



# Biomedicine & Prevention

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### The ItRC Volunteer Military Corps: Role of Civil Protection and Civil Defense in CBRN Emergencies

Gabriele Lupini,<sup>1</sup> Romano Tripodi,<sup>2</sup> Pietro Rossetti<sup>3</sup>

<sup>1</sup> *Maj. Gen. Med., Volunteer Military Corps of the Italian Red Cross, National Inspector, National Inspectorate of Volunteer Military Corps, Rome 00146, Italy*

<sup>2</sup> *Col. Med., Volunteer Military Corps of the Italian Red Cross, Chief Health Officer, Disaster Management, National Inspectorate of Volunteer Military Corps, Rome 00146, Italy*

<sup>3</sup> *CEng., Volunteer Military Corps of the Italian Red Cross, National Inspectorate of Volunteer Military Corps, Rome 00146, Italy*

#### Italian Red Cross Military Corps: Organization, Operations and Present Activities

##### Italian Red Cross Military Corps Organization

The Italian Red Cross National Society is a Humanitarian Organization that provides health and social assistance without discrimination as to nationality, race, religious beliefs, class or political opinions, operating during peace and war time, and it is part together with ICRC, IFRC and all National Societies of Red Cross/Red Crescent, of the “International Movement of Red Cross”. ItRC MC staff is composed by continuous service Military personnel on active duty, under the ITRC structure, auxiliary of Armed Forces and Retired military personnel (about 17.000 members), divided into Officers, Non Commissioned Officers and Support Personnel. Command & Control chain is organized at central level (National CM Inspectorate – Logistics/Operation/Training/Personnel/Financial Planning & Budgeting/Historical Archive Departments), territorial level (Mobilization Centers) and local level (enlistment and promotional activities groups - N.A.A.Pro).<sup>1-5</sup> Furthermore, we find one Operational Training and Depository Military Center (located in Marina di Massa) and two Rapid Deployment Operational Units (Castelnuovo di Porto and Bari). All National Collective Agreement incorporates within it, the Italian legislation about ItRC personnel recalling to active duty system by the mobilization centers, because it is considered as “recalled to temporary active military duty” in the event of war or serious International crisis and anyway, in peacetime in temporary circumstances of larger public needs and for training needs by the “Code of Military Regulation”.<sup>3</sup>

#### ItRC MC in Civil Protection/Civil Defense Systems: Tasks According to Current Italian Regulation

The Italian Civil Protection is a complex system which comprehends all the forces used in the field by the State. The ItRC is one of the operative structures of this National Service (Law 225/92 – art. 11). A ItRC member takes part in the Civil Protection Operational Committee – at the Civil Protection Department, with other Public Assistance Societies/Emergency and Scientific En-

ties/Armed Forces/Police representatives. The Committee examines the emergency plans prepared by Prefects and Evaluates information, data and requests from areas affected by emergency. Then, it coordinates the interventions of all the Administrations and Agencies involved, promoting the application of instructions issued in relation to the priority needs of affected areas. Regional and Local Civil Protection Authorities may be invited to committee meetings with representatives of other bodies or administrations. The ItRC Military Corps contribute to wounded evacuation and nursing, providing health care for infirm people as well as the victims of armed conflicts. They also carry out health and assistance tasks related to the Italian Legislation. The Italian Law provides “preparation of personnel, materials and relevant structures of the auxiliary Corps, in order to constantly ensure the efficiency of its services, according to the directives and under the supervision of the Ministry of Defense”. The key issue in Civil Defense is the presence of impacts on civilians of a war attack (e.g. nuclear attack or aerial attack). The Law n. 300/1999 puts the Ministry of Interior in charge of Civil Defense but it doesn’t provide a clear definition of Civil Defense, nor do other national laws. According to the definition provided by the Ministry of Interior: “Civil Defense guarantees the continuity of the government through the protection of the economic, production and logistic capability of the Nation and the reduction of the impact of crisis events on population”. After World War II, in Italy the concept of Civil Defense became institutional. In this period, the Ministry of Interior and the Ministry of Defense introduced actions of Civil-Military Cooperation (CO.CIM). The “Technical Interministerial Commission for Civil Defense – CITDC”, a consultative committee, is a technical commission established in 2001 by the Minister of Interior after September 11<sup>th</sup>, 2001 attack. The CITDC is coordinated by the Fire Brigades, Public Rescue and Civil Defense Chief Department, and it is composed by representatives of: Ministry of Interior, Civil Protection Department, Ministry of Defense and Health, other representatives of requested competence at central level. Furthermore, the CITDC meeting are attending by representatives of National Road Agency, Italian Red Cross, Environmental Protection and Research Institute, National Civil Aviation Agency, Civil Aviation Services Company, Italian Railways, main Telco Companies and

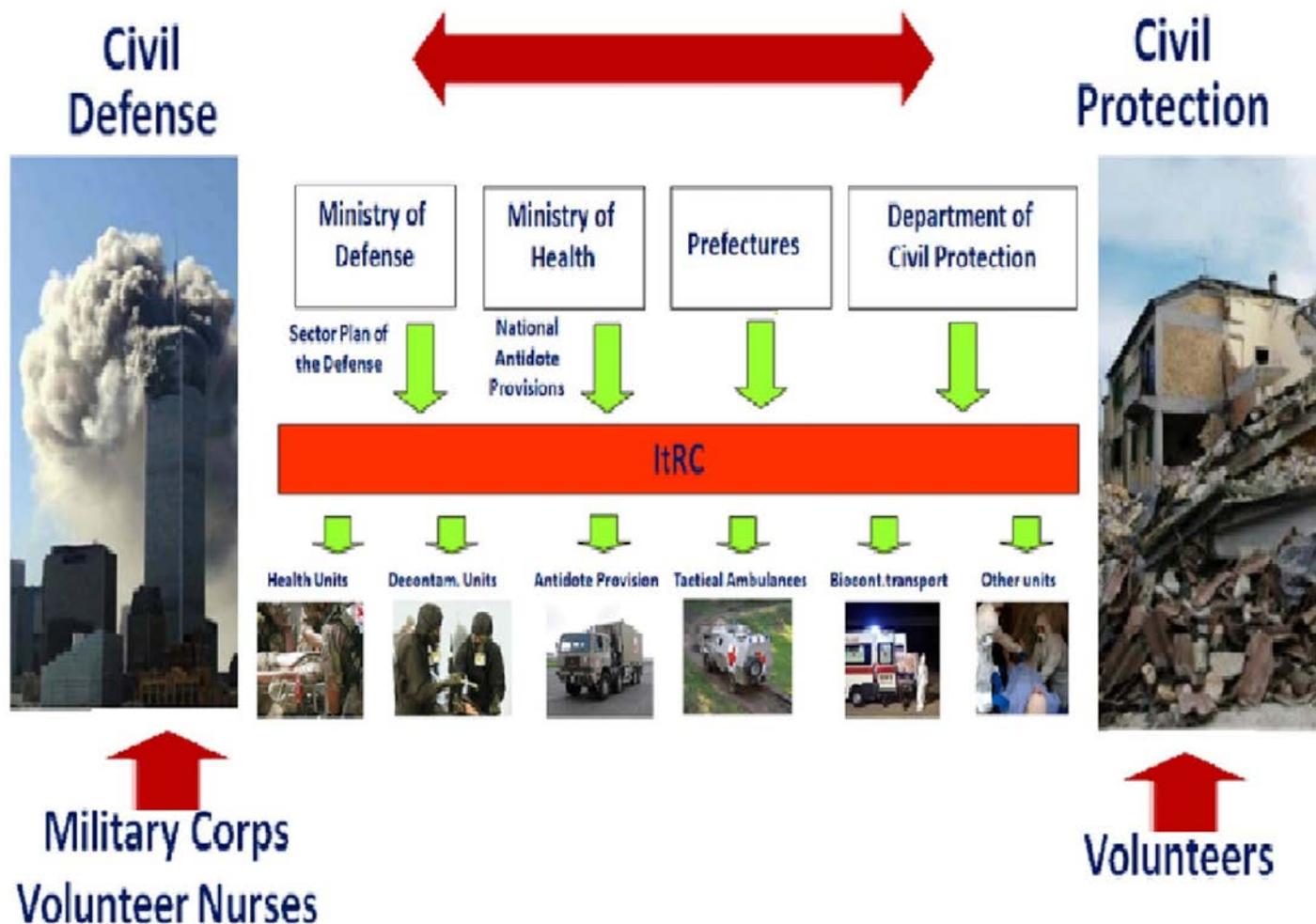


Figure 1. ItRC MC assets and actions in Civile Protection/Civil Defence Environments.

other essential services.<sup>6</sup> Planning Civil Defense operation in a comprehensive/multiagency/interoperational approach can be made in crisis times thanks to the synergy among Italian Red Cross Military Corps and the Ministries of Defense, Interior, Health, Education University and Research, the Fire brigades, the Maritime, Territorial Health Service Company (ASP), in addition to the local Governemental Authority – Prefecture, and agencies. All preparedness actions/sinergies must be agreed with the National Defense Plan for CBRN Terrorist Attacks. ItRC MC deploys all its resources according to the institutional activities showed in the following figures, which intervene according to the Civil Defense Plans.

### ItRC's Resources for CBRN emergencies Response

#### ItRC MC CBRN Defence / Biocontainment Training

ItRC CBRN resources include CBRN defense plans/Standard Operating Procedures (S.O.P)/technical and safety documents, human resources and facilities & materials.

From a point of view of the human resources in CBRN emergencies, ItRC CM staff is trained and suitable to carry out the intended general tasks within the areas where the decontamination station operates (CBRN Warm Zone, potentially dangerous and where CBRN teams operate) and, consequently, in the area where the Advanced Medical Station (PMA) is installed, in order to provide health care. In particular, the ITRC Military

Corps invests about 38% of its budget in education and training of military personnel, achieving different levels of courses, and every two years, a specific directive for training of personnel. The CBRN Defense courses are divided into four different training levels: the first, “Basic training Course for CBRN defense” (duration: 2 weeks, full time – recipient personnel: lower Officers, NCOs and enlisted soldiers) is a theoretical and practical preparatory course to enable ITRC MC personnel to operate in the decontamination and biocontainment units. It focuses on military indoctrination to protecting against CBRN agents, ample space being dedicated to fatigue exercises in full PPE CBRN coverall and Respiratory Protection equipment (IPE + Mask NBC M.90), exercises, self-rescue and wounded rescue training in contaminated environment.<sup>7</sup> The second level course is the “Enabling Course for CBRN Decontamination and Biocontainment ITRC MC Units Operator” (duration: 2 weeks, full time – recipient personnel: inferior Officers, NCOs and enlisted soldiers) that provides attendees the knowledge required for the performance of tasks related to the treatment of contaminated people by CBRN agents, management of Decontamination Unit and personnel management materials and equipment.<sup>8</sup> Moreover, in addition to the ITRC MC institutional training centers, additional qualifying CBRN Defense courses are provided for Officers and Non-Commissioned Officers, at the Joint NBC Defence School (Rieti, Italy) and at “NUBICH” training area, with multiple scenarios equipped for carrying out realistic C-B-R exercises.



## ItRC MC Human Resources and Professional Profiles in CBRN Event

Professional profiles are analyzed below, defining roles, duty and responsibilities, carried out within the biocontainment and decontamination activities:

- Military Doctor is part of the Executive Staff, who has attended and successfully passed the certification course for biocontainment unit operator or a qualification course at the CBRN Italian Joint School in Rieti (Italy). Responsibility: “Team Manager” role; Monitoring the implementation of the tasks assigned to the unit; Coordination of personnel for the management and treatment of contaminated subjects.
- Military Nurse is part of Assistance personnel / Executive staff, who has attended and successfully passed the certification course for biocontainment and decontamination units operator or a qualification course at the CBRN Italian Joint School in Rieti (Italy). Responsibilities: “Team Manager” Assistance; health care treatments and management of patient affected by infectious diseases.
- Biocontainment and Decontamination Unit Operator, a professional profile part of Assistance personnel / Executive staff, who has attended and successfully passed the certification course for biocontainment and decontamination units operator. Responsibilities: ensuring the structural integrity and correct operating functions of biocontainment and decontamination units equipment, facilities, materials maintenance and supplying; ensuring the proper execution of biocontainment standard operating procedures; “Team Manager” assistance in management and first treatment of patients affected by infectious diseases.<sup>9</sup>

## Plans and Procedures in CBRN Defence/Biocontainment Training and Bio-Deco Facilities

Plans and operating procedures aim to standardize and define the ability to use the bio-containment/decontamination facilities, based on the following sources of law, enacted by both the NATO and the Italian Ministry of Health: A.J.P. 3.8; A.T.P. 3.8.1; A.T.P. 65 (A); P.I.E. 3.24.33.1 - Pub. 6117; Ministry of Health CltRCular No. 0026708-06 / 10/2014-DGPRES-COD\_UO-P and subsequent amendments and additions; Ministry of Health CltRCular No. 4 of 13/03/1998 prot. No. 400.3 / 26/1189 and subsequent amendments. Moreover, other documents define the professional profiles and the specific responsibilities of the ITRC MC biocontainment unit and decontamination staff, particularly including procedures for each specific phase of work, for example: Biocontainment Mounting Systems Procedures; Installation of Decontamination Facilities Procedures; Dressing Procedures of Biocontainment Operators; Operational Decontamination Procedures of biocontainment Operators; Materials and Equipment Disinfection Procedures; Procedure of Treatment of a Biohazard Waste; Materials Inspection and Control Procedures; Emergency Procedure in Case of Failure or Fire; Procedures for the Supplier.

## ItRC MC Facilities for Civil Protection/Civil Defence Response

**Public Healthcare Units.** The healthcare Units include Advanced Medical Posts and medical units, designed as modular structures used in operational contest, where selected medical personnel, trained in specialized courses of both medical (PHTLS, ATLS, MIMMS, CBRN defence, etc.) and operational characterization (held by Armed Forces), undergo a series of triage/vital parameters support and stabilization activities, with also a medicalization/therapy administration and monitoring of vital

parameters activities. These structures are equipped with shelter radio, logistics and medical command tent/ generator / health-care and logistics materials storage assets. The above mentioned Units have the highest level of adaptability to the multiple needs/ events, within an interoperational contest, ensuring healthcare arrangements, with a protected ambulance service and selected staff like the Major Incident Team.

**Biocontainment Unit.** It can be used in two different versions, depending on logistical and human resources requirements: *Biocontainment “Integrated Unit”*, like the AMET-Bio MARIS-TAELI, Catania, when it is necessary to employ the military Medical Doctor and Nurse at a continuous basis, materials and tools deployed are installed at non-self-sufficient base in terms of logistics (electric power generation, water resource management and the bio-hazardous waste management); *Biocontainment Unit in “Reduced version”*, activated when the materials and tools you use are installed in facilities self-sufficient logistical point of view and the medical and nursing activity is conducted by the Administrator staff. Transport system involves the use of IsoArk N36-4 Isolation stretcher with HEPA filtration system and a Spinal board (yellow board) as support, upon ECO/NATO stretcher. Isolation Chamber Isoark equipped with Oblo’ and CBRN filtration system.

**Decontamination Unit.** In Decontamination Unit, contaminated people (able or not-able wandering) are stripped, “treated” with decontaminant solution distributed by special arc shower, and dressed in uncontaminated clothing. In the deco-Unit we can find: “Undressing Rooms” with accessorizes and furniture (mirror, chair, biohazard materials disposal devices, etc.), an “Operational Decontamination” arc Shower and a “Thorough Decontamination” arc Shower, with wastewater pump on the left rear corner, finally a “Dressing Room” provided with uncontaminated clothing and furniture. The decontamination treatments are divided into:<sup>10</sup>

- “Operational Decontamination” is carried out by an individual and/or a unit, restricted to specific parts of operationally essential equipment, materiel and/or working areas, in order to minimize contact and transfer hazards and to sustain operations. This may include decontamination of the individual beyond the scope of immediate decontamination.
- “Thorough Decontamination” is the most effective type of decontamination, but it is the most resource-intensive reduce and sometimes eliminates contamination from equipment and personnel. Operators and biocontainment team members must perform periodic checks on their equipment since there is a risk of residual contamination.

**Biocontainment Transportation.** The patient potentially affected by a highly infectious disease, who can be transported, is always treated as life threatening and transported according with the International Health Regulations. The Health Ministry response system provides a team with appropriate Personal Protective Equipment (PPE) transferred, in case of naval biocontainment transportation, by helicopter or boat, to the naval unit that hosts the potential patient in high biological risk, and transported in a human stretcher isolator. The transport from high sea to the national mainland, with obligations relating to the notification of suspected or confirmed cases, requires patient transportation in high biocontainment by helicopter or boat, which is managed in an insulation tent deployed on board of naval units, in the port area or at Maristaeli Helicopters Station’ biocontainment aéro-

medical evacuation team and decontamination units. During the transportation to Referral hospitals for Infectious Diseases such as “Lazzaro Spallanzani” in Rome and the University Centre “Luigi Sacco” in Milan, the patient reaches referral institute by Biocontainment ambulance service, with limited medical care for patients entering and leaving an aeromedical evacuation system. In addition, the transport device must meet all the requirements for interoperability: Biocontainment transport device must be able to be located inside an ambulance for land transportation, and certified for loading inside of a rescue aircraft, whether fixed wing or rotorcraft; in case of air transport the biocontainment device must be in possession of the relevant aviation boarding certifications; Isolation stretcher systems are fully integrated in the National Defence System and with the systems already in use at ItRC – Department of Public Health and the ItRC Military Corps, as well as the Armed Forces. Isolation Stretchers in use for Air Force plane transportation do not require the Ambulance loading requirements.<sup>11</sup>

**Tactical Ambulances.** The transportation service’ reconnaissance vehicle in tactical and emergency contest are in particular, off-road ambulances (VM90) and protected ambulances (VM90 P). Personnel assigned to drive medical vehicles in tactical environment participate in a preliminary cycle of medical, radio communications, topography, terrestrial navigation and personnel safety in tactical environment courses.<sup>12</sup>

**Management of National Antidote Stockpiles.** The National Health Sector Plan, under the responsibility of the Ministry of Health, establishes during both ordinary and emergency times, the creation and management of a pharmacological/antidotes’ strategic stockpile (regional and state stockpiles distributed in all Italian regions) that can be used in case of hostile acts against the population like the use of Chemical and Radiological/Nuclear weapons. The minimum requirements of each National Antidote Stockpiles are provided by the D.P.R. January 14<sup>th</sup>, 1997. The National Inspectorate of the Volunteer Military Corps is responsible for the management of two State Deposits of the National Antidotes Stockpiles, located in Bologna and Cagliari, providing the availability and ready-to-use antidote stockpiles in case of mobilization under direct control of the national decision-making Entities/Agencies which are institutionally responsible for the management of the crisis. The cooperation agreement between ItRC MC and Ministry of Health, provides also, a continuous staff training in conservation, maintenance and distribution of antidotes according to specific operational protocols; rationalization of geographical distribution of deposits and modes of transportation.<sup>13</sup>

**Dead Bodies Unit.** It is deployed with the aim to promote the proper and dignified management of dead bodies and to maximize the identification (DVMI) in order to apply the humanitarian principles and the right of the families to know the fate of



**Figure 2.** “Tremiti” Italian Navy Vessel, ItRC MC Operator / Protection recommended measures in biocontainment environment – Tyvek suit and PAPR – rear view.



**Figure 3.** ItRC MC Operator dressing an entire protective suit for HAZMAT category.



**Figure 4.** ItRC MC Operator Operational Decontamination / ItRC MC Operator with man portable CBRN decontamination equipment.

the relatives. In case of disaster/major incident ItRC MC DVMI Operators recovery human remains reconstructing each one inside a bag, called “body bag”, being identified it uniquely with special alphanumeric code, called “DVI”, decontaminating the

outer surface of the body bag and transferring each one into a refrigerated container. Beyond that, operators decontaminate all areas come in contact with the human remains, as well as operators themselves.<sup>11</sup>

**Specific clinical analysis service.** The Service is provided by using Mobile Laboratory module of analysis, where it is possible to both carry out specific types of analyses/diagnostic emergency tests, for subjects (traumatized patient, subjects presumably infected) showing disorders related to high mortality. The Mobile Laboratory working group is made up of military biomedical technicians, coping with technical and logistics criticalities in an emergency contest, with characteristics of compactness, autonomy, portability, ready-to-use and immediate response.<sup>14</sup>

## Conclusions

In this paper, the Authors have showed the ItRC MC capabilities to contribute to the Public Administration Activity of Civil Protection/Civil Defence, population defense from the CBRN threat and terrorist attacks carried out on the National Territory. The CBRN preparedness and response systems adopted by the ItRC MC, according to Italian Legislation, has implemented the concept of interoperability, the coordination of response structures during healthcare operations management and the rational and efficient use of all resources.

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