NATO STANDARD

AMedP-7.4

MEDICAL DEPLOYABLE OUTBREAK AND INCIDENT INVESTIGATION TEAMS

Edition B, Version 1

NOVEMBER 2020

NORTH ATLANTIC TREATY ORGANIZATION

ALLIED MEDICAL PUBLICATION

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NORTH ATLANTIC TREATY ORGANIZATION (NATO)

NATO STANDARDIZATION OFFICE (NSO)

NATO LETTER OF PROMULGATION

24 November 2020

1.   The enclosed Allied Medical Publication AMedP-7.4, Edition B, Version 1, MEDICAL DEPLOYABLE OUTBREAK AND INCIDENT INVESTIGATION TEAMS, which has been approved by the nations in the Medical Standardization Board, is promulgated herewith. The agreement of nations to use this publication is recorded in STANAG 2551.

2.   AMedP-7.4, Edition B, Version 1, is effective upon receipt and supersedes AMedP-7.4, Edition A, Version 1, and AMedP-7.7, Edition A, Version 1, which shall be destroyed in accordance with the local procedure for the destruction of documents.

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4.   This publication shall be handled in accordance with C-M(2002)60.

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RECORD OF RESERVATIONS

CHAPTER	RECORD OF RESERVATION BY NATIONS

Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.

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RECORD OF SPECIFIC RESERVATIONS

[nation]	[detail of reservation]
BEL	BEL will apply the principles described in AMedP-7.4 but has limited capacities and capabilities to be deployed.
CZE	The Czech Military Reachback Laboratory will not implement the parts related to the REACHBACK LABORATORY SUPPORT until required capability is reached, because it does not complies with requirements of medical laboratory international standards (ISO 15189, 15190 and 17025).
NOR	NOR will not have a complete Med-DOIIT capability, but might contribute elements to a multinational effort.
SVK	Armed Forces of Slovak Republic do not have human and materiel resources for the full implementation of this Agreement. They have only one RDOIT available. So, they will not build Med-DOIIT capabilities for chemistry/toxicology (Med-CIIT) and radiology (Med-RIIT).
USA	The USA specifies a reservation regarding the last sentence in paragraph 2.4, subparagraph 2, "These teams will be supported by international or national legal or regulatory investigators." The statement is ambiguous in that it could be interpreted to mean that Medical Deployable Outbreak and Incident Investigations Teams (Med-DOIIT) are authorized to commandeer the personnel and resources of national legal or regulatory entities in order to conduct investigations.
	If interpreted in such a manner, the section would give rise to burdensome legal and administrative challenges. For example, if a Med-DOIIT is conducting an investigation into a biological incident, and enlists the support of a national investigative entity, whose chain of custody and investigative protocols apply? And from what funding stream would the resources come for a domestic entity required to support a Med-DOITT investigation? What if domestic personnel supporting a Med-DOITT investigation are injured? Would they have a claim against the Med-DOITT?
	Moreover, the jurisdictional concerns are heightened when this section is considered alongside section 2.15.4, which allows Med-DOITT to report to various international agencies as authorized by the Operational Commander. It is possible, therefore, that local or national entities would be enlisted to report to these international agencies through the Med-DOITT, which would give rise to further

	chain of command and custody issues. Essentially, the section allows an Operational Commander to have a Med-DOITT supported by local entities report to an international agency.
	This outcome would run contrary to the governing documents of several of these international agencies, including the United Nations (UN), whose founding charter provides that "Nothing... shall authorize the UN to intervene in matters which are essentially within the domestic jurisdiction of any state or shall require the Members to submit such matters to settlement under the present Charter." (UN Charter Art. II, Sec. 7).
	Based on the foregoing, recommend revising the language to clarify that the support of international or national legal or regulatory entities cannot be made mandatory, but is permitted pending the authorization of the Operational Commander and proper governmental authorities.
Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.	

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CHAPTER 1   INTRODUCTION

1.1.   AIM

The aim of this AMedP is to describe the concept and minimum requirements to establish and deploy a national or multinational Medical Deployable Outbreak and Incident Investigation Teams (Med-DOIIT) such as the Medical Chemical Incident Investigation Team (Med-CIIT), Rapid Deployable Outbreak Investigation Team (RDOIT) and Medical Radiological Incident Investigation Team (Med-RIIT).

1.2.   SCOPE

1.   This publication provides a framework for nations to create or contribute to a Med-DOIIT either as a RDOIT, Med-CIIT or Med-RIIT. The framework includes the minimum requirements including readiness to deploy, core and specialist capabilities, roles and responsibilities, and triggers to activate each team.

2.   This publication is intended to provide guidance to medical personnel, CBRN defence specialists and Command staff to ensure there is a consistent understanding of the mission of a Med-DOIIT and its interoperability with other deployed disciplines and units. It also provides the minimum requirements of in-theatre operational support expected if a Med-DOIIT is activated or deployed to an ongoing NATO operation or mission.

3.   The publication describes the overarching concept followed by specific capabilities of each of the teams. Each team's function has supporting non-binding guidance as a Standard Related Document (SRD) as well as guidance on the forensic aspects of Med-DOIIT missions (see below).

4.   AMedP-7.4 does not provide specific information on the effects and medical management of patients and this is provided in AMedP-7.1: Medical Management of CBRN Casualties. Further guidance on immediate conventional and CBRN incident management (before activation of a Med-DOIIT) is provided in AMedP-1.10: Medical Aspects in the Management of a Major Incident/Mass Casualty Situation and Part 2 of AMedP-7.1 respectively. Casualty rate estimation is provided for CBRN scenarios is provided in AMedP-7.5: NATO Planning Guide for the Estimation of CBRN Casualties.

1.3.   MISSION OF Med-DOIITs

1.   The mission of a Med-DOIIT is to provide initial reachback advice (before any deployment) and/or rapidly deploy to an area of operations to support the investigation of a suspected or confirmed outbreak, CBRN incident or hazardous materials incident in order to provide operational and clinical advice, enhance deployed medical capabilities, support patient care and maintain operational effectiveness.

2.   A Med-DOIIT may be configured into three types of specialist teams with common core functions (e.g. team leader, clinical, logistics, sample handling). The type of team activated will depend on the trigger (i.e. chemical, biological, radiological and/or nuclear incident, or an outbreak of unknown causation).

3.   The three specialist teams are:

   a.   Rapid Deployable Outbreak Investigation Team (RDOIT) – this team will be the default for an unexplained outbreak of ill health but will also be the most appropriate configuration for a potential biological incident in order to support patient care.

   b.   Chemical Incident Investigation Team (Med-CIIT) – this team will respond to chemical incidents and elements will support an RDOIT if the cause is suspected to be chemical/toxicological in order to support patient care.

   c.   Radiological (and Nuclear) Incident Investigation Team (Med-RIIT) – this team will respond to a radiological or nuclear incident and elements will support an RDOIT if the cause is suspected to be due to ionizing (and in some cases non-ionizing) radiation in order to support patient care.

1.4.   GENERAL CONSIDERATIONS

1.   In order to support the development of the Med-DOIIT capabilities, the nations agree that:

   a.   The Med-DOIIT mission is primarily to support the medical response to an outbreak or incident and maintain operational effectiveness;

   b.   Med-DOIITs shall operate, on behalf of the Operational Commander, by supporting the Medical Advisor/Command Surgeon;

   c.   The concept and framework set out in this publication apply in peace, crisis and conflict, including Article 5 Operations as well as Non-Article 5 Operations;

   d.   Med-DOIITs may support the identification of the cause of an outbreak or incident (natural, accident or deliberate) as part of operational epidemiology and mitigation of the event, but remain constrained by the Contributing Nation's legal framework for direct support to forensic and attribution missions.

   e.   Delays in the assessment of the situation including the identification of causation may have an operational, medical, psychological, social and political impact.

f.   If requested by the Operational Commander, Med-DOIIT will be provided with operational support including security, work environment and access to in-theatre resources such as communication, transport and logistics for safe receipt and dispatch of equipment, consumables and samples.

g.   Med-DOIITs (and NATO Nations) are bound by their legal obligation under the International Health Regulations to report outbreaks or incidents that may constitute a Public Health Emergency of International Concern (PHEIC). However, this should be through the most appropriate reporting chain and within the constraints so as not to compromise of operational or personal security.

1.5.   RELATED DOCUMENTS

1.   This publication is linked to the CBRN medical publications underpinned by AJMedP-7 and include:

a.   AJMedP-7: *Allied Joint Chemical, Biological, Radiological and Nuclear (CBRN) Medical Doctrine.*

b.   AMedP-7.1: *Medical Management of CBRN Casualties.*

c.   AMedP-7.5: *NATO Planning Guide for the Estimation of CBRN Casualties.*

d.   AMedP-7.6: *Commander's Guide to Medical Support to CBRN Defensive Operations.*

e.   AMedP-1.10: *Medical Aspects in the Management of a Major Incident/Mass Casualty Situation.*

f.   AEP-66: *NATO Handbook for Sampling and Identification of Biological, Chemical and Radiological Agents.*

2.   This revision considers recommendations from:

a.   The NATO Science and Technology Organization (STO) Human Factors and Medicine Panels; and

b.   The Medical Deployable Outbreak Investigation Team (Med-DOIT) Workshop held in Brussels in March 2017[1].

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[1] The workshop recommended the generic concept of a Medical Deployable Outbreak and Incident Investigation Team (Med-DOIIT) with specialised teams including Med-RIIT, Chemical Incident Investigation and the Rapid Deployable Outbreak Investigation Team. This publication outlines the updated Med-DOIIT concept replacing Med-DOIT, and support future NATO capability codification.

1.6. DEFINITIONS

For the purposes of this publication and capability, the following definitions are used:

a. *Outbreak*: The occurrence of greater numbers than expected cases of a disease with possible common origin, related in time and space, in humans or animals.

b. *Incident*: An unusual or unexpected clinical syndrome, or death, whether occurring in humans or animals, or a single case caused by a substance known or suspected to be related to CBRN incident.

1.7. ABBREVIATIONS

A list of abbreviations is provided in the Lexicon at the end of this publication.

1.8. SUPPORTING GUIDANCE

1.   Each team has an accompanying SRD to provide non-binding supporting planning and operational guidance.

a. AMedP-7.4-1: *RDOIT Planning and Operational Guidance*.

b. AMedP-7.4-2: *Med-CIIT Planning and Operational Guidance*.

c. AMedP-7.4-3: *Med-RIIT Planning and Operational Guidance*.

d. AMedP-7.4-4: Guidance on the Medical Contribution to CBRN Forensics.

2.   Each of the first three SRDs will include:

a. Establishing a team;

b. Minimum training requirements for team members or roles;

c. Supporting operational and advisory reference material;

d. Clinical reference material; and

e. Recommended medical PPE, MedCM and medical equipment.

CHAPTER 2   Med-DOIIT CONCEPT

2.1.   INTRODUCTION

This chapter outlines the core capabilities of the three types of Med-DOIIT and the general considerations for a Med-DOIIT deployment. This includes team composition, activation and the triggers, personnel and operational expectations such as in-theatre operational support, command chain and accountability, interoperability, laboratory and reachback support, and the mission end-state and recovery.

2.2.   Med-DOIIT CAPABILITIES

2.2.1.   Common Primary Capabilities

A Med-DOIIT must be able to:

    a.   Support the Commander's operational risk assessment.

    b.   Provide operational advice to maintain operational effectiveness and prevent illness.

    c.   Provide clinical advice to save life and minimize long term consequences.

    d.   Provide specialist assessment of patients and interpreting clinical investigations.

    e.   Sample, collect and process clinical and environmental samples to support the investigation of the cause for the outbreak or incident.

    f.   Package and transport (ship) clinical and environmental samples.

    g.   Analyze clinical samples, or enhance in-theatre diagnostics, as appropriate.

    h.   Access reachback advice, laboratories and other services.

    i.   Enhance patient treatment with specialist medical countermeasures and supportive care.[2]

    j.   Provide and support operational and strategic risk communication.

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[2] The SRDs will provide guidance on MedCM and clinical management that may be enhanced by a Med-DOIIT deployment.

Note. A Med-DOIIT is not intended to take over responsibility for the provision of medical management and clinical interventions from deployed medical personnel but enhance that capability.

2.2.2. Supporting Activities

In order to carry out their mission, Med-DOIIT must also be able to:

a.   Link to a standard NATO medical information management system.

b.   Integrate with CBRN knowledge management system with anonymized data.

c.   Establish secure communications (unclassified and classified) to conduct reachback consultation with national medical, scientific and CBRN defence experts.

d.   Deploy at 48 hours notice on activation and capable of providing advice before deployment.

e.   Deploy tactically under cold or extreme hot weather conditions, and under austere conditions supported by in-theatre force protection.

f.   Deploy to the operational theatre with a minimum of 3 days of own supply.

g.   Operate with a larger unit or on an installation from which it may draw logistic support and force protection, if required.

h.   Maintain chain of custody on receipt of samples and provide adequate sample handling.

i.   Enable the safe and legal transport (shipment) of dangerous goods across national borders.

j.   Manage clinical and other specialist medical waste.

k.   Have an appropriate level of CBRN defence in accordance with ACO Force Standards.

l.   Have an appropriate level of IED preparedness in accordance with STANAG 2294/ACIEDP-01 Counter-Improvised Explosive Device (C-IED) training requirements.

m.   Integrate the theatre JISR capability to permit effective collection tasking, cross-cueing of other collection capabilities and dissemination of collected information to users.

2.3. BASELINE ASSUMPTIONS

The baseline assumptions for the Med-DOIIT are:

a. An outbreak is most likely to be biological – RDOIT is therefore the default response.

b. For missions where no obvious biological cause has been detected by the RDOIT, a chemical or radiological cause should be considered, and appropriate team activated.

c. A biological incident will be a trigger for an RDOIT response.

d. A chemical incident will be a trigger for a Med-CIIT.

e. A sudden surge in acute illness will most likely to be a trigger for Med-CIIT.

f. A radiological incident will be a trigger for a Med-RIIT.

g. An unusual patient or cluster of cases may require a bespoke team based on an RDOIT depending on the initial outbreak investigation and prior intelligence (both J2 and medical).

h. Where the cause of the incident is known and accidental/natural, the Med-DOIIT will most likely to be working with a civilian hazardous materials first response team.

i. Where the cause of the incident is suspicious or deliberate release, the Med-DOIIT will most likely to be working with a Sampling and Identification of Biological, Chemical and Radiological Agents (SIBCRA) team (or CBRN Multirole Exploitation and Reconnaissance Team (MERT)[3]) as well as a CBRN-Deployable Analytical Laboratory. (Attribution may be part of the Med-DOIIT mission although within the constraints of the Contributing Nation's legal framework.)

j. Where there is a reliable airbridge with rapid and safe access and transit to a Reachback Laboratory (RBL), sophisticated deployed laboratories may not be required to be deployed subject to mission critical demands, surge and turnaround times.

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[3] This is a CBRN defence capability and not to be confused with some nation's Medical Emergency Response Team.

2.4. TRIGGERS FOR ACTIVATION

1.   The causes for an incident or outbreak that may require a Med-DOIIT to be activated are:

      a.   Deliberate release/attack;

      b.   Accidental;

      c.   Natural;

      d.   Neglect;[4] or

      e.   Any suspicious event or clinical case.

2.   All the above causes will require some level of investigation if causation is unknown initially. Deliberate release, accidental and neglect will also require an investigation with a level of forensic analysis and potential chain of evidence. As such, the supporting response teams may vary and may have to follow mandated legal processes. These teams will be supported by international or national legal or regulatory investigators.

3.   The trigger for activation will depend on the type of incident. This differentiates whether the Med-DOIIT is a *medical incident investigation and intervention team* or an *outbreak investigation team* although there may be some overlap. The types of scenario to trigger a Med-DOIIT are:

      a.   *Detected hazard but no casualties* – this may require only a civilian hazardous materials response or SIBCRA team. However, a Med-DOIIT or medical reachback advice might be requested including post-exposure MedCM and health surveillance advice.

      b.   *Detected hazard <u>and</u> casualties* – this will require a civilian hazardous materials response or SIBCRA team and urgent access to specialist advice. The decision to deploy a Med-DOIIT will depend on the type of incident and is described in more detail in subsequent chapters.

      c.   *Surge of casualties over minutes - hours* – this may suggest a chemical cause and trigger either Med-CIIT advice or deployment, as well as other response teams, or a Med-RIIT if a radiation source is suspected or confirmed.

      d.   *Cluster of casualties or outbreak* – this may be a trigger either due to case reporting or pattern recognition including health surveillance. The most likely Med-DOIIT will be an RDOIT. If there is a threat or indication

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[4] Neglect may be a potential cause for an incident and require a formal and/or criminal investigation.

of an attack or deliberate release, the mission may be supported by a SIBCRA team.

4.   These considerations are shown in Figure 2-1.
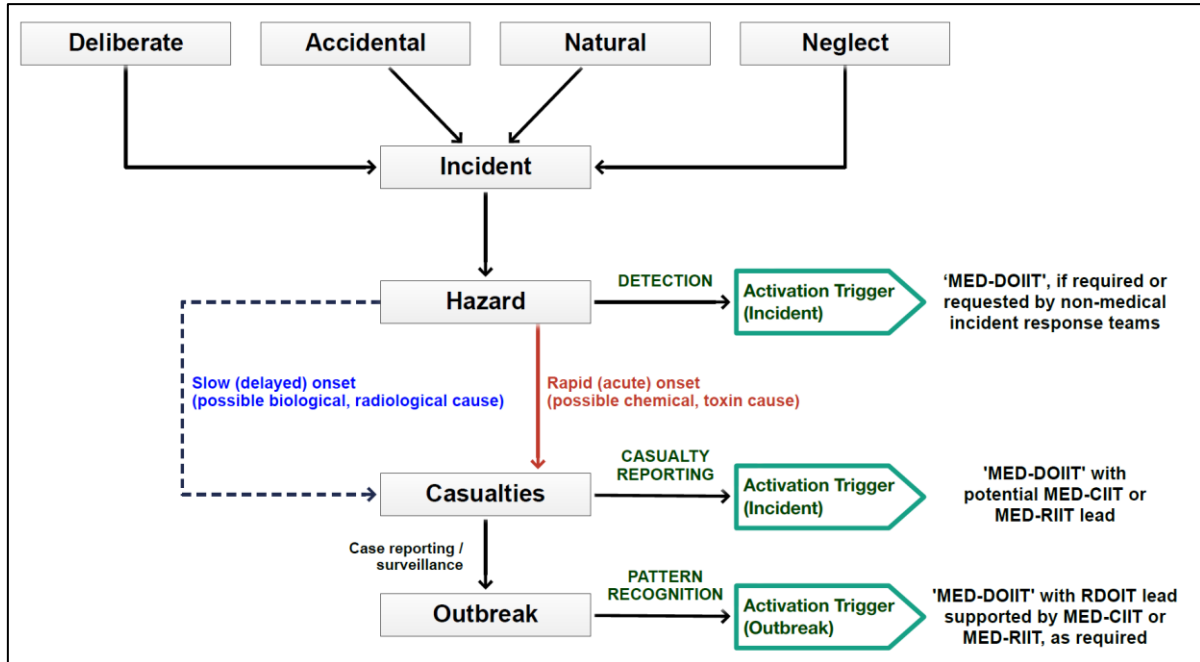
Figure 2-1 – Med-DOIIT triggers for activation.

2.5.   TIERS OF Med-DOIIT ACTIVATION

The response required for any Med-DOIIT activation may depend on the type of incident, in-theatre capabilities and urgency.

2.5.1. Tier One Activation – Operational Advice

A tier one activation is limited to the provision of operational advice.

2.5.2. Tier Two Activation – Operational Deployment

A tier two activation is a specialist team deployment often with or without the provision of initial operational advice.

2.6.   PRIORITIES FOR A Med-DOIIT MISSION

The priorities for any Med-DOIIT mission are:

      a.   Support incident investigation;[5]

      b.   Support patient management (saving of life); and

      c.   Maintain operational effectiveness including the prevention of further illness.

2.7.   Med-DOIIT COMPOSITION

1.   Med-DOIIT are national or international teams, constituted on a single-nation, multi-national (MN) collaboration or framework nation (FN) basis. In order to meet deployment timelines, members of the Med-DOIIT should be pre-identified, trained, vaccinated[6] and security cleared, as required.

2.   The composition of a Med-DOIIT will depend on the triggering event and most likely cause of an incident, if known. All Med-DOIITs will have core roles with technical roles and laboratory capabilities depending on the type of team. Additional complementary elements will depend on the mission and anticipated tasks.

3.   **Core roles**. The core roles and a description are listed below. The roles may be combined and are:

      a.   *Team Leader*. In the preparatory phase, a Med-DOIIT team member will be designated as the Team Leader. The Team Leader's task is to command the planning and execution of the Med-DOIIT mission, and to represent the team to military and civilian authorities, and civilian institutions (e.g. hospitals). The team leader function requires a medical and/or scientific background with leadership attributes and ideally previous operational experience.

      b.   *Clinical support*. This is an appropriately trained specialist medical practitioner/physician able to assess patients as part of an incident or outbreak investigation.

      c.   *Logistic support*. This is the provision of logistic, administration and communication support to the mission.

      d.   *Public health support*. This is the provision of public health related functions such as health risk assessments, epidemiology and risk

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[5] Incident investigation may include support to exploitation, forensics and attribution - subject to national regulations on medical support to this type of task or mission (see 2.16).
[6] In accordance with national and host nation (HN) requirements.

communication. The type of support required will depend on the trigger and mission type.

e.   *Clinical laboratory enhancement.* This is the initial assessment of the in-theatre clinical laboratory capability and identification and delivery of enhancements to support the Med-DOIIT mission and patient care (see 2.11 with relevant chapter and SRD).

f.   *Sample management.* This includes the safe and secure handling, processing, packaging and shipping of clinical samples within the operational theatre and to international reachback laboratories. This requires training to a standard that ensures compliance with international shipping regulations and chain of custody. This capability requires trained person(s) and equipment meeting the required regulations and appropriate environmental controls.

g.   *MedCM enhancement.* Depending on the type of incident, casualties and requirements of the mission, the Med-DOIIT may also deploy with appropriate MedCM both for team force protection and to support patient care. However, the clinical care of patients remains with in-theatre medical personnel. Further details are provided in each chapter and supporting SRD.

h.   *Biosafety/Biosecurity Lead.* The Team Leader maintains ultimate responsibility for safety of the team. The Team Leader or nominated team member may be the biosafety/biosecurity lead, as required. This role is mandated for RDOIT missions and is responsible for maintaining good clinical and laboratory practices as well as assurance of the sample handling and shipping process by team members and other personnel acting on their behalf.[7] This role may also be required for biosafety during Med-CIIT and Med-RIIT missions.

4.   **Technical roles**. Each team will have a specialist element depending on the type of team. These will be described in more detail in each chapter and supporting SRD but are summarised below:

a.   RDOIT – Public health epidemiologist, biological clinical laboratory, biological-related MedCM.

b.   Med-CIIT – Toxicologist, chemical clinical laboratory, chemical-related MedCM.

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[7] In some circumstances, non-Med-DOIIT personnel may be carrying out procedures on behalf of the Med-DOIIT. The Med-DOIIT maintains responsibility for the safety of Med-DOIIT delegated tasks (e.g. sample processing by deployed medical laboratory staff).

c.   Med-RIIT – Health physics, radiation monitoring teams, radiation clinical laboratory, radiation-related MedCM.

5.   **Complementary elements**. Complementary elements to the Med-DOIIT may include support from outside the medical chain or non-specific medical capabilities. These elements include:

a.   Pathology;

b.   Vector sampling;

c.   Entomology;

d.   Veterinary services;

e.   Meteorology; and

f.   Warning and reporting/plume modelling.

6.   Table 2-1 provides a summary of the various elements of a Med-DOIIT.

Table 2-1 - Med-DOIIT Composition.

CORE ROLES		
Team Leader		
Clinical (Physician) Support		
Logistic Support		
Public Health Support		
Clinical Laboratory Enhancement		
Sample Management		
Biosafety/Biosecurity Lead (as required or as an additional role)		
TECHNICAL ROLES/CAPABILITIES		
RDOIT	**Med-CIIT**	**Med-RIIT**
Public Health Epidemiologist Med-CIIT elements (as required) Med-RIIT elements (as required)	Toxicologist	Health Physics Radiation Monitoring Teams
Biological Clinical Laboratory	Chemical Clinical Laboratory	Radiation Clinical Laboratory
Biological-related MedCM	Chemical-related MedCM	Radiation-related MedCM
COMPLEMENTARY ELEMENTS		
Pathology		
Veterinary Services		
Vector Sampling/Entomology		
Meteorology/Warning and Reporting/Plume Modelling		

2.8.   ESTABLISHMENT OF Med-DOIITs

1.   The lead or framework nation supplying the Med-DOIIT is responsible for the composition, the planning and preparation of the team.

2.   The contributing nations must provide an appropriate level of training, experience and force health protection of its members. All team members must meet the ACO Force Standard before deploying.

3.   The Med-DOIIT footprint should be maintained as small as possible. This can be achieved by identifying the mission-specific requirements on the Med-DOIIT before deployment and sending teams tailored to the mission (see relevant chapters and supporting SRDs).

4.   The Med-DOIIT, in order to operate and move within the operational theatre, will be provided with appropriate physical security by theatre assets, even if Restriction of Movement (RoM) has been established, as authorized by the Operational Commander and in close consultation with MEDAD and local health authorities.

5.   Each following chapter will provide an outline of the minimum personnel and technical requirements for each type of Med-DOIIT and supported by an SRD (AMedP-7.4-1 through to 7.4-3) for guidance and best practices.

Note. The lead nation is responsible for identifying and providing the minimal requirements and validated procedures.

2.9.   COMMAND AND CONTROL

1.   The Team Leader will be the point of contact between the Med-DOIIT and Command and external supporting organizations such as for reachback and laboratory support. However, the clinical lead may be given authority to directly liaise with deployed clinical staff.

2.   Once deployed into a theatre of operations, the Med-DOIIT will be under Operational Control (OPCON) of the Operational Commander through the MEDAD/Command Surgeon. The Operational Commander will thus be responsible for the provision of base operational support, logistic support (ground and air transport, supply (if mission beyond three days), in-theatre communication, collective CBRN protection and security of the Med-DOIIT once deployed.

3.   The MEDAD/Command Surgeon will support, on behalf of the Operational Commander, the Med-DOIIT activities in order to ensure its safe and effective reception, staging, onward movement and integration within the operational environment.

4.   Med-DOIIT taskings must be directly towards the Commander's intended end state agreed during the activation and deployment process and must be within the

scope of a Med-DOIIT mission. Any change to the Med-DOIIT mission must be discussed and agreed by the Operational Commander, MEDAD, ACO and the Med-DOIIT Contributing Nations.

Note: The potential for the changing of mission objectives and/or priorities ('mission creep') is significant due to both internal and external factors. This may include the extending of the population at risk and the addition of an attribution tasking.

2.10. PROVISION OF OPERATIONAL MEDICAL ADVICE

1.   Early operational advice may be required in the period between Med-DOIIT activation and deployment to the operational theatre. This advice should be directed through the most appropriate communication chain to ensure secure, consistent and timely advice is provided. For a Tier 1 activation, this may be all that is required.

2.   For confirmed or suspected CBRN incidents, additional NATO resources (e.g. Combined Joint CBRN Defence Task Force (CJ-CBRND-TF), CBRN Defence Battalion and CBRN Joint Assessment Team (CBRN-JAT)) may be available with medical personnel providing additional tactical, operational and clinical advice. All operational medical advice must be through the MEDAD and where necessary as part of an ad-hoc Medical Advisory Group (MAG), chaired by the MEDAD, to ensure consistent medical advice (and strategic communication) is given to Command (see Figure 2-2).
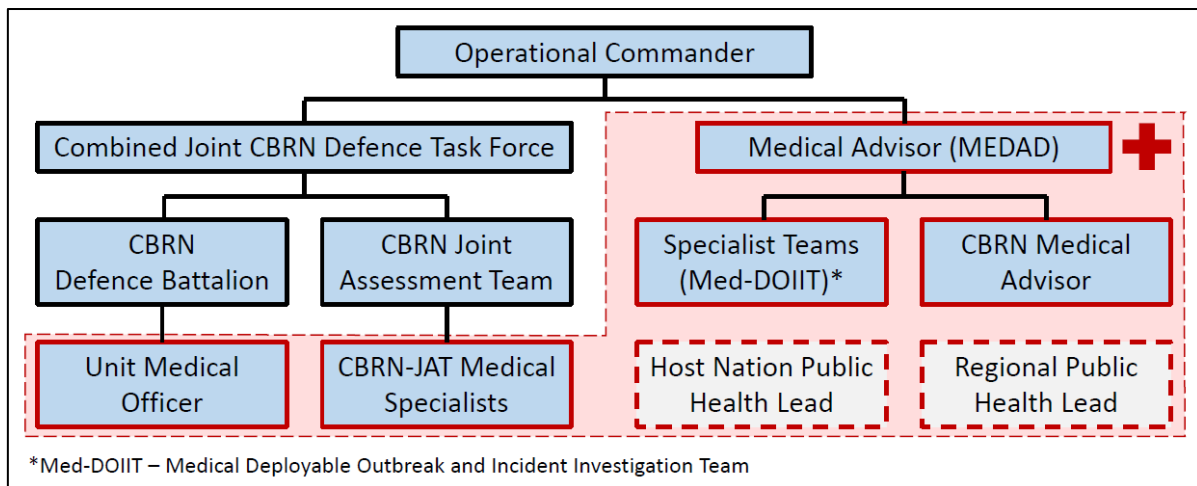

Figure 2-2 - Elements of a (CBRN) Medical Advisory Group (within shaded area).

3.   Clinical advice to the treating clinician may be provided directly in order to ensure timely medical interventions and investigations and on a need to know basis.

2.11. CLINICAL LABORATORY ENHANCEMENT

1.   As well as the provision of specialists, the Med-DOIIT may also enhance in-theatre capabilities including diagnostics. For many operations, the core in-theatre diagnostics will be configured for the management of trauma and the provision of blood products.

2.   The diagnostic enhancement may be the deployment of new equipment or extra capacity including additional or new diagnostic equipment, consumables and extra personnel. The additional types of equipment include:

    a.   Microbiological diagnostics up to BSL-3.

    b.   Toxicological diagnostics.

    c.   Radiological diagnostics supporting dose estimation and effect prediction.

    d.   Enhanced diagnostics to support the monitoring of organ function.

    e.   Diagnostics to support the monitoring of treatment efficacy.

    f.   Diagnostic platforms to support screening and triage.

    g.   Specialist transport media to allow shipping of samples to RBL.

2.   The enhanced laboratory capability should as a minimum be able to provide a laboratory diagnosis to a confirmatory level.[8] This may be supported by a RBL capability.

3.   Standards for a deployed clinical laboratory capability and enhancements should comply with the international listed below as practicable:

    a.   ISO 15189 *Medical Laboratories – Requirements for Quality and Competence*.

    b.   ISO 15190 *Medical Laboratories – Requirements for Safety*.

    c.   ISO 17025 *General Requirements for the Competence of Testing and Calibration Laboratories*.

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[8] Diagnostic levels are *suspected*, *probable* and *confirmed* (see AMedP-7.1 Chapter 5) and CBRN identification confirmatory levels are *presumptive*, *confirmed* and *unambiguous* (AJP-3.8).

2.12. REACHBACK LABORATORY SUPPORT

1.   Med-DOIIT will usually only perform rapid preliminary determinations and forensic evidence gathering, with basic field capabilities. It is likely that the nature of the outbreak or incident will have to be confirmed by identification tests performed in a laboratory outside the theater. Designation of RBLs is a prerequisite to Med-DOIIT deployment and, agreed by the participating Nations, should be validated by the NATO chain of command.

2.   RBL should be able to receive and process the samples collected by the Med-DOIIT, and should also be able to provide the deployed team with scientific or technical advice as needed.

3.   Appropriate Agreements or Memoranda of Understanding (MOUs) should be established to define the RBL functions and to ensure full and timely cooperation of the RBL at any phase of Med-DOIIT deployment. RBL must comply with the medical laboratory international standards (ISO 15189, 15190 and 17025).

2.13. IN-THEATRE OPERATIONAL AND LOGISTIC SUPPORT

1.   Force protection including escort of the Med-DOIIT during the mission must be made available by the Operational Commander.

2.   Continuous technical and laboratory support with re-supply (e.g. sampling, diagnostic equipment and consumables) is required from deployed assets, host, lead or contributing nations, or a combination.

3.   In order to perform the mission as soon as possible, the Med-DOIIT should be authorized to request assistance from appropriate laboratory facilities already deployed (e.g. field laboratories, MTF laboratories).

4.   Appropriate and secure navigation, positioning, communication, IT support and audio-visual documentation should be made available to the deployed Med-DOIIT by the Operational Commander in order ensure interoperability, team safety, and operational and communication security.

5.   Teams must have access to interpreters, if required.

6.   Teams must have access to ground and tactical/strategic air transport for sample transportation to the designated reachback laboratories.

2.14. INTEROPERABILITY

1.   The Med-DOIIT should be prepared to co-operate with other NATO assets including CBRN defence specialist units including elements of the CJ-CBRND-TF, medical assets and reachback facilities. Teams must be provided with access to

information from all relevant medical information and intelligence systems as well as other sources of information. Key NATO organizations include:

 a. SIBCRA teams;

 b. CBRN-JAT;

 c. Preventive Health Teams (PHT);

 d. Civilian hazardous materials response teams; and

 e. NATO Centres of Excellence (COEs), including Deployment Health Surveillance Capability (DHSC).

2. The Med-DOIIT may interact, as authorized by the Operational Commander, with non-NATO organizations such as:

 a. Local and regional health organizations;

 b. Local hospitals and laboratories;

 c. Laboratories;

 d. Security forces; and

 e. Non-Governmental Organizations (NGOs).

2.15. INFORMATION EXCHANGE

1. The interaction between the various organizations listed above may include the exchange of information and/or samples, as appropriate. The exchange of clinical information must be in accordance with national medical confidentiality regulations and/or Geneva Convention in the case of detainees.

2. Information and lessons identified collected and/or generated will be reported to the relevant authorities through the chain of command.

3. Initial findings of Med-DOIIT investigations must be available to all participating nations (i.e. the contributor(s) of the Med-DOIIT, nations which had citizens affected by the incident, the lead nation (and host nation) in theatre).

4. Med-DOIIT may interact or be required to report to certain International Organizations (IOs), as authorized by the Operational Commander, such as:

 a. United Nations (UN) including Secretary General and Security Council;

 b. World Health Organization (WHO);

c. International Atomic Energy Agency (IAEA);

d. Organization for the Prohibition of Chemical Weapons (OPCW); and

e Biological Weapons Convention Implementation Support Unit.

5. The results of Med-DOIIT investigations may need to be shared externally to satisfy international reporting requirements. In the case of a risk to public health, information shall be shared with IOs (e.g. WHO, IAEA and regional Centers for Disease Control) with the exception of information protected by operational security and medical confidentiality.

Note. This exchange of information must be through the agreed national or NATO chain of command.

2.16. MEDICAL CONTRIBUTION TO CBRN FORENSICS

1. The Med-DOIIT may potentially be tasked to support the investigation of a potential CBRN incident. This may require forensic support and as a minimum the Med-DOIIT must be able to handle samples and information to a forensic standard. Subject to legal authorization, clinical samples and witness statements may be requested as part of any statutory investigation. The Med-DOIIT contribution to CBRN forensics may require coordination and close cooperation with the CJ-CBRND-TF.

2. **Legal Framework**. The degree of participation of national elements of a Med-DOIIT, if any, will depend on the legal framework of the contributing and host nation(s). Any legal constraints (or prohibition to supporting forensic) must be identified during the establishment of the Med-DOIIT before any activation or deployment. The addition of another contributing nation to the Med-DOIIT may enable this specific mission task to be supported.

3. **Bioforensics**. The investigation of a biological incident may potentially be more complex than chemical and radiological incidents. This is due to the significant overlap of biological agents[9] that may be endemic and those that may be weaponized. The medical chain is also fundamental to the recognition, management and investigation of any biological incident/outbreak. Laboratory techniques, such as molecular biology and gene sequencing, may contribute to the formal investigation of the incident beyond initial confirmation. Samples for this may include clinical (human), animal and environmental samples. For this reason, the term bioforensics is used as it supports the wider scope of CBRN forensics, and in order to differentiate activities for the purposes of exploitation and attribution from clinical investigations that are part of the care of any patient with an infectious disease.

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[9] A microorganism or toxin which causes disease in man, plants or animals, or which causes the deterioration of materiel.

4.   **Supporting personnel**. If a Med-DOIIT or other medical units are required to initiate chain of custody procedure, the presence of law enforcement officers may be necessary, according to national regulations.

Note. Medical personnel supporting a non-medical military unit purely for the purpose of a forensic investigation may potentially lose their status as a non-combatant under the Geneva Convention. Legal advice is recommended.

5.   Further non-bidding guidance on the medical contribution to CBRN forensics is provided in SRD AMedP-7.4-4.

2.17. MISSION END-STATE

1.   On activation, or at the latest, initial assessment of the incident and mission objectives an end state and criteria for the Med-DOIIT should be defined. This enables the recover and regeneration of the Med-DOIIT including resupply or replacement of mission critical supplies, equipment and personnel.

2.   For prolonged or multiple location missions, the establishment and potential deployment of a second team should be considered.

2.18. RECOVERY

1.   Following the completion of a Med-DOIIT mission, the team is required to be recovered and, as appropriate, reconstitute. This may also include a period of quarantine or restricted duties depending on the confirmed (transmissible biological) hazard. The main recovery requirements include:

    a.   Formal report to MEDAD and Commander;

    b.   Consideration of any quarantine period or screening/monitoring requirements for team or individual members;

    c.   Equipment decontamination to enable recovery and/or disposal;

    d.   Safe disposal of clinical waste and consumables;

    e.   Generation of lessons identified (see below);

    f.   Formal statements for any forensic investigation or regulatory requirements within medical confidentiality and legal constraints; and

    g.   Post operational stress management and debriefing.

2.   The final findings, conclusion and recommendations of a Med-DOIIT mission shall be available to all participating nations and the relevant NATO Command(s) through the CoC. Subject to security and legal constraints the reports may also be

shared with Partner Nations and International Organizations through the relevant reporting chain.

2.19. AFTER ACTION REPORTING AND LESSONS LEARNED PROCESS

Following the completion of a Med-DOIIT mission, it is essential that a post-operational report is generated by the Team Leader and include lessons identified. Observations or lessons identified, including national, should be forwarded to the Joint Analysis and Lessons Learned Centre (Lisbon) and relevant Centre(s) of Excellence (i.e. Military Medical Centre of Excellent Budapest for medical observations and lessons processing).

CHAPTER 3   RDOIT (OUTBREAKS/BIOLOGICAL INCIDENTS)

3.1.   INTRODUCTION

This chapter outlines the mission, composition, activation and roles of the RDOIT in response to an outbreak or a biological incident such as the detected deliberate release of a biological agent, or an emerging or imported infectious disease.

3.2.   MISSION OF RDOIT

The mission of a RDOIT is to provide reachback advice and/or rapidly deploy to an area of operations in order to support the investigation of a suspected or confirmed outbreak to provide operational and clinical advice, enhance deployed medical capabilities, support patient care and maintain operational effectiveness.

Note. In the event of a suspected or confirmed biological incident, the RDOIT would be the default incident investigation team to deploy in support of the medical incident management and provide clinical, force health protection and public health advice.

3.3.   SPECIALIST FUNCTIONS OF RDOIT

The mission above outlines the main role of the RDOIT. The specialist functions in addition to those listed in Chapter 2 are to:

a.   Establish a health baseline for the applicable area of operation.

b.   Perform operational epidemiology to establish causation and mitigate the effects.

c.   Provide advice on infection prevention and control including appropriate levels of personal protective equipment.

d.   Collect, process and package environmental and clinical samples, and other evidence of suspected illnesses and infectious diseases and identifying possible sources of the outbreak such as inadvertent release of infectious or toxic materials, exposure to environment and industrial hazards (EIH) and endemic diseases.

e.   Establish or advise on pre-exposure and post-exposure prophylaxis MedCM strategies including vaccination, where appropriate.

f.   Analyze clinical samples, and other evidence of suspected illnesses and infectious diseases and identifying possible sources of the outbreak such as inadvertent release of infectious or toxic materials, exposure to environment and industrial hazards (EIH) and endemic diseases.

g. Enhance in-theatre clinical laboratory diagnostics up to biosafety Level-3 (BSL3) or accessing reachback laboratories to provide timely analysis of samples.

h. Access reachback biomedical (microbiological, virology, toxin, public health, toxicology, radiological) advice, laboratories and other services.

i. Enhance patient treatment with specific biological medical countermeasures including vaccines, antimicrobials and immunotherapy, as appropriate.

3.4. ESTABLISHMENT OF RDOIT

The general requirements for the establishment of a RDOIT are covered in Chapter 2.

3.4.1. Composition of RDOIT

1. The core roles of the RDOIT are:

    a. Team leader.

    b. Clinical support.

    c. Logistic support.

    d. Public health support.

    e. Clinical laboratory enhancement (biological).

    f. Clinical and environmental sample management.

    g. Biosafety/biosecurity lead.

2. The technical roles of the RDOIT include:

    a. Epidemiology.

    b. Med-CIIT elements (as required).

    c. Med-RIIT elements (as required).

    d. Veterinary sciences (as required).

    e. Vector sampling (as required).

    f. Entomology (as required).

3.   The laboratory requirement for the RDOIT depend on the in-theatre capability, mission and access to reachback laboratories. While the SRD provides supporting information the key functions of the laboratory include microbiological diagnostics up to BSL-3.

4.   MedCM that may be deployed (or pre-positioned) with the RDOIT depend on the most likely cause for the outbreak or causative agent if identified. The SRD provides supporting information on the recommended MedCM to support a RDOIT mission as required.

5.   The complementary elements likely to be required to support a RDOIT mission are listed in Chapter 2.

3.4.2. Personnel Requirements

1.   **Team Leader**. The team leader function requires a clinical and/or public health background with operational experience.

2.   **Technical expertise**. A high level of expertise is required (e.g. senior clinicians and scientists) in order to provide commanders with valuable and timely advice. Expertise and competency in human and animal health should include:

   a.   Epidemiology and preventive medicine;

   b.   Infectious diseases;

   c.   Public health;

   d.   Microbiology (bacteriology, virology, toxins, parasitology) including basic microbiological identification;

   e.   Handling and packaging of infectious materials; and

   g.   Documentation and use of incident and patient management toolkits.

   h.   Biosafety provision including advice, performing risk assessment and assurance.

2.   Optional competencies include:

   a.   Tropical medicine;

   b.   Entomology;

   c.   Food and water safety;

   d.   Forensics/pathology;

   e.   Toxicology; and

f. Chemical and radiological expertise.

3.4.3. Technical Requirements

Deployed RDOIT will be able to undertake technical tasks including:

a. Carry out operational risk assessment.

b. Carry out epidemiological investigations.

c. Perform sampling of any relevant material (e.g. from humans, animals, vectors, drinking water, food), both for immediate specialized and delayed analysis. Sampling will include live invasive sampling when needed as well as autopsies. This includes capabilities to refrigerate or freeze samples.

d. Packaging, transporting and escorting, as required, samples to a reference laboratory in safe conditions, according to international regulations for the transportation of biological samples (International Air Transport Association (IATA) and WHO). The courier role may be a priority.

e. Perform rapid preliminary diagnosis (team to carry the appropriate equipment and supplies).

f. Apply biosafety procedures as appropriate.

g. Provide advice in securing the area of the incident site.

h. Identify, review and advise on basic infection prevention and control measures. These may include but not be limited to: appropriate medical prophylaxis or treatment, healthcare worker safety, isolation and quarantine measures, appropriate protective equipment, and appropriate waste disposal.

i. Initiating or support appropriate specialist therapy, in addition to supportive care, including:

    (1) Advice to the clinician in charge including medical management aspects regarding clinical triage, treatment and prognosis.

    (2) Liaison with other clinical specialties.

j. Provide advice to commanders and medical authorities in order to make available immediate information to improve situational awareness, risk communication and public health follow-up.

Note. The lead nation is responsible for identifying and providing the minimal requirements and validated procedures.

3.5.   ACTIVATION AND DEPLOYMENT PROCEDURES

3.5.1. Triggers

1.   The deployment of a RDOIT will be initiated upon request by the Theatre Commander or higher-level authority through the chain of command, following medical advice.

2.   Triggering events for RDOIT deployment could be very diverse in nature, and cannot be listed in an exhaustive manner. The following examples should be considered as possible triggers:

      a.   Data from the medical treatment facilities, such as:

          (1)   Identification, among military or civilians, of case(s) of an infectious disease:

             (a) not known to be endemic in the region of deployment;

             (b) when incidence is much higher than usually encountered;

             (c) unexpected or increased morbidity and/or case fatality rate; or

             (d) spreading with such a high casualty rate that treatment facilities are likely to be overwhelmed.

          (2)   All cases of infectious diseases known or considered likely to be suitable for weaponization, which should be regarded as suspicious.

      b.   Sudden appearance and spreading of a zoonotic disease in humans or animals.

      c.   Data from disease surveillance systems and related case definitions, when available.

3.5.2. Activation

1.   Due to the specificities of contagious biological agents and the risk of rapidly spreading epidemics, a short notice-to-move is necessary.

2.   The deployment of a RDOIT will be initiated upon request by the Operational Commander or higher-level authority through the chain of command, following medical advice usually from the MEDAD/Command Surgeon or appropriate medical authority.

3.5.3. Provision of early operational advice

RDOIT will provide initial advice to the in theatre MEDAD/Command Surgeon or appropriate medical authority after being notified of the incident, initially remotely via appropriately secured communications.

3.5.4. Deployment

RDOITs shall be deployable within 48 hours from time of notification and should have a three-day mission-specific sustainability. However, when an elevated biological threat is perceived, it is recommended to have the team on stand-by to deploy within 24 hours. Depending on the scenario and initial operational risk, some MedCM (specific or unspecific) for specific management of biological agents, and/or enhanced laboratory capabilities may be pre-deployed with personnel (or their supporting medical units) at risk, or deployed with the RDOIT.

3.5.5. Command and Control

Once deployed into a theatre of operations, the RDOIT will be under Operational Control (OPCON) of the Operational Commander as described in Chapter 2.

3.6.   REACHBACK AND LABORATORY SUPPORT

1.   RDOIT will usually perform rapid preliminary and orientating surveys with basic field capabilities. However, recent capability developments include the establishment of mobile laboratories for more advanced work while deployed. Nevertheless, there is a requirement for a resilient interaction between the deployed team and supporting medical and CBRN units, and reachback laboratories including MN networks.

2.   The designation of a reachback laboratory(ies) able to receive and process samples is a prerequisite to RDOIT deployment. This should be agreed by the participating nations including access to established networks. In the absence of such a designation, the RDOIT lead nation's national laboratories should be used.

3.   Reachback laboratories should be able to:

   a.   Analyze samples to at least a confirmatory level and ideally unambiguous level (where achievable);

   b.   Provide therapeutic recommendations to the clinician in charge of the patient(s) as soon as possible via the RDOIT; and

   c.   Support operational medical advice given to the Operational Commander via the RDOIT and MEDAD.

3.7. IN-THEATRE OPERATIONAL AND LOGISTIC SUPPORT

The general in-theatre operational and logistic support requirements are listed in Chapter 2.

3.8. MISSION END-STATE

The RDOIT mission end-state should be outlined during the initial mission activation. Criteria may include:

      a.   Completion of an operational risk assessment.

      b.   Cause of outbreak/incident identified.

      c.   Established outbreak risk management.

      d.   Command concerns addressed.

      e.   Effective patient care.

      f.   Effective outbreak/incident control measures.

      g.   Effective risk communication.

      h.   Established access to continuing operational advice.

3.9. RECOVERY

1.   General recovery considerations are described in Chapter 2.

2.   For missions which may have included potential contact with an infectious disease, consideration should be given for any period of quarantine, restriction of movement or health surveillance.

3.10. SUPPORTING GUIDANCE

1.   SRD AMedP-7.4-1 provides supporting information for outbreak and biological incident management.

2.   Chapter 14 and Part 4 of AMedP-7.1 also provides an overview of Operational Epidemiology and biological agents of operational significance respectively.

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| **CHAPTER 4** | **Med-CIIT (CHEMICAL INCIDENTS)** |

4.1. INTRODUCTION

This chapter outlines the mission, composition, activation and roles of the Med-CIIT in response to a chemical incident such as the detected accident or deliberate release of any toxic chemical or chemical weapon precursor, a cluster of cases suggestive of a chemical/toxicological cause or acute surge of patients over a period of hours.[10]

4.2. MISSION OF Med-CIIT

The mission of a Med-CIIT is to provide reachback advice and/or rapidly deploy to an area of operations in order to support the investigation of a suspected or confirmed chemical incident to provide operational and clinical advice, enhance deployed medical capabilities, support patient care and maintain operational effectiveness.

4.3. SPECIALIST FUNCTIONS OF Med-CIIT

The mission above outlines the main role of the Med-CIIT. The specialist functions in addition to those listed in Chapter 2 are to:

  a.   Support a chemical incident health risk assessment.

  b.   Provide specialist toxicological assessment of patients and interpreting clinical investigations.

  c.   Collect, process and package environmental and clinical samples to support the investigation of the suspected or confirmed chemical incident.

  d.   Enhance in-theatre clinical toxicology diagnostics or accessing reachback laboratories to provide timely analysis of samples.

  e.   Access reachback clinical and environmental toxicological advice, laboratories and other services.

  f.   Enhance patient treatment with specific MedCM, as appropriate.

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[10] This includes 'toxic chemicals and precursors' under the Chemical Weapons Convention (CWC) definition for 'chemical weapon', and other toxic chemicals or poisons which may have an impact on the deployed force or operational effectiveness.

4.4. ESTABLISHMENT OF Med-CIIT

The general requirements for the establishment of a Med-CIIT are covered in Chapter 2.

4.4.1. Composition of Med-CIIT

1. The core elements of the Med-CIIT are:

   a. Team leader.

   b. Clinical support.

   c. Logistical support.

   d. Public health support.

   e. Clinical laboratory enhancement.

   f. Clinical and environmental sample management.

2. The technical roles of the Med-CIIT include:

   a. Toxicologist.

   b. Human health risk assessment.

3. The laboratory requirement for the Med-CIIT depend on the in-theatre capability, mission and access to reachback laboratories. While the SRD provides supporting information the key functions of the laboratory are:

   a. Clinical sampling;

   b. Enhanced clinical laboratory; and

   c. Environmental laboratory, as required.

4. MedCM that may be deployed (or pre-positioned) with the Med-CIIT depend on the most likely cause for the incident if identified. The SRD provides supporting information on the recommended MedCM to support a Med-CIIT mission if required.

5. The complementary elements likely to be required to support a Med-CIIT mission are listed in Chapter 2.

4.4.2. Personnel Requirements

1. **Team Leader**. The team leader function requires a medical and/or scientific background ideally with operational experience.

2.   **Technical expertise**. A high level of expertise is required (e.g. senior clinicians and scientists) in order to provide commanders with valuable and timely advice. Medical and toxicological expertise, in the team should include the following competencies:

      a.   Clinical toxicology;

      b.   Analytical chemistry;

      c.   Clinical sampling, including handling and packaging of potentially infectious or radiologically contaminated material;

      d.   Technical assistance (for sample analysis); and

      e.   Human health risk assessment.

2.   Optional competencies include:

      a.   Physical security/chain of custody procedures;

      b.   Occupational toxicology;

      c.   Environmental toxicology; and

      d.   Veterinary medicine.

4.4.3. Technical Requirements

Deployed Med-CIIT will be able to undertake technical tasks including:

      a.   Carry out operational risk assessment.

      b.   Carry out a health risk assessment based on hazard identification, exposure assessment, and clinical assessment.

      c.   Supporting diagnosis based on:

            (1)   Medical history and examination;

            (2)   Acquisition of clinical samples for early or retrospective diagnosis[11]; and

            (3)   Collection and analysis of clinical investigation results.

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[11] This includes the capabilities to maintain and transport samples in appropriate storage conditions (including refrigerating or freezing of samples).

d. Providing recommendations to protect forces and patients from further chemical exposure and communicating risks to operating forces.

e. Providing recommendations on use of personal protective and decontamination equipment, when appropriate.

f. Providing risk communication.

g. Initiating or support appropriate specialist therapy, in addition to supportive care, including:

    (1) Advice to the clinician in charge including medical management aspects regarding clinical triage, treatment and prognosis;

    (2) Liaison with other clinical specialist locally or by reachback;

    (3) Liaison with CBRN defence specialists.

h. Packaging and transporting samples to a reference laboratory in safe conditions, according to international regulations for the transportation of biological samples (International Air Transport Association (IATA) and WHO).

i. Conduct analysis of the above-mentioned samples to confirm or rule out:

    (1) A significant acute chemical exposure; and

    (2) A risk of long-term consequences such as chronic respiratory problems or carcinogenesis.

j. Provide advice to commanders and medical authorities in order to make available immediate information to improve situational awareness, risk communication and public health follow-up.

4.5. ACTIVATION AND DEPLOYMENT PROCEDURES

4.5.1. Triggers

Triggering events for Med-CIIT deployment are diverse and an exhaustive list cannot be provided. However, any significant chemical hazard or event with actual or potential health consequence and/or impact on operational effectiveness will serve as a trigger. The following examples should also be considered as possible triggers:

a. Suspected or confirmed chemical release.

b. Information from the medical treatment facilities, such as identification of symptoms which indicate a potential chemical incident or exposure among population at risk.

c.   Post exposure request for advice following operational, environmental or industrial chemical hazard exposure.

d.   Data from disease surveillance systems, pattern recognition and related case definitions, when available.[12]

e.   No biological cause identified during RDOIT investigation.

f.   Cluster of dead animals or illness at same location.

4.5.2. Activation

The deployment of a Med-CIIT will be initiated upon request by the Operational Commander or higher-level authority through the chain of command, following medical advice usually from the MEDAD/Command Surgeon or appropriate medical authority. The team members of the Med-CIIT should be alerted through the appropriate chain of command whenever an chemical incident with health consequences has occurred or is suspected.

4.5.3. Initial response and provision of early reachback advice.

Med-CIIT will provide initial advice to the in-theatre MEDAD/Command Surgeon or appropriate medical authority after being notified of the incident, initially remotely via appropriately secured communications.

4.5.4. Deployment

Med-CIIT shall be deployable within 48 hours from time of notification and should have a three-day mission-specific sustainability. Depending on the scenario and initial operational risk, some MedCM (specific or unspecific) for immediate treatment and/or enhanced laboratory capabilities may be pre-deployed with personnel (or their supporting medical units) at risk or deployed with the Med-CIIT.

4.5.5. Command and Control

Once deployed into a theatre of operations, the Med-CIIT will be under Operational Control (OPCON) of the Operational Commander as described in Chapter 2.

4.6.   REACHBACK AND LABORATORY SUPPORT

1.   Med-CIIT will usually perform rapid preliminary and orientating surveys with basic field capabilities. However, recent capability developments include the establishment of mobile laboratories for more advanced work while deployed. Nevertheless, there is a requirement for a resilient interaction between the deployed

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[12] This type of incident may also result a Med-DOIIT being activated a sub-acute exposures or delayed effects may mimic a biological outbreak.

team and supporting medical and CBRN units, and reachback laboratories including multinational (MN) networks.

2.   The designation of a reach-back laboratory(ies) able to receive and process samples is a prerequisite to Med-CIIT deployment. This should be agreed by the participating nations including access to established networks. In the absence of such a designation, the Med-CIIT lead nation's national laboratories should be used.

3.   Reachback laboratories should be able to:

   a.   Analyze samples to at least confirmatory level and ideally unambiguous level, where achievable.

   b.   Provide therapeutic recommendations to the clinician in charge of the patient(s) as soon as possible via the Med-CIIT; and

   c.   Support operational medical advice given to the Operational Commander via the Med-CIIT and MEDAD.

4.7.   IN-THEATRE OPERATIONAL AND LOGISTIC SUPPORT

The general in-theatre operational and logistic support requirements are listed in Chapter 2.

4.8.   MISSION END-STATE AND RECOVERY

1.   On activation, or at the latest, initial assessment of the incident and mission objectives an end state and criteria for the Med-CIIT should be defined. The general consideration are described in Chapter 2.

2.   Specific mission end-state for Med-CIIT include:

   a.   Completion of an operational risk assessment.

   b.   Cause of incident identified.

   c.   Established incident risk management.

   d.   Command concerns addressed.

   e.   Effective patient care.

   f.   Effective incident control measures/strategy.

   g.   Effective risk communication.

   h.   Established access to continuing operational advice.

4.9.   SUPPORTING GUIDANCE

1.   SRD AMedP-7.4-2 provides supporting information for chemical incident management and Med-CIIT operations.

2.   Part 3 of AMedP-7.1 provides an overview of chemical agents while ATP-45 (and the associated Emergency Response Guidebook (ERG)) provide guidance on toxic industrial hazard incidents.

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CHAPTER 5   Med-RIIT (RADIOLOGICAL/NUCLEAR INCIDENTS)

5.1.   INTRODUCTION

This chapter outlines the mission, composition, activation and roles of the Med-RIIT in response to a radiological/nuclear incident such as the detected accident or deliberate release or exposure to ionizing radiation, or a cluster of cases suggestive of a radiological cause.

5.2.   MISSION OF Med-RIIT

The mission of a Med-RIIT is to provide reachback advice and/or rapidly deploy to an area of operations in order to support the investigation of a suspected or confirmed radiological/nuclear incident to provide operational and clinical advice, enhance deployed medical capabilities, support patient care and maintain operational effectiveness.

5.3.   SPECIALIST FUNCTIONS OF Med-RIIT

1.   The mission above outlines the main role of the Med-RIIT. The specialist functions in addition to those listed in Chapter 2 are to:

   a.   Provide radiation protection advice including control measures to the operational commander including risk communication.

   b.   Support triage and providing specialist radiological assessment of patients and interpreting clinical investigations and dosimetry.

   c.   Collect, process and package clinical, and environmental (as required), samples to support the investigation of the suspected or confirmed radiological/nuclear incident.

   d.   Enhance in-theatre clinical radiological diagnostics (dose estimation and effect prediction) or accessing reachback laboratories and networks to provide timely analysis of samples.

   e.   Access reachback clinical and environmental radiological advice, laboratories and other services.

   f.   Enhance patient treatment with specific radiological medical countermeasures including stable iodine, cytokine therapy and decorporating agents, as appropriate.

2.   While having the competence for investigation of any radiological or nuclear event, Med-RIIT must be reserved as a priority for incidents involving NATO forces

involved in the high consequence release of radioactive materials or high-level radiation exposures requiring medical intervention where there is a risk to life, public health and operational effectiveness.

5.4. ESTABLISHMENT OF Med-RIIT

The general requirements for the establishment of a Med-RIIT are covered in Chapter 2.

5.4.1. Composition of Med-RIIT

1.   The core roles of any Med-DOIIT are:

   a.   Team leader.

   b.   Clinical support.

   c.   Logistic support.

   d.   Public health support.

   e.   Clinical laboratory enhancement.

   f.   Sample management.

2.   The technical roles of the Med-RIIT include:

   a.   Health physicist.

   b.   Radiation monitoring team(s).

3.   The laboratory requirement for the Med-RIIT depend on the in-theatre capability, mission and access to reachback laboratories. While the SRD provides supporting information the key functions of the laboratory are:

   a.   Clinical sampling;

   b.   Radiation-specific biodosimetry;

   c.   Access to laboratory networks, as required; and

   d.   Enhanced laboratory reporting, dose estimation and effect prediction.

4.   MedCM that may be deployed (or pre-positioned) with the Med-RIIT depend on the most likely cause for the incident and risk of acute radiation syndrome, if identified. The SRD provides supporting information on the recommended MedCM to support a Med-RIIT mission if required.

5.   The complementary elements likely to be required to support a Med-RIIT mission are listed in Chapter 2.

5.4.2. Personnel Requirements

1.   **Team Leader**. The team leader function requires a medical and/or scientific background, trained in medical risk communication and ideally with operational experience.

2.   **Technical expertise**. A high level of expertise is required (e.g. senior clinicians and scientists) in order to provide commanders with valuable and timely advice. Medical, radiobiological and radiological expertise, in the team should include the following competencies:

      a.   Human medicine.

      b.   Radiation biology.

      c.   Nuclear chemistry or physics.

      d.   Clinical sampling, including handling and packaging of potentially infectious or radiologically contaminated material.

      e.   Technical assistance (for sample analysis).

      f.   Radiation protection/health physics and field radionuclide detection/identification.

      g.   Human health risk assessment; and

      h.   Documentation and use of incident and patient management toolkits.

2.   Optional competencies include:

      a.   Physical security/chain of custody procedures.

      b.   Security of nuclear, chemical and pyrotechnical material.

      c.   Public health.

      d.   Psychology and risk communication; and

      e.   Veterinary medicine.

5.4.3. Technical Requirements

Deployed Med-RIIT will be able to undertake technical tasks including:

      a.   Carry out operational risk assessment.

b.   Evaluating of hazards, following:

     (1)   low level radiation exposure scenarios;

     (2)   high radiation exposure scenarios (e.g. a nuclear event); and

     (3)   RN events leading to a release of radionuclides.

c.   Providing recommendations to protect forces from further radiation exposure and communicating radiation risks to operating forces.

d.   Providing recommendations on use of personal protective and decontamination equipment, when appropriate.

e.   Performing diagnosis based on:

     (1)   Physical dose and contamination measurements as well as radionuclide identification;

     (2)   Acquisition of clinical samples for early or retrospective diagnosis (e.g. biodosimetry including cytogenetics);[13]

     (3)   Medical history and examination with a focus on onset and duration of prodrome (clinical dosimetry) and local radiation injuries; and

     (4)   Collection and analysis of clinical investigation results e.g. blood cell count changes and other biodosimetry.

f.   Initiating or support appropriate specialist therapy, in addition to supportive care, including:

     (1)   Advice to the clinician in charge including medical management aspects regarding clinical triage, treatment and prognosis;

     (2)   Radionuclide blocking and decorporation therapy (including stable iodine, Prussian Blue, DTPA) as soon as practicable, if required;

     (3)   Cytokine therapy and prophylactic therapies after external radiation exposure, as soon as practicable, if required;

     (4)   Liaison with other clinical specialties such as microbiologists, hemato-oncologists, surgeons including burns specialists and psychologists.

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[13] This includes the capabilities to maintain and transport samples in appropriate storage conditions (including refrigerating or freezing of samples).

g. Packaging, transporting ad escorting samples, as required, to a reference laboratory in safe conditions, according to international regulations for the transportation of biological samples (IATA and WHO).

h. Conduct analysis of the above-mentioned samples to individually confirm or rule out:

(1) A radiation exposure; and

(2) An internalization of radionuclides and identify the nuclide e.g. by using hand-held gamma spectroscopy devices.

i. Provide advice to commanders and medical authorities in order to make available immediate information to improve situational awareness, risk communication and public health follow-up.

5.5. ACTIVATION AND DEPLOYMENT PROCEDURES

5.5.1. Triggers

1. Triggering events for Med-RIIT deployment are diverse and an exhaustive list cannot be provided. However, any significant ionizing radiation hazard or event with actual or potential health consequence and/or impact on operational effectiveness will serve as a trigger. The following examples should also be considered as possible triggers:

a. Use of an RDD or nuclear device with individuals being probably exposed.

b. Information from the medical treatment facilities, such as identification of prodromal symptoms which indicate a significant radiation exposure among population at risk e.g. nausea, vomiting, disorientation, decrease in blood cell counts, local or total skin erythema or enanthema (mouth), and hair loss.

c. Data from disease surveillance systems, pattern recognition and related case definitions, when available.[14]

5.5.2. Activation

The deployment of a Med-RIIT will be initiated upon request by the Operational Commander or higher-level authority through the chain of command, following medical advice usually from the MEDAD/Command Surgeon or appropriate medical authority. The team members of the Med-RIIT should be alerted through the appropriate chain

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[14] This type of incident may also result an RDOIT being activated (with or without a radiation specialist team) as the event may also mimic a biological outbreak.

of command whenever an incident involving radionuclides or other ionizing radiation exposures is suspected.

5.5.3. Provision of early reachback advice.

Med-RIIT will provide initial advice to the in theatre MEDAD/Command Surgeon or appropriate medical authority after being notified of the incident, initially remotely via appropriately secured communications.

5.5.4. Deployment

Med-RIIT shall be deployable within 48 hours from time of notification and should have a three-day mission-specific sustainability. Depending on the scenario and initial operational risk, some MedCM (specific or unspecific) for immediate radionuclide decorporation treatment and management of ARS, and/or enhanced laboratory capabilities may be pre-deployed with personnel (or their supporting medical units) at risk or deployed with the Med-RIIT.

5.5.5. Command and Control

Once deployed into a theatre of operations, the Med-RIIT will be under Operational Control (OPCON) of the Operational Commander as described in Chapter 2.

5.6.   REACHBACK AND LABORATORY SUPPORT

1.   Med-RIIT will usually perform rapid preliminary and orientating surveys with basic field capabilities. However, recent capability developments include the establishment of mobile laboratories for more advanced work while deployed. Nevertheless, there is a requirement for a resilient interaction between the deployed team and supporting medical and CBRN units, and reachback laboratories including MN networks.

2.   The designation of a reach-back laboratory(ies) able to receive and process samples is a prerequisite to Med-RIIT deployment. This should be agreed by the participating nations including access to established networks. In the absence of such a designation, the Med-RIIT lead nation's national laboratories should be used.

3.   Reachback laboratories should be able to:

   a.   Confirm the nature of incorporated radionuclide(s) identified in the field.

   b.   Perform radiological dose estimation and effect prediction after a possible incorporation of radionuclide(s).

   c.   Support external radiation exposure dose estimation as well as predict the acute and chronic effects (effect prediction) using clinical information

(e.g. prodrome symptoms and signs) and supported by biodosimetry (e.g. cytogenetic analysis).

d.   Provide therapeutic recommendations to the clinician in charge of the patient(s) as soon as possible via the Med-RIIT.

e.   Support operational medical advice given to the Operational Commander via the Med-RIIT and MEDAD; and

4.   High throughput analysis software tools developed by NATO HFM-222 (see SRD AMedP-7.4-3).

5.7.   IN-THEATRE OPERATIONAL AND LOGISTIC SUPPORT

The general in-theatre operational and logistic support requirements are listed in Chapter 2.

5.8.   MISSION END-STATE AND RECOVERY

1.   On activation, or at the latest, initial assessment of the incident and mission objectives an end state and criteria for the Med-RIIT should be defined. The general consideration are described in Chapter 2.

2.   Specific mission end-state for Med-RIIT include:

a.   Completion of an operational risk assessment.

b.   Cause of medical incident identified.

c.   Established incident risk management.

d.   Command concerns addressed.

e.   Effective patient care.

f.   Effective incident control measures/strategy.

g.   Effective risk communication.

h.   Established access to continuing operational health physics advice.

5.9. SUPPORTING GUIDANCE

1.   SRD AMedP-7.4-3 provides supporting information for radiological and nuclear incident management.

2.   Part 5 of AMedP-7.1 also provides an overview of radiation casualty management including understanding the hazards and the medical effects.

LEXICON

The listed abbreviations are referred to in this AMedP are:

ACO	Allied Command Operations
AE	Aeromedical Evacuation
AEP	Allied Engineering Publication
AJMedP	Allied Joint Medical Publication
AJP	Allied Joint Publication
AMedP	Allied Medical Publication
ARS	Acute Radiation Syndrome
ATP	Allied Tactical Publication
CBRN	Chemical, biological, radiological and nuclear
CJ-CBRND-TF	Combined Joint CBRN Defence Task Force
COE	Centre of Excellence
CWC	Chemical Weapons Convention
ERG	Emergency Response Guidebook
FN	Framework Nation
HFM	Human Factors and Medicine (Panel)
HN	Host nation
IAEA	International Atomic Energy Agency
IATA	International Air Transport Association
IED	Improvised Explosive Device
IHR	International Health Regulations
IO	International Organization
Med-CIIT	Medical Chemical Incident Investigation Team
Med-DOIT	Medical Deployable Outbreak Investigation Team *(old term)*
Med-DOIIT	Medical Deployable Outbreak or Incident Investigation Team *(new term)*
Med-RIIT	Medical Radiological Incident Investigation Team
MEDAD	Medical Advisor
MedCM	Medical Countermeasure
MERT	(CBRN) Multirole Exploitation and Reconnaissance Team
MN	Multinational
MTF	Medical Treatment Facility
NGO	Non-Governmental Organization
OPCW	Organization for the Prohibition of Chemical Weapons
RBL	Reachback Laboratory
RDD	Radiation Dispersal Device

RDOIT	Rapid Deployable Outbreak Investigation Team
RN	Radiological and Nuclear (incident)
RoM	Restriction of Movement
SIBCRA	Sampling and Identification of Biological, Chemical and Radiological Agents
SIRA	Sampling and Identification of Radiological Agents
SOP	Standard Operation Procedure
SRD	Standardization Related Document
STO	Science and Technology Organization
UN	United Nations
WHO	World Health Organization

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