Standards for Written Major Incident and Disaster Plan

1.1 Must use a Generic All-Hazards response approach to developing the main plan

1.2 Have specific plans to cover the highest risks identified by facility in conducting their risk assessment study and to cover issues stated in this standard. In addition facilities must also plan for other hazards as directed by HAAD, where issues of National concern/importance are communicated.

1.3 All Plans must:

1.3.1 Be concise, helpful, easy to use and well laid out with bold titles, logical page numbering, clear text and written in straightforward English;

1.3.2 Identify the process for managing an incident;

1.3.3 Include elements for prevention, mitigation, emergency response/operations, business continuity, critical services continuity and recovery;

1.3.4 Have clearly stated objectives and priorities;

1.3.5 Set out mechanisms and procedures for invoking, activating and deactivating the plan;

1.3.6 Emergency operations/response must be guided by the incident plan;

1.3.7 Identify means to access specialist advice and assistance;

1.3.8 Outline arrangements to support and maintain routine services during a major Incident;

1.3.9 Have a process to monitor record and document Major Incident activity, process to estimate percentage of critical services that can continue to operate at safe levels in prolonged incidents and estimating time of return to normal activity following incidents and calculating resources needed;

1.3.10 Address how the facility will manage when readily available resources are overwhelmed or inadequate;

1.3.11 Codes must not be used, especially when communicating to HAAD, external entities or emergency services;

1.3.12 Base the organizational structure of staff and key personnel arrangements for Incident Management of the facility on the ICS/HICS structure to achieve uniformity;

1.3.13 Incident Management principles can be based on HMIMMS (Hospital Major Incident Medical Management System)/MIMMS or HICS (Hospital Incident Command System/ICS);

1.3.14 Where abbreviations are used, a full explanation must appear at least once in the text and/or in a glossary;

1.3.15 Set out responsibilities objectives and functions of key staff and groups within in the facility;

1.3.16 Incorporate clear Action Cards to support key staff in meeting their responsibilities;

1.3.17 Action Cards must have clear instructions for the key individuals and groups within the Facility;

1.3.18 Identify the location and facilities of the Command and Control within the facility;

1.3.19 Contain arrangements for promptly alerting and establishing a Command and Control Team within the Healthcare facility;

1.3.20 Set out appropriate Health and Safety measures that staff should be aware of;
1.3.21 include 24-hour arrangements for alerting and mobilizing resources, e.g. managers and key staff;
1.3.22 contain details of communication system and mechanisms such as call cascade details. Contain Staff contact lists and log procedures;
1.3.23 identify the process for managing the communication and flow of information, both internally and externally;
1.3.24 set out alerting and activation mechanisms both internal and external e.g. in the case of a self-declared incident, HAAD and external organizations such as the emergency services would have to be alerted by the facility;
1.3.25 set out the mechanism for informing upwards that the Facility Plan has been activated from the point of impact of the facility;
1.3.26 initial Incident notification communication message must follow the METHANE format to ensure relevant information is sought and communicated;
1.3.27 consider designating a single default entry point into the facility, for all casualties, during course of incident;
1.3.28 identify the Facility triage areas – Triage Sieve and Triage Sort
   Triage Sieve is the standard initial triage for mass casualty trauma incidents and triage cards that are capable of changing triage status, according to change in patient status, are to be used e.g. foldable type rather than tear-away type;
1.3.29 triage sieve for a facility must be carried out in close proximity to the point of designated patient entry to the facility;
1.3.30 identify the receiving wards that are pre designated e.g. medical wards for predominantly medical incident such as food poisoning, surgical wards for trauma and maternity wards for creating additional surge capacity for women and children;
1.3.31 cover the special arrangements needed for e.g. women, children, elderly, handicapped or differently abled people;
1.3.32 identify how logistics support and resource requirements would be met and maintained;
1.3.33 set out the arrangements for accessing additional resources e.g. medical equipment, stocks of antidotes/vaccines;
1.3.34 detail arrangements for discharge of patients to increase capacity;
1.3.35 detail arrangements for deployment of a mobile medical and mobile surgical team to the scene of an Incident;
1.3.36 identify means to access key supplies;
1.3.37 cover arrangements for documentation of all aspects of Incident management such as recording messages, management decisions and actions taken during a Major Incident;
1.3.38 include arrangements for keeping staff and stakeholders informed of the incident response and updates;
1.3.39 detail arrangements for transfer of patients or services to other hospitals. Mutual Aid/Assistance Agreement. A prearranged agreement between two or more facilities to share or provide resources to the affected facility in response to an incident;
1.3.40 set out arrangements for dealing with enquiries from the public and the media. Arrangements to control media and public access;
1.3.41 make provision for additional mortuary facilities for casualties who die on route to the hospital or soon after arrival;
1.3.42 make provision for the preservation of forensic evidence;
1.3.43 set out arrangements for accommodating the Police Documentation Team and staff from Government and Security organizations involved;
1.3.44 arrangements to provide for the religious needs of patients and relatives;
1.3.45 set out arrangements for meeting the needs of friends and relatives;
1.3.46 cover provision of counseling and follow up arrangements for patients and Relatives;
1.3.47 cover arrangements for staff welfare, including debriefing and counseling;
1.3.48 contain arrangements for dealing with VIPs as visitors or as patients following a major incident;
1.3.49 contain details of achieving effective lock down of facility;
1.3.50 contain details of evacuation, decant and shut down procedures;
1.3.51 security plan for threat to facility itself and security procedures during and post Incidents;
1.3.52 arrangements for “Hot and Cold” debrief for staff, emergency services and relevant stakeholders;
1.3.53 each copy of plan should be numbered and have controlled distribution with sensitive information safeguarded according to appropriate level of confidentiality when distributed;
1.3.54 copy of general plan must be readily accessible and staff should be encouraged by management to contribute towards the review and revision process; and
1.3.55 plans should be submitted prior to publication for review and approval by the Health Authority EDM.

1.4 Exercises, Evaluations, and Corrective Actions.
1.4.1 The facility must evaluate program plans, procedures, and capabilities through periodic reviews, testing, and exercises.
1.4.2 Exercises must be designed to test individual essential elements, interrelated elements, or the entire plan.
1.4.3 Additional reviews shall be based on post-incident analyses and reports, lessons learned, and performance evaluations.
1.4.4 Procedures must be established to take corrective action on any deficiency identified.
1.4.5 Evaluation reports and summary of corrective actions of Major Incident exercises and drills must be forwarded to HAAD.
1.4.6 Facility Emergency communications and call cascade system testing must be conducted regularly and contact lists kept updated.
1.4.7 The Healthcare Facility must develop and maintain capability to alert HAAD Operations Centre in case of Major Incidents. Periodic tests must be carried out.
Appendix 3 Communication

1.1 Major Incident communication protocols are designed to save lives and differ to corporate communication or social communication protocols.

1.2 Major Incident Communications in coordinating healthcare response of the Emirate from the HAAD Operations Center is made directly to the points of impact in healthcare. Emergency services and organizations involved are kept informed and updated. E.g. Communications of a Major Incident building fire is transmitted directly to receiving Emergency departments, organizations, Burns Unit/s, Military hyperbaric chamber, blood bank and mortuary. When the Incident command room of the particular receiving hospital becomes operational during the course of the Incident, the communications will then be directed to this hospital command center or the organization’s operations Centre instead of the hospital’s Emergency department and Burns unit.

1.3 Once HAAD becomes involved in a Major Incident, Incident communications are between Emergency Services and organizations to HAAD and HAAD in turn communicating directly to healthcare facilities or to the organization’s that are or likely to be involved in response and then to other relevant aspects of healthcare.

1.4 Healthcare facilities and organizations involved must constantly provide updates and situational reports to HAAD.

1.5 TETRA radios (See Appendix 6) - Hospitals and facilities of strategic importance that have been supplied with tetra radios by HAAD must refer and adhere to protocols issued by HAAD EDM.

1.6 Major receiving healthcare facilities will be provided with access to link into the HAAD IMS (Incident Management System) software via internet to facilitate communications with HAAD during Major Incidents.

1.7 Plain English should be used during Major incident communications and the use of codes should be avoided.

1.8 Ensure resilience in communication capability is maintained by providing key areas of facility with multiple modes of communication and backup systems.

1.9 Refer to appendix for acceptable Major Incident terminology, message format pneumonic and abbreviations.

1.10 Initial Incident notification communication message must follow the METHANE format to ensure relevant information is sought and communicated.

1.11 A call cascade system capable of functioning on a 24 hr. basis should be adopted to enable rapid mass alerting and mobilization of staff resources.

1.12 Testing of Emergency communications and call cascade system must be done on a regular basis and contact lists should be kept updated. Testing of Major Incident alerting of and notification of HAAD Operations Center should be carried out on regular basis.

1.13 Create mechanism to document all forms of Major Incident communications such as messages received by facility, those transmitted, management decisions and actions.

1.14 Set out the alerting arrangements to activate own resources within and external to the facility.

1.15 Set out alerting mechanisms to mobilize emergency services and HAAD Operations Center for Major Incidents originating at own facility, if first to be affected/ threatened or if first to be aware of incident.
Appendix 4 Business Continuity

1.1 Business Continuity in Major Incident and Disaster Preparedness

1.1.1 Business Continuity principles must be applied to Emergency Planning and should form part of the facility's plan, must carry senior executive responsibility and have a framework to understand and manage all aspects of supply chain, maintain critical services, mutual aid, evacuation, deliver training, audit and performance manage.

1.1.2 Identify assets needed to maintain critical services for 24 hours, for 72 hours and for 1 week.

1.1.3 Establish agreements and contracts, with providers, suppliers and with other facilities to establish continuity in critical care with focus on workforce, infrastructure, IT & telecommunications, utilities, and supplies. Determine how the above relationships with key stakeholders will be managed at the onset and during the disruption.

1.1.4 Quantify timeframes of return to normal activity following disruption for each critical service, the maximum period for which disruption can be tolerated with and without additional available resources mobilized, dependencies, critical objectives, and resources needed over time to maintain critical services within maximum tolerable limits.

1.1.5 Take account of services or activities that critical services depend upon.

1.1.6 Take into account events where staff of the facility could be affected by the Incident or staff deserting the area in light of a perceived threat.

1.1.7 Set alerting mechanisms to activate continuity plan, mobilize resources and alert stakeholders.

1.1.8 Develop plans to decant to alternative location and continue provision of services when facility or parts of facility are affected.

1.2 Resource Management and Logistics

1.2.1 The facility must establish resource management objectives consistent with the overall Incident Plan goals and objectives and for the hazards as identified.

1.2.2 The facility must establish procedures to locate, acquire, store, distribute, maintain, test, and account for services, personnel, resources, materials, and facilities that support its Plan.

1.2.3 The resource management objectives established should include at least the following components and tasks:

1.2.3.1 Establishing database of resources with interface provided to HAAD for monitoring critical resources which consists of, but not limited to (beds, critical staff, essential drugs, antidotes, vaccines, etc.);

1.2.3.2 personnel, equipment, training, facilities, funding, expert knowledge, materials, technology, information, intelligence, and the time frames within which they will be needed;

1.2.3.3 quantities, response times, capabilities, limitations, costs, and liabilities associated with using the involved resources;

1.2.3.4 resources and any needed partnership arrangements essential to the Plan;

1.2.3.5 establishing processes for describing, inventorying, requesting, and tracking resources;
1.2.3.6 activating these processes prior to and during an incident;
1.2.3.7 dispatching resources prior to and during an incident;
1.2.3.8 documentation and accounting procedures e.g. mass casualty situations;
1.2.3.9 dispatching resources to other facilities, sites or venue;
1.2.3.10 receiving resources from external facilities (e.g. staff pre credentialing and volunteer database);
1.2.3.11 deactivating or recalling resources during or after incidents;
1.2.3.12 contingency planning for shortfalls of resources and the steps necessary to overcome any shortfalls;
1.2.3.13 an inventory of internal and external resources shall be maintained; and
1.2.3.14 addressing management and accounting of goods, services, personnel, and other resources received/ offered, solicited and unsolicited, during course of Incidents.
Appendix 5 Chemical Biological Radiation Nuclear and Explosives CBRNE.

1.1 CBRNE and HAZMAT preparedness must be incorporated under the all hazards response approach for all healthcare facilities.

1.2 CBRNE HAZMAT Risk assessment carried out by the facility would be considered as a baseline guide to the level of preparedness to be attained for the particular facility.

1.3 All healthcare facilities must have plans and procedures that can be deployed rapidly in the event of CBRNE or HAZMAT Incidents. (The Incident or threat may first be detected by the facility, or facility may become aware or informed of Incident nearby or be notified of an Incident by HAAD, the Emergency Services, NCEMA, public announcement or via media.)

1.4 All facilities must have procedures to prevent, detect, alert, contain and limit CBRNE HAZMAT effects on the facility and protect its staff and patients e.g. infection control measures in the event of an outbreak.

1.5 All facilities must implement and ensure that clinical guidelines, diagnostic/treatment algorithms and procedures are provided for frontline staff who may be the first to suspect diagnose casualty presenting directly/unannounced to the facility following a CBRNE or HAZMAT incident. Facilities must ensure that all clinical standards and guidelines implemented are in compliance with HAAD clinical standards and follow international best practice.

1.5.1 Set out arrangements for preventing contamination of the facility and staff (Emergency Medicine Department in particular) by self-presenting patients following a CBRNE or HAZMAT incident.

1.5.2 All facilities must develop effective rapid Lock Down procedures and work towards developing capabilities to sustain and maintain lock down for a 48 hour period.

1.5.3 Develop communication plans to activate HAAD Operations Center, alert own staff and the Emergency Services.

1.5.4 Set out arrangements to contain and manage contamination or exposure of the facility. Set out arrangements to manage scenario of staff and patients becoming contaminated, infected or affected. These may include isolating affected patients, cordonning affected parts of the facility etc.

1.5.5 Plans must incorporate measures to protect staff and patients and to preserve evidence in case of deliberate incidents.

1.5.6 Set out arrangements for rapidly increasing security measures in healthcare facilities in CBRNE incidents or if directed to do so by HAAD, NCEMA or the Emergency Services. Procedures must include suspect package and post handling, deploying facility access limitations and controls, and dealing with deliberate incident threat to facility itself.

1.5.7 Set out arrangement with laboratories for analysis and testing of specimen samples

1.5.8 Set out arrangements for safe handling and transport of contaminated specimen samples and or contaminated evidence material that healthcare staff may be responsible for.

1.5.9 Set out arrangements for referring and transporting patients.
1.5.10 Set out provisions for mass prophylaxis

1.6 **Personal Protective Equipment (PPE)** will protect staff and patients only if correctly selected, worn in time, worn appropriately and discarded correctly. Type of PPE to be donned by staff depends on the task the staff is expected to perform, level of infectivity/ contamination/ mode of transmission and clinical evidence based best practice. Facilities must adopt recognized clinical generic CBRNE algorithms to derive the type of PPE to be worn and method of decontamination to be used and other protective measures.

1.7 **Mass Decontamination and Clinical Decontamination at healthcare facility – Facilities with Emergency Medicine capability**

1.7.1 Hospitals with Emergency Departments are primary receiving centers for casualties from CBRNE and HAZMAT Incidents.

1.7.2 All Hospitals with Emergency Departments must develop hospital mass decontamination or clinical decontamination capability to a degree that matches the risks of the facility.

1.7.3 All Hospitals with Emergency Departments must set arrangements for surveillance and detection of patients affected by CBRNE or HAZMAT incidents, develop capabilities to test, analyze and identify causative agent and have testing capabilities to determine effectiveness of decontamination or presence of contamination. Arrangements made must avoid use of Emergency Medicine staff for decontaminating casualties.

**CBRNE Supplementary Guidance – Incidents involving radiation**

**Part I**

**Ionizing Radiation**

Ionizing radiation is invisible, odorless and tasteless. Man-made sources of radiation and radioactive materials like those used in medicine (diagnostic imaging and radiotherapy), are also used widely in industry (nuclear power stations, mining, food irradiation), industrial radiography (e.g. of pipes, buildings, baggage), and for other uses including nuclear fuel and weapons.

Alpha particles, Beta particles, Gamma rays and neutrons are produced as a result of decay of atoms of the radioactive material. Depending on their energies, Alpha and Beta particles travel less distance in the air, a few millimeters to few feet, respectively, when compared to Gamma rays and X-rays which can travel hundreds and thousands of meters.

In terms of radiation penetrating intact human body in cases of exposure, Alpha particles cannot penetrate skin, while Beta can penetrate to dermis. Gamma rays, X-rays and neutrons can easily penetrate further into the body causing organ damage. Thus, Alpha particles are hazardous only when ingested, inhaled, injected or absorbed e.g. via skin wounds. Shielding from Alpha particles can be done with few millimeters of air or a piece of paper. Beta requires a few millimeters of plastic, wood or glass, X-ray and Gamma require lead shielding, while neutrons require thick layers of concrete for shielding.
Exposure vs. Contamination

**Exposure occurs:** When all or part of the human body is irradiated. Factors affecting radiation exposure are: duration, distance and shielding. If exposure time is halved, the dose is halved. The inverse square law applies to distance; that is, doubling the distance between the source and the body reduces the dose by a factor of 4.

In the same way that a patient who has had a CT scan or X-ray presents no risk to others, radiation safety precautions are NOT needed for patients who have been exposed to radiation but not contaminated.

**Contamination occurs:** When radioactive material is deposited on skin and/or clothing (external contamination), or into the body (internal contamination) by inhalation, ingestion (hand-to-mouth, food, drink), or absorption via a wound.

**External contamination** (usually dust or particulate matter) is readily removed by decontamination. Removing the clothing of an externally contaminated individual can reduce external contamination by as much as 90%, and forms a core part of the decontamination process. Removed contaminated clothing should be bagged, labelled and stored securely. Where an individual (patient or healthcare professionals) is contaminated, the risk of long term health effects for the individual following standard precautions is likely to be tiny, if not trivial.

Radiation is readily detectable with equipment, and contamination is easily measurable. FANR (Federal Authority for Nuclear Regulation), ADP (Abu Dhabi Police), Quick Intervention / Civil Defence, Military, Government organizations and security agencies have equipment for detecting different forms of radiation and measuring contamination.

In Healthcare, Medical Physics and Nuclear Medicine Departments in healthcare facilities have equipment for specifically detecting Gamma radiation (e.g. Mafraq Hospital, Tawam Hospital, SKMC and Al Noor Hospital Airport Road).

**Healthcare Facilities with Nuclear Medicine Departments:**
HAAD may require a team of experts and equipment from the facility to form part of a multi-agency team to assist in detecting and or assessment of exposure / contamination of personnel or property in nearby healthcare facilities.

Facilities with Nuclear Medicine Departments are primary designated centres for treatment of known post exposure individuals/patients or known contaminated individuals/patients following pre-hospital decontamination. When requested by HAAD, arrangements must be made by such facilities to create the mentioned team, as part of major incident/disaster planning. A facility must ensure that its Nuclear Medicine Department works closely with the facility’s own Emergency department for support.

**Radiation doses and dose limits for radiation workers**
The annual dose limit for a radiation worker exposed to radiation in the course of work (whole body) is 20 milli Sievert (20,000 micro Sievert). As a point of reference, the Time to reach this dose in an area with 10mSv/hr. is 2 hours.
A Chest X-ray = 20 micro Sievert

Acute radiation sickness (whole body single dose): starts at a dose of 1 Sievert and above

1 Sievert = 1000 milli Sievert (mSv) = 1,000,000 micro Sievert

**Think of radiation exposure**

Consider the likelihood of exposure to radiation as a likely concern with:

- Any newly diagnosed cases of bone marrow depression (leucopenia: infection; thrombocytopenia: bleeding gums, nosebleeds, bruising), or ‘Burns’, erythema, or bullae with no history of heat or chemical exposure, or sudden, rapid, hair loss especially if there is a relevant occupational history or unexplained nausea / vomiting +/- diarrhoea 2-4 weeks before onset, and
- When dealing with ANY incident involving terrorism or bomb or other intentionally placed explosive device including the possibility of exposure arising from a ‘dirty bomb’ (conventional explosive used to disperse radioactive material), a low yield improvised nuclear device (IND), or a deliberately hidden source of radiation.

The first sign of a problem may be the presentation of a case to an Emergency Department.

**As a rough guide in triage of patients exposed to radiation** – The time of onset of vomiting, from the time an individual/patient was exposed to radiation, is a rough guide to the dose severity. The shorter the time duration between times at which an individual/patient was exposed to radiation and the time at which vomiting started, the higher the dose received by an individual/patient.

**Acute radiation syndrome (ARS)**

Many radiation accidents cause partial body injury (early erythema followed by bullae, and, if severe, ulceration and necrosis often of the hands) and may not be associated with ARS.

- ARS follows a large, usually external exposure of all (or most) of the body to penetrating radiation (Gamma rays, high-energy X-rays, neutrons) in a short time (seconds).

- Symptoms of ARS occur in a four-phase sequence:
  1. prodromal phase
  2. latent period
  3. illness
  4. recovery/death

- As the radiation dose increases, the prodromal and latent periods shorten, and the severity of illness, and mortality, increase. Major trauma and radiation exposure interact synergistically in terms of mortality.
- Initial symptoms of ARS are non-specific, and rarely immediately life-threatening; treatment of other injuries takes priority.
- If, in the first 6 hours after a suspected exposure, there are no symptoms of exposure (e.g. nausea, vomiting), serious ARS is unlikely.
## Symptoms and Signs

<table>
<thead>
<tr>
<th>Dose: less than 1 Sievert</th>
<th>Dose: 1 Sievert – 8 Sievert</th>
<th>Dose: more than 6 Sievert – 20 Sievert</th>
<th>Dose: more than 20 Sievert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usually asymptomatic</td>
<td>Haematopoietic syndrome</td>
<td>Gastrointestinal syndrome</td>
<td>CNS/CVS syndrome</td>
</tr>
<tr>
<td>• Symptoms mild (or absent)</td>
<td>• Early nausea, vomiting, diarrhoea, anorexia, fatigue</td>
<td>• Latent period: hours-1 week</td>
<td>• Almost immediate projectile vomiting, explosive bloody diarrhoea, headache, collapse, confusion, loss of consciousness, agitation, burning sensation on skin</td>
</tr>
<tr>
<td>• Episodic nausea, vomiting in first 48 hours in 1%-10%</td>
<td>• Latent period: 2 days-4 weeks</td>
<td>• Severe gastrointestinal symptoms (fever, abdominal pain, cramps, watery diarrhoea, haemorrhage, electrolyte imbalance, dehydration) coupled with bone marrow depression</td>
<td>• May be lucid interval (hours)</td>
</tr>
<tr>
<td>• Mildly depressed WBC at 2-4 weeks</td>
<td>• Bone marrow depression: leucopenia – infection; low platelets – bleeding, bruising</td>
<td>• LD100 is about 10 Sievert, death usually within 2 weeks</td>
<td>• Neurological and cardiovascular symptoms predominate: convulsions, coma, hypotension, shock</td>
</tr>
<tr>
<td>• No foetal effects if effective dose less than 100 milli Sievert (100,000 micro Sievert)</td>
<td>• Serial lymphocyte counts in first 48 hours predict severity</td>
<td>• LD 50/60 is ~4.5 Sievert without treatment</td>
<td>• Death within 2-3 days</td>
</tr>
<tr>
<td>• Counselling needed if pregnant and effective dose more than 100 milli Sievert (100,000 micro Sievert)</td>
<td>• 3-4 Sievert: hair loss at 2-3 weeks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*LD50/60 (dose killing 50% of those exposed within 60 days if whole body dose): ~4.5 Sievert

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**Clinical Management for Radiation Incidents in general:**

- Stabilise airway, breathing, circulation, and initiate Rx of any life-threatening conditions (e.g. trauma, thermal burns, and lung injury)
- Assume all individuals/patients involved in an incident are contaminated until you know that they are not: make sure that you, and the area you work in, are protected from possible contamination; reassign pregnant staff; do not handle unfamiliar objects or embedded fragments (e.g. shrapnel) directly; use tongs or forceps and place in lead-lined container; remember distance & inverse square law
- Assess contamination using contamination meter. If present, decontaminate, and presume individual/patient may also be internally contaminated
- Removing individual's/patient's clothing can reduce external contamination by as much as 90%; when clothing are removed, bag, label and store it securely
- Symptomatic treatment for nausea, vomiting (cyclizine, odansetron), diarrhoea, pain (opiates), and erythema; monitor and replace fluid loss
• To help assess the dose of radiation received: obtain and record as much information as possible about type and extent of exposure (what? where? when? for how long?): record date, time of onset, and severity of all symptoms and signs; record (body-map, or photograph) sites of any erythema or local injury. An estimate of the whole radiation body dose is helpful in estimating long term cancer risk.
• Samples: baseline FBC with serial absolute lymphocyte counts 3-4 hourly for first 12 hours after acute exposure, then 6 hourly for 48 hours; HLA typing (BEFORE transfusing – use irradiated blood products if ARS possible); pregnancy test; nasal swabs or nose blows x 2; chromosome analysis (7ml venous blood taken 24 hours post exposure into lithium heparin tube); if contamination confirmed, 24 hour urine and faeces to be collected
• Seek expert advice early on formal dose assessment and management of internal contamination (medical physics, nuclear medicine, FNAR, HAAD); infection-prevention regimes, G-CSF and GM-CSF, stem cell/platelet transfusions (haematology, oncology, INM)
• If dose more than 1 Sievert and surgery required, do so as early as possible (and certainly within 48 hours of exposure) or wait for marrow recovery.

Dead Body - Be aware of need to preserve forensic evidence. Consider the possibility of body being contaminated and thus requiring isolation of the body and cordonning the area. Staff and mortuary services must not transport body till deemed safe to do so by relevant authorities and may require precautions such as lead shielded casket. Wear appropriate PPE. Decontamination of and removal of clothing from the body are likely to be carried out by Police forensic expert and relevant authorities.

Industrial Radiography - The device incidents
Federal Authority for Nuclear Regulation (FANR) will issue notice to relevant authorities as per protocols in early notification convention for emergency in industrial radiography. Such incidents pose a threat to healthcare and will often involve multiagency response e.g. Police and Emergency services, FANR, NCEMA, Military, security services and HAAD.

Industrial radioactive devices have security and safety control systems in place to prevent tamper/breach/damage to the device, either deliberate or accidental. Even when the protective container of the device is breached, the effects on health depend on duration of exposure, distance from source, and any shielding in between the individual and source. Unless radioactive material contained within the device has been ingested, carried in clothing or introduced into the body, the individual is exposed to radiation rather than contaminated with radiation, for a device with its safety container breached.

Scenario of missing industrial radiography device:
If a device is found or information received on device location: Inform Police and FANR immediately. Stay away from the device and evacuate area of personnel from around site of the device. Do not approach the device. Put up warning signs; i.e. cordon off area (potential hot zone). People in the immediate vicinity may need to be checked for radiation exposure on scene outside the safety cordon.

Pre-Hospital Care - Ambulance personnel must assume that the device is breached till proven otherwise. Wear standard PPE with double gloving. Gather people who may have been in contact with the device just outside the first safety cordon established (potential hot-zone). Do not transport individuals/patients till advised it is safe to do so.
**Safety Cordon distance** – If the device is located indoors of a building with concrete structure, the perimeter of the building can be taken as the first safety cordon for Ambulance staff, until Police, FANR and other agencies assess situation further. If the device is located outdoors in open space, a 500 meter first cordon is recommended, assuming worst case scenario, till arrival of Police, FANR and other agencies to do further assessment.

If patient presents to frontline healthcare, including, but not limited to, GP, Emergency Department or Ambulance Service with a history of handling the missing device:
- Isolate patient, inform Police, FANR and other services including HAAD Operations Centre as per standard Major Incident protocols. Use PPE as per WHO standard universal precautions (apron, mask, gloves)
- Obtain and record as much information as possible to detect possibility of exposure. Type and extent of exposure (what? where? when? for how long?); record date, time of onset, and severity of all symptoms and signs; record (body-map, or photograph) sites of any erythema or local injury.

In the Pre-Hospital Setting Ambulance personnel must try to isolate individual/patient at scene till further help arrives from ADP, FANR, security services and other Emergency Services. Wear standard PPE with double gloving. Individual/patient must not be transported to healthcare facility till deemed fit for transport. Individual/patient must be taken to a HAAD designated and alerted healthcare facility. If individual/patient has already entered ambulance, isolate individual/patient within ambulance await arrival and instructions from FANR, other Emergency Services and security services. Proceed to HAAD designated healthcare facility after inter-agency clearance.

If patient shows signs or symptoms of exposure with history of contact with missing device:
- Isolate patient, inform Police, FANR and authorities including HAAD Operations Centre, declare major incident. Wear standard PPE with double gloving. Assume patient to have some degree of contamination till proved otherwise.
- Decontaminate patient by removing clothing of patient. Bag and label removed clothing and store securely. Consider further decontamination if contamination is very likely and time allows within a healthcare facility.
- Assess patient for Burns, erythema or bullae, nausea, vomiting, fatigue, diarrhoea, gastro intestinal, central nervous system, cardio vascular system or haematological syndromes (refer to Signs and Symptom chart of ARS Acute Radiation Syndrome-Annex 1 of this document).

Note- Many radiation accidents cause partial body injury (early erythema followed by bullae, and, if severe, ulceration and necrosis, often of the hands) and may not be associated with ARS –Acute Radiation Syndrome.

In the Pre-Hospital setting Ambulance personnel must try to isolate patient at scene till further help arrives from ADP, FANR, security services and other Emergency Services. Wear standard PPE with double gloving. Patient must not be transported to a healthcare facility till decontaminated/ deemed fit for transport. Patient must be taken to a HAAD designated and alerted healthcare facility. If patient has already entered ambulance, isolate patient within ambulance, await arrival and instructions from ADP, FANR other Emergency Services and security services. Proceed to HAAD designated healthcare facility.
after inter-agency clearance and decontamination. The ambulance is to be considered contaminated. Ambulance personnel must undergo assessment for exposure / contamination.

**As a rough guide in triage of patients exposed to radiation** – The time of onset of vomiting from the time a patient was exposed to radiation is a rough guide to the dose severity. The shorter the time duration between times at which patient was exposed to radiation and the time at which vomiting started, the higher the dose received by patient.

**If dead body is found with signs of exposure or history of contact with a device:**
Inform Police, FANR and relevant authorities including HAAD Operations Centre. Body should be assumed to be contaminated. Isolate body and cordon area. Be aware of need to preserve forensic evidence at scene. Ambulance and mortuary services must not transport body till deemed safe to do so by relevant authorities. Wear standard PPE with double gloving. Decontamination and removal of clothing on body are likely to be carried out by forensic expert on-scene and precautions such as lead-shielded casket may be needed prior to removal of body from scene.

**Standard PPE (Personnel Protective Equipment) for healthcare staff and Ambulance personnel**
PPE with double gloving (mask, eye protection – goggles, plastic disposable apron/gown, and double gloves).

**Decontamination**
Removing patient’s clothing (bag, label and store it securely) can reduce external contamination by as much as 90%
Pre-Hospital decontamination if required may be carried out at scene by ADP Quick Intervention Unit/ Military/ADP Civil Defence as appropriate.
If patient has self-presented and entered into healthcare facility and warrants decontamination further to removal of clothing, follow Standard Operating Procedures provided in **Part II** on Standard Hospital decontamination of non-ambulant patient. Obtain expert help! Contact FANR, HAAD, and Emergency Services. Appropriate equipment and ‘Decontamination PPE’ will be needed. Radiation monitor to check effectiveness of decontamination will be needed. Run-off water may need to be contained. If patient is able to mobilize, follow expert advice which may involve decontamination showering of patient with appropriate precautions.

**Part II**

**Standard Operating Procedures for Hospital Clinical Decontamination of non-ambulant patient**
Seek expert help! Specialist equipment such as ‘PPE specific for decontamination’, decontamination effectiveness verification and trained personnel may be needed.

**Overview**
• Decontamination after exposure to a chemical, biological or radiation hazard is intended to reduce the risk of harm to the patient, to others, or to the wider environment
• If a CBRN/Hazmat incident occurs, casualties should be decontaminated at the scene, but, contaminated casualties may also self-present to the emergency department
• The first indication of an incident may be the arrival of contaminated or symptomatic patients at your department
• Casualties of industrial accidents, road accidents, bombs or incendiary devices may be contaminated
• Prompt decontamination after chemical exposure may be life-saving; in a radiation incident, first treat life-threatening injury, then decontaminate
• Be alert to the unusual, the unexpected, and the unexplained – and if in doubt, seek expert advice

**Equipment for decontamination**
Scissors, Large plastic bags (for clothing and double bagging)
Buckets (5-10 litres size) Small clear plastic bags (for jewellery, watches, other valuables)
Sponges/soft brushes/washcloths ID labels/tags
Liquid soap/washing up liquid/shampoo without conditioner Sturdy containers for used decontamination equipment
Disposable towels/drying cloths Warm water source; 0.9% saline; topical anaesthetic drops for eyes

**RINSE – WIPE – RINSE technique**
**Step 1:** Gently wash affected areas with soapy water (0.9% saline for open wounds and eyes): this dilutes the contaminant and removes particles and water based chemicals
**Step 2:** Wipe affected areas gently but thoroughly with sponge or soft brush or washcloth: this removes organic chemicals and petrochemicals
**Step 3:** Gently rinse affected areas/objects

"Isolate/Remove it from others, keep it off yourself, and don’t spread it around"

• Work in teams of 2-4 people
• **Protect yourself:** ensure that you are wearing appropriate PPE; **DO NOT** perform mouth to mouth/nose resuscitation
• **Protect others:** ensure that contaminated patients are decontaminated outside your department, in the decontamination unit, and that contaminated patients do not enter the department. Ensure that the decontamination area is cordoned off, secured, and that patients (and staff) have privacy. Only personnel wearing appropriate PPE should enter the decontamination area.
• Emergency resuscitation, antidote administration, and decontamination may have to be done at the same time
• Avoid or minimise hand – mouth/eye/face/mask contact. **NEVER** eat, drink or smoke in the decontamination area
• Make up a solution of **liquid soap and water** (5ml soap/litre of water = 3-4 squirts of liquid soap to a 5-10 litre bucket of water)
• **Use warm or tepid water** (hot water may increase absorption of contaminant; cold water increases risk of hypothermia)
• **DO NOT** use bleach
• Establish patient’s name (if possible), and use name and/or hospital number (ideally both) on water-impermeable wrist band for patient and on labels for bags containing patient’s clothing and effects
• **Explain what you are going to do** before you start and as you go along. Remember that, for most, this will be a frightening, unpleasant experience
• **Remove/cut off clothing gently and speedily** (this may reduce contamination by 90%). **DO NOT** pull clothing off over the head
• If clothing is adherent, do not rip, pull or tear: soak gently and thoroughly with water until clothing can be separated from underlying tissue
• Fold clothing outsides to middle to contain contamination. Place clothing in large plastic bag and put ID label in the bag
• Remove jewellery, watches, rings, and other personal effects (e.g. wallet, passport), place in small clear plastic bag, add ID label
• Place small clear plastic bag inside larger bag, then place both bags inside a further large plastic bag. Seal/tie, ID-label, and store securely
• Glasses/spectacles needed for vision can usually be washed-wiped-rinsed-dried and returned to, or kept with, the patient
• Hearing aids should be removed, but should not be immersed in water. Either wipe thoroughly with saline-moistened gauze, place in clear plastic specimen bag and keep with patient if patient cannot hear without them, or place with other personal effects

• **Decontaminate using RINSE – WIPE – RINSE technique. DO NOT rub hard or abrade skin,** as this may increase absorption
• Airway and face first (protect airway, prevent aspiration); sites needed urgently for IV access and any open wounds next (gently and thoroughly irrigate wounds with copious 0.9% saline, then cover with dressing), then work from hair/head downwards to toes. Pay special attention to skin folds, skin creases (axillae, perineum, back of neck, behind knees), nails, ears, and hair. Roll patient gently onto side (ensure neck stability if cervical spine injury) to reach back, buttocks, back of head, and legs
• **Eyes:** if contact lenses present, remove if possible without harm; use topical anaesthetic if needed; flush eyes copiously with 0.9% saline
• If contaminated with **radioactive material**, survey for residual contamination and if more than 2 x background, repeat decontamination process
• **Dry, and cover** or clothe patient, transfer to clean trolley or backboard, transfer to ‘clean’ area for further assessment and care
• Used sponges, towels, brushes and other contaminated equipment should remain in the decon area for evidential use or safe disposal
• Contain waste water where possible: if not possible, seek advice, and inform FANR (in case of radiation incident), sewage and water companies.
• Protect yourself and others: rest and rotate staff as needed; make sure all staff self-decontaminate before leaving the decontamination area.
Appendix 6

STANDARD OPERATING PROCEDURES FOR TETRA RADIO COMMUNICATION
IN ABU DHABI HEALTHCARE

1. Introduction
TeRrestrial Trunked RAdio (TETRA) is a specialist digital portable radio communications device and two-way transceiver (walkie-talkie). TETRA was specifically designed for use by government agencies and Emergency services (EDs, Police, Fire department, Ambulance) and the Military.

HAAD and Abu Dhabi Police have created Healthcare Tetra network within the UAE Police TETRA network – Polikom, to support HAAD’s responsibilities in support of Emergency and Disaster Management in Healthcare System.

HAAD will provide healthcare facilities with TETRA communication devices.

2. Groups - Healthcare TETRA
As far as the healthcare facilities are concerned, the main TETRA user groups under HAAD are listed below:

- Al Ain Region Facilities
- Western Region Facilities
- Abu Dhabi Island and surrounding region facilities

3. Current Enabled features on devices
Only the “walkie-talkie” function of TETRA has currently been enabled in the devices provided by HAAD. Other functions that may be enabled in the future are GPS, SMS, “mobile phone” type features and the “emergency” button.

Send – Receive is set to the corresponding TETRA user group that the entity belongs to (the three groups described above).

4. Scope of TETRA Usage:

Rationale:

a. To familiarize end users with TETRA technology and facilitate their use of it as a reliable tool of communication.
b. To adopt its use as:

i. The initial Alert Notification communication tool used by HAAD to issue Major Incident messages to Emergency Departments. This enables all EDs and related facilities in the region (user group) to be aware of the location, scale and nature of an Incident simultaneously. It also enables EDs to know the level of response needed and the number of facilities or organizations involved;
ii. A communication tool for ED/Healthcare facility to notify HAAD, if it were to be the first to be aware of a Major Incident;

iii. An alternative mode of communication in case of failure of other forms of communications;

iv. As backup communication tool to maintain contact between ED and a team dispatched out of the Hospital from ED.

5. **Placement of TETRA within facilities and assigning responsibility**

5.1 **All HAAD licensed healthcare facilities provided with TETRA equipment must ensure that:**

a. Devices are placed in an area where frontline medical staff of the facility can be in direct communications with HAAD Operations Center. (In a Hospital the information transmitted via TETRA would be initially directed to ED medical staff and later to the Hospital Command Center).

b. The overall responsibility for developing, maintaining and improving the quality of TETRA communications, and the person/persons responsible for safe keeping, testing and reporting of issues to HAAD, is assigned to a facility nominated representative or group headed by a facility nominated individual.

c. A TETRA communications - maintenance log is kept and updated by each facility.

5.2 **Tetra Communications during Major Incidents**

Initially, when a Major Incident occurs, communications will be between Hospital ED and HAAD. When the Hospital Command Room is manned and operational, the external communication responsibility should change from ED to the Hospital Command Room. HAAD must be informed, when this handover of charge to Hospital command room occurs.

Communications to HAAD must only be from one source within the facility at any given time, during the course of an Incident.

5.3 **Major Incident METHANE message**

HAAD Operations Center uses the METHANE Incident message format described below, to ensure critical information exchanged within Healthcare and Emergency Services, in case of Major Incidents, are standardized.

6. **METHANE**

- Major Incident - Alert/Standby/Declared/Cancelled/Drill
- Exact Location – (GPS reference if available)
- Type of Incident – e.g. Chemical leak, Building collapse
- Hazards – e.g. ongoing fire, falling debris, unexploded device, contaminated patient
- Access & Egress – How should one get in and get out of the area.
- Number of casualties – estimated (triage sieve details)
- Emergency Services – those present and any required

7. **Testing TETRA Communications:**
a. Twice daily TETRA Communications check will be carried out by HAAD Operations Center with all facilities provided with TETRA devices. A group check may also be carried out once all entities become familiar with the device and an order of response circulated to each group.

b. Each facility/entity must carry out their own regular internal testing based on their standard operating procedures. Internal testing must be agreed in advance with the HAAD Operations Center.

8. **Tetra Communications test**

A Sample of group check and individual facility check are given in Table 1 below:

<table>
<thead>
<tr>
<th>Table 1- TETRA Communication Test Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) All Abu Dhabi Group from Operation Center, Radio Check, over.</td>
</tr>
<tr>
<td>SKMC, OK, over</td>
</tr>
<tr>
<td>Mafraq, OK, over</td>
</tr>
<tr>
<td>Blood Bank, OK, over</td>
</tr>
<tr>
<td>Operations Center, OK, out.</td>
</tr>
<tr>
<td>2) Al Rahba from Operation Center Radio Check, over</td>
</tr>
<tr>
<td>Al Rahba, OK, over</td>
</tr>
<tr>
<td>Operations Center, OK, out.</td>
</tr>
</tbody>
</table>

Operations Center, OK, out.

9. **Cautionary Notes**

As a precaution from radio interference affecting medical devices, a one meter separation of base station from medical devices is recommended. Similarly, a distance of 30 centimeter is recommended for the handsets.

However, there have been no reports of interference with the use of TETRA in close proximity of medical devices in Ambulances.

10. **Airtime Usage**

Airtime usage must be kept to minimum as all users within a region share the same group and Integrated Operation Center communicates to all 3 regions.
Long messages must be avoided. If a long message needs to be transmitted, offer an indication that a “long message” is to follow. Break down the long message into a series of short messages with acknowledgements in between.

11. Initiating a call

To start a message, begin by saying the name of the entity you are calling and follow it with who you are. E.g. “Operations Center, from Al Rahba, over”

12. Radio voice procedure

- Fundamentals are **CLARITY, ACCURACY** and **BREVITY**.
- Voice **Clarity** in Radio can be achieved by attention to **Rhythm**, **Speed**, **Volume**, and **Pitch** (RSVP)
  - Rhythm – steady
  - Speed – Slower than normal speech
  - Volume – slightly louder than normal speech
  - Pitch – higher pitch is better than low pitch
- **Accuracy and brevity** develops with practice and discipline.
- **Brevity** can be facilitated by using the glossary of words provided at Table 2 (Parts A and B) below that acts as verbal shorthand in Radio communications.

**Table 2 – Part A - Glossary of Words**

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK/Roger</td>
<td>I understand</td>
</tr>
<tr>
<td>Go Ahead/Send</td>
<td>I am ready to receive your message</td>
</tr>
<tr>
<td>Over</td>
<td>The speaker wishes the receiver to talk</td>
</tr>
<tr>
<td>Out</td>
<td>The conversation is finished</td>
</tr>
<tr>
<td>Acknowledge</td>
<td>Tell me you have received my message</td>
</tr>
<tr>
<td>Say again</td>
<td>Repeat what you said</td>
</tr>
<tr>
<td>Wait</td>
<td>I cannot reply within the next 5 seconds (can be used again after 5 seconds)</td>
</tr>
<tr>
<td>ETA</td>
<td>Estimated time of arrival</td>
</tr>
<tr>
<td>ETD</td>
<td>Estimated time of departure</td>
</tr>
<tr>
<td>Wrong</td>
<td>Error made in message (follow the word “wrong” with the correction)</td>
</tr>
<tr>
<td>----------------</td>
<td>---------------</td>
</tr>
<tr>
<td>A</td>
<td>ALPHA</td>
</tr>
<tr>
<td>B</td>
<td>BRAVO</td>
</tr>
<tr>
<td>C</td>
<td>CHARLIE</td>
</tr>
<tr>
<td>D</td>
<td>DELTA</td>
</tr>
<tr>
<td>E</td>
<td>ECHO</td>
</tr>
<tr>
<td>F</td>
<td>FOXTROT</td>
</tr>
<tr>
<td>G</td>
<td>GOLF</td>
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<td>H</td>
<td>HOTEL</td>
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<td>I</td>
<td>INDIA</td>
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<td>J</td>
<td>JULIET</td>
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<td>K</td>
<td>KILO</td>
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<td>L</td>
<td>LIMA</td>
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<td>M</td>
<td>MIKE</td>
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<td>N</td>
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<td>OSCAR</td>
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<td>P</td>
<td>PAPA</td>
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<td>Q</td>
<td>QUBEC</td>
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<tr>
<td>R</td>
<td>ROMEO</td>
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<td>S</td>
<td>SIERRA</td>
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<td>TANGO</td>
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<td>U</td>
<td>UNIFORM</td>
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<td>V</td>
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<td>WHISKEY</td>
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<td>X-RAY</td>
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<td>YANKEE</td>
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<td>THREE</td>
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<td>SEVEN</td>
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<tr>
<td>8</td>
<td>EIGHT</td>
</tr>
<tr>
<td>9</td>
<td>NINE</td>
</tr>
<tr>
<td>0</td>
<td>ZERO</td>
</tr>
</tbody>
</table>
Appendix 6 Mass Fatality
   1.1 Establish plans and procedures to deal with Mass Fatality incidents in conjunction with Police, HAAD Public Health and HAAD Emergency & Disaster Management.
   1.2 These may include but not limited to:
      1.2.1 Creating process to rapidly make available and release patient dental, medical records, laboratory results, prosthetic implant, details etc. to assist multi-agency team in body identification.
      1.2.2 Setting up of a temporary Mortuary within the facility with e.g. Body receiving area, storage areas, family viewing area, autopsy area and staff changing areas.
      1.2.3 Creating a team of Staff, equipment and resources that can potentially be dispatched to provide assistance and be part of the multi-agency team in Mass Fatality Incidents.
      1.2.4 Healthcare resources may be needed for assistance in data entry, database administration, medical and dental records, forensics autopsy, imaging- Radiology/MRI/CT, fluoroscopy, laboratory specimen/remains analysis, dental and skeletal anthropology, body identification, ante mortem and post mortem data collection, family assistance, support and psychological counseling of relatives and those affected.
      1.2.5 Set out arrangements for providing work space, utilities, catering, and other resources needed for multiagency staff such as Police Documentation team, Forensics, Victim Identification Unit, Casualty Bureau, SAR, Ministry of Interior, National Security Services and Anti-Terror Units.
Appendix 7
Merging modified ICS and MIMMS at HAAD

Representations from Blood Banks, Mortuary, SEHA/SEHA-AHS
Appendix 8

Planning Cycle

- Plan & prepare
- Monitor & Warn
- Mitigate & Prevent
- Incident Response
- Recovery Continuity

Incident