

HOTHREAT
C B R N

HOTHREAT Handbook



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Glossary¹

Accident	Unplanned and unintended event that interrupts an activity and sometimes causes injury or damage, including operating errors, equipment failures and other mishaps, the consequences or potential consequences of which are not negligible from the point of view of protection or safety
Aerosol	A suspension of very small solid, liquid or solution particles dispersed in air or another gas. The solid particle mix is also referred to as smoke, and the liquid particle mix as fog or mist.
All-hazards	Naturally occurring event, human induced event (both intentional and unintentional) and technology caused event with potential impact on an organization, community or society and the environment on which it depends.
Annual limit of intake	The ALI is a derived limit, whose use is discouraged by international Institutions. It corresponded to the quantity or radioactivity of specific radionuclide, which, if inhaled or ingested by a worker or member of the general public, corresponds to the corresponding annual dose limit.
Antidote	Drug (with a known action mechanism) given to a patient to counteract the toxic effects of a poison by modifying its toxicokinetic or toxicodynamic, and whose administration reliably produces a significant benefit
ARS	Acute Radiation Syndrome
Assembly point	In CBRNE resilience, the term is used in two ways: <ul style="list-style-type: none"> • an area at the outer cordon for people assembling and awaiting evacuation from the scene, • an area for relatives and friends awaiting victims or further information on the emergency
Bacterium	Bacterium is a prokaryotic, in most cases a single-cell, self-reproducing microorganism of few micrometres in size, lacking a true nucleus and organelles. It is surrounded by a cytoplasmic membrane and in most cases additionally by a cell wall. Bacteria typically live in soil, water, organic matter, or the bodies of plants and animals, that make their own food especially from sunlight or are saprophytic or parasitic. Some of them are capable to induce disease in humans, animals or plants.
Biological agent	Biological agents are microorganisms (bacteria, viruses, fungi or cell cultures and endoparasites including genetically modified organisms) and biological toxins which may induce infection, disease or allergies in humans, animals or plants.
CBRN	CBRN is the abbreviation commonly used to describe the use of Chemical, Biological, Radiological and Nuclear materials or weapons. The malicious use of such materials could cause significant harm or disruption. In this publication, CBRN is used as the name of a discipline that defines the security and safety of CBRN materials
CBRNe	The term describing a situation when explosive material 'e' is used to disperse CBRN material. Most often used in phraseological connection with 'threat' or 'device'
CBRNE	Acronyms from Chemical, Biological, Radiological, Nuclear, and Explosive,

¹ EU CBRNe Glossary, The Glossary contains terms and acronyms defined in JRC publication and terms and acronyms important for CBRN-related content of this Manual.
<https://publications.jrc.ec.europa.eu/repository/handle/JRC128863>

The Glossary doesn't contain popular acronyms present in general public debate e.g. SARS, CCTV etc. .

	describing threats caused by the agents having the respective properties
Casualties	Persons physically or mentally injured or killed by a CBRNE threat accident or incident.
Cold zone	The uncontaminated area beyond the hot and warm zones where access is restricted for emergency response operations.
Command and control	The exercise of authority through means of communications and the management of available assets and capabilities, in order to achieve defined objectives.
Contamination	Presence or transfer of hazardous chemical, biological or radioactive substances/materials to personnel, structures, areas, mobile and immobile objects, surface, soil or water.
Cross contamination	Also referred to secondary contamination. The process by which materials are unintentionally transferred from one object to another
CWA	Chemical Warfare Agents
Decontamination	The removal or reduction of hazardous materials from the undesirable place (contamination) to lower the risk of further harm and/or cross contamination.
Detection	In the chemical, biological, radiological, nuclear, and explosive (CBRNE) context, detection is the act of locating CBRNE hazards or discovering or perceiving the presence and in some cases, to get an assessment on the type of CBRNE threat substances.
Disease	An unhealthy condition of the body (or a part of it) or the mind (illness, sickness) presented by symptoms peculiar to it. Chronic diseases are diseases of long duration (3 months or more) and generally slow progression. Nosocomial disease is a disease acquired in a hospital, especially in reference to an infection.
Disinfection	Chemical or physical methods to render biological agents non-infectious or non-toxic. Examples for disinfection methods are heating treatment, ultraviolet light, ozone treatment or the use of chemicals. Process to reduce the number of microorganisms, but not usually of bacterial spores, without necessarily killing or removing all organisms. (ISO 15190:2003). Disinfection is less lethal than sterilization; it does not ensure the margin of safety associated with sterilization processes.
Dispersion	Spread of radioactive particles, chemical substances or biological agents.
Dry decontamination	The use of techniques without water or liquids to decontaminate people or property.
Emergency	Sudden, urgent, usually unexpected occurrence or event requiring immediate action.
Evacuation	Organized, phased and supervised dispersal of people from dangerous or potentially dangerous areas to places of safety.
Explosion	Explosion is a rapid expansion of matter caused by release of mechanical, thermal, chemical or nuclear energy.
FFP1-2-3	Filtering Face Piece class 1, 2 or 3
First responder	Certified member of an authority with responding first to the scene of an emergency. Note: First responders are members of fire and rescue departments, police departments, other law enforcement agencies, hazardous materials response teams, emergency medical services, workers, and other organizations that have public safety responsibilities and who would respond to rescue and treat victims, and who would protect the public during an incident.
HACCP	Hazard Analysis and the Critical Control Points - a systematic, preventive approach to food safety
HAZMAT	Abbreviation of the term "hazardous materials"

Hazard	Source of potential harm. Note: Hazard can be a risk source.
Hot zone	Biological and chemical emergencies: hot zones are the contaminated areas where the initial release occurs or disperses to. It will be the area likely to pose an immediate threat to the health and safety of all those located within it. Radiological emergencies: a hot zone is defined by the radiation exposure level (> 0.1 mSv/h). Hot zone is an area around a dangerous radioactive source where precautions should be taken to protect the responders and the public from potential external exposure and contamination
HVAC	Heating, Ventilation, Air Conditioning
IED	An 'Improvised Explosive Device' (IED) is an explosive device produced by an unauthorised person without the security and quality standards applicable to industrial explosive device production. An IED is a unique bomb constructed typically from whatever available explosives, an ignition system, a detonator, electronics, a power source and a container and is used in an improvised manner. It is mainly produced and used by terrorists or organized crime
Impact	The scale of the consequences of a hazard, threat or emergency expressed in terms of a reduction in human welfare, damage to the environment, food production and loss of security.
Incident	An event or situation that requires a response from the emergency services or other responders. This definition is not applicable to radiological and nuclear incidents.
Invacuation	Sheltering of people and (where appropriate) other living creatures inside a building or structure within an area of actual or potential danger to reduce their risk of harm. Also referred to as 'sheltering in place' (SIP)
IR	Infrared, in the text, the acronym is used as a name of the spectral technique
Mass decontamination	The physical process of rapidly removing contaminants from a large number of people in the shortest possible time lapse, in potentially life-threatening situations to lower the risk of further harm and/or cross contamination.
Passive decontamination	Decontamination effected by natural processes of decay, without benefit of human or mechanical intervention.
PPE	Personal protective equipment (PPE) is equipment worn to prevent or minimize exposure to serious injuries and illnesses. These injuries and illnesses may result from contact with chemical, biological, radiological, physical, electrical, mechanical, explosive or other hazards. Personal protective equipment may include items such as lab coats, gowns, full-body suits, fire retardant or chemical-proof clothing, protective footwear, gloves, safety glasses, safety goggles and shoes, earplugs, hard hats, masks and respirators, or coveralls, vests and full body suits, according to specific countries existing regulation.
Physical protection	1) Physical protection in the context of security of explosives is an assembly of security measures that are designed to mitigate the effects of a threat that could not be prevented, e.g. an IED that detonates outside an important building. Physical protection can e.g. be protective barriers, body armour, reinforced concrete walls, etc. 2) Physical protection is an assembly of measures physically existing, augmenting the security of a site; physical measures complement other measures such as organisational, cultural, behavioural etc.
Potential exposure	This type of exposure is not a certainty but may result from an event or sequence of events, which are probabilistic in nature, including equipment failure and operational errors.
Preparedness	Process of preparing to deal with known risks and unforeseen events or situations that have the potential to result in an emergency

Rescue	It is the assisted removal of people unable to remove themselves from an area of greatest danger to a place of relative or complete safety
Risk	Effect of uncertainty on objectives. Note 1: An effect is a deviation from the expected. It can be positive, negative or both, and can address, create or result in opportunities and threats. Note 2: Objectives can have different aspects and categories and can be applied at different levels. Note 3: Risk is usually expressed in terms of the hazard presented by a source, the likelihood of the hazard causing an incident and the consequences of such.
Safety	1) A state of absence of hazard 2)A discipline describing protection against the hazards (not threats) e.g. workers against accidental events. Not to be confused with security.
Security	Protection against intentional damages (threats). Not to be confused with safety.
Threat	Potential of an unwanted incident, which may result in harm to individuals, assets, a system or organisation, the environment or the community
Vulnerability	Susceptibility of individuals or community, services or infrastructure to damage or harm arising from a hazard.
Warm zone	The area uncontaminated by the initial release of a substance, which becomes contaminated by the movement of people or vehicles. This includes areas used for undressing and decontamination activities. This is an area between the Hot and Cold Zone that is considered safe for workers to enter with appropriate personal protective equipment.
Wet decontamination	The application of water (or other liquids) to decontaminate people, property or infrastructure.

Goal of this manual

The goal of this manual is to equip hospitality sector professionals with essential knowledge and skills to effectively manage CBRN (Chemical, Biological, Radiological, Nuclear) incidents, ensuring the safety and well-being of guests, staff, and the surrounding community. By delivering comprehensive training through a structured four-part approach, the manual aims to build a solid understanding of hazardous materials and agents, instil robust risk assessment and evacuation protocols, and enhance communication during emergencies. Additionally, by training trainers to disseminate this knowledge further, the manual seeks to create a sustainable multiplier effect that strengthens safety and preparedness practices across multiple hospitality establishments, ultimately fostering a safer and more resilient industry.

Introduction

The Crucial Role of HAZMAT and CBRN Education in the Hospitality Sector

In today's interconnected and fast-paced world, the hospitality sector plays a pivotal role in providing safe and enjoyable experiences to millions of people globally. The industry, from hotels and resorts to restaurants and event venues, is responsible for ensuring the well-being of guests, staff, and the surrounding community. Integral to this responsibility is the necessity of robust training in Hazardous Materials (HAZMAT) and CBRN knowledge. Hazmat training and resulting handling procedures are routinely part of occupational safety regulations and should be observed as such. As threats to public safety become increasingly complex and varied, it is essential to add the CBRN knowledge and protocols to those already existing for HAZMAT. This education is not only a matter of best practice but also a crucial component of risk management and legal compliance.

The Growing Relevance of HAZMAT and CBRN Training

CBRN incidents can have catastrophic consequences, including loss of life, severe environmental damage, and extensive economic costs. In the context of the hospitality industry, the potential for such incidents is multifaceted. Hotels and restaurants, for instance, often use various chemicals for cleaning and maintenance, which can pose significant hazards if mishandled. Additionally, large venues and event spaces may be targeted for terrorist attacks involving chemical or biological agents, given their high occupancy and symbolic value.

The hospitality sector's exposure to these risks underscores the need for comprehensive training programs. Staff should be equipped with the knowledge to identify potential hazards, implement appropriate safety measures, and respond effectively in emergencies. This training not only enhances the safety and security of the premises but also contributes to a culture of preparedness and resilience.

Risk Management and Safety Enhancement

Effective HAZMAT and CBRN training programs provide hospitality professionals with the skills to manage situations and mitigate risks. This includes understanding the properties and hazards of various hazardous substances, proper storage and handling procedures, and the correct use of personal protective equipment (PPE). By fostering a thorough understanding of these elements, training helps prevent accidents and reduces the likelihood of hazardous incidents.

Furthermore, in an emergency, well-trained staff can execute response plans efficiently, minimising harm to individuals and property. Rapid and effective response to HAZMAT or CBRN incidents can significantly limit the spread of contaminants, reduce exposure, and facilitate quicker recovery. This not only protects lives but also preserves the reputation of the establishment, which is vital in an industry where trust and reliability are paramount.

Legal and Regulatory Compliance

The hospitality sector operates within a stringent regulatory framework that mandates adherence to safety standards and protocols. On the other hand, security and, in particular, CBRN security, is loosely regulated, which may lead to various approaches to that domain, often entailing consequences.

- **Safety:** “the state of being away from hazards caused by natural forces or human errors randomly. The source of hazard is formed by natural forces and/or human errors”.
- **Security:** “the state of being away from hazards caused by the deliberate intention of humans to cause harm. The source of hazard is posed by humans deliberately”.

Failure to comply with these regulations can result in severe legal consequences, including fines, lawsuits, and even closure of the business. CBRN training ensures that hospitality establishments meet the national legislations (where applicable) and will provide concrete guidelines for responding to CBRN threats.

Laws and regulations concerning hazardous materials and emergency response vary by region but generally include provisions for proper labelling, storage, and disposal of hazardous substances, as well as requirements for emergency preparedness and employee training. Compliance with these regulations not only avoids legal penalties but also demonstrates a commitment to the safety and well-being of guests and staff, enhancing the establishment's credibility and customer confidence.

Financial Implications and Business Continuity

Investing in CBRN training is also a sound financial decision. The costs associated with training programs are minimal compared to the potential financial losses resulting from a hazardous incident. These losses can include medical expenses, property damage, legal fees, and loss of business due to negative publicity and decreased consumer confidence.

Moreover, well-prepared establishments are more likely to maintain continuity in the face of emergencies. Business continuity planning, supported by CBRN training, ensures that operations can be quickly restored, minimising downtime and financial disruption. This resilience is particularly important in the hospitality industry, where maintaining uninterrupted service is crucial to retaining clientele and sustaining revenue streams.



Enhancing Reputation and Customer Trust

In an industry driven by reputation, the ability to demonstrate a commitment to safety and preparedness can be a significant competitive advantage. Guests are increasingly aware of and concerned about safety issues, and their choices are influenced by their perception of how well an establishment can protect them from potential hazards. Comprehensive CBRN training reassures customers that the establishment takes their safety seriously, fostering trust and loyalty.

Additionally, in the event of an incident, the public's response is often shaped by how effectively and transparently the situation is handled. An establishment that responds swiftly and efficiently to a CBRN incident can mitigate damage to its reputation and even enhance its standing by showcasing its capability to manage crises.

In conclusion, the hospitality sector's responsibility to ensure the safety and well-being of its guests and staff is paramount. Teaching CBRN knowledge is a critical component of this responsibility, providing the skills and knowledge necessary to prevent, manage, and respond to hazardous incidents. The benefits of such training extend beyond immediate safety, encompassing legal compliance, financial prudence, and enhancing reputation and customer trust. As the threats to public safety evolve, the importance of robust CBRN training within the hospitality industry will only continue to grow, underscoring its role as a cornerstone of effective risk management and business resilience.

1. Introduction to CBRN Threats

1.1. CBRN Threats: Implications for Hotels and Conference Centres

Defining CBRN

CBRN encompasses a broad range of threats, often associated with deliberate attacks or accidents that involve hazardous substances capable of causing mass casualties and significant disruption. Each component of CBRN represents a different type of threat:

Chemical Threats	These include the use of chemicals that can cause harm or death through inhalation, ingestion, or skin contact. Examples include nerve agents like sarin and VX, blister agents like mustard gas, and industrial chemicals like chlorine and ammonia.
Biological Threats	These involve the use of pathogens or toxins to cause disease or death. Examples include bacteria (such as anthrax), viruses (such as smallpox), and biological toxins (such as botulinum toxin).
Radiological Threats	These involve the use of radioactive materials to cause harm, either through contamination or exposure to radiation. This can include the use of "dirty bombs" that combine conventional explosives with radioactive materials to spread contamination.
Nuclear Threats	These refer to the use of nuclear weapons or the release of large amounts of radioactive material from nuclear power plants, which can cause massive destruction, radiation sickness, and long-term environmental damage.
CBRNe	Any of the above threats except nuclear (N) where a device containing explosive material is used to disperse C, B or N agent.

Key differences between HAZMAT and CBRN: while both HAZMAT and CBRN involve exposure to hazardous substances, several key differences distinguish them:

Scope and Intent	
HAZMAT	CBRN
Typically involves commercial or household materials that pose risks due to accidents or improper handling. The emission is usually unintentional, and harm results from negligence or mishandling.	Often associated with intentional use in crime or terrorism, although accidents involving CBRN materials can also occur. The intent behind CBRN use is usually to cause mass harm, fear, and disruption. The key point of CBRN threats of non-military origin is that they could be available commercially and don't need specific industrial processes to pose a threat.

Types of materials	
HAZMAT	CBRN
Encompasses a broad range of hazardous substances used in various industries, including chemicals, flammable materials, and toxins.	Specifically focuses on chemical, biological, radiological, and nuclear materials, which may include weaponised materials and agents used in terrorism or warfare. CBRN materials can include HAZMAT ones.
Regulatory framework	
HAZMAT	CBRN
Governed by industry-specific regulations and standards aimed at preventing accidents and ensuring safe handling and disposal of hazardous materials.	Often involves additional layers of security and defence regulations, particularly in the context of preventing terrorism and managing national security threats.
Response and management	
HAZMAT	CBRN
In many cases, the response will be the same for intentionally and not intentionally dispersed hazards, with the exception of the scope of involvement of LEA protective and forensic services in the former case, and include decontamination and medical countermeasures. If the military stockpiles are affected, the response requires highly specialised military/emergency response units.	

Historical overview:

Several historical CBRN incidents have had significant impacts on public spaces, causing widespread fear, health hazards, infrastructure damage, and long-term consequences. Several examples to discuss are:

- Tokyo Subway Sarin Attack (1995)
- Anthrax Attacks in the United States (2001)
- Chernobyl Nuclear Disaster (1986)
- Bali Bombings (2002 and 2005)
- Salisbury Novichok Poisonings (2018)
- Mumbai Terror Attacks (2008)
- Bangkok Bombings (2015 and 2019)

1.2. Key Terminology in CBRN

HAZMAT safety and CBRN security both aim to protect the public from hazardous substances, but they involve distinct threats with specific management needs. Recognizing these differences is key to developing effective training, emergency response, and regulatory strategies, particularly in sectors like hospitality. This distinction helps organizations better prepare for threats and mitigate risks, ensuring a safer environment for employees, guests, and the community.

1.2.1. Chemical

Chemical agents pose significant risks in various environments, including the hospitality sector. As a trainer, it is crucial to understand the categories of chemical agents, the dangers they present, and the appropriate safety measures to mitigate these risks. This chapter will provide detailed insights into chemical agents and explain the key signs and symbols used to identify these hazardous substances.

Categories of Chemical Agents

Chemical agents can be broadly categorized into several types, each with unique properties and associated risks. Understanding these categories is essential for recognizing potential hazards and implementing appropriate safety protocols.

Officially traded, handed and used chemicals	
<i>Examples</i>	Chlorine, ammonia, hydrogen sulphide, pesticides
<i>Dangers</i>	These agents are widely used in industries and can cause respiratory issues, chemical burns, and systemic toxicity upon exposure.
<i>Recognition</i>	Leaks, strong odours, visible fumes.
Chemical Warfare Agents (CWAs)	
<i>Examples</i>	Sarin, mustard gas, VX
<i>Dangers</i>	CWAs are highly toxic and designed to incapacitate or kill. They can cause severe respiratory distress, blistering, and neurological damage
<i>Recognition</i>	Symptoms in victims (e.g., convulsions, difficulty breathing), unusual odors, and residue
Household chemicals	
<i>Examples</i>	Bleach, detergents, solvents
<i>Dangers</i>	These chemicals can cause burns, respiratory issues, and poisoning if mishandled or mixed improperly
<i>Recognition</i>	Labels on containers, common usage areas (e.g., cleaning supplies), and immediate irritation upon exposure

Dangers and Effects

Understanding the effects is critical for trainers to convey the comprehensive risks associated. The CLP classification of hazards is introduced in the EU Regulation 1272/2008 on Classification, Labelling and Packaging based on the UN Globally Harmonised System (GHS) of chemical hazards. This legally binding classification introduces 17 categories of physical hazards characterising substance properties and 10 categories of health hazards characterising chemical properties. All those categories are relevant to HAZMAT, but only a few can be identified with CBRN hazards.

Those include the following health hazards:

- Acute toxicity,
- Skin and eye damage,
- Respiratory sensitization,
- Other health hazards, such as carcinogenicity, target organ toxicity or aspiration, may only have a remote relationship to CBRN.



and physical hazards:

- Flammability: damage caused by heat, resulting in burns, skin necrosis
- Explosivity: damage causing a mechanical wave resulting in wounds, defragmentation.
- Corrosivity and oxidative properties, causing chemical burns.

Each of the hazard classes encompasses several categories varying in severity of consequences.

Recognizing Signs and Symbols

Effective hazard communication relies on recognizing the signs and symbols that indicate the presence of chemical agents. Each of those symbols is assigned to the above-mentioned hazards. Here are some key symbols and their meanings:

GHS Symbols (Globally Harmonised System Symbols, used globally and adapted in the EU as regulation CLP, explained elsewhere):

- Exploding bomb denotes, explosive materials, organic peroxides or self-reactive substances causing injuries or defragmentation
- Flame: Indicates flammable materials or substances that can emit flammable gases. Causing heat burns
- Flame over circle indicates oxidisers causing chemical burns
- Gas Cylinder: Signifies gases under pressure, which can be hazardous if released.
- Corrosion: Represents substances that can cause skin corrosion or serious eye damage.
- Skull and Crossbones: Denotes acute toxicity, potentially fatal if inhaled, ingested, or absorbed through the skin.
- Exclamation Mark: Warns about various health hazards, of less serious consequences
 Health Hazard: Indicates carcinogens, respiratory sensitizers, or substances with specific organ toxicity.
 Environment: Highlights substances hazardous to aquatic life and the environment.










HCS PICTOGRAMS AND HAZARDS			
Health Hazard  • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	Flame  • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	Exclamation Mark  • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non Mandatory)	
Gas Cylinder  • Gases Under Pressure	Corrosion  • Skin Corrosion/Burns • Eye Damage • Corrosive to Metals	Exploding Bomb  • Explosives • Self-Reactives • Organic Peroxides	
Flame Over Circle  • Oxidizers	Environment (Non Mandatory)  • Aquatic Toxicity	Skull and Crossbones  • Acute Toxicity (fatal or toxic)	

Figure 1 HCS pictograms and hazards

1.2.2. Biological

Biological agents pose significant risks across various sectors, including hospitality, healthcare, and public safety. These agents can cause severe health issues and even fatalities if not properly managed. It is essential to understand the different types of biological agents, including viruses, bacteria, toxins, fungi, and parasites. This chapter provides comprehensive insights into these biological agents, their characteristics and dangers.

Categories of Biological Agents

Biological agents are organisms or toxins that can cause diseases in humans, animals, and plants. They are often categorized based on their type and mode of action. Here, we delve into the five primary categories of biological agents:

Viruses	
<i>Characteristics</i>	Viruses are microscopic infectious agents that can only replicate inside the living cells of a host organism. They are composed of genetic material (DNA or RNA) surrounded by a protein coat.
<i>Examples</i>	Influenza ² , HIV ³ , SARS-CoV-2 (COVID-19) ⁴ .
<i>Dangers</i>	Exposure is mainly through inhalation. Viruses can cause a wide range of diseases, from mild colds to severe illnesses like COVID-19 and AIDS. They are highly contagious and can spread rapidly through populations.
<i>Recognition</i>	Symptoms of viral infections vary but can include fever, fatigue, respiratory issues, and gastrointestinal disturbances.

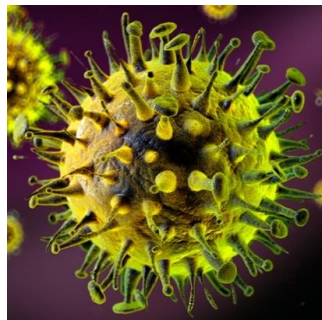


Figure 2 Viral particle morphology, Harvard Medical School, 2024

credit: <https://hms.harvard.edu/news/catch-virus-its-tail>

- ² <https://www.cdc.gov/flu/signs-symptoms/index.html>
- ³ <https://www.cdc.gov/hiv/about/index.html>
- ⁴ <https://www.cdc.gov/covid/prevention/index.html>

Bacteria	
<i>Characteristics</i>	Bacteria are single-celled microorganisms that can thrive in various environments, including soil, water, and within the human body. They can be beneficial or pathogenic.
<i>Examples</i>	Escherichia coli (E. coli) ⁵ , Mycobacterium tuberculosis (tuberculosis) ⁶ , Salmonella ⁷ .
<i>Dangers</i>	Exposure is mainly through inhalation, intradermal (wounds) and ingestion. Pathogenic bacteria can cause infections such as tularemia, dengue ⁸ , cholera ⁹ , tuberculosis. They can spread through contaminated food, water, surfaces, human contact and airborne infection.
<i>Recognition</i>	Bacterial infections often cause localized symptoms such as redness, swelling, pain, and systemic symptoms like fever and chills.

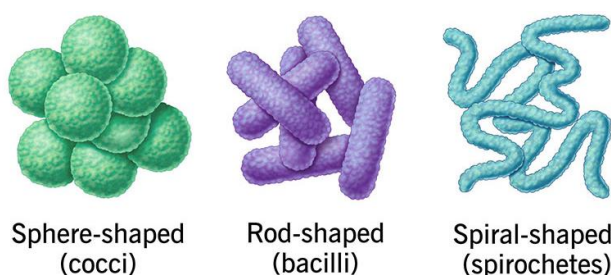


Figure 3 Bacterial morphologies
 credit: Cleveland clinic, 2024 <https://my.clevelandclinic.org/health/articles/24494-bacteria>

Toxins	
<i>Characteristics</i>	Toxins are poisonous high molecular mass substances, mostly proteins, produced by living organisms, including bacteria, plants, and animals. They can cause harm or death even in small quantities. The most important route of exposure is the oral route, although, in the Bulgarian umbrella case, ricin was injected directly into the bloodstream.
<i>Examples</i>	Botulinum ¹⁰ toxin, ricin ¹¹ , staphylococcal enterotoxin.
<i>Dangers</i>	Exposure to toxins occurs through ingestion. Toxins can disrupt cellular function and cause severe health effects, including paralysis, organ failure, and death. They can be disseminated through ingestion and/or inhalation.
<i>Recognition</i>	Symptoms depend on the toxin but can include nausea, vomiting, respiratory distress, and neurological impairment.

- ⁵ <https://www.cdc.gov/ecoli/about/index.html>
- ⁶ <https://www.cdc.gov/tb/about/index.html>
- ⁷ <https://www.cdc.gov/salmonella/prevention/index.html>
- ⁸ <https://www.cdc.gov/dengue/about/index.html>
- ⁹ <https://www.cdc.gov/cholera/about/index.html>
- ¹⁰ <https://www.cdc.gov/botulism/about/index.html>
- ¹¹ <https://www.cdc.gov/chemical-emergencies/chemical-fact-sheets/ricin.html>

Fungi	
<i>Characteristics</i>	Fungi are a diverse group of organisms that include yeasts, moulds, and mushrooms. They can be unicellular or multicellular and thrive in moist, warm environments.
<i>Examples</i>	Aspergillus ¹² (mold), Candida ¹³ (yeast), Cryptococcus ¹⁴ .
<i>Dangers</i>	Fungi can be inhaled or ingested. Fungal infections can affect the skin, lungs, and other body systems. They can be particularly dangerous for immunocompromised individuals, causing conditions like aspergillosis and candidiasis.
<i>Recognition</i>	Fungal infections are often present with skin rashes, respiratory issues, and in severe cases, systemic infections.

Parasites	
<i>Characteristics</i>	Parasites are organisms that live on or inside a host organism, deriving nutrients at the host's expense. They can be protozoa, helminths (worms), or ectoparasites (like lice).
<i>Examples</i>	Plasmodium (malaria ¹⁵), Giardia ¹⁶ , Ascaris (roundworm).
<i>Dangers</i>	Parasites can be ingested or injected into the bloodstream. Parasites can cause a range of illnesses, from mild gastrointestinal distress to severe diseases like malaria. They are transmitted through contaminated food, water, and vectors like mosquitoes.
<i>Recognition</i>	Symptoms vary widely but can include digestive issues, fatigue, weight loss, and skin irritations.

Dangers and Health Implications

Biological agents can cause a variety of health issues, ranging from mild discomfort to life-threatening conditions. The specific dangers associated with each category of biological agent include:

- **Viruses:** rapid transmission through the respiratory or gastrointestinal (GI) tract and potential for outbreaks, severe respiratory illnesses, and long-term health complications.
- **Bacteria:** can enter an organism through the mucous membranes of the respiratory or GI tract, or damaged skin. Causes severe localised and systemic infections, antibiotic resistance, and potential for widespread contamination.
- **Toxins:** enter the organism mainly through ingestion or injection into the bloodstream. Causes acute toxicity, potential for use in bioterrorism, and adverse health effects vary from high lethality through irreversible organ damage to long-lasting health effects.
- **Fungi:** enter the organism through ingestion or inhalation. One Chronic infections, allergic reactions, and serious illnesses in immunosuppressed individuals.

- ¹² <https://www.cdc.gov/aspergillosis/index.html>

- ¹³ <https://www.cdc.gov/candida-auris/index.html>

- ¹⁴ <https://www.cdc.gov/cryptococcosis/>

- ¹⁵ <https://www.cdc.gov/malaria/index.html>

- ¹⁶ <https://www.cdc.gov/giardia/about/index.html>

- **Parasites:** chronic health problems, nutritional deficiencies, potential for widespread disease in areas with poor sanitation.

Recognising Biological Agents

Recognising the presence and effects of biological agents is critical for a timely and effective response. Key indicators of biological agent exposure include:

- **Unusual Illness Patterns:** sudden clusters of illness, particularly with similar symptoms, can indicate an outbreak.
- **Environmental Clues:** presence of vectors (e.g., mosquitoes), contaminated food or water, and visible mould growth.
- **Symptoms:** vary depending on the agent but can include fever, cough, gastrointestinal issues, skin lesions, and neurological symptoms.

Signs and Symbols

To ensure safety and effective communication about biological hazards, various signs and symbols are used:

- **Biohazard Symbol:** a universally recognised triple-crescent symbol indicating the presence of biological materials that pose a threat to health. It is typically found on containers, equipment, and areas where biological agents are used or stored.
- **Warning Labels:** these labels provide specific information about the type of biological hazard and necessary precautions. They include details such as the name of the agent, required PPE, and emergency contact information.

Understanding biological agents is essential for maintaining a safe environment in the hospitality sector and beyond. By categorising these agents, recognising their dangers, and implementing appropriate safety measures, staff can effectively be educated to mitigate the risks and respond to incidents.

Below is a summary table of biological agents and toxins considered Tier 1 by the CDC¹⁷.

U.S. Centers for Disease Control and Prevention	
Category	Agent
A – Highest Priority	<p><i>Bacillus anthracis</i>, causing anthrax</p> <p>Botulinum toxin from <i>Clostridium botulinum</i>, causing botulism</p> <p><i>Yersinia pestis</i>, causing plague</p> <p><i>Francisella tularensis</i>, causing tularemia</p> <p>Variola virus, causing variola major (classic smallpox)</p> <p>Viral hemorrhagic-fever (VHF) viruses:</p> <ul style="list-style-type: none"> • Arenaviruses, causing Lassa fever and New World VHFs (Machupo, Junin, Guanarito, and Sabia hemorrhagic fevers) • Bunyaviridae, causing Crimean Congo hemorrhagic fever and Rift Valley fever • Filoviridae, causing Ebola virus disease and Marburg virus disease <p>Flaviviridae, causing yellow fever, Omsk hemorrhagic fever, and Kyasanur Forest disease</p>
B – 2 nd Highest Priority	<p><i>Brucella</i> species, causing brucellosis</p> <p>Epsilon toxin of <i>Clostridium perfringens</i>, causing food poisoning</p> <p><i>Salmonella</i> sp, causing food poisoning; Escherichia coli 0157:H7 infection; and <i>Shigella</i>, causing shigellosis</p> <p><i>Burkholderia mallei</i>, causing glanders</p> <p><i>Burkholderia pseudomallei</i>, causing melioidosis</p> <p><i>Chlamydia psittaci</i>, causing psittacosis</p> <p><i>Coxiella burnetii</i>, causing Q fever</p> <p>Ricin toxin from <i>Ricinus communis</i>, causing different symptoms depending on type of exposure</p> <p>Staphylococcal enterotoxin B, causing staphylococcal food poisoning and other symptoms depending on type of exposure</p> <p><i>Rickettsia prowazekii</i>, causing typhus fever</p> <p>Alphaviruses causing viral encephalitides (for example, Venezuelan, eastern, and western equine encephalitides)</p> <p><i>Vibrio cholerae</i>, causing cholera; <i>Cryptosporidium parvum</i>, causing cryptosporidiosis; and other agents, causing other waterborne disease</p>
C: 3 rd Highest Priority	<p>Nipah virus, hantavirus, coronaviruses, and influenza viruses capable of causing pandemic influenza</p> <p>Other agents associated with emerging infectious diseases</p>

¹⁷ <https://www.msmanuals.com/home/injuries-and-poisoning/mass-casualty-weapons/overview-of-chemical-warfare-agents>

1.2.3. Radiological and Nuclear

Radiation is a natural part of our environment, but exposure to higher levels can pose significant health risks. It is essential for trainers in the hospitality sector to understand normal radiation dose rates, the national radiation limits, and the point at which radiation exposure becomes a concern. This part explains the fundamental principles of radiation protection: time, distance, and shielding. By understanding these concepts, trainers can effectively educate staff on maintaining a safe environment and responding appropriately to radiation-related incidents.

Understanding Radiological Agents

Radiological agents pose significant health and safety risks across various sectors, including hospitality. Trainers must understand the types of radiological agents, such as alpha and beta particles, gamma rays, neutrons, and x-rays, along with their associated dangers. This chapter provides guidance on recognising these risks and implementing safety measures, enabling trainers to educate staff on risk mitigation and incident response.

Categories of Radiological Agents

Radiological agents can be classified into several types based on the nature of the radiation they emit. Each type has unique properties and associated risks. The primary categories of radiological agents include:

Alpha Particles	
<i>Characteristics</i>	Alpha particles are heavy, positively charged particles composed of two protons and two neutrons. They are emitted from the decay of heavy elements like uranium and radium.
<i>Penetration Power</i>	Low. Alpha particles can be stopped by a sheet of paper or the outer layer of human skin.
<i>Dangers</i>	Despite their low penetration power, alpha particles are highly dangerous if ingested or inhaled, causing significant internal damage to tissues and organs.
<i>Recognition</i>	Alpha-emitting materials require special detection equipment, as their low penetration power makes them difficult to detect with standard radiation sensors.

Beta Particles	
<i>Characteristics</i>	Beta particles are fast-moving electrons (negatively charged particles), emitted from certain radioactive materials like strontium-90 and carbon-14.
<i>Penetration Power</i>	Moderate. Beta particles can penetrate the skin but are usually stopped by plastic, glass, or a few millimetres of metal.
<i>Dangers</i>	Beta particles can cause radiation burns on the skin and, if ingested or inhaled, can lead to internal organ damage.
<i>Recognition</i>	Beta radiation can be detected with handheld radiation survey meters and other specialised instruments.



Gamma Rays	
<i>Characteristics</i>	Gamma rays are high-energy electromagnetic waves emitted from the nucleus of radioactive atoms, such as cobalt-60 and caesium-137.
<i>Penetration Power</i>	High. Gamma rays can penetrate deeply into human tissue and require dense materials like lead or concrete for shielding.
<i>Dangers</i>	Gamma radiation can cause both acute and chronic health effects, including radiation sickness, cancer, and genetic mutations.
<i>Recognition</i>	Gamma radiation is detectable with various instruments, including Geiger counters and scintillation detectors.

Neutrons	
<i>Characteristics</i>	Neutrons are neutral particles emitted during nuclear reactions, such as fission or fusion processes.
<i>Penetration Power</i>	High. Neutrons can penetrate most materials, but substances rich in hydrogen, such as water or polyethylene, are effective at slowing and absorbing them.
<i>Dangers</i>	Neutron radiation can cause severe tissue damage and increase the risk of cancer. Neutrons can also activate other materials, making them radioactive.
<i>Recognition</i>	Neutron radiation requires specialised detectors like neutron survey meters for detection.

Neutrinos	
<i>Characteristics</i>	Neutrinos are neutral particles with very low mass emitted during nuclear reactions, like beta decay.
<i>Penetration Power</i>	Extremely high. Neutrinos can penetrate all materials, probability of interaction with matter is very low and can be neglected for CBRN purposes.
<i>Dangers</i>	No danger due to low interaction with matter probability.
<i>Recognition</i>	Detection of neutrinos are extremely difficult and not important for security and safety reasons.

Dangers and Health Implications

Radiological agents can cause a variety of health issues, ranging from acute radiation sickness to long-term effects like cancer and genetic damage. The specific dangers associated with each type of radiation include:

- **Alpha Particles:** cause significant internal damage if inhaled or ingested, leading to organ damage and increased cancer risk.
- **Beta Particles:** can cause skin burns and internal damage if particles penetrate the body.
- **Gamma and X Rays:** penetrate deeply into tissues, causing acute radiation sickness, long-term health effects, and increased cancer risk.
- **Neutrons:** cause severe tissue damage and can activate other materials, leading to secondary radiation hazards.
- **Neutrinos:** electrically neutral elementary particle. They are not hazardous due to very weak interaction with matter.

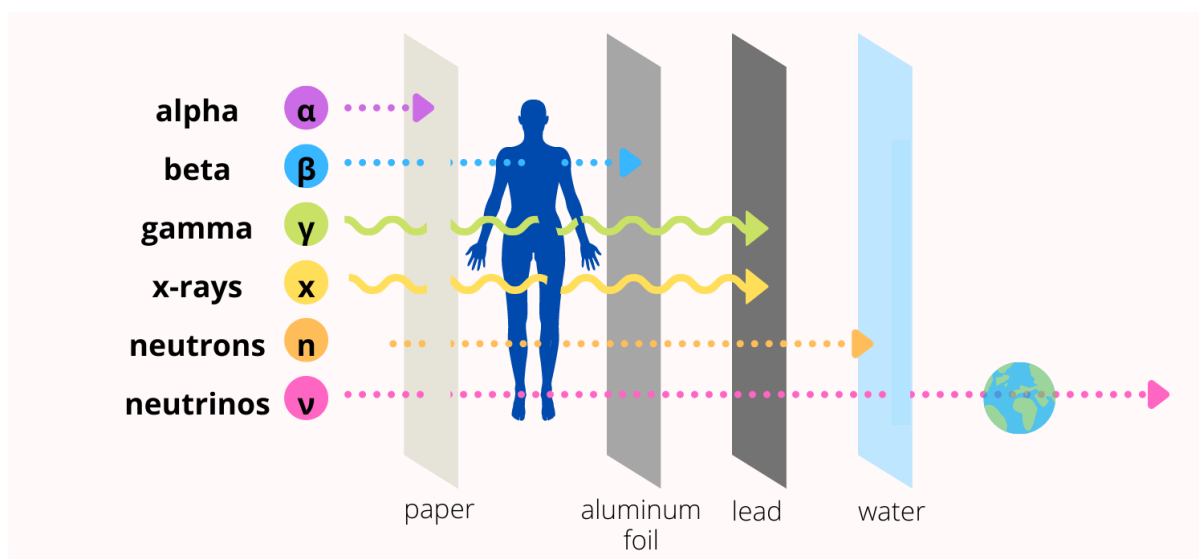


Figure 4 Types of radiation,
credit: Science Notes (<https://sciencenotes.org/which-type-of-radiation-is-the-most-penetrating/>)

Weighing factor

The health hazard associated with radiation is caused by ionizing energy. Different types of radiation are assigned different weighting factors used to determine the harmful power of radiation, presented in the table below

Weighing factor (WF) of the biological effect of ionising radiation	
Radiation type	Factor
beta, gamma, X	1
alpha	20
neutrons	5-20 depending on energy (speed)

Recognising Radiological Agents

Recognising the presence and effects of radiological agents is critical for a timely and effective response. Key indicators of radiological agent exposure include:

- Use of Detection Instruments: Geiger counters, scintillation detectors, and neutron survey meters are essential for detecting various types of radiation.
- Symptoms of Exposure: symptoms can include nausea, vomiting, fatigue, skin burns, and changes in blood cell counts.
- Environmental Clues: presence of radioactive materials or devices, unexplained illnesses, and detection of radiation in the environment.

Signs and Symbols

Effective hazard communication relies on recognising the signs and symbols that indicate the presence of radiological agents. Key symbols include:

- Radiation Trefoil Symbol: a universally recognised symbol indicating the presence of ionising radiation. It is typically found on containers, equipment, and areas where radioactive materials are used or stored.
- Warning Labels: labels that provide specific information about the type of radiological hazard, required PPE, and safety precautions.

- Information accompanying radioactive materials is country-specific across the EU. The fundamentals of information and training are set forth in Chapter IV of the Council Directive 2013/59/EURATOM. Excerpts from the national implementation of the said Directive should become a part of the CBRN training and emergency plan.

Understanding Normal Dose Rate and Radiation Safety Principles

Units

The destructive power of radiation is a result of the absorbed dose (**AD**). The unit of dose is Grey (Gy), corresponding to the energy of 1 Joule absorbed in 1 kg. The unit of energy brought by radiation has a different impact on biological organisms depending on the type of radiation, and the weighing factor is the measure of that difference.

Equivalent dose (with biological correction) = **AD x WF**

The unit of equivalent dose is 1 Sievert (Sv)

For gamma and beta radiation 1 Sv = 1 Gy

For alpha radiation, 1 Sv = 0.05 Gy

Normal Radiation Dose Rate

Radiation dose rate refers to the amount of radiation absorbed per unit of time. It is typically measured in microsieverts per hour ($\mu\text{Sv/h}$) or millirems per hour (mrem/h). Understanding the normal dose rate is crucial for distinguishing between everyday background radiation and potentially hazardous exposure levels.

1. Background Radiation:

- Background radiation is the ionizing radiation present in the environment from natural and artificial sources.
- Natural sources include cosmic rays, radon gas, and naturally occurring radioactive materials in the earth and building materials.
- Artificial sources include medical procedures (such as x-rays), industrial activities, and certain consumer products.
- The global average background radiation dose is approximately 2.4 millisieverts (mSv) per year (2400 $\mu\text{Sv/year}$).

2. Normal Dose Rates:

- On average, background radiation levels range from 0.05 to 0.2 $\mu\text{Sv/h}$.
- Higher levels might be found in areas with significant natural radiation sources, such as regions with high concentrations of radon or certain minerals.

National Radiation Limits

National and international regulatory bodies set radiation exposure limits to protect public health. These limits vary depending on the type of exposure (occupational, medical, or public) and the regulatory framework of each country. Those limits, which are not CBRN-relevant, may be found in national legislation implementing Council Directive 2013/59/EURATOM.

Point at Which Radiation Becomes a Concern

Radiation exposure becomes a health concern when it exceeds the normal background levels and the established safety limits. Acute and chronic exposure to high radiation levels can lead to various health issues, including

Acute Radiation Syndrome (ARS)	Results from high-dose; short-term exposure and can cause nausea, vomiting, fatigue, hair loss, skin burns. Short-term doses above 4 Sv are usually fatal.
Cancer	Long-term exposure to lower doses of radiation can increase the risk of developing cancer.
Genetic Damage	Radiation can cause mutations that may be passed on to future generations.
Organ Damage	Specific high-dose exposures can damage organs such as the thyroid, lungs, and bone marrow.

Principles of Radiation Protection: Time, Distance, and Shielding

Radiation protection is based on three fundamental principles: time, distance, and shielding. These principles help minimize exposure and enhance safety. The following table refers to the occupational safety of workers.

Time	
<i>Escape from incident site</i>	Reducing the amount of time spent in the exposure zone i.e. evacuating immediately. Call help when assisting those incapacitated
Distance	
<i>Maximize Distance from the Source</i>	Increasing the distance from a radiation source significantly reduces exposure. The intensity of radiation decreases with the square of the distance from the source (inverse square law).
Shielding	
Use of Shielding Materials: Shielding involves placing a barrier between the radiation source and the worker to absorb or block the radiation. Attenuation factor characterizes the ability of the material to reduce radiation dose. Different materials are effective for different types of radiation:	
<i>Alpha Particles</i>	Easily stopped by paper, clothing, or a few centimetres of air.
<i>Beta Particles</i>	Stopped by plastic, glass, or a few millimeters of aluminium.
<i>Gamma Rays and X-Rays</i>	Require dense materials like lead, concrete, or several centimetres of steel for effective shielding.
<i>Neutrons</i>	Best shielded by materials rich in hydrogen, such as water or polyethylene.
<i>Attenuation</i>	Those creating evacuation plans should know if any radiation attenuating materials are used in local constructions and where. Plan evacuation accordingly

Understanding normal radiation dose rates, national radiation limits, and the point at which radiation exposure becomes a concern is crucial for maintaining safety. By implementing the principles of time, distance, and shielding, trainers can effectively educate staff on minimizing risks and responding appropriately to radiation-related incidents. Through comprehensive training and adherence to safety protocols, we can protect the health and well-being of employees, guests, and the wider community.





2. Recognition and Identification of CBRN Agents

2.1. Chemical

Poisoning or damage caused by chemicals like chemical warfare agents, commercial chemicals or household chemicals.

Chemical Warfare Agents

Chemical agents are toxic compounds housed in munitions delivery systems like mines, rockets, projectiles, or bombs designed to disperse these substances. **How do we divide Chemical Warfare Agents (CWA)?**

<p>Nerve Agents</p> 	<p>They are named for their impact on the functioning of the nervous system, leading to uncontrolled stimulation of muscles. They can be inhaled or absorbed through the skin. Their first symptoms are myosis, salivation, and shortness of breath, and the ultimate symptom is convulsions of the diaphragm, leading to death by suffocation. They are considered as the most toxic CWA and can cause death within minutes to hours after exposure, depending on the concentration.</p>
<p>Blister Agents</p> 	<p>Blistering agents are toxic compounds that cause skin injuries similar to burns. When inhaled, they can damage the upper respiratory tract and lungs, leading to pulmonary oedema. They can also cause severe eye injuries. They are characterized by a specific strong smell, e.g. mustard CWA has a specific smell of mustard or horseradish.</p>
<p>Blood Agents</p> 	<p>Blood agents are chemicals that are transported by the bloodstream and inhibit the ability of blood cells to transfer oxygen which reduces the process of transporting oxygen from the lungs to the cells. Exposure to low concentrations of blood agents can cause weakness, dizziness, headache, confusion, and sometimes nausea and vomiting. At high concentrations, blood agents can completely halt oxygen transport, leading to death by suffocation and can cause severe toxic effects within seconds.</p>
<p>Choking Agents</p> 	<p>Choking or pulmonary agents are chemicals designed to disturb the victim's ability to breathe through destruction of the respiratory tract and lungs. They operate by building up fluids in the lungs, which blocks oxygen exchange and leads to suffocation. Those agents are reactive, corrosive or oxidising and, as side effects, could cause blurred vision and severe eye burns. Inhalation could cause burning of the throat, coughing, vomiting, headache, pain or tightness in the chest, and respiratory and circulatory failure.</p>

Industrial Chemicals


Industrial chemicals are substances manufactured or used in industrial processes that have the potential to cause harm to humans, animals or the environment due to their toxic or otherwise hazardous properties. These chemicals can include solvents, heavy metals, pesticides and various other compounds and speciality chemicals used in manufacturing, agriculture and other industries. They can cause many adverse health and physical effects covered in the subchapter discussing chemical hazards.

Contamination by chemicals can occur in several ways, among others:

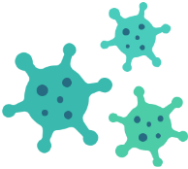

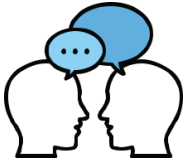



1. Malevolently dispersed chemicals in a vapour or liquid form, e.g. in a terrorist attack.
2. Spilled or released, e.g. through mishandling
3. A separate group that poses a risk to health and life is household chemicals. Improper storage or mixing of these chemicals can lead to accidents, poisoning, or fires. Therefore, it is crucial to handle and store household chemicals according to the manufacturer's instructions, keep them out of reach of children and pets, and dispose of them properly to minimize the risk of accidents and exposure. Never throw these substances into hotel or home sanitary systems and sewage.

2.2. Biological

Biological threat in CBRN refers to hazards posed by biological agents such as bacteria, viruses, fungi, or toxins that can cause disease or death in humans, animals, or plants. These hazards can arise from natural outbreaks, deliberate releases (bioterrorism), or accidents in laboratories or industrial settings. For further information concerning biological threats, please see section 1.2. Biological agents can spread through various means, including air (aerosols), water, food, and direct skin contact. Understanding the modes of transmission is crucial for implementing effective containment and control measures. Most biological agents have long incubation periods, which can complicate detection and response efforts. The time between exposure to a biological agent and the onset of symptoms varies depending on the type of hazard and many other circumstances. However, that period is considerably longer than in the case of chemical agents, ranging from a few hours to as much as several tens of days. Rapid identification of biological agents and timely medical intervention are essential to mitigate the effects of biological hazards. This may include the use of vaccines, antibiotics, antivirals, and other medical countermeasures. Biological hazards can overwhelm healthcare systems, cause mass casualties, and create widespread fear and panic. Effective public health preparedness and response strategies are essential to manage the consequences of biological incidents.

<p>Bacteria</p> 	<p>Single-celled organisms that can cause infectious diseases. They can be highly contagious and difficult to treat, requiring specific vaccines, antibiotics or target medicines Examples: Bacillus anthracis (anthrax), Yersinia pestis (plague), Francisella tularensis (tularemia). They can be relatively easy to culture and spread</p>
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<p>Viruses</p> 	<p>Small infectious particles that require host cells to replicate. Examples: Variola virus (smallpox), Ebola virus. They can be highly contagious and difficult to treat, requiring specific vaccines or antiviral</p>
<p>Fungi</p> 	<p>More complex organisms than bacteria and viruses, capable of causing diseases in humans, animals, and plants. Examples: Histoplasma capsulatum, Aspergillus Fungal infections can be difficult to treat, especially in individuals with weakened immune systems.</p>
<p>Modes of transmission</p> 	<p>Biological agents can spread through various means, including air (aerosols), water, food, and direct skin contact. Understanding the modes of transmission is crucial for implementing effective containment and control measures.</p>
<p>Incubation period</p> 	<p>Most biological agents have long incubation periods, which can complicate detection and response efforts. The time between exposure to a biological agent and the onset of symptoms varies depending on the type of hazard and many other circumstances. However, that period is considerably longer than in the case of chemical agents, ranging from a few hours to as much as several tens of days.</p>
<p>Diagnosis and treatment</p> 	<p>Rapid identification of biological agents and timely medical intervention are essential to mitigate the effects of biological hazards. This may include the use of vaccines, antibiotics, antivirals, and other medical countermeasures.</p>
<p>Public health impact</p> 	<p>Biological hazards can overwhelm healthcare systems, cause mass casualties, and create widespread fear and panic. Effective public health preparedness and response strategies are essential to manage the consequences of biological incidents.</p>
<p>Environmental persistence</p>	<p>Some biological agents can persist in the environment for extended periods, posing long-term risks to human health and requiring extensive decontamination efforts.</p>





2.3. Radiological and Nuclear

Radiological threats involve the release of radioactive materials, which emit ionizing radiation. These materials can come from various sources, such as medical equipment, industrial sources, or accidents at nuclear facilities.

Radiological threats	
<p>Radiological Dispersal Device (RDD)</p> 	<p>Also known as a "dirty bomb," this device combines conventional explosives with radioactive materials. When detonated, it spreads radioactive contamination over a wide area, posing health risks and causing panic and disruption.</p>
<p>Health Effects</p> 	<p>Exposure radiation to tissues and organs in the body (through an external radiation source or inhaled, absorbed through the skin or ingested in contaminated food or water) can lead to acute radiation syndrome (ARS), increased risk of cancer, genetic mutations and other serious health problems. The severity of these effects depends on the dose and duration of exposure.</p>
<p>Environmental Contamination</p> 	<p>Radioactive materials can contaminate air, water, and soil, leading to long-term ecological damage and rendering areas uninhabitable. With contamination in facilities such as a hotel, there is a high probability that to be deconstructed.</p>

Nuclear Threats	
<p>Nuclear Weapons</p> 	<p>These are explosive devices that derive their destructive power from nuclear reactions, either fission (atomic bomb) or a combination of fission and fusion (thermonuclear bomb). The detonation of a nuclear weapon results in massive destruction, intense heat, and radiation.</p>
<p>Health Effects</p>	<p>Immediate effects include blast injuries, burns, and acute</p>

	<p>radiation sickness. Long-term effects can include cancer, genetic damage, and psychological trauma. The fallout from a nuclear explosion can spread radioactive particles over vast areas, causing prolonged exposure.</p>
<p>Nuclear Accidents</p> 	<p>Incidents like the Chernobyl disaster or the Fukushima Daiichi nuclear meltdown release large amounts of radioactive materials into the environment. These accidents can lead to severe health effects, long-term displacement of populations, and extensive environmental contamination.</p>
<p>Key Concepts</p>	
<p>Ionizing Radiation</p>	<p>This type of radiation has enough energy to remove tightly bound electrons from atoms, creating ions. It includes alpha particles, beta particles, gamma rays, and X-rays</p>
<p>Contamination vs. Exposure</p>	<p>Contamination refers to radioactive material being deposited on surfaces, skin, clothing or ingested or inhaled. Exposure refers to exposure to ionizing radiation. Distancing from the source of ionizing radiation stops exposure, while contamination needs separation from contaminated items, mechanical removal of contaminating particles (washing).</p>
<p>Decontamination and Protection</p>	<p>Measures include removing contaminated clothing, washing exposed skin, and taking appropriate medical products (like potassium iodide to block radioactive iodine uptake by the thyroid- treatment only relevant to airborne exposure to I^{127}). Protective equipment and shelters can also reduce exposure</p>

3. Protecting Hotels: Vulnerabilities, Risk Analysis and Emergency Planning

3.1. The Importance of CBRN Prevention

Preventing and Managing CBRN, including CBRN Incidents in Hotels

CBRN incidents pose significant threats to hotels, requiring comprehensive protection strategies to mitigate risks and protect guests and staff. A well-prepared hotel can respond effectively to these threats, minimising harm and ensuring safety by focusing on several key aspects: identifying vulnerabilities, performing risk assessments, developing a robust security and emergency plan, training personnel, and ensuring access to the right equipment.

Developing a Security Plan

A robust security plan is essential to prevent CBRN incidents or respond swiftly if they occur. The components of a hotel security plan may include:

- **Physical and electronic security provisions** like **Surveillance systems** to detect suspicious packages or unusual activity, **Controlled access** to sensitive areas, such as HVAC systems or storage facilities.
- **Regular audits and updates** to ensure the plan remains relevant to emerging CBRN threats.
- **Integration with law enforcement and emergency responders** to ensure timely assistance.

Preparedness Plan

A **Preparedness Plan** is essential for ensuring an effective response to CBRN incidents. This plan should clearly define actions to be taken **before, during, and after** an incident, combining both proactive preparation and reactive emergency procedures.

Key elements of a hotel's CBR preparedness plan include:

- **CBRN Risk-Specific Procedures:** detailed protocols for **evacuation, decontamination, and communication**. These should include clearly marked evacuation routes, designated assembly areas at a safe distance, and step-by-step decontamination procedures to protect both guests and staff.
- **Communication Protocols:** reliable and efficient communication strategies to ensure that guests, staff, and emergency services receive timely and accurate information. Clear communication supports calm, coordinated behaviour and reduces uncertainty in a high-stress situation.
- **Staff Training and Role Assignment:** regular training and drills should be conducted to ensure all hotel personnel understand their roles and responsibilities in the event of a CBRNe incident. Confident, well-prepared staff are better equipped to act decisively and support guests who may be experiencing fear or confusion.
- **Coordination with External Agencies:** establish partnerships and communication protocols with local **law enforcement, emergency medical services, and CBRN**



experts. Early coordination improves response times and ensures access to specialized resources and knowledge.

Training and Drills

Training staff on CBRN scenarios is critical for a successful response. This includes:

- **Identifying CBRN threats**, such as unusual odours, smoke, or suspicious devices.
- **Preparing Response protocols**, such as notifying authorities, isolating affected areas, and assisting in evacuations.
- **Conducting general Emergency drills** to practice evacuation, containment, and communication during an incident.
- **Organizing Specialized drills** for key staff in the use of PPE and emergency medical procedures.

Regular drills and scenario-based training improve preparedness, ensuring staff can react calmly and appropriately in a real event.

Equipment

Having the right equipment is important for both prevention and response to CBRN incidents. Such equipment may include:

- **CBRN detection systems** for identifying the presence of hazardous agents.
- **Personal protective equipment (PPE)**
- **Decontamination supplies** to clean affected areas and reduce the spread of hazardous materials.
- **Communication devices** to maintain contact with staff and emergency responders during an incident.

By equipping staff with the necessary tools and resources, a hotel can minimize the risks posed by CBRN threats.

3.1.1. Key Elements of CBRN Prevention

Key Security Measures for risk assessment, vulnerability identification, and security, emergency plans

Considering growing concerns around CBRN threats, this list highlights essential strategies for enhancing security in hotels. By addressing critical areas such as risk assessment, protective measures, staff training, detection systems, and crisis management, hotels can better prepare for and mitigate the risks associated with these agents. The goal is to ensure comprehensive safety for both guests and staff while minimising disruption to operations.

1	Reassessing Risk Priorities
Hotels should update their risk assessments to account for the potential misuse of CBRN agents. Although considered low probability, these events have long-lasting health and contamination effects and severe psychological impacts on both guests and staff.	
Specific intelligence suggests that groups are attempting to acquire these materials for illegal purposes, making this an urgent concern.	



2	Comprehensive Risk and Vulnerability Assessments
Regular risk assessments should include CBRN threats alongside traditional risks like terrorism and criminal acts. This will ensure that the potential dangers posed by CBRN agents are fully integrated into a hotel’s broader security planning	
Hotels should not rely solely on traditional detection systems; instead, additional CBRN and CBRNe-specific detection and protection mechanisms could be adopted.	
Identifying vulnerabilities within the hotel is crucial for prioritizing risk mitigation efforts. Vulnerabilities can arise from various factors: <ul style="list-style-type: none"> • Location (proximity to industrial or research facilities using hazardous materials). • Building design, which may not be adequately equipped for CBRN containment. • High foot traffic, increasing the risk of exposure to dangerous agents. 	
3	Proactive Protection Strategies
The hospitality industry should implement robust protection and response measures that address both intentional and accidental CBRN exposures.	
Protection plans should account for both direct health impacts and psychological effects on guests and staff (it’s necessary to ensure efficient communication) and ensure efficient evacuation procedures.	
4	Evolving Threat Awareness
As CBRN agents continue to present a growing threat, staff training and preparedness should be regularly updated to keep pace with new risks and technological advancements in detection and response.	
incident5	Explosive and Dispersion Risks
The CBRN threat is sometimes compounded using explosives to disperse harmful agents, turning into CBRNe, increasing the risk of secondary injuries. Hotels should plan for both the initial attack and the potential for widespread contamination following an explosion.	
A fully interoperable team, trained across multiple functions and emergencies , will be essential in ensuring a coordinated and rapid response to CBRN incidents.	
6	Security System Integration
Metal detection systems help control firearms and knives, but are less effective against liquid chemical agents. Hotels should consider upgrading their systems to include chemical detectors for liquids, similar to those used in airports, to reduce the risk of chemical agents being smuggled in.	
7	Crisis Management and Deterrence
Properly implementing CBRN protection systems will not only safeguard hotel staff and guests but also serve as a deterrent to potential attackers. Visible security measures, combined with well-prepared response plans, can dissuade malicious groups from targeting the facility.	
8	CBRN Detection
Weaknesses around vulnerable sites are well known to malicious groups, which could exploit these gaps to target hotels and conference centres. Adequate and understandable detection systems of emergency detection of CBRN presence, followed by protection and decontamination capabilities, should be considered.	

9	Understanding CBRN Hazards
<p>The characteristics and effects of CBRN substances - whether on people, equipment, or the environment - are often misunderstood, leading to both under-preparation and exaggerated fear. The ubiquity of toxic and pathogen agents, frequently used in industrial and research settings, increases the likelihood of their misuse in an attack, either through deliberate actions or accidents.</p> <p>Hotels and conference centres, given their high-traffic and public nature, qualify as sensitive infrastructures, making them potential targets for CBRN-related events - whether natural, accidental, or provoked.</p>	
10	Strengthening CBRN Security in Hotels
<p>To effectively enhance CBRN security in public structures like hotels, a targeted focus on key elements is essential. This document outlines the primary dangerous scenarios involving CBRN and CBRNe materials and equipment that hotels may face, offering a framework for understanding the associated risks and identifying existing vulnerabilities.</p> <p>It proposes both material and human solutions to improve the early detection of CBRN threats and ensure appropriate responses. These solutions emphasise simplicity and practicality, aiming to handle incidents without exacerbating the situation or causing additional human and economic damage.</p>	
11	Raising Awareness and Strategic Planning
<p>The goal is to raise awareness among decision-makers by advocating for prevention, intervention, and crisis management strategies designed to overcome the challenges posed by CBRN threats in the hotel sector. This approach ensures that the right balance is struck between maintaining safety and minimising the impact on human life and the economic functioning of the hotel.</p>	

Key Elements of the Security Strategy

1	Strategic Objectives for CBRN Resilience
<ul style="list-style-type: none"> • <i>Capacity-Based Planning:</i> Guide policy and investment decisions using consistent risk assessments. • <i>Leadership:</i> Assign leadership to CBRN resilience activities • <i>Risk Management:</i> Integrate CBRN threats within broader hotel risk management frameworks. 	
2	General Safety Measures
<p>Include standard emergency procedures to manage fire risks, natural disasters (earthquakes, floods, tsunamis), power outages, bomb threats, and explosions.</p>	
3	CBRN Threat Integration
<p>Historically, CBRN risks have not been included in hotel safety planning. These risks should be considered part of strategic hotel management, Integration involves:</p> <ul style="list-style-type: none"> • Assigning CBRN threat reduction to the Board’s tasks and responsibilities • Hazard identification • Inclusion of CBRN into the site’s risk assessment • Adapting risk management to tasks related to CBRN incidents. • Capacity-based planning for effective resource distribution. 	

4	Staff Training and Interoperability
Effective risk management requires trained and interoperable staff equipped with tools and resources to prevent, identify, mitigate, respond (within competencies) co-operate, and recover from CBRN-related emergencies. Staff should receive ongoing training and support, ensuring functional interoperability in emergencies.	
5	Human Centred Response
The security approach should focus on staff as a critical component, ensuring their protection and ability to handle emergencies. The psycho-social impact of CBRN events on personnel should be a priority.	
6	Quality Assurance and Continuous Improvement
Regular audits and updates to risk assessments are necessary. Quality assurance systems should ensure optimisation of the costs of prevention, strengthening communication during emergencies, periodical review or preparedness, and external auditing.	

Some practical instructions

When a **CBRN incident** occurs, immediate action is essential to prevent the spread of harmful agents, injuring people and contaminating the infrastructure. This begins by preventing and prohibiting access to the contaminated area. In cases of outdoor incidents, additional precautions, such as monitoring wind direction, should also be considered to minimise the spread of contamination.

To protect individuals from exposure to **CBRN agents**, specific protection measures should be rapidly put in place. In the event of contamination, **emergency decontamination procedures** should be executed as swiftly as possible before establishing further protective measures. Hotel teams should be thoroughly familiar with these procedures to ensure the safety of both staff and guests.

CBRN agents can be dispersed through various paths, including **air, food, water**, or contact with contaminated surfaces. The methods of dispersion can range from simple actions, such as opening a container or using a spray, to more sophisticated techniques like CBRNe **explosive devices** designed to increase the spread and instant diffusion of the agents.

During **CBRN risk awareness training**, hotel staff should be taught to recognise certain indicators that might suggest the beginning of a CBRN attack, including its CBRNe form. These indicators include:

- **smoke** in the establishment.
- the presence of **unfamiliar packages** in corridors or near ventilation systems.
- **hazard-labelled products** (e.g., chemicals, powders) in inappropriate places or areas frequently used by guests.
- Suspicious **electrical devices, wires, or switches** that do not belong to the hotel infrastructure but are placed in high-traffic areas.

3.1.2. Key Security Measures for Staff Training and equipment

Training and Awareness: Regular **CBRN risk awareness sessions** are essential to ensure that all hotel staff can recognise the signs of a CBRN or CBRNe attack and respond appropriately. Therefore, continuous training on evacuation plans, isolation zoning and decontamination

procedures will ensure staff readiness during emergencies. The training should cover the following points:

- **Team Leadership:** establish a **CBRN project team** led by a CBRN situation manager, along with key representatives from security, logistics, and other operational departments. The team will focus on identifying vulnerabilities and developing strategies to address local risks.
- **Basic Communication Training:** while a specialised crisis response team handles emergencies, all staff should receive **basic crisis communication training** to assist and relay information during an incident effectively.
- **Basic Awareness:** every staff member, including reception, maintenance, and other departments, should be trained to recognise the initial signs of a CBRN attack or exposure. This knowledge is to be included in all general safety training programs.
- **Equipment Familiarity:** if the hotel has specific **CBRN detection, protection, or emergency decontamination equipment**, the maximum reasonable amount of duty staff should be trained to operate it confidently. This includes knowledge of related emergency procedures, particularly evacuation protocols.
- **Equipment Locations:** staff should know the locations of all **CBRN protection equipment** and how to access it swiftly, even if it is stored in secured areas.
- **Hands-On Practice:** after training, conduct **practical incident simulation exercises**. This helps staff apply their training in real-world scenarios, ensuring they are prepared to act quickly and effectively
- **Procedures:** the project team can follow some of the procedures provided by this document and manage **CBRN and CBRNe procedures** for:
 - Implementation
 - Warning signal protocols
 - Appropriate actions during an alert or emergency.
- **Focus Areas:** the training content should cover:
 - **Early detection** of CBRN and CBRNe threats.
 - **Implementation of protective measures.**
 - **Safety procedures** for everyone in the affected zone.
 - Techniques for **staying calm** under pressure.
- **Key Staff Development:** staff who excel or show strong interest in CBRN and CBRNe preparedness can access **advanced training modules**. These team members will act as key points of contact, ensuring that knowledge is maintained and shared with other staff between formal training sessions.
- **Regular Training:** staff should undergo **initial training** followed by **periodic refresher courses**. these sessions ensure that personnel remain current in their knowledge and contribute to their professional development.

Communication Protocols:

- Clear **communication channels** should be in place to (i) alert security personnel, management, and emergency responders as soon as an incident is suspected, (ii) report the situation from the field, (iii) manage the affected people, (iv) interconnect with other stakeholders.

Good practices, principles and conclusions concerning crowd communications include:

- Alarms and automated messages are often ignored by crowds. Messages from a person (or human messaging on a public address system) are more effective.
- People are often too slow to recognize an emergency and seek confirmatory information from others before acting; the more people present and/or not reacting the more likely they are NOT to recognize an emergency/message.
- People assess the likelihood and severity of consequences in an emergency based on three elements: 1. credibility of the information source(s); 2. the message content (especially threat/risk relevancy); 3. experience in similar scenarios.
- Using unifying language and supportive forms of communication will enhance unity both within the crowd and between the crowd, the venue operator and the authorities.
- There should be prioritisation of informative and actionable risk and crisis communication over emotional reassurances.
- "If crowd behaviour is not only cognitive but also meaningful, this suggests that the public will respond effectively (e.g. co-operatively and in an orderly manner rather than anti-socially or over-emotionally) if given more rather than less information about the nature of the threat" (Cocking & Drury, 2007).
- "... in the past, there has been a tendency to withhold information from the public in times of emergencies, despite there being no evidence to support the notion that crowds will necessarily descend into mass panic when told of a threat. There is even evidence (e.g. Proulx & Sime 1991) that suggests the exact opposite, e.g. that **“providing information about threats can actually increase the speed and efficiency of evacuations**“(Cocking & Drury, 2007).
- Members of the public often cooperate with the emergency services and comply with their orders, but also question instructions when the rationale is unclear.

All these key findings and good practices concerning crowd behaviour and communications should be incorporated into the hotel's approach to staff training, emergency planning, evacuation procedures, crowd management and public communications. In particular, the following principles should be followed:

- Consider the crowd as a potential solution/ally, NOT as "the problem" during an emergency, but remember, a contaminated crowd IS a problem.
- Use the collective crowd identity/prosocial behaviours as an asset/opportunity to be exploited.
- Ensure messaging is clear + concise + relevant + specific about threats and risk(s).
- Provide Information which includes self-help advice and health content.
- Repeat key messages for reinforcement/confirmation and provide timely updates.

The first response procedures that can be implemented by hotel/conference centre staff during a CBRN emergency have been designed based on these crowd behaviour and communication principles.

Evacuation and Safety Measures:

Hotel personnel should be trained on how to safely **evacuate guests** and isolate contaminated areas while minimising exposure to hazardous agents.

Hotel with an emergency plan that addresses exceptional circumstances it may encounter, such as fires, tsunamis, earthquakes, floods, and so forth, will have already organised means to alert local authorities, reporting to personnel responsible for hotel security, communicating with guests and implementing emergency procedures; however, hotels should also recognise there are some distinct and unique features of CBRN incidents that will require different or additional arrangements and responses. It is recommended that a CBRN Annex be added to the emergency plan, so decision-makers can quickly access all the CBRN-specific information, guidance and procedures in one place during a CBRN emergency (such as evacuation, emergency decontamination and managing victims). This approach means the hotel's emergency plan does not have to be redrafted and can simply signpost to the CBRN Annex.

It is important to set clear roles and responsibilities as well as the flow of actions. This could be covered by the emergency plan, indicating:

- Who will take the decisions on wearing PPEs (whichever is prepared)
- Which services are initiating the process, and what signal triggers the action
- What actions are undertaken or initiated, and by whom
- Where is the command and control until the search and rescue arrival
- What CBRN decontamination or disinfection products are available in the hotel in the event of an emergency, and what should they be used for
- What actions should be taken to avoid cross-contamination
- What external areas could a hotel prepare for evacuation in case of a CBRN incident, taking into consideration:
 - ease of access for guests and for emergency services,
 - a space big enough and resources (water source, waste collection if possible) for emergency services to conduct decontamination or medical actions,
 - primary and secondary evacuation place depending on wind direction.
- If a hotel possesses decontamination kits - those kits contain bags and an armband with the same labels which could be used for future bags identification. Those kits are self-operated.

Among the actions specific to a CBRN situation, and not necessarily encompassed within a hotel's conventional emergency plan, are the measures pertaining to ventilation and air conditioning systems. It has been noted, in fact, that in some hotels these areas are either easily accessible or, where located on roofs, entrances are not secured sufficiently (i.e. door unlocked, neighbouring houses with direct access to the roof and no fences). To avoid any dispersion of contamination in the different parts of the hotel, the operation of all equipment that would facilitate the movement of contaminated air masses should be stopped, which also includes elevators. To limit air movement as much as possible, doors and windows should be closed.

If containment measures have been taken, due to the immediate impossibility of evacuation without risk, all possible air inlets from the room used to confine people should be sealed with, for example, adhesive tape, plastic expanding foam, or a wet cloth. If assembly points areas are in the open air, their location should be compatible with the wind direction, and it should be checked that there is no change in wind direction during the entire waiting time.



3.1.3. Key security measures for response

1. Preventing Access:

- When a CBRN incident occurs, immediate collection of information required to establish **isolation zones should be gathered**. These areas found hazardous are declared no-access zones. This is critical for preventing the exposure, avoiding cross-contamination and ensuring the safety of all individuals within the facility.
- **Wind direction** and other environmental factors should be considered, particularly for outdoor incidents, as they can influence the spread of hazardous agents.

2. Decontamination:

- In the event of contamination, an **emergency decontamination process** should be swiftly conducted to reduce the hazardous materials on affected people and move them to a safer area before additional protective measures are taken.
- Decontamination protocols should be well understood and practised regularly by hotel staff to minimise delays during an actual event.

3. Methods of CBRN Dispersion: CBRN agents can be dispersed using several methods:

- **Airborne dispersion:** through the release of volatile agents into the air or ventilation systems.
- **Contaminated food or drink:** by adding agents to edible goods within the facility.
- **Surface contamination:** by placing agents on commonly touched surfaces, such as counters, tables, or door handles. Also, some part of the airborne agent may settle on surfaces
- **Explosive devices:** these can be used as CBRNe devices to enhance the spread of CBRN agents, making their dispersion quicker and more widespread. This kind of dispersion makes at least part of the agent airborne.

4. Recognising CBRN and CBRNe. Attempt or attack Indicators

It is vital for hotel staff to be able to **identify early warning signs** of a potential CBRN incident. During training sessions, employees should learn to recognize the following indicators:

- **Unusual or persistent odours:** these may cause discomfort, such as tingling in the mucous membranes.
- **Unusual smoke:** coloured or unfamiliar smoke in the establishment should raise suspicion.
- **Suspicious packages:** items that appear out of place, especially near ventilation systems or common areas.
- **Products with danger labels:** chemicals, powders, or substances that are improperly placed or appear in guest areas.
- **Unfamiliar electrical devices:** wires, switches, or contactors that are not part of the hotel's usual infrastructure and are in high-traffic areas.

Decontamination Procedures

Emergency decontamination is “the application of wet or dry decontamination techniques at the earliest opportunity before the local decontamination capability is available at the scene”.

In this section, the most appropriate procedure to follow is the Remove x3 procedure, as illustrated in the Annexe to this handbook.

3.2. Identifying CBRN Vulnerabilities in Hotels

Hotels should perform comprehensive, scenario-based risk assessments that encompass not only natural and accidental risks but also intentional CBRN threats. This approach requires integrating both safety-focused event tree analyses (ETA) and security-specific vulnerability analyses to understand various threat scenarios and prepare effective response strategies. Hotels should identify surrounding installations that may house hazardous materials for industrial, medical, or research purposes, as these could pose potential risks. Additionally, hotels should include in their assessments the chemicals they store and use for maintenance, as such materials could become targets in intentional misuse scenarios.

Risk assessments should also consider the broader political, social, and economic contexts, as instability in these areas could increase the likelihood of protests, political tensions, or even violent actions. Although CBRN attacks are generally low-likelihood events, their psychological and economic impact, due to potential contamination spread, can be severe. Historical incidents like the Chernobyl disaster and World War I gas attacks demonstrate the profound fear associated with CBRN agents, underscoring the importance of robust crisis management and communication strategies.

To further mitigate internal vulnerabilities, hotels should prioritise managerial oversight, clear communication channels, and peer vigilance as proactive measures. While disgruntled employees could pose a risk, the emphasis should be on maintaining strong supervisory structures and promoting a culture of security awareness among all staff members.

Given advancements in technology, hotels should also address the growing risks of hacking, drone incursions, and insider threats, as these could compromise existing security protocols. Consequently, updating risk assessments regularly is crucial, especially when there are changes in the external environment or incidents in similar venues.

For hotels in areas prone to natural disasters such as earthquakes, floods, or volcanic eruptions, regular reassessment is necessary to account for these dynamic risks. If new industrial, medical, or research facilities are built nearby, particularly those involving hazardous substances, hotels should evaluate potential CBRN threats in these changing environments.

Finally, hotels should treat the "near perimeter" flexibly, recognising that CBRN agents can travel substantial distances through air, water, or runoff. By understanding this potential reach, hotels can better prepare for incidents and minimise the far-reaching impact these agents could have on the environment and guest safety.

Key vulnerabilities and mitigation strategies for CBRN Threats in hotels and conference centres

Open Access and Large Gatherings

<i>Vulnerability</i>	Hotels and conference centres often have open access to the public, making it difficult to monitor everyone entering the premises, especially during large gatherings or events. The high volume of people creates crowded spaces, increasing the challenge of detecting suspicious behaviour or items.
<i>Mitigation</i>	To address this, hotels should implement stricter access control measures during large events, such as requiring guest lists, event-specific entry points, and enhanced security checks at entrances. Additionally, security personnel should be trained to monitor crowds effectively for unusual behaviour, and surveillance cameras should cover high-traffic areas.
Limited Security Measures	
<i>Vulnerability</i>	While security measures like cameras, personnel, and access control exist, there may be gaps in security, particularly in public areas like lobbies, restaurants, and event spaces.
<i>Mitigation</i>	Hotels should conduct comprehensive security audits to identify vulnerabilities. Increased camera coverage, enhanced lighting, and patrolling security teams in public spaces can improve monitoring. Installing smart technologies, such as motion sensors and AI-driven surveillance systems, can also detect unusual activities. CBRN detection, identification, and monitoring technologies can be acquired to strengthen CBRN security, deter an attack, and provide a capability to detect the entry and/or presence of hazardous materials.
Delivery and Supply Chain Vulnerabilities	
<i>Vulnerability</i>	Regular deliveries of food, supplies, and other items could be exploited to conceal hazardous materials or CBRN substances if not properly monitored.
<i>Mitigation</i>	Implement stringent screening procedures for all deliveries, including background checks on suppliers and scanning of goods entering the premises. Ensure that delivery staff is vetted and monitored, and secure delivery areas away from guest-accessible zones to limit potential exposure.
Guest Room Accessibility	
<i>Vulnerability</i>	With numerous guest rooms spread across multiple floors, it is challenging to prevent unauthorised access. Harmful substances or devices could be placed in rooms without immediate detection
<i>Mitigation</i>	Hotels should enforce keycard access restrictions for guest floors, ensuring only authorised guests and staff can access these areas. Periodic checks by housekeeping and security patrols should be implemented to spot any signs of tampering or unauthorized access.
Handling Mail and Packages	
<i>Vulnerability</i>	Mailrooms or package handling areas pose risks, as hazardous materials could be sent via mail, like the Anthrax Attacks in 2001.
<i>Mitigation</i>	Establish secure mail-handling protocols, including screening incoming packages with chemical and radiological detectors. Train mailroom staff to recognize suspicious parcels and create isolated areas for handling

	suspect items before they are brought into the main building.
Ventilation and Air Conditioning Systems	
<i>Vulnerability</i>	CBRN agents released into ventilation systems could rapidly spread throughout the building, affecting large numbers of people before being detected.
<i>Mitigation</i>	Install air filtration systems capable of detecting and neutralising harmful agents. Hotels could have emergency ventilation shut-off protocols that can be activated quickly in case of a detected threat. Enhancing the physical security of air intakes to prevent access and to protect against hazardous materials entering the system. Regular maintenance and inspection of HVAC systems are also essential.
Limited Training and Preparedness	
<i>Vulnerability</i>	A lack of adequate training in recognising CBRN threats or suspicious behaviour leaves staff unprepared for potential incidents. Without regular emergency drills, responses may be uncoordinated and ineffective.
<i>Mitigation</i>	Comprehensive and ongoing training programs for all staff should cover recognising threats, CBRN risk awareness, emergency response procedures, and evacuation protocols. Regular drills simulating CBRN incidents are essential to ensure that staff can respond calmly and effectively during an actual event.
High Profile and Symbolic Value	
<i>Vulnerability</i>	Hotels and conference centres hosting high-profile events or dignitaries are attractive targets for terrorists, seeking media attention and symbolic impact through disruptive actions
<i>Mitigation</i>	Enhanced security measures are essential for high-profile events, including collaboration with local law enforcement and intelligence agencies. Temporary restrictions on access and thorough screening of attendees, staff, and equipment should be in place.
Response Protocols	
<i>Vulnerability</i>	Poorly designed or uncoordinated emergency responses hinder effective action.
<i>Application</i>	Ensure robust and practiced protocols for quick alerts, evacuations, and containment.
Physical Infrastructure	
<i>Vulnerability</i>	Critical systems like ventilation may unintentionally spread hazardous agents.
<i>Application</i>	Regularly inspect and upgrade infrastructure to prevent contamination risks.

Impact of Low Awareness of Terrorist Threats

Low awareness among hotel staff regarding potential terrorist threats can critically undermine the safety of guests and properties. Without awareness and adequate training, staff may fail to recognise early warning signs such as suspicious behaviour, unattended packages, or unauthorised personnel accessing restricted areas or fail to communicate their own observations. This gap in awareness increases the vulnerability to attacks, as staff are often the

first line of defence. Additionally, without training in emergency procedures, staff may react inefficiently or inappropriately during a crisis, resulting in heightened risks to life and property.

3.3. Conducting Effective CBRN Risk Analysis for Hotels

Risk assessments are essential for mitigating CBRN threats, particularly at major public events, VIP gatherings, or during natural disasters. These risks stem from events like nearby chemical facility incidents, accidental fires, or intentional criminal actions. The risk of intentional actions is heightened in the presence of high-profile individuals or large crowds. Effective risk assessment is vital to safeguard against these potential threats.

Vulnerability analysis is a component of risk assessment, helping hotels identify weaknesses in protection that could be exploited by malicious actors, both internal and external. These vulnerabilities, if left unaddressed, can disrupt hotel operations and potentially enable the dispersal of CBRN substances within or around the facility, leading to contamination of guests, staff, and infrastructure.

It is essential for hotels to address newly identified vulnerabilities before they become exploitable. Working collaboratively with other hotels is crucial, as many vulnerabilities, such as those related to building construction, ventilation, entry points, evacuation routes, monitoring, staff attitude, awareness level, info and intel collection, are common across the industry. Sharing best practices and risk mitigation strategies, especially regarding CBRN threats, can significantly enhance protection.

The findings from vulnerability assessments should also be incorporated into staff training programs and used to design CBRN simulation exercises, ensuring hotel security teams are well-prepared to handle potential incidents. Detection, protection, continuous monitoring of hotel installations are crucial for ensuring maximum security, especially against CBRN threats. Installing CBRN detectors at strategic access points and entrances is essential, with detection systems able to respond fast, in a reliable and sensitive way, enough to detect even low-level threats. However, no single detector can identify all forms of CBRN agents, as most are specific to certain types or families of agents.

In summary, vulnerability analysis in hotels and conference centres identifies gaps in CBRN prevention components such as detection systems, staff training, emergency protocols, physical infrastructure, and supply chains. Hotels can develop stronger defences against CBRN threats by addressing these vulnerabilities, improving overall safety and resilience.

Staff should also be aware of suspicious objects such as gas emitters near air conditioning systems, containers or any items marked with international hazard symbols. These should trigger immediate alarms or reports. Additionally, sudden increases in temperature without a visible source may indicate a chemical reaction or the presence of radioactive materials. Prompt recognition and reporting of these dangers are vital for minimizing harm.

Hotels and conference centres, with their complex layouts and wide-ranging services, present multiple vulnerable areas for CBRN incidents:

- **Entry Points:** main and side entrances, staff doors, loading docks, and emergency exits are potential access points for unauthorised individuals or materials.

- **Public Areas:** lobbies, restaurants, and lounges, where monitoring is challenging, could be targeted due to high guest density.
- **Guest Rooms:** multiple rooms across floors could be discreet locations for storing harmful substances or devices.
- **Event Spaces:** ballrooms and conference rooms, especially during major events, are high-profile CBRN targets.
- **Mailrooms:** incoming mail and packages may carry hazardous materials, posing a potential threat.
- **Ventilation Systems:** HVAC systems can facilitate the rapid spread of airborne CBRN agents.
- **Supply Chains:** deliveries of food and supplies should be monitored, as they could be exploited to introduce CBRN materials.

Conducting CBRN Risk Analysis

1. **Threat Assessment. Identify Potential CBRN Threats:** The first step in a CBRN risk analysis is to identify threats based on the location and profile of the hotel or conference centre. For example:
 - Hotels near industrial areas may be at higher risk of chemical or radiological incidents.
 - High-profile events with VIPs might attract terrorist threats involving CBRN agents.
 - Facilities in densely populated urban areas may be vulnerable to attacks with biological or explosive agents.
2. **Vulnerability Assessment. Evaluate Weaknesses:** Assess the facility for vulnerabilities that could be exploited during a CBRN incident. Potential vulnerabilities include:
 - Access barriers:
 - Lack of security measures at entry points, public areas, and guest rooms.
 - Inadequate screening of incoming mail or packages.
 - Limited access controls for restricted areas, such as kitchens, maintenance rooms, and storage spaces.
 - Infrastructure:
 - Outdated or poorly monitored ventilation and HVAC systems.
 - Awareness and security culture level:
 - Insufficient training of staff in recognising infrastructure security gaps, vulnerability communication system and suspicious behaviour. Insufficient training in responding to emergencies.
3. **Consequence Analysis. Analyse potential impact: CBRN incidents can have catastrophic consequences for a hotel or conference centre.** The analysis should consider:
 - **Impact on Guests:** the immediate health and safety risks to guests, especially in high-traffic areas, event spaces, or guest rooms.
 - **Impact on Staff:** exposure to hazardous agents and the ability of staff to respond effectively in an emergency.
 - **Impact on Infrastructure:** potential damage to infrastructure, such as ventilation systems, plumbing, and food preparation areas.



- **Impact on Reputation:** a CBRN attack can severely damage the hotel’s reputation, leading to loss of business and legal consequences.
- **Impact on neighbourhood and environment**

Risk Mitigation Strategies

After identifying and analysing CBRN risks, it is essential to implement strategies that reduce these risks and protect the facility, its guests, and its staff.

Enhanced General Security Measures	
Security Policies	Inquiry into the existence and scope of documented security policies, specifically regarding CBRN threats.

Access Control	Strengthen access control by installing keycard or biometric entry systems to limit access to restricted areas. Implement tighter security at all entry points, including back doors and loading docks. Examination of procedures for vehicle checks, guest access control, and checks on catering services during events to prevent the introduction of hazardous materials.
Surveillance Systems	Deploy advanced video surveillance systems with AI-powered analytics to detect suspicious behaviour in public areas, guest rooms, and event spaces. Consider integration of CBRN detection, identification and monitoring technologies and capabilities.
Security Personnel	Ensure adequate deployment of trained security personnel, particularly in vulnerable areas such as lobbies, event spaces, and near ventilation systems.
Mail and Package Screening Protocol	
Mail Handling	Establish strict mail and package handling protocols, including scanning of all incoming parcels using chemical, biological, or radiological detection equipment.
Staff Training	Train the mailroom and receiving staff to recognise suspicious packages and take appropriate steps to isolate and report them.
Staff Training and Awareness	
CBRN Awareness	Educate staff on the types of CBRN threats, their symptoms, and immediate actions to take in case of exposure or suspicion of an attack.
Recognize Suspicious Behavior	Provide regular training sessions for staff, including housekeeping, front desk personnel, and maintenance teams, on how to identify and report suspicious behaviour or items.
Emergency Response Exercises	Establish emergency plans for CBRN incidents and provide details about these plans. Provide regular training sessions to staff, including housekeeping, front desk personnel, and maintenance teams, on how to identify and report suspicious behaviour or items.
Collaborative Partnerships	
Collaboration with LEAs	Maintain strong relationships with local law enforcement and emergency responders. Invite them to participate in risk assessments and emergency drills to ensure smooth coordination in the event of a real incident.
Emergency Responders	Establish clear communication channels with emergency medical and hazardous material response teams to ensure quick assistance in case of a CBRN event.

By taking these steps, hotels and conference centres can significantly reduce their vulnerability to CBRN threats and ensure that they are prepared to respond effectively, protecting both guests and staff from harm.

3.4. CBRN detection equipment

CBRN detection and monitoring indirectly relate to reducing vulnerability by augmenting situational awareness and delivering information important for the timely undertaking of evacuation and other emergency response activities, among others:

Monitoring and Detection:	
Vulnerability	Lack of continuous monitoring systems makes hotels prone to undetected hazardous agents.
Application	Focus on securing high-risk areas (entrances, mailrooms, ventilation) with proper detection technology.
Staff Preparedness	
Vulnerability	Untrained staff may fail to recognize or respond to CBRN threats effectively.
Application	Evaluate training programs to ensure staff can identify and report risks promptly.
Supply Chain and Deliveries Management	
Vulnerability	Unmonitored deliveries increase exposure to CBRN threats.
Application	Implement stringent screening processes for incoming goods to secure supply chains.

Chemical Detection: Sensors or analysers for identifying hazardous chemicals or toxic agents.

Chemical substance detection devices come in various forms, offering multiple detection techniques, such as spectral, electrochemical or colorimetric. Most techniques analyse samples in the gas phase. Photo Ionisation Detectors (PID) are useful for general monitoring, such as checking oxygen levels or detecting explosive gases, but no single detector covers all chemical forms. Detection systems must be fast, reliable, and sensitive, but they are limited to what they are designed to detect, and false positives are common.



Figure 5 - Photo Ionisation Detectors (PID), credit: GEOTECH (https://www.geotechenv.com/photoionization_detectors.html)

Operators need thorough training to correctly interpret detection results, as environmental factors like temperature and humidity can impact device performance.

When choosing chemical detection systems for hotels, classification of chemicals based on their hazard level and potential routes of exposure can be helpful in guiding decisions. This ensures that detection systems are properly aligned with potential CBRN threats so the response measures are appropriate and effective. Chemical classification systems, such as the Globally Harmonised System (GHS), help select chemicals to be monitored and controlled. Particular attention should be paid to those classified as fatal if inhaled or swallowed, dual-use or otherwise hazardous substances like explosives. Detection serves as a quick identification of a type of agent for the purpose of response action only. Forensic investigation requires taking a series of samples for off-site analysis.

Biological Detection: Devices for detecting biological agents, viruses, bacteria, or toxins.

Biological detection is more complex than chemical detection, as it requires collecting air or liquid samples from air or liquid and then subjecting them to a series of reactions. Detection takes from tens of seconds to a couple of hours, and in most cases, the response is only approximate. As in the case of chemical detection, biological detection serves emergency response only. Samples have to be collected for off-site analysis for epidemiological and forensic purposes.

Detection of biological threats is often reliant on staff awareness rather than detection devices, as symptoms in multiple individuals or signs such as sick animals may provide early indications of a biological hazard. Symptoms from biological contamination typically emerge after an incubation period ranging from hours to several days, making symptom-based detection and immediate response impossible in “real-time”. Given the time delays in confirming biological hazards, the responsibility for managing the consequences of biological contamination would shift to local health authorities.

Radiological Detection: Instruments used to detect and measure radioactive materials.

Radioactivity detectors measure ionizing radiation emitted by radioactive sources and come in **handheld, portable, or fixed forms**. Each type of radiation has distinct characteristics that affect how it can be detected:

- **Alpha radiation** has low penetration but is harmful if ingested or inhaled. Detecting it is challenging, as detectors must be placed very close to the source.
- **Beta radiation** also has low penetration and is easily stopped by thin materials, but detection is limited to short distances and requires specific detectors.
- **Gamma radiation** can travel long distances and is easier to detect, making it advantageous due to its potential danger.

Radiation cannot be sensed by humans and requires detectors to confirm its presence. There are several popular types of radiation detection, which detect the intensity of radiation, and or radiometry techniques, which calculate the dose. The most typical are Geiger counters, proportional counters, scintillation detectors, semiconductor detectors and thermoluminescent detectors. Each type has its advantages, but the most popular is probably the Geiger counter, while the most efficient and easy to use by non-specialists is the thermoluminescent detector.

It is always helpful for the response services to know the absorbed dose. That value can be delivered by direct reading dosimeters or historical dosimeters. These detectors are crucial for monitoring background radiation levels, which can vary based on location, altitude, and building

materials. Calibration is essential to avoid false alarms, such as those triggered by guests undergoing medical treatments involving radioactive substances.

Any **increase in background radiation** should be investigated, and proper training for device operators is necessary to distinguish between actual threats and benign sources of radiation.



Figure 6 Portable spectrometer,

credit: <https://www.elsesolutions.com/prodotti/radioprotezione/radionuclide-analysis/portable-meters-radioprotezione/raymon-10/>



Figure 7 Geiger counter,

credit: <https://science.howstuffworks.com/geiger-counter.htm>

Basic operating principles

Understanding the Nature of the Threat: chemical threats are classified by toxicity, persistence, and physical state. Some other issues need to be taken into consideration, such as volume of production, dispersion in the supply chain, ease of transport and use. High-toxicity chemicals, like nerve agents, require sensitive detection systems. Volatile agents demand rapid detection in the air. Persistence is not relevant to the incident, but it is important for recovery planning. Agent's physical state (solid, liquid, gas) also determines the detection methods, with gaseous chemicals and aerosols needing air monitoring and liquids and liquid aerosols requiring surface detection.

Targeted Detection: detection systems are designed to identify specific chemical families (e.g., organophosphonates). Knowing the potential type of chemical allows for targeted detection and response. For instance, recognising symptoms in humans or changes in animals can indicate a biological or chemical hazard even before detection equipment triggers an alert.

Strategic Placement of Detection Systems: detection systems should be placed based on the type of threat. Volatile chemicals require area monitoring, while persistent contaminants might need point detection in specific locations.

Integration with Protective Measures: detection systems should be compatible with personal protective equipment (PPE) to ensure effective communication of alerts. Response strategies must include protocols for decontamination and evacuation. Incorporating the 5S methodology into CBRN risk management can improve organization and response efficiency by ensuring that essential materials are accessible and that response protocols are standardized and maintained through regular training.

Detection Indicators and Response: security staff should be trained to recognize signs of a chemical or biological hazard, such as unusual odours or simultaneous symptoms in multiple people, which can indicate contamination. A high level of situational awareness is required, and staff should avoid relying solely on detection devices. Detecting and confirming CBRN threats may require multiple methods, and in case of doubt, competent authorities should be contacted immediately.

Correct interpretation of detection results is vital, as alarms can be triggered by non-hazardous substances like cleaning products or fuel. Trained personnel should distinguish between harmless and dangerous situations. Specialised units are responsible for confirming the exact type of agent used.

Detection Summary

Chemical Detection	Various types of sensors, e.g. ion mobility, IR, Raman spectrometry, electrochemical, photoluminescence etc. are used for identifying specific chemicals.
Biological Detection	Methods such as immunoassays or nucleic acid-based techniques for detecting biological agents.
Radiological and Nuclear Detection	Geiger counters, scintillation, proportional, thermoluminescence detectors, and radiometers are used to detect and measure radiation levels.
Explosive Detection	Technologies like colourimetry, IR, Raman or sniffer dogs are used to identify explosive materials. X-ray scanners are used to detect explosive devices.

3.6. To elaborate on effective CBRN emergency plans for hotels and conference centres

Note: Wherever the CBRN emergency plan is mentioned, it should be understood as the CBRN component of a general emergency plan.



A **CBRN emergency plan** is a comprehensive guide outlining the **immediate response** and actions required during a **CBRN** incident and should be a part of a general emergency plan. The purpose of this plan is to ensure that all personnel, guests, and responders can act swiftly, safely, and effectively to mitigate harm, reduce chaos, and control the situation. The emergency plan incorporates **detailed procedures, protocols, and response steps** to be executed in the event of such a threat.

Purpose and Importance of a CBRN Emergency Plan

The primary purpose of a **CBRN emergency plan** is to **protect human lives** and **reduce exposure** to harmful substances during a CBRN incident. By having a clear, organised plan that includes **immediate response steps**, evacuation protocols, and coordination with **first responders**, hotels and public facilities can significantly reduce the impact of these threats. Additionally, the plan is essential for maintaining **public trust**, as guests and staff are more likely to feel secure when they know there is a strategy in place for handling emergencies.

By implementing **detailed emergency protocols**, providing **staff training**, and fostering **collaboration with local authorities**, organizations can ensure they are prepared to respond efficiently and effectively to any CBRN incident

Emergency planning is crucial for ensuring the **safety and security** of guests, staff, and infrastructure in hotels and conference centres. With these facilities often being high-traffic environments, frequently hosting large gatherings and high-profile events, the risks associated with emergencies such as fires, natural disasters, and **CBRN incidents** are elevated. A structured and well-prepared emergency plan is essential for minimizing harm and ensuring a coordinated response during crises.

Emergencies in hotels and conference centres fall into three categories: **natural disasters**, **man-made incidents**, and **medical crises**. Each requires tailored plans to ensure safety.

Natural Disasters	
Earthquakes	Focus on evacuation routes, structural safety checks, and communication with responders.
Floods	Use flood defenses, evacuate lower floors, and plan for power and water damage management.
Storms/Hurricanes	Reinforce structures, secure outdoor items, and maintain emergency power supplies.
Wildfires	Prepare evacuation plans, firefighting equipment, and air quality measures for smoke.
Intentional Man-Made Emergencies	
Fire	Ensure fire detection, sprinklers, clear exits, and regular drills.
CBRN Incidents	Establish protocols for detection, isolation, and hazmat collaboration.
Security Threats	Use surveillance, access controls, and train staff for evacuation or lockdown.
Power Outages	Maintain backup generators and emergency lighting in critical areas
Medical or Health Crises	
Medical Emergencies	Train staff in CPR/first aid and equip them with AEDs and medical kits.
Pandemics	Follow strict sanitation, distancing, and isolation measures, with health authority coordination.
Foodborne Illnesses	Ensure food hygiene and train staff in safe handling practices.
Mental Health Crises	Train staff to recognise distress and contact mental health professionals.



In the event of a **CBRN situation**, triggered by detection systems, visual/olfactory cues, or threats, hotels should implement their **CBRN emergency plan**. This plan includes:

1. **Evacuation Procedures:** once a credible threat is confirmed, coordinated evacuation routes lead guests and staff to safe zones, avoiding contamination sources. If possible, unaffected/unexposed people and affected/exposed people should be evacuated by different routes to avoid cross-contamination. Continuous communication with authorities ensures efficient management of the incident until emergency services arrive.
2. **Protective Equipment:** staff should distribute **respiratory protection equipment** (from FFP masks or CBRN emergency hoods whenever foreseen in the emergency plan) as soon as safely possible.
3. **Emergency Decontamination Protocols:** if contamination is suspected, staff should implement the **Remove x3 Procedure** during the evacuation. Medical facilities should be promptly informed of the CBRN risk to prevent further contamination.
4. **Handling Contaminated Clothing:** clothing, especially **shoes**, should be sealed in bags to avoid further spread of CBRN agents. **Water** used for decontamination should also be treated as potentially contaminated.
5. **Assembly Points and Emergency Coordination:** guests unaffected by contamination should be directed to open-air assembly points and kept there until confirmed safe. Guests and staff who are affected/exposed or received emergency decontamination should be separated at assembly points from those unaffected where the emergency services can assess them and establish a decontamination line (if needed).
6. **Psychological Impact and Special Needs:** the hotel should also take into consideration as management, care for **vulnerable populations** (elderly, disabled, or those with medical conditions), **language barriers**, and cultural sensitivities.
7. **Training and Plan Updates:** regular **CBRN training** and **emergency drills** ensure staff readiness. The plan should be updated based on difficulties observed during exercises. Sharing plans with other hotels or authorities strengthens preparedness.

Key elements could include:

1. **CBRN Annexe: describe possible CBRN hazards**, contamination routes, and detection tools, detailing evacuation procedures opposite wind and ventilation systems to prevent contamination spread.
2. **Ventilation Systems:** Halts HVAC systems, closes windows and doors to prevent contamination dispersal.
3. **Emergency Decontamination:** Implements the Remove x3 procedure so that people remove themselves from the immediate area, remove their outer clothing and remove the substance from their skin.
4. **Clear Communication:** instructs staff to identify risks and report them understandably and briefly without exposing themselves to hazards.
5. **PPE Distribution:** ensures timely and systematic PPE distribution (if available) based on the nature of the event and staff roles.
6. **Assembly Points:** secures open-air areas considering wind direction, adaptable to environmental changes.
7. **Regular Training and Updates:** maintains preparedness through regular drills, staff training, and updates to emergency plans.



The plan outlines procedures to maintain personal safety while addressing incapacitated individuals and highlights the importance of maintaining communication with emergency services throughout the situation. In summary, the CBRN emergency plan for the hotel emphasizes **evacuation, communication, emergency decontamination, and cooperation** with emergency responders, all while considering the psychological well-being and diverse needs of guests and staff.

Collaboration between hotels and local authorities during a **CBRN** incident is more than a legal obligation; it is essential for an effective and timely response. This collaboration can significantly reduce health risks, environmental damage, and help resume the hotel's business operations quickly after the incident. Key points include:

Joint Planning	Collaboration between hotels and emergency services is essential for drafting compatible emergency plans, assessing CBRN equipment, and conducting regular coordination exercises.
Communication Protocols	Clear protocols with designated liaison officers, joint alert systems, and alert sheets ensure efficient information transfer during incidents.
Interoperability Guidelines	Pre-determined locations for command posts, decontamination areas, and traffic management plans are critical for smooth emergency responses.
Hotel's Role	Hotels should align procedures with emergency services, clear access routes, provide resources like CCTV, and facilitate incident management handover and lockdown reversal.
Staff Training	Joint exercises with emergency services help train staff, validate plans, and enhance cooperation.

Crisis communication during a **CBRN** incident is critical for establishing trust and demonstrating responsible management. In such scenarios, the hotel's communication should be **rapid, precise, and aligned** with the situation to avoid misinformation. Key points include:

1. **Crisis Communication Role:**

- Crisis communication aims to inform effectively so that people have accurate and timely information about the best actions to take in the situation.
- Social media and news outlets can amplify fear and misinformation. Therefore, hotels should counter false information promptly, maintaining transparency and clarity.

2. **Preparedness:**

- Pre-written messages and communication protocols should be ready in advance to ensure a quick response. These messages should be transparent and honest, acknowledging any mistakes if necessary, and should be distributed to staff, customers, and the media.
- The hotel's communication should not interfere with ongoing investigations by law enforcement or health authorities.

3. **Managing Public Reactions:**

- With the ability of witnesses to share information instantly through social media, any misinformation can quickly complicate the response efforts.
- Regular updates from the hotel are essential to manage public perception and reassure guests, staff, and the media about the steps being taken to ensure safety.

4. **Communication Protocols:**

- A dedicated communication channel, for families and neighbourhoods, can be opened, although it will operate in cooperation with the emergency services, and its role will be mainly to provide updates on official messages in a less institutionalised form.
- Medical information or victim details should only be communicated by competent authorities, not the hotel, although facilitating communication of those willing and capable with their families is recommended wherever possible.

5. **Effective Communication Strategies:**

- Key messages should focus on safety measures, evacuation, confinement, or any protective actions being taken, always in coordination with the authorities.
- The hotel can use multiple channels, such as social media, loudspeakers, SMS, or notifications, to reach guests and staff.

6. **Spokesperson and Training:**

- A trained spokesperson should be designated to communicate with the media. Early in the crisis, the most senior person should not address the media until the full scope of the situation is understood.
- Staff trained in crisis communication should remain calm, empathetic, and professional when delivering updates.

In conclusion, a well-structured **crisis communication plan** is essential in managing a CBRN incident. It ensures the flow of accurate information and strengthens the hotel's reputation during and after the crisis.

Also, effective CBRN preparedness in hotels requires ongoing updates, collaboration, and adherence to regulations. The following strategies emphasise the importance of regular evaluations, tailored measures, and knowledge sharing to maintain robust security and crisis management systems:

- **Regular Updates:** crisis management systems, including preparation and response, should be continuously reviewed and optimized to keep pace with evolving technologies, threats, and hotel environments. Regular staff rotations also require consistent updates to security systems.
- **CBRN Exercises and Evaluation:** the effectiveness of the CBRN security system should be reassessed following CBRN exercises or actual events to ensure its relevance and efficiency. This review should adapt to the hotel's **financial, logistical, and operational capacities**.
- **Customisation and Collaboration:** CBRN measures should be tailored to each hotel's specific location, risks, and environmental factors. Part of the security updates and measures can be shared with other hotels, whether in the same group or not, to promote collaboration.
- **Compliance with Regulations:** CBRN measures should comply with local and national safety and public health regulations. Partnerships with local authorities and emergency services can help in understanding and implementing any required changes based on new regulations.
- **Knowledge Sharing and Group Orders:** collaboration among hotels can help in improving CBRN detection and management systems. Shared orders for equipment can reduce financial costs. Hotels should involve their CBRN safety teams in the selection of equipment from the start.

- **Training Programs:** continuous improvement in CBRN training and procedures is crucial. Training should be done in collaboration with specialised services. The training standards can be enhanced based on feedback from evaluations post-training. Participants should be awarded certificates to acknowledge increasing levels of knowledge.
- **Internal Knowledge Sharing:** hotels could categorise staff into levels of expertise (operators, referents, instructors) and encourage trained staff to share their knowledge within the hotel or the hotel group. This allows for internal promotion of expertise and system improvement.

3.6.1. Key Components of a CBRN Emergency Plan

1. Evacuation Procedures:

- **Evacuation** is a critical aspect of any CBRN emergency plan. The plan should clearly define:
 - **Evacuation routes:** pre-determined and distinctively marked alternative escape routes, ensuring guests and staff can move away from the hazard and reach the assembly point.
 - **Assembly points:** safe locations where evacuees can gather, away from the contamination zone.
 - **Evacuation roles:** responsibilities for personnel to guide and assist individuals during the evacuation process.

2. Communication Protocols:

- Effective **communication** during a CBRN incident is vital for maintaining control and providing clear instructions. The plan should outline:
 - **Internal communication:** what does staff communicate, including THEN procedure, 5S and other essential pieces of information based on instant judgement and CBRN training, and how will staff communicate with each other, including using radios, alarms, or loudspeakers?
 - **External communication:** immediate notification of **first responders**, local authorities, and emergency medical services.
 - **Public communication:** guidance on how to inform guests and the public about the situation

3. Emergency Situation Teams:

- Designated **emergency situation teams** (ESTs) are responsible for managing the situation on-site before first responders arrive. The scope, requirements and limitations of that team's responsibilities should be envisaged in the CBRN component of the Emergency Plan. These teams should:
 - Possess a significant level of **CBRN awareness**.
 - Be capable of **assessing the situation**, securing the affected area, and helping with evacuation while not compromising own safety.
 - In case of a very high threat level, have some of its members trained in the use of **protective gear** and **detection equipment**

4. Medical Assistance:

- A **medical response** plan should be in place to treat individuals affected by the CBRN hazardous materials, including:
 - **First aid** for immediate care of symptoms unrelated to chemical, biological, or radiological exposure, e.g. resuscitation, mediation of psychosomatic symptoms, etc., which is **legally required from the general public**, and response activities as described in **Response Statements** Section (table 6.3) of **Annexe IV to the CLP** Regulation.
 - Assisting **medical professionals** as required by them .
 - Preparing assembly points, spaces for decontamination **areas** and collection of contaminated items for victims who have been exposed to hazardous materials and transportation routes for non-contaminated victims.

5. Coordination with First Responders:

- The **emergency plan** should ensure **close coordination with local first responders**, such as fire services, hazardous materials teams, and law enforcement. The plan should:
 - Provide **detailed maps and information about the facility including readings of local detection equipment**, helping responders navigate the area quickly.
 - Establish **lines of communication** to keep responders informed as the situation unfolds.
 - Support first responders with **resources** such as protective equipment or access to areas they need to secure.

6. Ongoing Monitoring and Containment:

- The plan should include protocols for **monitoring** the situation as it develops, including being proactive and anticipating.

3.7. Basic knowledge of CBRNe food protection guidelines

CBRN agents present a severe threat due to their ability to cause widespread harm with minimal resources, making them cost-effective compared to conventional weapons. Dissemination methods include aerosols, sprays, and explosives, with inhalation being the primary risk, though contamination of food and water also poses significant dangers. Historical and modern examples highlight the vulnerabilities of food supplies to deliberate attacks, such as the 1984 Oregon poisoning and 2017 German supermarket threats. These incidents emphasize the critical need for robust food safety measures to protect public health.

Globalization, complex supply chains, and increased food diversity have heightened risks, with studies showing frequent mislabelling of products, particularly seafood, and misuse of additives like non-permitted colorants and excessive sweeteners. These practices compound public health concerns, underscoring the importance of regulatory compliance.

Hotels and conference centers should adhere to health codes and HACCP principles, ensuring proper food handling, storage, and preparation. EU regulations, such as Directive 2003/99/EC, focus on monitoring zoonoses and maintaining health and safety standards, safeguarding food security and reputation management.

Educating Personnel	Regular training on food safety practices, storage, handling, and preparation is crucial. Staff should be updated on the latest standards, tested, and evaluated on their understanding.
Managing Temperature	Proper temperature control during food storage and preparation is essential to prevent bacterial growth. Restaurants should adhere to recommended cooking and cooling temperatures, using automatic monitoring systems for consistency.
Maintaining Hygiene	Clean and disinfect kitchen equipment, surfaces, and maintain personal hygiene among employees, such as frequent hand washing and wearing appropriate attire to reduce contamination risks.
Preventing Cross-Contamination	Separate storage areas for different foods, especially raw meat and prepared meals, and using labelled, designated areas for handling various products help minimize contamination risks
Regular Audits and Inspections	Conduct regular audits and internal inspections to ensure compliance with food safety protocols, including documentation checks and physical inspections.
Documenting and Tracking Food Sources	Maintain accurate records of food origins, expiration dates, and storage procedures to quickly identify and address potential issues.

Upholding food safety standards through hygiene, training, temperature control, and crisis preparedness safeguards customer health and builds trust, ensuring a restaurant's long-term success and reputation. Bacteria growth depends on factors like temperature, time, pH, moisture, and oxygen, but daily control focuses on time and temperature. The "danger zone" for bacterial growth is 4°C to 60°C, with food safety requiring storage below 4°C or above 60°C and limiting exposure within this range to under 2 hours. Cooking and cooling temperatures are critical for food safety. Disinfection requires specific cooking temperatures: 74°C for stuffed poultry, 68°C for ground beef, and 60°C for hazardous foods. Cooling should reduce food to below 4°C within 4 hours using shallow containers, ice baths, or pre-chilling, with temperature monitors ensuring accuracy. These measures prevent bacterial growth, especially in moist, neutral pH environments.

Waste Management

Effective waste management in restaurants is crucial for minimizing environmental impact. Restaurants should aim to **prevent waste generation** or reduce it, ensure **environmentally friendly recovery**, and provide proper disposal if waste cannot be prevented or recovered. This includes:

- **Controlling inventory**, shelf life, and purchasing only necessary items to avoid overproduction.
- **Utilizing as much of the food product** as possible, such as using trimmings in soups or salads.
- Proper **portioning** to prevent food waste.



Proper waste management prevents contamination, pest breeding, and disease spread. A Food Sanitation Program ensures safe water, effective waste disposal, and pest control, all critical for inspections.

Rodent control involves eliminating food sources, sealing entry points (12 mm for rats, 6 mm for mice), and using traps, poisons, or fumigation. Education and coordination enhance success, particularly in shared spaces. Arthropod control targets insects through lifecycle-specific methods, including population control by sterilizing males. Dishwashing areas should be near dining spaces or use disposable tableware if unavailable. Manual washing involves cleaning at 45°C, sanitizing at 90°C, and air drying. Machine washing automates cleaning with pre-washing at 30–45°C, washing at 65°C, and rinsing above 90°C, but food residue removal remains essential. Kitchen tools should be designated for specific food groups to prevent cross-contamination. Separate and color-coded cutting boards and knives for raw and cooked foods are vital. Tools should be sanitized regularly, and worn equipment replaced to avoid bacterial growth. Buffet service involves self-serve or assisted meal options, with table placement optimizing guest access. Larger groups may require multiple tables to accommodate diverse menus efficiently.



Key elements include:

- **Table Arrangement:** tablecloths and linens should be clean, wrinkle-free, and aesthetically pleasing. Decorative elements are optional.
- **Placement:** plates, napkins, and cutlery should be positioned at the start, while dishes are arranged in the order of the menu (appetizers to desserts). Labels should be legible and placed near each dish.
- **Condiments & Drinks:** side dishes like sauces and drink essentials (coffee, tea, milk) should be placed close to related items.

The setup prioritizes product safety and guest comfort through clear, organized arrangements. Dining areas should adapt to the event type, guest count, and menu, with proper table settings, clean environments, and professional staff ensuring quality experiences.

Good Hygiene Practice (GHP) and Good Production Practices (GPP) ensure food safety, covering equipment, cleaning, and staff training, while Good Catering Practice (GCP) emphasizes quality in restaurant service. Food serving requires maintaining specific temperatures: 4°C for cold dishes, 75°C for reheated foods, and 63°C for hot items, with warmers safely storing food for up to 2 hours. Separate containers and cutlery prevent cross-contamination during display.

Food waste includes processing residues and expired items, with reusable remains stored separately and non-reusable waste disposed of per regulations. While certain remains can be composted or given to shelters, HACCP principles prohibit transfer to private individuals, ensuring compliance with health standards.

Specialized guidelines and considerations to protect food from CBRN threats

Chemical threats
Implementing measures to safeguard against intentional contamination with chemicals and toxins, including proper storage, securing supply chains, and staff training on recognizing suspicious activities. Food shielding is crucial for protecting food from intentional or unintentional CBRN contamination. It involves identifying Critical Control Points (CCP) in the food supply chain, from production to serving, to minimize threats. Efforts should focus on making the food chain less attractive to terrorists and reducing vulnerability to contamination. All members of the food chain, including producers and restaurants, need to develop protection plans. However, they face challenges such as tight client deadlines, limited awareness of food terrorism, lack of national standards, and insufficient knowledge on food defense.
Biological threats
Ensuring hygiene practices, proper sanitation, and monitoring food sources to prevent biological contamination. Food sanitation involves protecting food from contamination and limiting its growth through proper cooking, storage, and hygiene practices. Biological or physical contamination with, for example, bacteria. Effective sanitation includes regular cleaning, proper storage, and preventing cross-contamination. Food-borne illnesses are a global issue, causing health and economic problems, with recent data indicating their impact is greater than previously thought. Hand washing is essential after activities that may introduce contaminants, such as using the restroom, handling raw food, touching one's face, or cleaning dirty dishes. Personal hygiene also involves avoiding habits like touching the face or sneezing into food. Sick

employees should not work, as they can easily spread contamination. Regular hand washing when handling different food items is crucial but often neglected.

Radiological and Nuclear threats

Monitoring food sources for potential radiation contamination and establishing protocols for handling potentially contaminated food items.

Radionuclides, unstable nuclides that decay via alpha, beta, or gamma emissions, are used in food preservation, medicine, and energy but can contaminate food and water through natural sources, nuclear accidents (e.g., Chernobyl, Fukushima), or deliberate acts. High-risk foods like milk, fish, nuts, and leafy greens may absorb radionuclides, posing health risks including cancer and teratogenic effects. While radio nuclides are valuable for eliminating pathogens in food preservation, improper disinfection procedures or accidental exposure can lead to contamination. Residual radioisotopes can accumulate in food, threatening human health if ingested in high doses. To ensure food safety, it is essential to regulate radiation levels during disinfection, preventing unintended contamination and safeguarding against both biological and radiological threats. Strict control measures protect consumers while maintaining the benefits of radioisotope applications.

Explosive threats

Implementing security measures to prevent unauthorized access to food storage or preparation areas.

Establishing clear **movement rules** for guests and employees around hotel restaurants is essential for safety. These rules should inform guests about restricted areas and guide employees on hazards, production processes, and hygiene requirements. Employers should develop internal regulations, and unauthorized access should be prevented using **informational signs** like "No admission." If unauthorized individuals enter restricted areas, they should be escorted to the manager by security personnel or staff.

Detail protocols and procedures to follow in case of suspected or confirmed CBRN contamination:

Immediate isolation and quarantine procedures for affected food items. Notifying management, relevant authorities, and following emergency response protocols. Disposal procedures for contaminated food items and implementing corrective actions to prevent recurrence.

Ensuring food safety is crucial for restaurants, guided by **EU Directive 2003/99/EC**. Key practices include:

1. **Educating Personnel:** regular training on food safety, storage, handling, and preparation is essential. Staff should be tested and updated on the latest standards.
2. **Managing Temperature:** proper temperature control for cooking, cooling, and storage prevents bacterial growth. Automatic monitoring systems help maintain standards.
3. **Maintaining Hygiene:** regular cleaning of equipment, surfaces, and personal hygiene practices, like hand washing, are vital to prevent contamination.
4. **Preventing Cross-Contamination:** store different food types separately, especially raw meat from prepared meals, and use labelled areas to minimize contamination risks.
5. **Regular Audits and Inspections:** conduct audits to ensure compliance with food safety procedures, including documentation checks and physical inspections.
6. **Documenting and Tracking Food Sources:** maintain accurate records of food origins, expiration dates, and storage procedures for quick problem resolution.



Collaboration with health authorities

Collaboration with health authorities, food safety agencies, and law enforcement is essential for safeguarding food establishments in hotels, restaurants, and conference centres. It helps maintain public health standards, prevent contamination, and ensure swift responses to threats, including foodborne illnesses and CBRN risks. These partnerships provide expert guidance, support best practices, and keep establishments updated on regulations, enhancing safety and reputation.

The Health Inspectorate supervises food safety through two types of inspections: routine inspections, announced 7 to 30 days in advance and focusing on general or specific areas, and unannounced intervention inspections, conducted within two days after reports of non-compliance.

During inspections, health inspectors verify the restaurant's adherence to **HACCP standards** and check logs for:

- **Temperature records** of refrigeration equipment (monitored twice daily).
- **Cleanliness logs** for equipment, floors, and toilets, including weekly disinfection and details of detergents used.
- **Delivery logs** that record every delivery's date, product details, temperatures, and invoice numbers.

These inspections ensure restaurants maintain high hygiene and safety standards. To prepare for a health inspection, restaurant owners/managers should ensure the following:

- **General Cleanliness:** check the overall condition of the kitchen, equipment, and restaurant, including floors, countertops, toilets, and social areas.
- **Handwashing Facilities:** ensure handwashing areas have soap, towels, and clearly visible handwashing instructions.
- **Food Service Organisation:** maintain easy-to-clean floors and worktops, functioning refrigerators/freezer cabinets, working thermometers, a dishwasher with an evaporator, and clean equipment.
- **Pre-Treatment and Dishwashing Areas:** have designated areas for pre-treating vegetables, fruits, and meat, as well as a separate dishwashing room.
- **Freshness of Ingredients:** verify the freshness of all ingredients and semi-finished products used.

Routine attention to these areas can help reduce stress and ensure compliance during inspections.

3.8. Basic knowledge of CBRN protection guidelines for cleaning services

Specialised guidelines and considerations to protect cleaning staff against CBRN threats:

Chemical threats: Safe handling and storage of cleaning chemicals, proper ventilation, using personal protective equipment (PPE), gloves, apron, oil-resistant boots and safety goggles, and recognising signs of chemical exposure.

Biological threats: implementing hygiene practices using, as a minimum, disposable coveralls, nitrile rubber gloves, proper sanitation, and disinfectants effective against biological agents.

Radiological and Nuclear threats: monitoring for potential radiation contamination, wearing in case of threat a FFP3 dust mask, nitrile gloves and occupational apron/coverall, and following protocols for handling contaminated surfaces or areas.

Explosive threats: recognizing suspicious items or behaviours during cleaning routines and reporting them promptly.

Auxiliary cleaning staff procedures: detailed Cleaning Checklist and Detailed Cleaning Security Checklist can be found in Annex III.

Specific cleaning protocols and procedures to follow in case of suspected or confirmed CBRN threats: immediate cessation of cleaning operations in case of suspected contamination. Following established emergency response protocols and reporting procedures to management and relevant authorities. Disposal of contaminated cleaning materials and proper decontamination procedures.

Discuss the significance of collaboration with management, health authorities, and law enforcement: Establishing communication channels for reporting suspected incidents and seeking guidance in handling CBRN-related cleaning concerns.

3.9. Basic knowledge of guidelines for epidemiological enquiry

Basic knowledge of guidelines for epidemiological enquiry

Epidemiology is the study of diseases that affect populations, focusing on their spread, causes, and control within a society over time. Deliverable D.3.3 “Guidelines for epidemiological enquiry” establishes a **simple four-step protocol** to suspect and early detect a possible CBRN event and how to act at the first moment to minimise the possible effects. The present lesson summarises the content of D.3.3 document.

The Four-step protocol

First step: **(S) Symptoms** that raise suspicion of a CBRN attack

Second step: **(I) Isolation** of both people involved and suspected sources

Third step: **(N) Notification** to health and security/police authorities

Fourth step: **(S) Site clean-up** of all suspected affected rooms



Figure 8 Four step protocol

Step: (S) Symptoms that raise suspicion of a CBRN attack

The first step starts gathering information in two tables:

Checklist of symptoms table.

- Type of symptoms: Fever, headache, etc.
- Number of people affected: 1, 2...
- Frequency of symptoms: already established in the table.
- Time of onset of the symptoms: time passed since first notice.

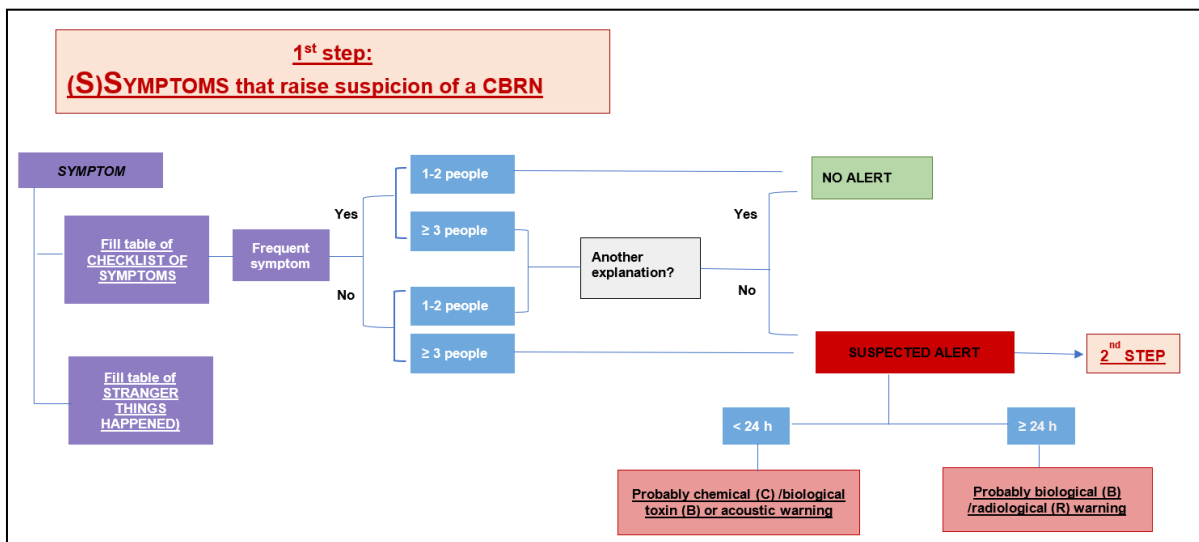
Table 1 Checklist table of symptoms and people affected (part of it).

Type of symptoms		Is it a frequent symptom in low-risk infectious diseases or in another unpleasant situations?	Presence or not of the symptom (YES /NOT)	Number of people showing these symptoms	Time of onset of symptoms after the stay in the hotel /conference centre
DESCRIPTION					
General symptoms	Fever	Yes			
	Headache	Yes			
	Weakness / fatigue	Yes			
	Malaise	Yes			
	Body temperature changes	Yes			
Respiratory symptoms Symptoms like flu:					
	Fever	Yes			
	Chills	Yes			
	Headache/ muscles ache	Yes			
	Cough	Yes			
Other symptoms	Weakness / fatigue	Yes			
	Difficulty breathing	No			
	Asphyxiation / respiratory failure	No			
	Chest pain	No			

Stranger Things happened table.

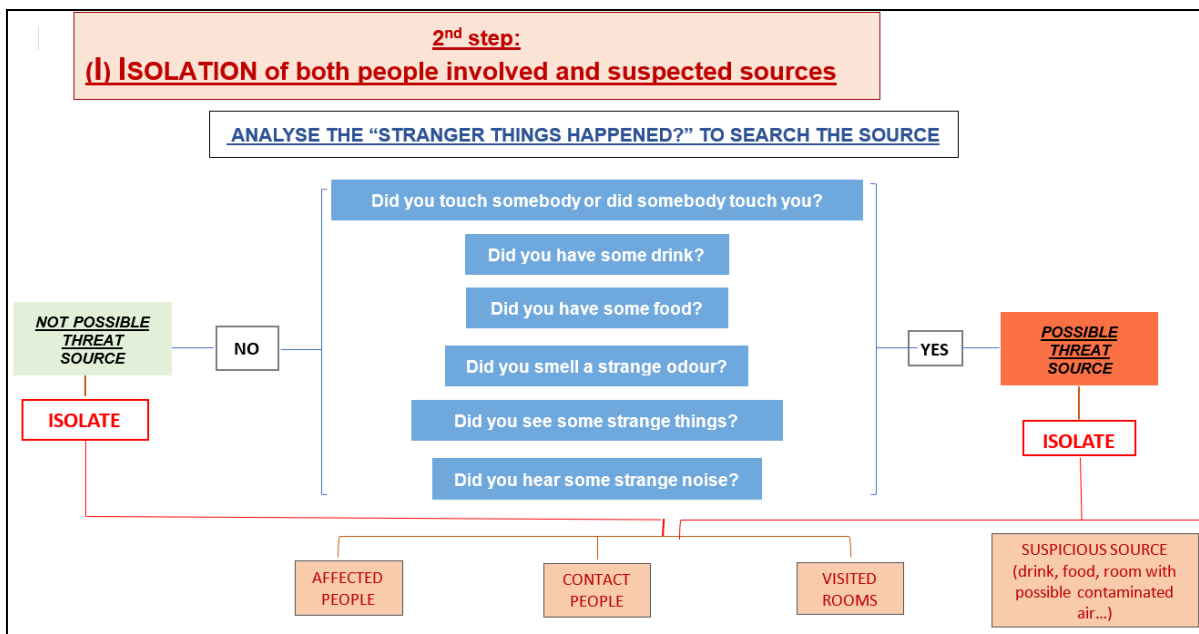
- Did you have any drink/food?
- Did you see anything strange like drops, suspicious clouds, anything unusual?
- Did you smell a strange odour?
- Did you hear some strange noise?
- Indicate the person in touch.
- Specify the visited rooms within the hotel / conference centre

The decision tree helps to evaluate a potential alert depending on the symptoms (frequent or not) and the number of people affected.



Second step: (I) Isolation of both people involved and suspected sources

If there is a suspected alert, the second step of the protocol uses the information gathered in the table “Stranger things happened” to find the source of the CBRN event.



Third step: (N) Notification to health and security/police authorities and Forth step: (S) Site clean-up of all suspected affected rooms

After the suspected alert is detected, and the isolation of people and places has been carried out, the third step requires the notification of CBRN threats, aiming to minimise danger and facilitate effective communication with health and security authorities.

- 1. First Step - Avoid Increasing the Exposure:** isolate affected individuals and rooms, remove food and drink for analysis, and check others who may have had contact. Evacuate the affected area if needed and ensure everyone in contact uses appropriate protective equipment (EPI). Objects, people, and areas to be decontaminated should be identified using

a standardized checklist. **Step - Notify Health and Epidemiology Authorities:** Follow national health authority protocols for notifying relevant agencies about the threat. This includes an epidemiological communication network for rapid detection, surveillance, and response to outbreaks. In countries like Spain, there's a structured network from local to national levels to manage public health emergencies.

Follow-up: Notify Health and Epidemiology Authorities In the event of a biological alert, an established epidemiological plan led by relevant health authorities of the suspected alert.

2. **Third Step: Air Decontamination** Key methods include the use of High-Efficiency Particulate Air (HEPA) filters, which can retain at least 99.97% of particles of 0.3 micrometres or larger, and Ultraviolet Germicidal Irradiation (UVGI) systems that use UV light to deactivate microorganisms. Air ionisers and ozone generators can also be used, though ozone must be managed carefully due to its potential harm. Chemical agents like hydrogen peroxide vapor or chlorine dioxide gas can disinfect air but require specialized equipment.

- **Weathering** is a most basic method of decontamination thanks to its simplicity and low cost. It takes advantage of natural components of air: OH⁻ radicals, atmospheric O₂ and UV part of the sunlight spectrum. Weathering is effective in decontamination of surfaces, ambient air and fabrics. It is effective against most biological agents and many chemical agents but not against radiation-emitting particles.
- **Surface Decontamination** Alternatively, physical decontamination may be performed using adsorbent material e.g. adsorbing powder, sponge etc., then removed using soap, antibacterial quaternary ammonium soaps and water, followed by strong disinfecting or germicidal means like UVGI or sanitary oxidizers: ozone, chlorine-based disinfectants, , hydrogen peroxide, or peracetic acid solutions. Protective personal equipment (PPE) is essential during chemical decontamination.
- **Decontaminate Affected Rooms** While specialized emergency teams are primarily responsible for clean-up, hotels should maintain regular disinfection routines after such incidents. This involves consistent protocols for various CBRN agents, ensuring ongoing cleanliness and safety in their facilities.

Following the decision tree and depending on the result of the suspected alert (confirmed or not), the site clean-up (fourth step) will be done by specialised emergency services and/or done by the hotel with their own resources.

3.10. Elaboration of adequate CBRN VIP protection programme

The presence of VIP (Very Important Person) guests in hotels and conference centres introduces unique security challenges, particularly concerning CBRN threats. Proper identification of VIPs and understanding the associated risks are crucial for ensuring their safety and that of other guests and staff.

Types of VIPs, Their Profiles, and Security Requirements

Political Figures	
Profiles	Heads of state, government officials, diplomats, and politicians,
Security Requirements	<ul style="list-style-type: none"> • High-Level Protection, state security involvement • Risk Assessment • Coordination with Authorities
Corporate Executives	
Profiles	Presidents, CEO, and other high-ranking business leaders
Security Requirements	<ul style="list-style-type: none"> • Confidentiality • Personal Security • Secure facilities
Celebrities and Public Figures	
Profiles	Actors, musicians, athletes, influencers, and other famous personalities.
Security Requirements	<ul style="list-style-type: none"> • Crows control • Privacy measures • Personal protection
High-Risk Individuals	
Profiles	People under threat due to legal cases, activism, or other reasons that make them potential targets
Security Requirements	<ul style="list-style-type: none"> • Anonymity • Protective measures • Emergency protocols
International Delegations	
Profiles	Groups attending summits, conferences, or diplomatic missions
Security Requirements	<ul style="list-style-type: none"> • Logistical coordination • Cultural sensitivity • Facility security

Note: The presence of Political, High-risk individuals and International official delegations is usually regulated by statutory provisions where the hotel plays only an ancillary role limited to satisfying the demands of the accompanying VIP security staff. Planning needs to take that as its baseline for emergency planning.

Understanding Potential CBRN Threats Concerning VIPs and Their Specific Vulnerabilities:

1. Targeted Attacks

- **Motivation:** VIPs may be targets for ideological, political, or personal reasons.
- **Threats:**
 - **Chemical Agents:** use of toxic substances to harm or incapacitate.
 - **Biological Agents:** dissemination of pathogens to cause illness or fear.
 - **Radiological/Nuclear Materials:** exposure to harmful radiation as an assassination method.
 - **Explosive Devices:** bombings aimed at causing maximum harm.

2. Symbolic Impact

- **High-Profile Incidents:** attacks on VIPs garner significant media attention, amplifying the impact of CBRN incidents.
- **Psychological Effects:** inducing fear and uncertainty among the public and within governments or organizations.

3. Specific Vulnerabilities

- **Public Exposure:** VIPs often appear at scheduled events, making their whereabouts predictable.
- **Routine Patterns:** established routines can be exploited by adversaries to plan attacks.
- **Close Proximity to Crowds:** increased risk of exposure to threats from individuals in public settings.

4. Indirect Threats

- **Collateral Damage:** attacks targeting VIPs may endanger other guests and staff.
- **Infrastructure Disruption:** CBRN incidents can compromise hotel operations and safety systems.

Assessing and Mitigating Risks:

1. Comprehensive Risk Assessment

- **Threat Analysis:** evaluate potential threats based on the VIP's profile and the current security landscape.
- **Vulnerability Assessment:** identify weaknesses in security measures that could be exploited.
- **Intelligence Gathering:** collaborate with security agencies for updated threat intelligence.

2. Enhanced Security Measures

- **Access Control:** implement strict access policies, including identification checks and restricted areas.
- **Surveillance Systems:** use CCTV, intrusion detection, and monitoring systems for real-time awareness.
- **Screening Procedures:** conduct thorough screening of personnel, deliveries, and guest luggage for hazardous materials.

3. CBRN Preparedness

- **Detection Equipment:** install sensors and detectors for chemical, biological, radiological, and explosive agents.
- **Protective Equipment:** ensure availability of appropriate PPE for security personnel and for VIP.
- **Training:** provide specialised training for staff on CBRN awareness and response protocols.

4. Emergency Response Planning

- **Evacuation Plans:** develop tailored evacuation procedures considering the VIP's location and potential threats.
- **Sheltering Strategies:** identify safe rooms and shelter-in-place protocols specific to CBRN incidents.
- **Medical Support:** arrange for immediate medical assistance, including decontamination facilities if necessary.

5. Coordination with Security Teams

- **Information Sharing:** maintain open communication with the VIP's personal security detail and relevant authorities.
- **Joint Planning:** collaborate on security plans, ensuring alignment of procedures and protocols.
- **Drills and Exercises:** conduct joint training exercises to test and improve response capabilities.

6. Discretion and Confidentiality

- **Staff Briefing:** limit knowledge of the VIP's presence to essential personnel.
- **Privacy Policies:** enforce strict policies to prevent information leaks regarding the VIP's stay and movements.
- **Media Management:** coordinate with the VIP's representatives to handle media inquiries appropriately.

The identification of VIP guests and assessing potential risks associated with their presence is a critical aspect of security management in hotels and conference centres. By understanding the types of VIPs, their profiles, and specific security requirements, organizations can implement effective measures to mitigate CBRN threats and other vulnerabilities. Proactive planning, enhanced security protocols, and close coordination with security teams are essential to ensure the safety of VIP guests and all individuals.

Essential Elements of an Effective Protection Program for VIPs in CBRN Incidents

An effective protection program for VIP's in the context of CBRN incidents requires comprehensive planning and implementation of specialized security measures. The following outlines the essential elements to include in such a program.

An effective protection program for VIP's in the context of CBRN incidents requires a multi-faceted approach that encompasses thorough threat assessments, enhanced security measures, tailored emergency response plans, and dedicated security personnel trained in CBRN recognition and response. By integrating these essential elements, organisations can significantly enhance the safety of VIP guests, minimise risks, and ensure a coordinated and efficient response to potential threats.

Category	Key Points
1. Threat Assessments and Risk Analysis	<p>Comprehensive Threat Assessment:</p> <ul style="list-style-type: none"> - <i>Identify Potential Threats:</i> assess risks from CBRN and conventional threats. - <i>Profile Analysis:</i> analyse the VIP's visibility and adversaries. - <i>Historical Data:</i> review past incidents and regional risks. <p>Risk Analysis:</p> <ul style="list-style-type: none"> - <i>Vulnerability Assessment:</i> evaluate facility and transit risks. - <i>Impact Analysis:</i> assess consequences and business continuity risks. - <i>Likelihood Estimation:</i> assign probabilities to threats. - <i>Mitigation Planning:</i> prioritise and counter high-risk threats.
2. Enhanced Security Measures	<p>Access Control:</p> <ul style="list-style-type: none"> - ID checks, colour-coded badges, restricted VIP areas, pre-registration, and advanced access systems (e.g., biometrics). <p>Surveillance:</p> <ul style="list-style-type: none"> - CCTV coverage, monitoring centres, covert surveillance, and secure data storage. <p>Perimeter Security:</p> <ul style="list-style-type: none"> - Barriers, checkpoints, lighting, intrusion detection, and patrols.
3. VIP-Specific Emergency Response	<p>Customised Plans:</p> <ul style="list-style-type: none"> - Risk-specific CBRN protocols, secure communication, on-site medical support, specific PPE like supply air hoods, no SIP. <p>Evacuation Plans:</p> <ul style="list-style-type: none"> - Multiple routes, secure transport, assembly points, and coordination with emergency services. <p>Training and Drills:</p> <ul style="list-style-type: none"> - Regular simulations, multi-agency drills, and staff role-specific training.
4. Dedicated VIP Security Details	<p>Specialised Personnel:</p> <ul style="list-style-type: none"> - Experienced staff, close protection officers, advance teams, and CBRN specialists. <p>Training Programs:</p> <ul style="list-style-type: none"> - CBRN recognition, PPE use, decontamination, and emergency skills. <p>Coordination and Communication:</p> <ul style="list-style-type: none"> - Integrated operations with facility security, secure communication tools, and real-time incident management systems.

Key Takeaways:

- **Proactive Planning:** continuous threat assessments and risk analyses are crucial for staying ahead of potential dangers.
- **Robust Security Measures:** implementing strict access control, comprehensive surveillance, and strong perimeter security deters threats and detects suspicious activities early.
- **Customised Emergency Plans:** tailoring response and evacuation procedures to the VIP's needs ensures their safety during CBRN incidents.

- **Specialised Training:** having dedicated security personnel skilled in CBRN threats enhances the overall effectiveness of the protection program.

By prioritising these components, organisations can provide a secure environment for VIP guests while maintaining operational integrity during high-risk situations.

Emphasizing the Importance of Specialized Training and Preparedness for VIP Security Personnel in CBRN Incidents

In the realm of **CBRN** threats, the stakes are exceptionally high when it comes to protecting VIPs. Specialised training and preparedness are critical components that empower VIP security personnel to effectively identify threats, implement protective measures, and execute emergency response protocols. Conducting scenario-based exercises or simulations further enhances their ability to respond promptly and efficiently to potential CBRN incidents.

Category	Key points
<p>1. Training VIP Security Personnel</p>	<p>CBRN Threat Identification:</p> <ul style="list-style-type: none"> - <i>Types of Agents:</i> understand chemical, biological, radiological/nuclear, and explosive threats, including their indicators. - <i>Detection Skills:</i> operate detection devices and analyse suspicious behaviours. - <i>Intelligence Gathering:</i> maintain situational awareness and network with law enforcement. <p>Protective Measures:</p> <ul style="list-style-type: none"> - <i>PPE Use:</i> train in selecting, using, and maintaining PPE with rapid donning/doffing techniques. - <i>Decontamination:</i> establish zones (hot, warm, cold) and perform immediate decontamination if exposed. - <i>Security Protocols:</i> implement access control and monitor ventilation to limit exposure. <p>Emergency Response Protocols:</p> <ul style="list-style-type: none"> - <i>Incident Command:</i> understand roles and coordinate with first responders. - <i>Evacuation and Shelter Plans:</i> plan routes and safe zones for shelter-in-place scenarios. - <i>Medical Response:</i> provide first aid, coordinate triage, and work with medical facilities. - <i>Communication:</i> use encrypted channels and provide clear instructions in crises
<p>2. Scenario-Based Exercises</p>	<p>Realistic Training:</p> <ul style="list-style-type: none"> - <i>Mock Drills:</i> simulate incidents using non-hazardous substances for realistic hands-on training. - <i>Stress Training:</i> build resilience under high-stress, time-critical scenarios. <p>Interagency Collaboration:</p> <ul style="list-style-type: none"> - <i>Joint Exercises:</i> partner with law enforcement, fire, and medical services for seamless coordination. - <i>After-Action Reviews:</i> conduct debriefs to refine strategies and improve

	<p>response plans.</p> <p>Regular Training Schedule:</p> <ul style="list-style-type: none"> - <i>Ongoing Education</i>: offer refresher courses and periodic skill assessments. - <i>Compliance</i>: align training with OSHA and IAEM standards; encourage certifications for professional growth.
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Significance of Collaboration with Law Enforcement, Intelligence Agencies, and Relevant Authorities

Category	Key points
1. Establishing Communication Channels	<p>Importance of Communication:</p> <ul style="list-style-type: none"> - <i>Timely Sharing</i>: rapid dissemination allows proactive measures against CBRN incidents. - <i>Situational Awareness</i>: keeps all parties informed to assess risks and make decisions. - <i>Coordinated Response</i>: ensures all parties align, reducing confusion during incidents. <p>Methods:</p> <ul style="list-style-type: none"> - <i>Formal Agreements</i>: Memorandum of Understanding (MoU) and information-sharing protocols with agencies. - <i>Dedicated Points of Contact</i>: assign liaison officers and maintain updated contact lists. - <i>Secure Systems</i>: use encrypted communication tools and emergency networks. - <i>Regular Briefings</i>: share intelligence and plan responses together.
2. Coordinating Responses in CBRN Incidents	<p>Unified Command:</p> <ul style="list-style-type: none"> - <i>ICS</i>: adopt standardised incident command with clear roles. - <i>Joint SOP</i>: develop compatible procedures with external agencies. - <i>Resource Sharing</i>: coordinate the use of equipment and personnel. - <i>Real-Time Exchange</i>: share situation reports and intelligence updates. <p>Response Coordination:</p> <ul style="list-style-type: none"> - <i>Standard Communication Protocols</i>: set clear lines of communication. - <i>Resource and Logistical Support</i>: provide equipment, transport, and shelter when needed.
3. Conducting Joint Drills and Exercises	<p>Benefits:</p> <ul style="list-style-type: none"> - <i>Preparedness</i>: test emergency plans and identify gaps. - <i>Coordination</i>: ensure interoperability and improve communication efficiency. - <i>Relationship Building</i>: foster trust and understand partner agencies' priorities. - <i>Feedback</i>: after-action reviews improve response plans. <p>Effective Collaboration Steps:</p> <ul style="list-style-type: none"> - <i>Planning</i>: establish committees, set objectives, and develop scenarios.

	<ul style="list-style-type: none"> - <i>Roles and Participation</i>: involve all relevant parties and assign roles. - <i>Execution</i>: conduct drills in simulated, controlled environments. - <i>Evaluation</i>: monitor performance using predefined metrics. - <i>Debriefing</i>: produce after-action reports and feedback sessions.
4. Types of Exercises	<ul style="list-style-type: none"> - <i>Tabletop</i>: walkthrough scenarios for planning assessment. - <i>Functional</i>: test specific functions, such as communication. - <i>Full-Scale</i>: large-scale simulations involving real-time deployment
5. Significance of Collaboration	<p>Enhanced Detection:</p> <ul style="list-style-type: none"> - <i>Proactive Measures</i>: prevent incidents through shared intelligence. - <i>Risk Assessment</i>: collaboration improves threat understanding. <p>Efficient Resource Utilisation:</p> <ul style="list-style-type: none"> - <i>Shared Resources</i>: reduce duplication and ensure availability. - <i>Specialised Capabilities</i>: leverage external expertise, like bomb disposal. <p>Unified Response:</p> <ul style="list-style-type: none"> - <i>Consistency</i>: align procedures to minimize confusion. - <i>Faster Response</i>: coordinated efforts improve decision-making. <p>Legal Compliance:</p> <ul style="list-style-type: none"> - <i>Adherence</i>: ensure responses comply with legal regulations. - <i>Accountability</i>: document joint operations for transparency.

Key Takeaways:

- **Proactive Engagement:** establish relationships with external agencies before incidents occur to facilitate timely support and information sharing.
- **Integrated Planning:** develop emergency response plans in collaboration with relevant authorities to ensure compatibility and effectiveness.
- **Regular Training:** participate in joint exercises to maintain readiness and improve coordination.
- **Continuous Improvement:** use feedback from collaborative efforts to refine strategies and enhance overall security posture.

Emphasizing the Need for Ongoing Review and Refinement of the VIP Protection Program

In the dynamic and ever-evolving landscape of CBRN threats, maintaining an effective protection program for VIPs and other vulnerable individuals requires continuous vigilance and adaptability. Ongoing review and refinement of the protection program are essential to ensure that security measures remain robust, relevant, and responsive to emerging risks. This involves regularly updating threat assessments to reflect changes in the security environment and conducting post-event debriefs to identify areas for improvement.

Category	Key Points
1. Regularly Updating Threat Assessments	<p>Importance of Continuous Threat Assessment:</p> <ul style="list-style-type: none"> - <i>Evolving Threats</i>: CBRN threats change due to technology, geopolitics, and hostile actors. - <i>Proactive Risk Management</i>: regular updates help prevent incidents.

	<ul style="list-style-type: none"> - <i>Resource Allocation</i>: efficiently direct resources to high-risk areas. <p>Processes for Updating Threat Assessments:</p> <ul style="list-style-type: none"> - <i>Monitoring Developments</i>: gather intelligence, use open-source information, and collaborate with agencies. - <i>Venue Assessments</i>: reassess venues and VIP profiles to identify new vulnerabilities. - <i>Risk Reassessment</i>: analyse probabilities, impacts, vulnerabilities, and develop updated scenarios.
<p>2. Implementing Updated Security Measures</p>	<p>Policy Adjustments: revise policies to mitigate newly identified risks.</p> <ul style="list-style-type: none"> - <i>Training Programs</i>: update materials to include new threats and countermeasures. - <i>Equipment Upgrades</i>: invest in technologies that address updated risks effectively.
<p>3. Conducting Post-Event Debriefs and Analysis</p>	<p>Importance:</p> <ul style="list-style-type: none"> - <i>Learning</i>: events provide insights to refine procedures. - <i>Continuous Improvement</i>: identify successes and weaknesses for future enhancement. - <i>Accountability</i>: ensure transparency and commitment to stakeholders. <p>Steps in Conducting Effective Debriefs:</p> <ul style="list-style-type: none"> - <i>Immediate Debriefing</i>: conduct as soon as possible, involve all relevant personnel, and foster honest feedback. - <i>Structured Analysis</i>: review objectives, identify strengths/weaknesses, and gather incident documentation. - <i>Root Cause Analysis</i>: identify specific issues and underlying causes.
<p>4. Implementing Improvements</p>	<p>Action Planning:</p> <ul style="list-style-type: none"> - <i>Develop Solutions</i>: propose measures to address weaknesses. - <i>Prioritise Actions</i>: focus on high-risk areas. - <i>Assign Responsibilities</i>: designate personnel to implement changes. <p>Policy and Procedure Updates:</p> <ul style="list-style-type: none"> - <i>Revision</i>: update policies based on lessons learned. - <i>Enhance Procedures</i>: modify standard operating procedures. <p>Training and Development:</p> <ul style="list-style-type: none"> - <i>Update Training</i>: include new protocols or reinforce weak areas. - <i>Skill Development</i>: provide necessary additional training.
<p>5. Documentation and Knowledge Management</p>	<p>After-Action Reports (AARs): Summarize findings, actions, and recommendations.</p> <ul style="list-style-type: none"> - <i>Knowledge Sharing</i>: Distribute lessons learned to relevant parties. - <i>Record Keeping</i>: Maintain detailed records for future reference and continuous improvement.
<p>6. Benefits of Ongoing Review</p>	<p>Enhanced Security Posture:</p> <ul style="list-style-type: none"> - <i>Resilience</i>: regular updates create a more robust security framework. - <i>Adaptability</i>: ability to adjust to new challenges.

and Refinement	<p>Risk Reduction:</p> <ul style="list-style-type: none"> - <i>Preventive Measures</i>: mitigate issues before they escalate. - <i>Compliance</i>: stay up-to-date with regulations to avoid penalties. <p>Operational Efficiency:</p> <ul style="list-style-type: none"> - <i>Resource Optimisation</i>: ensure resources are focused where needed. - <i>Improved Coordination</i>: enhance communication and collaboration. <p>Stakeholder Confidence:</p> <ul style="list-style-type: none"> - <i>Trust</i>: ongoing improvements build trust with stakeholders. - <i>Reputation</i>: effective incident management and refinement enhance the organisation’s reputation.
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Key Takeaways:

- **Stay Informed:** continuously monitor the security landscape to anticipate and prepare for new threats.
- **Embrace Feedback:** use experiences from events and incidents as learning opportunities to strengthen the protection program.
- **Implement Changes:** act on insights gained from assessments and debriefs promptly and effectively.
- **Promote a Culture of Continuous Improvement:** encourage all team members to contribute to the ongoing enhancement of security measures.

These practices, organizations can ensure that their protection programs remain effective, resilient, and capable of safeguarding VIPs and other stakeholders against the complex and evolving challenges of CBRN threats.

4. Command and Control Procedures. Incident Command System

4.1. Understanding the need and implementation of the incident command and communication system

Significance in Coordinating Responses During CBRNe Incidents: Applications supporting, decision making processes are important for managing CBRNe incidents, which are complex emergencies that require swift and organized responses. Those applications provide a structured framework that enables the coordination of resources, decision-making, and communication across different agencies, including emergency services, law enforcement, health authorities, and specialised CBRN response units. This ensures that actions are aligned, information is shared efficiently, and resources are deployed effectively, leading to a more robust and synchronized response to these high-risk incidents.

Critical Role of Effective Communication and Command Structure: During a CBRN crisis, the rapid dissemination of accurate information is essential to protect lives, minimise damage, and contain the threat. A clear command structure helps establish defined roles and responsibilities, ensuring that all involved agencies understand their tasks and follow a unified strategy. Effective communication facilitates real-time information exchange, situational awareness, and prompt decision-making, which are vital for adapting to rapidly changing conditions and addressing the complex challenges posed by CBRN incidents. This coordinated approach not only helps in mitigating the immediate impact but also aids in managing the aftermath and ensuring public safety.

Integration of Hotel or Conference Centre Staff into the Incident Command Structure:

- **Facility Emergency Coordinator:** acts as the liaison between the hotel/conference centre and the Incident Command Team, providing critical information about the facility layout, staff availability, and guest details.
- **Security Personnel:** assists the Operations Section by controlling access points, directing evacuation procedures, and ensuring perimeter security.
- **Maintenance and Engineering Staff:** supports the Logistics Section by ensuring power, water, HVAC systems, and any technical infrastructure are maintained or shut down as needed.
- **Medical Staff (if available):** coordinates with emergency medical services to provide initial care to affected guests or staff and assists in the triage process.
- **Volunteers:** there is a chance to have some volunteers, and the effort should be made to include them in the incident characteristics and response.

Protocols for Managing Guests, Evacuation Procedures, and Collaboration with Emergency Responders:



- **Guest Management:** the safety of guests is a top priority. The facility staff, under the guidance of the ICS, should implement clear communication protocols to inform guests about the situation, provide instructions, and address concerns.
- **Evacuation Procedures:** the Operations Section Chief, in collaboration with hotel staff, develops and implements evacuation plans tailored to the venue's layout and drafts a contamination map used to ensure the guests are evacuated in an orderly and efficient manner to designated safe zones. should usually Please note that CBRN differs from the other emergencies: pre-established routes may be contaminated.
- **Collaboration with Emergency Responders:** the facility's Emergency Coordinator ensures seamless integration with responding agencies, providing them with access to the premises, necessary resources, and critical information about building layout, hazardous areas, and guest occupancy. Regular training exercises between hotel staff and emergency responders are essential for ensuring smooth collaboration during an actual incident.

Significance of Effective Communication Systems During CBRN Incidents

Effective communication is crucial during CBRN incidents, as it ensures the rapid and coordinated response required to protect lives and manage the crisis effectively. The ability to establish clear communication protocols between hotel personnel, first responders, and external agencies can significantly reduce confusion, streamline emergency response efforts, and enhance overall safety.

1. Establishing Communication Protocols:

- **Communication Between Hotel Personnel:** clear internal communication ensures all staff members are aware of their roles, responsibilities, and actions to take during a CBRN incident. This includes providing instructions on evacuation routes, safety protocols, and procedures for guest management. Protocols or techniques for providing instructions can be found in the chapter...
- **Hotel and First Responders:** establishing a direct line of communication with first responders is critical for sharing real-time information about the incident, such as the affected areas, the number of people involved, and the type of threat. This allows emergency services to respond more effectively and efficiently.
- **Hotel and External Agencies:** coordination with external agencies such as health authorities, law enforcement, and CBRN specialists is essential for ensuring the appropriate support and resources are deployed to manage the incident. Regular communication helps maintain situational awareness and allows for timely decision-making.

2. Utilising Various Communication Tools:

- **Radios:** two-way radios are essential for quick, real-time communication among hotel staff and with first responders. They allow for rapid dissemination of information, instructions, and updates, even in areas with limited phone signal.

- **Phones (Landlines & Mobile):** phones provide a reliable means of communication for longer, detailed conversations with external agencies and coordination centres. They serve as a backup in case radio communication is disrupted.
- **Dedicated Communication Channels:** establishing dedicated communication channels or frequencies ensures that all parties involved in the response can communicate without interference or congestion from other users. This can include private radio channels, encrypted phone lines, or secure messaging applications.
- **Public Address Systems:** for internal communication with guests and staff, the hotel's public address system is valuable for broadcasting emergency instructions, evacuation orders, or safety messages during an incident.

3. Importance of Effective Communication Systems:

- **Real-time Information Sharing:** immediate exchange of information helps identify the nature of the threat, assess the level of risk, and implement appropriate response measures quickly.
- **Coordinated Response:** effective communication enables seamless coordination among various responding parties, ensuring that everyone is aligned in their actions and decision-making processes.
- **Reducing Panic and Confusion:** clear communication helps keep guests and staff informed, ensuring that evacuation or shelter-in-place procedures are followed correctly.
- **Improved Safety and Incident Management:** a well-established communication system enhances the ability to manage the incident, mitigate risks, and ensure a swift return to normal operations.

4.2. To understand roles and responsibilities in the command structure

Liaison Officer and Public Information Officer Roles

Liaison Officer:

The Liaison Officer plays a crucial role in facilitating communication and coordination between the command structure and external agencies, including hotel management or other involved authorities, e.g. neighbouring businesses, during a CBRN incident. This position ensures seamless interaction and collaboration between the incident management team and various stakeholders, such as emergency services, law enforcement, health agencies, and other relevant organisations.

Key Responsibilities:

- **Establishing Communication:** the Liaison Officer is responsible for establishing and maintaining communication channels between the incident command and external agencies, ensuring a smooth flow of information.

- **Coordination with External Agencies:** acts as the primary point of contact for external agencies, ensuring that their roles, responsibilities, and needs are communicated clearly to the Incident Commander and the response team.
- **Providing Information:** keeps external agencies informed of the current situation, response actions, and any changes in the incident status. This helps external partners understand the operational environment and allows them to provide appropriate support.
- **Facilitating Resource Requests:** assists in coordinating requests for resources, personnel, or additional support from external agencies to ensure that the incident response is adequately equipped and resourced.
- **Resolving Conflicts:** the Liaison Officer helps resolve any conflicts or misunderstandings between the incident command structure and external agencies, ensuring a unified and efficient response effort.

The Liaison Officer's role is vital in ensuring that all involved agencies work together effectively, preventing any miscommunication and enhancing overall incident response coordination.

Hotel Public Information Officer (PIO): the Public Information Officer manages all communication with the media and the concerned persons and coordinates information provided by the responders about the affected individuals during a CBRN incident. Their role is to ensure that accurate, timely, and relevant information is disseminated to keep all stakeholders informed and to prevent misinformation.

Key Responsibilities:

- **Information Dissemination:** the PIO is responsible for gathering and distributing on behalf of the hotel information about the incident to the media, the public, hotel guests, staff, and other affected individuals. This includes regular updates on the situation, safety instructions, and response actions being taken.
- **Managing Media Relations:** acts as the official spokesperson for the hotel and, if authorised, for the incident command, handling inquiries from journalists and media outlets. In that capacity, prepares press releases, conducts briefings, and ensures that all information provided is accurate and consistent.
- **Ensuring Consistency:** ensures that the information shared with the public is consistent, clear, and accurate. They work closely with other members of the command structure to verify facts before releasing any information.
- **Monitoring Public Communication Channels:** the PIO monitors social media, news outlets, and other public communication channels to track the spread of information related to the incident. This allows them to identify and address any misinformation or rumours.
- **Providing Safety Information:** in coordination with the response services, the PIO may be involved in conveying safety information to the public concerning critical safety information or health advisories to keep them safe during the incident.
- **Managing Communication with Affected Individuals:** ensures that hotel guests, conference attendees, and other individuals directly impacted by the incident receive essential information about their situation and any instructions they need to follow.



The Public Information Officer plays an important role in the communication loop, maintaining public trust and ensuring that all communications are transparent and well-managed.

Liaison Officer	Ensures that all agencies work together seamlessly, facilitating a coordinated and efficient response effort. Their role is critical for resource management, communication, and collaboration with external partners.
Public Information Officer	Manage public perception and ensures that accurate, timely information is provided to the media and the public. This helps prevent misinformation, maintain public confidence, and guide affected individuals during a crisis.

Facility-Specific Roles and Integration in CBRN Incident Command Structure

Roles Specific to Hotels and Conference Centres:

In the context of CBRN incidents, hotels and conference centres have unique challenges and responsibilities due to their layout, guest population, and operational complexities. The following facility-specific roles play a crucial part in the incident command structure:

1. Security Personnel:

- **Guiding Guests:** security staff are responsible for guiding guests to safe locations, providing clear instructions, and ensuring orderly movement to designated assembly points during an evacuation. Security personnel could be in charge of the Remove3 procedure execution.
- **Managing Evacuation:** they assist in implementing evacuation procedures, ensuring that guests and staff leave hazardous areas swiftly and safely, and monitoring evacuation routes to prevent congestion or confusion.
- **Securing Critical Areas:** by default, hotel staff shouldn't perform anything but life-saving tasks. Sometimes, security personnel are tasked with securing access to critical areas, such as control rooms, kitchens, utility areas, and other locations that may pose additional risks or where hazardous materials might be stored.
- **Assisting Responders:** they act as a source of information for emergency responders, providing them with critical information about the facility layout, occupancy status, and any ongoing activities that could impact response efforts.

2. Facility Technical Staff:

- **Resource Identification:** facility technical staff have a deep understanding of the building's infrastructure and operations, including ventilation systems, access points, fire suppression systems, and evacuation routes. They assist the incident command team in identifying and utilising these resources effectively.
- **Providing Facility-Specific Expertise:** management staff offer expertise on the facility's unique characteristics, such as floor plans, power systems, emergency exits, and locations of hazardous materials, which are crucial for planning and executing response operations.
- **Maintenance Assistance:** these staff members can help shut down or secure critical systems, such as HVAC units, that may spread contaminants and assist in isolating affected areas.

3. Hospitality Staff (e.g., Front Desk, Housekeeping) :

- **Supporting Evacuation Procedures:** hospitality staff assist in communicating evacuation procedures to guests, helping those with special needs, and ensuring that everyone understands and follows safety protocols (e.g. Remove x3 procedure).
- **Providing Guest Information:** front desk personnel maintain records of current guests, helping to identify who might be in specific rooms or areas, which is essential for search and rescue operations.

Key Points for Effective Integration:



- **Clear Communication:** establishing clear communication protocols between facility staff and the incident command ensures that critical information is shared promptly and accurately.
- **Defined Roles and Responsibilities:** each facility-specific role should be clearly defined, with staff trained to understand their responsibilities within the larger incident command structure.
- **Collaboration with Emergency Responders:** facility personnel should work closely with emergency services to provide support and information, ensuring a coordinated response effort.

5. Personal Protection

5.1. Basic knowledge of selecting and using Personal Protection Equipment (PPE) for different CBRN scenarios

The implementation of CBRN protection measures in a hotel aims to outline key considerations for managing potential contamination incidents and ensuring the safety of staff and guests until specialized response services arrive. This section provides general information on Personal Protective Equipment (PPE) relevant to CBRN scenarios, even if the hotel itself does not supply PPE. Understanding the role of PPE and its correct usage is essential for maintaining safety during CBRN incidents, and proper training and familiarisation are crucial to prevent misuse that could compromise protection.

5.2. Understanding the selection and use of PPE for different CBRNe scenarios

Various professional-use personal protective equipment, as detailed below may be considered for use, based on the CBRNe scenario:

CBRNe scenario	Personal Protective Equipment
Chemical hazards	Protective suits, gloves, masks (respirators), eye/face protection.
Biological hazards	Suits, masks, gloves, and boots
Radiological and Nuclear hazards	Protective clothing, masks, and equipment to prevent radioactive contamination.
Explosive hazards	PPE focusing on blast protection, including helmets, body armor, and eye/ear protection

When selecting the appropriate PPE, several critical factors should be considered to ensure the safety and effectiveness of responders and individuals involved, as follows:




Level of Protection Required	Based on the CBRN risks / the level of exposure, as outlined in the table above.
Comfort, Fit, and Compatibility	<ol style="list-style-type: none"> 1. PPE should be comfortable enough for extended use, 2. Proper fit ensures no gaps or loose areas that could allow contaminants to enter. 3. The PPE must be compatible with other equipment such as communication devices, and additional protective gear.

<p>Regulatory Standards and Certification</p>	<ul style="list-style-type: none"> - PPE must meet established regulatory standards and certifications to ensure quality and efficacy. - Refer to certification bodies that provide guidelines and certifications for PPE. - The equipment should adhere to common standards (e.g., EN 136:1998 for full-face masks, EN 149:2001 for filtering facepieces, or EN 14605:2005 for protective clothing against liquid chemicals).
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By considering these factors, the selection of appropriate PPE can provide optimal protection and enhance the safety and efficiency of personnel responding to CBRN incidents.

Against this background, the following paragraph provides an overview of the key Personal Protective equipment:

Use of Protective Equipment:

	<p>CBRN powered air respirators and external air supply Hoods</p> <p>There are different types of CBRN hoods offering different levels of protection, namely, evacuation/emergency hoods (i.e., the figure on the left), powered air respirators, and supply air hoods (or forced air respirators). CBRN hoods provide respiratory and facial protection, filtering harmful particles, and are easy to use and require no maintenance. They offer temporary protection, allowing safe evacuation from contaminated areas but are ineffective in environments with low oxygen or fire. No air-filtering equipment may be used to enter the contaminated zone.</p>
	<p>FFP Masks</p> <p>FFP Masks can be FFP2 and FFP3 masks. They offer substantial protection against radiological and biological particles but not against gases or liquid aerosols. FFP3 masks offer the highest level of filtration efficiency (up to 99.9% for 1-micron particles) but they are more expensive and restrictive than FFP2 masks. FFP2 masks present a good cost-effective alternative.</p>
	<p>CBRN Protective Suits:</p> <p>Full-body impermeable protective suits plus gloves, boots, and face masks, provide comprehensive protection against CBRN agents. These suits are single-use and must be properly stored and monitored for expiration.</p>

Proper Use and Storage of PPE:

Proper care, maintenance, and disposal of Personal Protective Equipment (PPE) are essential to ensure the safety and effectiveness of the equipment during CBRN incidents. By adhering to these practices, organisations can maintain the integrity and reliability of PPE, while neglecting

these aspects can compromise the protection provided by PPE and increase the risk of contamination or exposure to hazardous materials.

Key instructions for Proper Storage, Inspection, and Maintenance of PPE:

Storage	<ul style="list-style-type: none"> – PPE should be stored in a clean, dry, and secure location, away from direct sunlight, extreme temperatures, moisture, and chemicals. – Storage areas should be well-organised, with PPE sorted according to type, size, and usage frequency, ensuring easy access during emergencies. – Respiratory protective equipment should be kept in airtight containers to prevent contamination or degradation. – All equipment but in particular respiratory protection should be cleaned with lukewarm water and soap after each use
Inspection	<ul style="list-style-type: none"> – Regular inspections are crucial to check for any damage, wear, or defects. PPE should be inspected before and after each use to ensure it remains in optimal condition. – Key areas to inspect include straps, seals, filters, valves, and the overall integrity of the suit or mask. – Record inspection details, including dates, findings, and any actions taken, in a maintenance log to track the PPE's condition over time
Maintenance	<ul style="list-style-type: none"> – Clean PPE after each use according to the manufacturer’s guidelines. Use appropriate cleaning agents to remove contaminants without damaging the equipment. – Replace filters, cartridges, or components of respiratory protective equipment as needed to maintain effectiveness. – Ensure all moving parts (e.g., zippers, buckles) function correctly and are not compromised. – Always use PPE-specific maintenance tools and supplies recommended by the manufacturer to avoid damaging the equipment. – Establish clear protocols and designate responsibilities for PPE management to avoid confusion and ensure prompt action during incidents.

Key procedures for Safe Disposal or Decontamination of Used PPE:

Decontamination	<ul style="list-style-type: none"> – PPE exposed to contaminants must be decontaminated using appropriate methods, such as chemical solutions, UVGI (Ultraviolet Germicidal Irradiation), or washing, depending on the contaminant type or the weathering – Follow the manufacturer's decontamination recommendations and protocols, particularly for reusable PPE. – With the support of specialised operators, specialised decontamination stations can be set up to handle the process, ensuring that contaminants do not spread or pose further risks.
Disposal	<ul style="list-style-type: none"> – Disposable PPE should be placed in designated biohazard or hazardous waste bags/containers to prevent cross-contamination. – Clearly label disposal containers and store them in a secure location

	<p>until they can be safely transported to an authorized disposal facility.</p> <ul style="list-style-type: none"> - Air quality around chemically contaminated PPE should be monitored. In case of exceeding safety standards stored items have to be moved in alignment with the emergency plan. - Adhere to local regulations and guidelines for hazardous waste disposal to ensure compliance and environmental safety.
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Decontamination Procedures

The key decontamination procedures are described in the following section:

Emergency Decontamination	Initial decontamination involves removing contaminated clothing and washing the skin with soap and water to minimize the penetration of CBRN agents. Warm water should be used, but without excessive heat or friction to avoid skin damage. The decontamination process is effective in removing up to 95% of radiological contamination by removing outer clothing and showering.
Specialized Emergency Decontamination Solutions for people decontamination	These solutions (e.g., dry absorbent) can quickly neutralize chemical agents and could be available in strategic areas, such as entrances or baggage control points, for immediate use

Coordination with Specialised Emergency Services:

Hotel staff should only implement the above-mentioned protective measures to manage the immediate situation until specialised CBRN teams arrive. Training is essential to ensure that staff can effectively utilise protective equipment and follow decontamination procedures.

In summary, the CBRN protective measures in a hotel focus on conducting safe evacuations, facilitating emergency decontamination procedures and using appropriate personal protective equipment (if available) and ensuring staff are adequately trained to handle contamination events until professional responders take over. This approach enhances safety, reduces contamination risks, and supports effective crisis management in CBRN incidents. By adhering to these practices, organizations can maintain the integrity and reliability of PPE, ensuring that it remains effective in protecting against CBRN hazards.

5.3. Understanding basic donning and doffing procedures

Key instructions for Safety Measures and Decontamination Protocols:

1. **Safety Measures During PPE Removal:**
 - o Ensure careful removal of PPE to avoid any contact with contaminated surfaces, as improper doffing can lead to self-contamination.
 - o Always perform hand hygiene before and after removing PPE, and between steps, if needed.
 - o Avoid touching your face, hair, or other exposed skin while removing PPE to reduce the risk of contamination.



- Use gloves appropriately while handling contaminated PPE and dispose of them safely in designated waste containers.

2. Importance of Decontamination:

- Decontamination is crucial to eliminate any potential contaminants on the PPE or exposed surfaces.
- Use appropriate decontamination agents (e.g., bleach solutions, alcohol-based disinfectants) as recommended for the specific CBRN agents.
- Follow decontamination procedures thoroughly to ensure all contaminants are effectively removed, and PPE is handled safely during disposal.

3. Guidance on Decontamination Procedures:

- Use specialized cleaning stations for decontaminating PPE, ensuring proper ventilation and safety measures.
- For exposed body parts, employ decontamination showers or washing stations to remove contaminants from the skin and hair.
- Ensure contaminated disposable PPE is bagged, sealed, and disposed of according to hazardous waste management protocols.

5.4. Understanding basic decontamination procedures

CBRN decontamination refers to “the removal or reduction of hazardous materials from the undesirable place (contamination) to lower the risk of further harm and/or cross-contamination”. This procedure is essential to reduce the risk of exposure, contamination spread, and health hazards in the aftermath of a CBRN attack. Also, decontamination is crucial in preventing the escalation of contamination-related risks following a CBRN incident. It ensures that any hazardous substances are effectively eliminated or rendered harmless, protecting both responders and the general public from potential harm. This process is integral in maintaining safety, restoring a contaminated area to a safer state, and allowing emergency services to manage the situation efficiently.

Prompt and Effective Decontamination is essential for the following reasons:

1. **Minimizing Health Risks:** rapid decontamination can significantly reduce the impact of hazardous agents on individuals exposed during an attack, limiting injuries and potential fatalities.
2. **Preventing Secondary Contamination:** effective decontamination procedures prevent the spread of contaminants to other areas, reducing the risk of secondary exposure to unprotected individuals.
3. **Restoring Normalcy:** prompt decontamination facilitates a quicker return to regular operations, especially in venues like hotels and conference centres, by ensuring that the environment is safe for re-entry and use.
4. **Supporting Emergency Responders:** decontaminating personnel and equipment ensure that first responders remain safe and effective in managing the incident without further contamination risks.

In summary, CBRN decontamination plays a vital role in mitigating the effects of a CBRN attack, ensuring safety, and preventing the spread of hazardous agents. It is a key component of the overall response plan that requires thorough training, preparedness, and implementation.

There are different types of decontamination for CBRN scenarios. Importantly, the choice of decontamination method depends on the type and severity of contamination, availability of resources, and the environment. Dry and wet decontamination methods may be used together as part of an initial response, while technical decontamination is reserved for professional services.

The following table provides an overview of the different types of decontamination methods and outlines the key characteristics.

Dry Decontamination	
Description	The use of techniques without water or liquids to decontaminate people or property; using tools such as brushes, dry wipes, cloths, or vacuum cleaners, while paying attention not to produce hazardous dust.
When using it	Ideal for initial response, in case of visible liquid contamination, especially when water is not immediately available or when dealing with substances that react adversely to moisture.
Advantages	Quick, easy to implement, and useful in situations where water resources are limited or when dealing with water-reactive agents.
Wet Decontamination	
Description	The application of water (or other liquids) to decontaminate people or property.
When using it	Commonly employed when dealing with chemical or biological contaminants that can be dissolved or washed away. It's often used after initial dry decontamination for more complete cleansing.
Advantages	It is highly effective in removing a wide range of contaminants and is suitable for large-scale decontamination efforts. It can be combined with soap or detergents to enhance the removal process.

Decontamination Zones and Setup in CBRN Incidents:

Hot Zone (Contaminated Area)	
Definition	Biological & Chemical - The contaminated areas where the initial release occurs or disperses to. It will be the area likely to pose an immediate threat to the health and safety of all those located in it. Radiological – An area around a dangerous radioactive source where precautions should be taken to protect responders and the public from possible exposure and contamination (defined as >0.1 mSv/h)
Purpose	The hot zone is strictly controlled and accessed only by personnel wearing full protective gear (PPE). Its primary purpose is to contain the contaminant and prevent its spread.
Activities	Limited to essential operations such as initial emergency response, hazard assessment, and containment measures. Entry and exit from this zone are strictly monitored.
Safety Measures	If performing any emergency duties, in the case of an unknown hazardous substance, personnel should wear the highest available level of PPE. If/when the hazardous substances are known, the level of PPE can be matched to the associated risk(s). All movements should be minimised to



	reduce the risk of spreading contamination.
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Warm Zone	
Definition	The area is uncontaminated by the initial release of a substance, which becomes contaminated by the movement of people or vehicles. This is an area next to the hot zone that is considered safe for workers to enter with appropriate PPE. This includes areas used for decontamination activities.
Purpose	The warm zone is where the emergency services conduct their specialized CBRN operations. The warm zone is managed by the emergency services to prevent contamination spreading to the cold zone
Activities	The primary activities here are the decontamination of people, property and equipment and other specialized operational activities such as management and treatment of contaminated casualties, forensics analysis/recovery and disaster victim identification (DVI) as making well deployments into the hot zone (for sampling, searching, DIM, rescues of incapacitated people, police investigations etc.)
Safety Measures	Personnel in this zone continue to use appropriate PPE, though it may be less stringent than that required in the hot zone. Proper procedures must be followed to prevent cross-contamination.
Cold Zone (Clean Area)	
Definition	The uncontaminated area is beyond the hot and warm zones where access is restricted for emergency response services. The Cold zone is the outermost and safest area, free from contamination.
Purpose	This area is the base of operations for support activities, medical care and awaiting transport to medical facilities. It is also used as a command and coordination point for managing the incident response.
Activities	Activities in this zone include providing medical treatment, coordinating communication and logistics, and ensuring that individuals who have already undergone decontamination in the warm zone can be confirmed as free of contaminants.
Safety Measures	PPE may not be required in the cold zone, but vigilance is maintained to ensure no contaminants are transferred from other zones.

The establishment and management of the correct zones by emergency services are crucial in controlling and minimising the spread of contaminants during a CBRN incident. Proper setup and adherence to procedures in each zone ensure the safety of responders, affected individuals, and the environment, while also maintaining an organized and effective incident response. Notably, all decontamination activities take place within the warm zone, preventing contaminants from spreading to the cold zone.

6. Protection of potential victims

6.1. Implementing procedures for the protection of potential victims

Definition of Victim Protection Procedures

Protecting victims from further danger aims at providing necessary assistance and upholding their dignity and rights throughout the incident and recovery process. Victim protection procedures are systematic protocols and actions designed to ensure the safety, well-being, and rights of individuals who have been harmed or are at risk of harm due to emergencies, disasters, or criminal activities. These procedures encompass immediate response actions, ongoing support, and long-term recovery efforts aimed at minimizing physical, psychological, and emotional harm. While it is good practice to be aware of them, **hotel staff is not involved in Victim Protection Procedures**, as they are implemented by first responders, organizations, and institutions.

Relevance in Ensuring Safety and Minimizing Harm

Victim protection procedures are crucial in various scenarios, including natural disasters, accidents, criminal incidents, and CBRN, including CBRNe. **Victim Protection Procedures** include:

Immediate Safety Measures	Removing victims from hazardous environments to prevent additional injuries or fatalities.
Medical Assistance	Providing prompt medical care to address injuries, exposure to hazardous substances, or psychological trauma.
Emotional and Psychological Support	Offering counselling and support services to help victims cope with stress, fear, and trauma resulting from the incident.
Legal and Rights Protection	Ensuring victims are aware of their rights and that these rights are protected throughout any investigative or legal processes.
Information and Communication	Keeping victims informed about the situation, available resources, and what actions are being taken to ensure their safety
Preservation of Dignity	Treating all victims with respect and sensitivity, acknowledging their experiences, and avoiding actions that could cause additional distress

While the above procedures are the sole responsibility of the community/state response services, hotel staff may assist if and wherever required

However, remember: safety first

In case of CBRN incidents, an additional activity – decontamination takes place right after the “Immediate safety measures”. For details, please consult p. 5.4. “Understanding basic decontamination procedures”.



Role of Hotel Staff in Victim Protection

Victim protection procedures are vital components of emergency response efforts aimed at safeguarding individuals from harm. By defining clear protocols and emphasizing proactive measures, organizations can create safer environments and minimize the impact of various risks and threats. Training, vigilance, and a commitment to the well-being of all individuals not only enhance safety but also foster a culture of preparedness and resilience.

In settings like hotels and conference centres, staff members play a pivotal role in victim protection procedures by:

1. Observing and Reporting

Staying alert to unusual activities or hazards and promptly reporting them to supervisors or security personnel.

2. Isolating Hazards

If safe doing so, taking immediate actions like closing doors to contain potential threats and prevent others from entering dangerous areas.

3. Providing Accurate Information

When reporting incidents, describing exactly what was observed without speculation helps responders assess and address the situation effectively.

4. Assisting Guests

Guiding guests to safety while providing clear instructions.

6.2. Evacuation procedures

Importance of Tailoring Evacuation Plans Based on the Type of CBRN Agent Involved

Each type of CBRN agent presents unique challenges and requires specific evacuation strategies to ensure the safety and effectiveness of the response. Tailoring evacuation plans involves considering the properties of the agent, its mode of transmission, and the appropriate protective actions. Here's how evacuation plans may differ based on the CBRN agent involved:

Type of Agent	Considerations	Evacuation Plans
<p>General recommendations</p>	<p>The main CBRN hazard dispersion route in the populated areas is inhalation. The remaining are direct skin contact and ingestion of the matter dispersed in the air.</p> <p>Crowding and violent behaviour are the main ways of cross-contamination generation</p>	<p>Upwind/Uphill Evacuation: if the incident takes place outside, move individuals upwind of the contamination to avoid exposure. If indoors, try to figure out the air movement direction, e.g., by observing fumes/dust.</p> <p>Crosswind Movement: in some cases, moving crosswinds is advisable to get out of the path of airborne agents quickly.</p> <p>Shelter-in-Place: sometimes, it is safer to remain indoors to prevent exposure</p> <p>Avoid excessive inhalation, avoid skin contact: no touch, no unnecessary physical effort.</p> <p>Don't congest, don't touch: use nitrile gloves</p>



		<p>by default.</p> <p>Limit Movement: restrict evacuation to prevent spreading the agent to new areas Contaminated dust/aerosol settles down, avoid recreation of contamination</p> <p>Use of PPE: provide personal protective equipment if evacuation is necessary. Only simple, not requiring training, PPE can be considered.</p>
<p>Recommendations specific for Chemical Agents</p>	<p>Chemical agents can be toxic through inhalation, skin contact, or ingestion. They may be heavier or lighter than air, affecting how they disperse: they may evaporate or exist in the form of a stable aerosol.</p>	<p>Avoid Basins and Below-the-level Location: some chemicals settle in low areas; evacuate to higher ground if appropriate.</p> <p>Decontamination: implement emergency decontamination procedures before evacuation to prevent the spread of contaminants. Remove contaminated clothing and wash exposed skin with soap and water, any water, or any suitable liquid</p> <p>Medical Screening: implement health checks as necessary</p>
<p>Biological Agents</p>	<p>Biological agents may be contagious and have incubation periods. They may be airborne, ingested or infected wounds. Symptoms may not be immediately apparent.</p>	<p>Medical Screening: implement health checks and quarantine procedures as necessary.</p> <p>Mind the onset period: observe your organism the following days. To protect against aerial infection, wear FFP; to protect against person-to-person infection, keep distance; to protect against direct infection, don't touch other people, don't touch yourself with your hands</p> <p>Decontamination: remove contaminated clothing and wash exposed skin with soap and water, any water, or any suitable liquid</p>
<p>Radiological Agents</p>	<p>Radiation exposure can occur without immediate symptoms. Contamination can be distant – from a source or local – as radioactive settlement on the body or internally (ingested or inhaled).</p>	<p>Increase Distance: move away from the source of radiation promptly.</p> <p>Shielding: utilize buildings or structures to shield against radiation.</p> <p>Avoid Contaminated Areas: follow designated evacuation routes to avoid high-radiation zone.</p> <p>Decontamination: remove contaminated clothing and wash exposed skin. Do it in a designated place only, don't let water into the sewage system</p>

<p>Nuclear Incidents</p>	<p>Involves intense radiation, blast effects, heat, and electromagnetic pulse. Fallout can spread over large areas depending on wind patterns.</p>	<p>Shelter-in-Place Initially: immediate evacuation may not be safe; seeking shelter in robust structures is critical.</p> <p>Delayed Evacuation: evacuate once it is safe, following official guidance.</p> <p>Avoid Fallout Zones: use evacuation routes that minimize exposure to fallout.</p> <p>Communication: provide clear instructions via all available channels.</p>
<p>Explosive Threats</p>	<p>Risk of structural damage, fires, and secondary explosions. Possibility of additional devices (secondary attacks).</p>	<p>Rapid Evacuation: move individuals away from the immediate vicinity of the blast.</p> <p>Avoid Suspicious Items: instruct evacuees not to touch or move unattended packages.</p> <p>Avoid dangling rubble</p> <p>Assembly Points: guide people to safe assembly areas away from buildings and potential hazards.</p> <p>Accounting for All Individuals: ensure everyone is accounted for to aid in search and rescue if necessary.</p>

Staff Training in Guest Assistance During Evacuations

Importance of Staff Training and Guest Assistance

Effective evacuation procedures are critical in ensuring the safety of guests and staff during emergencies, especially in CBRN incidents. Well-trained staff members play a pivotal role in:

- **Guiding Guests Safely**
- **Maintaining Calmness**
- **Assisting Those in Need**

Training Staff Members in Their Evacuation Roles

<p>Comprehensive Knowledge of Evacuation Procedures</p>	<p>Familiarity with Emergency Exits and Routes: staff should know all possible evacuation paths and alternative exits.</p> <p>Understanding of Emergency Equipment: training on the use of alarms, communication devices, and first aid kits.</p> <p>Awareness of CBRN and CBRNe Protocols: specific procedures related to different CBRN hazards should be well-understood.</p>
<p>Effective Communication Skills</p>	<p>Clear Instruction Delivery: practice in giving concise and understandable directions.</p> <p>Multilingual Abilities: where possible, staff should be able to communicate in the languages commonly spoken by guests.</p>
<p>Guest Guidance and Leadership</p>	<p>Visible Identification: staff should be easily identifiable, wearing uniforms or vests.</p> <p>Role Assignments: specific roles during an evacuation (e.g., floor wardens and stairwell monitors) should be assigned and practiced.</p> <p>Use of Signage: employ clear signs and signals to guide guests, especially</p>

	in low-visibility conditions.
Assistance to Those Needing Help	<p>Identification Skills: recognizing guests who may not readily seek help but require assistance.</p> <p>Emotional Support: providing comfort and reassurance to distressed individuals.</p>

6.3. Identifying sheltering places and safe zones after a CBRN incident

Identification of Sheltering Places and Safe Zones in Hotels and Conference Centres

In the event of a CBRN incident, having pre-identified sheltering places and safe zones within hotels and conference centres is crucial for ensuring the safety and protection of guests and staff. Properly designated spaces can significantly reduce exposure to external hazards and provide a controlled environment until it is safe to evacuate or until emergency services arrive. However, sheltering in place is intended as a temporary solution, ideally for less than two hours. This is because (i) after two hours, it is expected that the contamination will reach the shelter, (ii) because the risks associated with staying in an enclosed place, such as oxygen deprivation, may be more significant than facing contamination risks, and also because prolonged seclusion may have some psychological impact on the occupants. If positive-pressure ventilation is present in some premises, such spaces may be first-choice solutions on condition that they are envisaged in the emergency plan and checked for that purpose. Sheltering is not an option for VIP: evacuation should be considered as the primary option.

Examining Structural Features and Characteristics of Safe Zones

To determine whether an area is suitable as a safe zone or sheltering place, several structural features and characteristics should be examined:

Structural Integrity and Reinforcement	
Solid Construction	Areas built with reinforced concrete, steel framing, or other robust materials offer better protection against blasts, impacts, and structural collapse.
Inner Rooms	Interior rooms away from external walls, windows, and doors reduce exposure to external hazards such as flying debris or shrapnel.
Limited Openings and Ventilation Control	
Ventilation Systems	The ability to shut down or control HVAC systems prevents contaminated air from circulating into the shelter area unless it is a positive air pressure intake from a sure source.
Minimal Windows and Doors	Fewer openings reduce the risk of hazardous agents entering the space.
Sealable Openings	Windows and doors that can be tightly closed and sealed help prevent infiltration of chemical, biological, or radiological contaminants.
Accessibility and Capacity	
Proximity to Occupied Areas	Safe zones should be easily accessible from guest rooms, conference halls, and common areas to allow quick relocation.
Adequate Space	The area should accommodate the expected number of occupants

	comfortably, considering the need for personal space to reduce stress.
Accessibility Features	If possible, the shelter should be accessible to individuals with disabilities, including ramps, handrails, and enough space for mobility devices.
Communication Capabilities	
Communication Equipment	Availability of landline phones, hard-wired routers, two-way radios, or intercom systems to maintain contact with emergency responders and management.
Public Address Systems	Link to the communications manager to receive announcements and updates from authorities or the incident command centre.
Essential Supplies and Amenities	
Emergency Kits	Stocked with first aid supplies, flashlights, batteries, and necessities.
Sanitation Facilities	Access to restrooms or portable sanitation solutions.
Food and Water	Sufficient provisions for the expected duration of sheltering.
Environmental Control	
Climate Control	Protected against conditions causing heat stress or hypothermia.

Identifying Protective Areas Within the Hotel and Conference Centre

Based on the above characteristics, the following areas are often suitable for use as safe zones or sheltering places:

1. Designated Safe Rooms:

- **Purpose-Built Shelters:** some facilities may have rooms specifically designed as shelters, equipped with reinforced structures and essential supplies.
- **Multi-Purpose Rooms:** conference rooms or ballrooms that can be quickly converted into shelter areas due to their size and internal location.

2. Reinforced Areas:

- **Basements and Sublevels:** offer protection from explosions and radiation due to the surrounding earth and reinforced construction.
- **Interior Stairwells:** typically constructed with reinforced concrete and lacking windows, providing structural protection.
- **Service Corridors:** internal corridors used by staff that are away from public access and external walls.

3. Areas with Limited Ventilation:

- **Rooms with Independent HVAC Controls:** allows for the shutdown of ventilation to prevent the ingress of contaminated air.
- **Windowless Rooms:** storage rooms or utility spaces that can be sealed more effectively.

Considerations for Different Types of CBRN Incidents

Chemical Incidents	<p>Shelter-in-Place: select rooms that can be sealed to prevent chemical vapours or aerosols from entering.</p> <p>Avoid Low-Lying Areas: most chemicals are heavier than air, except, amongst the most relevant: hydrogen cyanide, ammonia, hydrogen fluoride, methane, diborane hydride; therefore, higher floors may be preferable if safe and practical.</p>
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Biological Incidents	<p>Isolation Capability: areas where individuals can be separated to prevent the spread of contagious agents.</p> <p>Enhanced Air Filtration: spaces equipped with air filtering systems to reduce airborne pathogens.</p>
Radiological and Nuclear Incidents	<p>Shielding: thick walls, concrete, and earth provide protection against radiation. Basements and internal rooms on lower floors are ideal.</p> <p>Distance from Exposure: maximizing distance from the source of radiation reduces exposure.</p>
Explosive Incidents	<p>Structural Protection: areas away from potential blast zones, such as internal rooms without windows.</p> <p>Reinforced Structures: utilize areas designed to withstand structural stress.</p>

6.4 To manage vulnerable populations after a CBRN incident happens

Definition of Vulnerable Populations

Vulnerable populations are groups of individuals who, due to physical, mental, social, economic, or environmental factors, are at an increased risk during emergency situations, including CBRN incidents. These individuals may require additional assistance, resources, or considerations to ensure their safety and well-being during and after such events. Hotel staff should facilitate the evacuation of vulnerable people while waiting for the intervention of emergency services.

Unique Needs in Emergency Situations, Particularly in CBRN Incidents

During CBRN incidents, vulnerable populations face heightened risks due to the nature of the hazards involved and the rapid response required. Their unique needs may include:

- **Physical Assistance:** difficulty in moving quickly or independently, requiring help during evacuations or sheltering (element to be evaluated, as there is the risk of staff cross-contamination by physical assistance).
- **Communication Needs:** challenges in receiving and understanding emergency instructions due to language barriers, hearing impairments, or cognitive disabilities.
- **Medical Requirements:** dependence on medications, medical equipment, or specialized care that may be disrupted during emergencies.
- **Emotional Support:** increased stress or anxiety, necessitating psychological support to cope with the situation.
- **Cultural Sensitivities:** need for culturally appropriate communication and assistance to ensure compliance with emergency protocols.

Identified Vulnerable Groups

Vulnerable group	Unique Needs	Consideration during a CBRN event
Children	<ul style="list-style-type: none"> - Dependence on adults for care and decision-making. - Limited ability to understand complex instructions or the severity of the situation. - Higher susceptibility to the effects of hazardous substances due to developing bodies. This 	<ul style="list-style-type: none"> - Provide appropriate age communication. - Ensure supervision during evacuations and sheltering. - Assist in using PPE whenever applicable - Prioritise during evacuation

	means that children have lower no-adverse effects exposure limits.	
Infants and Young Children:	<ul style="list-style-type: none"> - Require parental or guardian presence. - Special supplies such as formula, diapers, and baby food. 	<ul style="list-style-type: none"> - Ensure availability of child-specific supplies. - Keep families together except in a situation when a parent is contaminated with liquid or requires resuscitation, and the child is not. - Escort non-supervised children to an assembly point; arrange child care at the assembly point.
Elderly Individuals	<ul style="list-style-type: none"> - Potential mobility limitations or chronic health conditions. - Sensory impairments (vision or hearing loss, aphasia) that affect communication. - Increased vulnerability to environmental stress and contaminants. 	<ul style="list-style-type: none"> - Offer assistance with mobility and transportation. - Provide clear, audible, and visible instructions.
Individuals with Disabilities	Physical Disabilities: <ul style="list-style-type: none"> - May require mobility aids (wheelchairs, walkers) and accessible evacuation routes. - Assistance with transferring or moving through congested areas. 	<ul style="list-style-type: none"> - Ensure accessibility of facilities and information. - Provide specialized equipment or assistance as needed. - Train staff on how to assist appropriately - Inform the service providing decontamination about the need for vehicle decontamination
	Medical Disabilities: <ul style="list-style-type: none"> - Conditions such as lung diseases, asthma, and bronchitis react first to airborne hazards. 	
	Sensory Disabilities: <ul style="list-style-type: none"> - Hearing Impairments: need for visual alerts and written instructions. - Visual Impairments: assistance navigating unfamiliar environments. 	
	Cognitive or Developmental Disabilities: <ul style="list-style-type: none"> - Simplified instructions and consistent routines. - Support from caregivers or familiar individuals 	
Pregnant Women	<ul style="list-style-type: none"> - Potential mobility challenges, especially in later stages of pregnancy. 	<ul style="list-style-type: none"> - Prioritize medical evaluation and care. - Provide rest areas and avoid

	<ul style="list-style-type: none"> - Need for pre-caring and monitoring. - Sensitivity to certain contaminants or oxygen deficiency that may affect fetal development. 	<p>strenuous activities.</p>
<p>Individuals with Chronic Medical Conditions</p>	<ul style="list-style-type: none"> - Dependence on life-sustaining medications or equipment (e.g., insulin, oxygen tanks). - Regular medical treatments (dialysis, chemotherapy). 	<ul style="list-style-type: none"> - Ensure continuity of care and access to medical supplies, prioritise during evacuation - Coordinate with medical facilities for necessary treatments. - Keep records of medical needs for responders.

Foreign language Speakers and Cultural Minorities	<ul style="list-style-type: none"> - Language barriers that impede understanding of instructions. - Cultural differences affecting compliance with emergency procedures. 	<ul style="list-style-type: none"> - Provide translations and multilingual staff or interpreters. - Use pictograms and universally understood hazard symbols. - If time permits, try to respect cultural practices when providing assistance. Try to persuade the optimal behaviour pattern, but do not use brute force
Low-Income Individuals and Homeless Populations	<ul style="list-style-type: none"> - Limited access to resources, transportation, and information. - Higher likelihood of pre-existing health issues. 	<ul style="list-style-type: none"> - Offer transportation to shelters or medical facilities. - Provide necessities and information on available services. - Engage community organizations for support.
Tourists and Visitors	<ul style="list-style-type: none"> - Unfamiliarity with the local area and emergency procedures. - Possible language barriers. 	<ul style="list-style-type: none"> - Clearly communicate instructions in multiple languages. - Provide guidance on evacuation routes and shelter locations. - Offer support services to contact family or consulates.
Individuals with Mental Health Conditions	<ul style="list-style-type: none"> - May experience heightened anxiety, confusion, or behavioural issues. - Require medication or psychological support. 	<ul style="list-style-type: none"> - Don't separate from guardians or assistance unless it leads to a direct health threat Offer calming environments and reassurance. - Ensure access to mental health professionals if possible. - Be patient and use clear, simple communication.

Incorporating Specific Protocols in Evacuation Plans and Sheltering Procedures

Evacuation Plans

1. Accessible Evacuation Routes and Exits

Infrastructure Modification	Clear Signage and Wayfinding
<ul style="list-style-type: none"> ▪ Ramps and Elevators: ensure routes have ramps, handrails, and elevators with backup power for accessibility, in line with the legislation. ▪ Wide Corridors and Doorways: modify for wheelchair and mobility device access. 	<ul style="list-style-type: none"> ▪ Universal Symbols: use internationally recognized symbols with accompanying text. Make the availability of the hazard symbols a part of preparedness ▪ High-Visibility Signs: install large-font, contrasting signage at eye level for better visibility.

2. Communication Strategies

Multiple Alert Systems	Multilingual Information
<ul style="list-style-type: none"> ▪ Auditory Alarms: use alarms with varying tones for partial hearing. ▪ Visual Alerts: use flashing lights or 	<ul style="list-style-type: none"> ▪ Language Accessibility: offer evacuation instructions in multiple languages common to the guest

<p>strobe signals for individuals with hearing impairments.</p> <ul style="list-style-type: none"> ▪ Tactile Notifications: provide vibration alerts or tactile signage for those who are deaf-blind. 	<p>population.</p> <ul style="list-style-type: none"> ▪ Pictograms and Visual Aids: utilize images to convey instructions to non-readers or those with cognitive impairments. Make the availability of those images a part of preparedness ▪
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3. Specialized Evacuation Procedures

Evacuation Aids	Priority Evacuation Protocols
<ul style="list-style-type: none"> ▪ Evacuation Chairs: equip stairwells with evacuation chairs for mobility-impaired individuals. ▪ Transfer Slings: provide slings or mats for moving non-ambulatory individuals. 	<ul style="list-style-type: none"> ▪ Staged Evacuation: implement procedures for prioritizing the evacuation of vulnerable individuals first to prevent crowding. ▪ Inform decontamination services about the need for equipment decontamination

4. Training and Drills Involving Vulnerable Populations

Inclusive Practice Sessions	Education Programs
<ul style="list-style-type: none"> ▪ Regular Drills: conduct evacuation drills involving vulnerable groups. ▪ Feedback Collection: after drills, gather input from participants to identify areas for improvement. 	<ul style="list-style-type: none"> ▪ Staff Training: train staff to assist vulnerable individuals and use evacuation equipment effectively. ▪ Guest Awareness: display emergency instructions in guest rooms or common areas.

Methods for Individuals with Language Barriers

1. Multilingual Communication Materials

- Translated Documents
 - Emergency Instructions in multiple languages.
 - Signs with translations and universal symbols.
- Bilingual Staff and Interpreters
 - Employ bilingual staff for direct communication.

2. Visual and Non-Verbal Communication

- Pictograms and Icons
 - Use universal symbols (e.g., exits, hazards) for quick understanding.
 - Provide Picture Boards to depict actions or needs.
- Demonstrations and Gestures
 - Physically demonstrate actions like putting on a mask or moving to shelter.
 - Simple Gestures: Use easy, culturally appropriate hand signals.

3. Technology-Based Solutions

- Translation Apps and Devices
 - Use Mobile Apps: Real-time text and speech translation.
 - Handheld Translators: Devices for spoken translations in multiple languages.
- Pre-Recorded Messages
 - Multilingual Audio Messages for emergencies.
 - QR Codes & Links: Provide links to translated materials online.

Specialized Training and Sensitivity in Dealing with Vulnerable Populations

In the context of CBRN, vulnerable populations require special attention and care. Specialized training and sensitivity are crucial for staff and responders to assist these individuals effectively. This involves not only understanding the unique needs of different vulnerable groups but also approaching them with empathy, cultural awareness, and respect for personal considerations. Such training ensures that the support provided is both effective and considerate of the individuals' dignity and rights.

Importance of Specialized Training and Sensitivity

1. Enhancing Response Effectiveness

Understanding Specific Needs	Improving Communication	Reducing Risks
Specialized training equips staff with knowledge about the physical, psychological, and emotional needs of various vulnerable groups, allowing for tailored assistance.	Training in effective communication strategies ensures that critical information is conveyed appropriately to those who may have impairments or language barriers.	Proper handling reduces the risk of injury or distress to vulnerable individuals during high-stress situations.

2. Promoting Empathy and Understanding

Building Trust	Emotional Support
Approaching individuals with empathy fosters trust, encouraging cooperation and compliance with emergency procedures.	Sensitivity to the emotional state of vulnerable individuals helps in providing comfort and reassurance during traumatic events.

3. Ensuring Ethical and Legal Compliance

Respecting Rights	Avoiding Discrimination
Training ensures that staff are aware of and respect the legal rights of vulnerable populations, including privacy and autonomy.	Sensitivity training helps prevent unintentional bias or discrimination based on disability, culture, or religion.



7. Securing the Action Scene

7.1. The need for securing the incident scene

Definition and Significance

Securing the incident scene in the context of CBRN incidents involves taking immediate actions to control and isolate the affected area. **This process remains in the scope of the response services.** is crucial to:

- **Ensure Safety:** protect staff and guests from exposure to hazardous substances. Staff should not be put at risk during the response to a CBRN emergency.
- **Preserve Evidence:** maintain the integrity of the scene for investigations while recognising that life-saving activities take priority.
- **Prevent Unauthorized Access:** as far as safely possible, prevent anyone from entering the dangerous area(s).

By running activities according to the emergency plan, the hotel can aid emergency responders in managing the incident more efficiently and minimizing potential harm.

Objectives of Securing the Scene

Safety	Protect Individuals: the foremost priority is the safety of everyone in the vicinity. Securing the area helps prevent further exposure to harmful agents.
	Containment: isolating the area limits the spread of contaminants, reducing the risk to others. To be considered only if doesn't reduce individual safety.
Preservation of evidence	Investigation Support: preserving the scene allows authorities to collect vital evidence to determine the cause and prevent future incidents.
	Legal Compliance: proper evidence preservation is essential for any legal proceedings that may follow.
Preventing Unauthorized Access	Access Control: restricting entry prevents additional casualties.
	Operational Efficiency: emergency services will take responsibility for access control when they arrive It allows emergency services to operate without hindrance or interference

Role of Hotel Staff

Hotel staff are often the first to recognize a potential CBRN incident. Their actions can significantly impact the outcome. Staff should focus on the following principles:

Principle	Actions
1. See Something, Say Something	<ul style="list-style-type: none"> - Be Vigilant: stay alert to unusual sights, sounds, or smells that could indicate a problem. - Immediately Report: report anything suspicious or out of the ordinary to your supervisor or designated security personnel. - Provide only Accurate Information: provide clear and concise details about your observations.



2. Close the Door	<ul style="list-style-type: none"> - Isolate the Area: if safe, close doors or windows to contain the hazard within a specific area. - Prevent Entry: keep others out of the affected zone until emergency responders arrive. - Do Not Touch: avoid interacting with suspicious objects or substances.
3. Describe What You Saw and Nothing More	<ul style="list-style-type: none"> - Factual Reporting: communicate only the facts of what you observed when speaking with authorities. - Avoid Speculation: do not guess or make assumptions about the incident. - Clarity and Precision: provide clear descriptions to help responders address the situation effectively.

By adhering to these guidelines, hotel staff can:

- **Enhance Safety:** protect themselves and others from harm.
- **Assist Responders:** provide valuable information that aids in the swift resolution of the incident.
- **Maintain Order:** manage the people and ensure a coordinated response.

Remember: your actions can make a significant difference in the successful management of a CBRN incident. Stay calm, act promptly, and always prioritize safety.

7.2 How to perform efficient crowd and traffic control

Expected crowd behaviour during CBRN emergency

Key Misconceptions	Reality (based on contemporary research)
Crowds will "panic"	Panic is rare; behavior is usually rational and prosocial.
Selfishness prevails	Cooperation and solidarity often dominate.
Emotions override rationality	People respond based on social norms and shared identity.
Crowds overreact or act irrationally	Actions are typically logical and context-appropriate (e.g., fleeing threats).
Withholding information prevents panic	Clear communication improves outcomes and increases trust.
Misinformation spreads quickly	Proper messaging reduces the likelihood of misinformation spreading

Key Research Findings and Principles

Findings	Implications
Fear ≠ Panic	Fear can lead to prosocial behaviour rather than chaos.
Group fear in case of chemical (acute) toxicity was observed as turning into panic (not stampede)	Fear leads to psychosomatic symptoms = false casualties
Crowds are resilient and resourceful.	Treat crowds as allies, not obstacles, in emergencies.

Cooperation is common, even among strangers.	Use shared identity to foster collaboration and order.
Alarms/messages are often ignored unless personalized.	Human-led messaging is more effective than automated alerts.
Providing actionable and credible information increases compliance.	Transparency and health-focused messaging reduce anxiety and improve evacuation efficiency.
Communication strategies significantly influence crowd behaviour.	Clear, credible, and relevant information fosters calm and cooperative responses.

Best Practice for Crowd Management and Communication

Communication	<ul style="list-style-type: none"> - Use human messaging over automated alerts. - Provide clear, actionable, and credible information. - Avoid emotional reassurances; focus on facts.
Emergency Messaging	<ul style="list-style-type: none"> - Use unifying language to strengthen crowd identity. - Repeat key messages for clarity. - Offer timely updates and specific self-help advice.
Understanding Crowd Dynamics	<ul style="list-style-type: none"> - Leverage the crowd's prosocial tendencies. - Avoid treating the crowd as a problem; see them as part of the solution.
Planning and Training	<ul style="list-style-type: none"> - Train staff on crowd psychology and behaviour. - Incorporate findings into emergency plans, evacuation procedures, and public messaging.

7.3. To effectively protect evidence and maintain scene integrity after a CBRN incident

In the event of a CBRN incident, hotels should take every step to ensure the safety of guests and staff while also preserving crucial evidence for authorities. Properly securing the scene and preventing contamination is vital, not only to support law enforcement and emergency services but also to facilitate recovery efforts and legal processes. Hotel managers, directors, security officers, and other key personnel should be prepared to act swiftly and effectively to maintain the integrity of the incident scene.

1. Understanding the Importance of Scene Integrity

CBRN incidents can have severe consequences, from immediate threats to life and health to long-term contamination risks. Preserving the scene is essential for:

- **Ensuring Safety** – Preventing further exposure and containing hazardous substances.
- **Supporting Investigations** – Helping law enforcement determine the cause, responsible parties, and necessary countermeasures.
- **Preventing Cross-Contamination** – Ensuring that evidence remains intact for forensic analysis.
- **Legal and Insurance Compliance** – Protecting the hotel from liability by demonstrating adherence to safety protocols.

2. Maintaining Order and Supporting Emergency Services



Once emergency responders arrive, hotel staff should facilitate their work by providing accurate information and maintaining an organized environment.

3. Assist with Perimeter Control

- **Identify Safe Zones** – Establish separate areas for affected and unaffected individuals to prevent cross-contamination.
- **Support Law Enforcement** – Provide security camera footage, guest logs, and floor plans to authorities.
- **Monitor Access Points** – Ensure that only authorized personnel enter the secured area.

4. Protect Potential Evidence

- **Preserve Physical Evidence** – Avoid cleaning or moving objects that could be relevant to the investigation.
- **Record Staff and Guest Movements** – Maintain logs of who was present at the time of the incident.
- **Limit Misinformation** – Ensure that all staff members communicate factual, non-speculative information to guests and authorities.

8. Rescue and Recovery Procedures

8.1 Understanding the work of the multiagency response (police, fire brigade, medical services) after a CBRN incident

In the aftermath of a CBRN incident, the response is typically coordinated by multiple agencies, including police, fire brigades, and medical services. Each of these agencies has distinct responsibilities, but their roles may vary depending on the specific nature of the incident and the location within the EU. The following table outlines the general roles and responsibilities of each first responder agency, with a focus on how hotels can effectively collaborate with them to manage the crisis. It is important to note that the roles of these agencies may change or overlap based on regional protocols, available resources, and the scale of the incident. Hotels should be prepared to cooperate closely with all responders and provide necessary support to ensure a coordinated and efficient response.

Agency	Key Responsibility	Relevance for Hotels
Police forces	Establish and maintain perimeters to secure the affected area.	Provide site access and cooperate with securing the premises.
	Lead the investigation, collect evidence, and coordinate forensic teams.	Share CCTV footage, guest/staff registries, and other relevant data to assist in investigations.
	Assist with evacuation and ensure public safety.	Cooperate with evacuation plans and ensure staff and guests follow police instructions.
	Act as the primary liaison with hotel management and provide updates.	Assign a liaison to maintain consistent communication with law enforcement.
Fire Brigades	Identify and contain hazardous substances – CBRN.	Facilitate access to affected areas and provide information on the hotel's infrastructure.
	Set up and manage decontamination areas for individuals and materials.	Ensure designated areas are available for decontamination and assist where needed.
	Extract and stabilize injured or trapped individuals.	Provide guest/staff location details to streamline rescue operations.
	Deploy technical tools to assess contamination levels.	Offer any technical assistance or plans, like HVAC schematics, to aid containment efforts.
Medical services	Assess injuries, triage patients, and provide immediate care.	Ensure hotel staff are informed about triage areas and facilitate guest access to medical responders.
	Collaborate in decontamination processes alongside fire services.	Support decontamination efforts by providing resources, such as towels



		or water, if feasible.
	Transport patients to healthcare facilities equipped for CBRN emergencies (sometimes could be performed by firefighters).	Provide emergency contact details of staff/guests for proper follow-up.
	Offer psychological first aid to affected individuals.	Prepare hotel staff to support guests in accessing mental health services.

8.2 To have basic knowledge about post-incident recovery and cleanup after a CBRN incident

The recovery phase following a CBRN incident is crucial in restoring normalcy while ensuring public health and environmental safety. This process involves a multi-agency approach, including emergency responders, environmental agencies, public health authorities, and specialized decontamination teams. Points **1, 2, and 4** below **are not among the responsibilities** of the hotel staff.

Key Steps in Post-Recovery and Cleanup

1.	Assessment and Hazard Identification
	Conduct a risk assessment to determine the nature and extent of contamination.
	Identification of affected areas and classification based on the level of contamination.
2.	Decontamination Procedures
	Deployment of specialized teams to conduct area-wide decontamination.
	Use of the appropriate decontaminants.
3.	Waste Management
	Securing hazardous waste in compliance with national and international regulations. This obligation and the one below are usually outsourced to a specialized company.
	Safe transportation and disposal at designated hazardous waste facilities.
4.	Environmental and Health Monitoring
	Continuous monitoring of air, water, and soils.
	Continuous monitoring for potential long-term effects on the health of people.

9. Legal and Ethical Considerations

9.1 To understand the basic legal and ethical considerations on CBRN response

Responding to a CBRN incident involves navigating complex legal frameworks and ethical challenges. Compliance with national and international laws ensures accountability, while ethical considerations guide decision-making to minimize harm and uphold human rights. This is not under the responsibility of the hotel staff, but could be of high interest to the hotel management.

Key legal considerations

1.	Regulatory Compliance
	Adherence to treaties such as the Chemical Weapons Convention (CWC) ¹⁸ and Biological Weapons Convention (BWC) ¹⁹ .
	National hazardous materials regulations and emergency response standards.
2.	Liability and Accountability
	Determination of responsibility for contamination and cleanup costs.
	Legal implications of exposure and health effects on affected individuals
3.	Data Privacy and Public Communication
	Assisting the state services in gathering exposure records
	Transparent public communication while avoiding misinformation.

- ¹⁸ <https://www.opcw.org/chemical-weapons-convention>

- ¹⁹ <https://treaties.unoda.org/t/bwc>

10. After-Action Review and Improvement

10.1. To understand the need for review and improvement of the system after a CBRN incident

Continuous evaluation of CBRN response strategies is essential for enhancing preparedness and minimizing future risks. A structured review process allows responders to learn from past incidents and implement necessary improvements.

Key Steps in Reviewing and Improving CBRN Protection Systems:

1.	After-Action Review (AAR)
	Conduct debriefings with all stakeholders to assess the effectiveness of the response Identify strengths and weaknesses in coordination, resource management, and communication.
2.	Incident Documentation and Data Analysis
	Maintain comprehensive records of the event, response measures, and outcomes.
3.	Policy and Procedures updates
	Revise standard operating procedures based on lessons learned.
4.	Training and Capacity Building
	Implement regular training programs and simulation exercises.

Annex I: CBRN Case Studies

Introduction

The Case Studies described in this document are intended to provide more concrete examples of CBRN or CBRNe events that occurred in the past and that had serious implications and consequences. This will give the reader the opportunity to reflect on the approach and response of first responders, workers, bystanders, and the general public, as well as to consider the impact of CBRN events.

The Case Studies presented are three: the poisoning of Alexandre Litvinenko, who died after drinking a polonium laced cup of tea in 2006; the poisoning of Sergei and Yulia Skripal, who were killed with Novichok in 2016; and finally, the Salmonella outbreak in Oregon, 1984, where over 700 people were affected by what became the largest bioterror attack in the USA. The last two cases were extrapolated by the EU-funded project **ProSPeReS**, under Grant Agreement No. 101034230, specifically from Deliverable 4.2 “*Scenarios of potential CBRN attacks*”²⁰, where other case studies, other than the aforementioned, may be consulted.

The Poisoning of Alexander Litvinenko²¹

Alexander Litvinenko was a **British-naturalized Russian defector** and **former officer of the Russian Federal Security Service (FSB)** specialized in tackling **organized crime**. He prominently criticized Russian President Vladimir Putin and advised British intelligence. He escaped prosecution in Russia and received political asylum in the United Kingdom in 2001.



Figure 9 ALEXANDER LITVINENKO before 2006,
credit: https://lb.wikipedia.org/wiki/alexander_walterowitsch_litwinenko

²⁰ [D4.2 Scenarios-of-potential-CBRN-attacks.pdf](#)

²¹ Sources:

- <https://www.bbc.com/news/magazine-33678717>
- <https://assets.publishing.service.gov.uk/media/5a8055c340f0b62302692e48/The-Litvinenko-Inquiry-H-C-695-web.pdf>
- <https://www.chemistryworld.com/news/polonium-clean-up-leaves-trail-of-destruction/3003224.article>

On the **1st of November 2006**, in London, Litvinenko met with two former KGB colleagues of the Russian intelligence – Andrey Lugovoi and Dmitri Kovtun - at the Pine Bar of the Millennium Hotel in Grosvenor Square, Mayfair. During the encounter, he drank what was later established to be tea laced with a lethal dose of **radioactive polonium**. A few hours after his meeting at the Millennium Hotel's Pine Bar, Litvinenko started to feel ill, and two days later, on the 3rd of November, he was admitted to the local hospital in north London, vomiting and in great pain. He was also showing signs of radiation poisoning, such as hair loss.



Figure 10 DMITRY KOVTUN (left) and ANDREI LUGOVOI (right),
credit: <https://www.bbc.com/news/world-us-canada-38560439>

After extensive research, a scientist identified traces of **polonium-210 poisoning**, which only emits **alpha radiation**, not gamma radiation that can be picked up by the Geiger reader. Polonium-210 damages tissues and organs but must be ingested or inhaled into the body to cause damage, as it cannot pass through the skin. The same day of the discovery, 23rd November, Litvinenko died, inevitably. A crisis team of 20 scientists was assembled to face the public health implications of the radiation poisoning on Litvinenko, which effectively left radioactive traces all around the city and beyond, following the movements of Litvinenko, Lugovoi, and Kovtun, emphatically called the “**Polonium trail**”.



Figure 11 Polonium-210,
credit: <https://www.argonelectronics.com/blog/litvinenko-and-the-perfect-radioactive-poison-polonium-210>

Polonium traces were found in the **London Underground (trains and stations)**, in the **aircraft** on which people involved had flown, a **football stadium**, **restaurants**, and **hotels** – overall, more than 50 locations were contaminated. The Pine Bar at the Millennium Hotel – where Litvinenko was poisoned – was the most heavily contaminated site of all, especially the toilet where Lugovoi and then Kovtun entered prior to Litvinenko's arrival, as captured by the hotel cameras. The traces were a strong guilt declaration for both Lugovoi and Kovtun, who were both charged with murder for the poisoning of Litvinenko by the UK Prosecution Service but were never arrested. Other

primary locations were identified as hotel bathrooms where the two men stayed in two separate instances, indicating that they attempted to poison Litvinenko twice before being successful, and that the polonium was discarded in the sink drain, and severely contaminating towels and bathroom fixtures in the process.

The primary contamination site is where a solution containing polonium-210 was directly applied to a surface. From this site, the contamination can then be transferred to a secondary location through contact with a person's hand, foot, or similar means. In addition to these considerations, it is noted that radioactive contamination of polonium rapidly decreases in time, and environmental conditions (cleaning, running water) also affect it.

The **decontamination effort** that followed the incident was significant, and it involved several government agencies, including the **Government Decontamination Service** and the **Health Protection Agency**. The cleaning methods ranged from domestic wipe-down of surfaces to the destruction of hotel bathrooms with hammers, depending on the scale of decontamination, on the material of the contaminated objects and surfaces.

Poisoning of Sergey and Yulia Skripal

On **4 March 2018**, **Sergei Skripal**, a former Russian military officer and double agent for the British intelligence agencies, and his daughter, **Yulia Skripal**, were poisoned in the city of Salisbury, England. According to UK sources and the Organisation for the Prohibition of Chemical Weapons (OPCW), they were poisoned by a **Novichok nerve agent**. Both Sergei and Yulia Skripal spent several weeks in hospital in critical condition, before being discharged.



Figure 12 SERGEI and YULIA SKRIPAL,

credit: <https://edition.cnn.com/videos/world/2018/03/06/russian-spy-critically-ill-salisbury-uk-investigation-black-pkg.cnn>

The British government accused Russia of attempted murder and announced a series of punitive measures against Russia, including the expulsion of diplomats. The UK's official assessment of the incident was supported **by 28 other countries, which responded similarly**. Russia denied the accusations, expelled foreign diplomats in retaliation for the expulsion of its own diplomats, and accused Britain of the poisoning. In June 2018, a similar poisoning of two British nationals in Amesbury, involved the same nerve agent. British police believe this incident was not a targeted attack, but a result of the way the nerve agent was disposed of after the poisoning in Salisbury. In

September 2018, British authorities identified two Russian nationals as suspected of the Skripals' poisoning, and alleged that they were active officers in Russian military intelligence. Police also investigated the death of 44-year-old Dawn Sturgess, who came **in contact with Novichok** in the town of Amesbury, only 10 miles from Salisbury, earlier this month. Her partner was also contaminated. Sturgess was exposed to at least 10 times the amount of Novichok that the Skripals were exposed to. Authorities believe Sturgess and her partner were contaminated via a discarded perfume bottle the couple found in a park or in Salisbury's city centre.



Figure 13 Emergency services equipped with class A suits set up a tent over the bench where Sergei Skripal and his daughter Yulia Sergei were found unconscious, credit: <https://www.mirror.co.uk/news/politics/uk-faces-growing-threat-chemical-23467534>

Salmonella Poisoning in Oregon

In **1984**, the town of The Dalles, in the heart of Oregon's Wasco County, became the scene of a dramatic event that would be recorded as **one of the most serious bioterrorism attacks in American history**. What appeared to be a mysterious outbreak of food poisoning turned out to be a deliberate attack orchestrated by a group of followers of Indian guru Bhagwan Shree Rajneesh, also known as Osho. This episode is linked to the **religious movement of the Rajneesh**, a community that had settled in the Oregon region, in particular around the town of Antelope.

Rajneesh, or Bhagwan Shree Rajneesh, was an Indian spiritual leader who attracted thousands of followers in the 1970s and 1980s. His liberating message, which mixed spirituality with an unconventional approach to life, including a liberal view of sexuality and materialism, found a particular resonance in a group of people looking for an alternative to traditional Western society. His teachings became a powerful magnet for those seeking alternative answers to modern life, and among his followers were people from all over the world, including numerous Europeans and Americans.

In 1981, Rajneesh and his disciples moved to Oregon, where they purchased a large area of land which they transformed into a self-sufficient and highly structured community called **Rajneeshpuram**. The vision of the movement was to create an ideal society, free from restrictive laws, where disciples could live as "free spirits" according to Rajneesh's principles.

Despite Rajneeshpuram's self-portrayal as a peaceful and harmonious community, its practices raised concerns among residents and authorities. The growing influence of the Rajneesh

community in Oregon began to create conflicts with neighbouring towns and local officials. The movement was trying to gain significant political influence and expand its power, not only in the context of the community but also in local government institutions.

In 1984, an important election was approaching, and Rajneesh's followers feared that the candidates they supported would not get enough votes to win and that their influence on local politics would be weakened. The plan that was developed in response to this fear became one of the **most daring attempts at election manipulation ever conceived**. The solution found by the leaders of the movement was to prevent the citizens of The Dalles and other cities in the county from voting, in order to alter the results in favour of the candidates preferred by the Rajneesh community.

The **sabotage plan** devised by Rajneesh's followers was to **deliberately contaminate the food that was served in local restaurants** with a dangerous strain of bacteria: **Salmonella enterica Typhimurium**. The bacterium, which can cause severe diarrhoea, abdominal cramps and fever, was used as a pathogen to cause an epidemic of food poisoning, with the aim of making the local population too sick to vote.

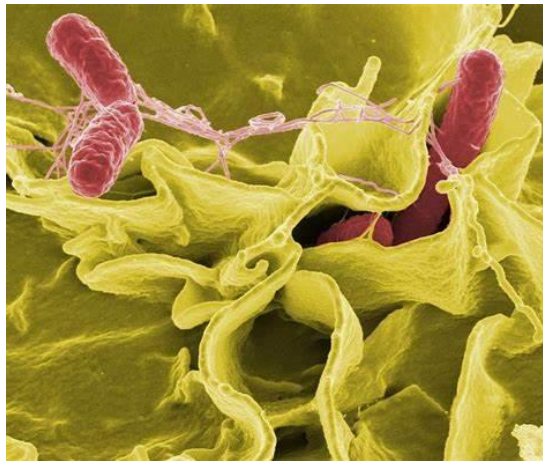


Figure 14 Salmonella Typhimurium Bacteria (pink),

credit: <https://www.niaid.nih.gov/news-events/nih-scientists-study-salmonella-swimming-behavior-clues-infection>

The attacks began in early September 1984, when several restaurants in The Dalles and surrounding areas were selected as targets. Rajneesh's followers, under the direction of Ma Anand Sheela, began to contaminate salads served in restaurants, as well as sauces and dressings. The method chosen for the spread of the bacterium was as simple as possible: the contaminant was poured directly into salads, which were then consumed by customers. The first to be affected by the plan were two county commissioners, who were infected via contaminated water. From there, the contamination systematically spread to ten local restaurants.

Before long, residents of The Dalles began to complain of **typical salmonella symptoms: abdominal pain, fever, cramps, diarrhoea, and vomiting**. The number of people who fell ill grew rapidly. Over 750 people were infected, of whom 45 required hospitalization. Despite the severity of the incident, no one died, but the incident was still a devastating attack on the community.

Initially, the Centers for Disease Control and Prevention (CDC) attributed the outbreak to a series of food management errors and poor staff training at local restaurants. However, when the number of cases increased and it was revealed that the outbreak of infection had mainly affected

the areas where the restaurants most frequented by the local population were located, the authorities began to suspect that it was not a case of simple food neglect.



Figure 15 Four of the restaurants in The Dallas affected by the attack, credit: <https://alchetron.com/1984-Rajneeshee-bioterror-attack>

It was only after a thorough investigation that the truth emerged: the outbreak was not accidental. Suspicion fell on Rajneesh's followers. An investigation revealed that Ma Anand Sheela and other leaders of the movement had orchestrated the act of bioterrorism with the explicit intent of influencing local elections and preventing candidates opposed to the movement from gaining power.

In 1985, Ma Anand Sheela and other members of the leadership of the Rajneesh movement were arrested and charged with various crimes, including biological attacks and attempts at electoral manipulation. The community of Rajneeshpuram, which had been trying to establish some sort of autonomous state, collapsed after the scandal and the ensuing series of legal proceedings. Today, the 1984 salmonella attack remains one of the most notorious bioterrorism incidents in U.S. history, marking a dark chapter in the Rajneeshpuram saga. The attack is a warning about the vulnerability of democratic societies and the ability to manipulate those who have access to the levers of power, even in areas that seem far from political conflict and biological warfare.

Annex II: Potential Scenarios of CBRN events

Introduction

The purpose of the scenarios proposed below is to give the reader an understanding of the various forms of CBRN events. In many cases, CBRN events are not full-scale emergencies, but may be encountered when carrying out routine maintenance work or as a result of a catering choice gone wrong, which are more likely to interest hotels and conference rooms. The examples described are not real cases per se, however, they reflect realistic scenarios of events that may take place. These scenarios are drawn from the **MELODY Project "A harmonised CBRN training curriculum for first responders and medical staff" – ISFP-2017-AG-Protect 814803** (except the last one – Intoxication at a music festival), and they form part of an exercise package where first responders and medical staff applied their acquired knowledge on CBRN responses.

Within the HOTTHREAT Project, the scenarios depicted below are intended to be reflective tools, and the main objective is to encourage the reader to evaluate critically the cases through the lenses of CBRN awareness. Specifically, the reader may take particular care in reflecting on some elements of the scenarios, namely:

- how to recognize signs of a potential CBRN release and launch a first alarm.
- how to carry out a site risk assessment and use reporting tools.
- how to identify a possible CBRN incident versus a normal incident.
- what procedures and protocols can be carried out.

Barrels found during maintenance work

Scenario Description

Note: While not altering the text for the reason of sticking to ©, for the purpose of the exercise, assume that the maintenance work described in the scenario was carried out **in a hotel during its regular operations**.

During scheduled maintenance work in a factory that belonged to a company that manufactured ceramic sanitaryware, **two workers entered an abandoned storage facility of the building to remove the contents and clean it, leaving the door open**. The workers' operations and the air flow through the open door caused a **lot of dust to resuspend and fill the room**.

While working in the room, the **workers found three barrels painted with radioactive pictograms**. The barrels seemed very old and looked like they had been forgotten in the storage room for many years. **One of the barrels was broken**, completely **rusty** and the **lid was open**. Scared by the signs on the barrels and their condition, and since they were not wearing protective clothing, the workers rush out leaving the storage room as they found it and one of them makes the emergency call. During the emergency call, one of the workers starts to experience chest pain.



Figure 16 (Credit for the pictures is needed)

Elements to be considered

In this scenario, an important aspect to be considered is that, in the 1950s, insoluble uranium compounds were legally used in the production of ceramics. The barrels might therefore contain uranium compounds in insoluble form and have been supposedly stored in the facility for decades. Moreover, although the barrels were probably filled with lead surrounding the uranium, one of the barrels presents signs that could indicate a possible breach in the containment of radioactivity and a potential consequent internal exposure from inhalation or ingestion also due to the presence of large quantities of dust in the room while the workers wore no specific personal protection equipment. The most important risk is inhalation of dust, which mainly builds up a lung dose because these particles can remain in the lungs for a long time. Dermal exposures to uranium are generally not significant, as most uranium isotopes emit alpha particles, however due to the long time passed since the barrels were stored, the radioactive daughters created by the decay of uranium will have been formed, and there will also be beta radiation.

The symptoms experienced during the call could have also been caused by the fear of radiation exposure felt by the worker. However, they should not be discarded, and the workers' health should be monitored for the onset of other symptoms that take a longer time to develop, such as blood in the urine caused by kidney damage.

Elements to be considered by facility personnel

Q: What sequence of activities should be undertaken without waiting for the arrival of Rescue Services?

First: making sure no more emission happens or actions do not compromise the health of the personnel

Second: establishing perimeter of contamination and securing approach to the site so no one else can get in) (On-site staff must meanwhile cordon off the area and shut down HVAC intake/outlets to prevent further dispersal)

Third: Collecting all available information

What to do with this information? A: Report to RS. That information is essential for planning the response action.

Fourth: What minimum IPE is required? FFP3, gloves, overall)

Should the personnel measure the dose rate of the source?

(if dosimeters are available, yes, record any available radiation readings, and establish a single point of contact to liaise with external authorities. Additional Q. to security planners: Is it worth installing radiation meters in the establishment

Fifth: What shall the personnel do after the site securing activities? A: Remove themselves from inside the perimeter (first stage of REMOVE_{x3}); remove outer clothing (second stage of the “REMOVE _{x3}”); carry-on self-decontamination for anyone potentially exposed: remove outer clothing, brush or blot off dust then rinse skin (third stage of REMOVE_{x3}),

Sixth: Are any precautions during decontamination needed?

A: Yes, (containment of after-decontamination water (don't let water down the drain unless site is equipped with wastewater collection system.) bag and seal contaminated clothing and personal items to avoid secondary transfer, wait for decision of radiation control authority.

Seventh: Others to be informed: local public health department, and environmental regulator - for specialist assessment and follow-up, others on a need-to basis.

Eights: How does the site prepare for the arrival of FR

The first responders, informed of the finding, should arrive equipped to avoid inhalation or ingestion of the dust in the room.

Facility crisis management team should provide first responders the information assembled after on the basis of analysis should be briefed by the on-site Incident Commander on the exact location of the breach (e.g. Storage Room B), the suspected contents (insoluble uranium compounds and decay-product dust), and the number and condition of any exposed personnel.

The **trainer** should inform the trainees that conventional triage methodology is applied in this scenario. However, when the number of victims is low, as in this case, FRs would treat each victim immediately without a real need for triage. Therefore, conventional triage is part of this scenario discussion for the sole purpose of exercising and reviewing triage methodologies²².

Chemical incident in a municipality building

Scenario Description

Note: While not altering the text for the reason of sticking to ©, for the purpose of the exercise, replace municipality with hotel

A disgruntled person is fed up with the lack of help he gets from the municipality for his house and family situation, and decides **to attack personnel in the municipality building**. He uses a spraying system filled with a **household chemical** (ammonia) to attack personnel and visitors of the public service desk in the municipality building. After spraying various people directly, or indirectly exposing them to the fumes, he flees the scene in a south-easterly direction dropping the spraying device near the south entrance of the public desk.

Most of the persons present in the building will experience very mild effects from exposure to the vapours of the chemical agent but two persons have been directly hit with liquid and experience severe effects (especially in the case of allergic people) and are no longer mobile. Persons experience discomfort from the vapour and start evacuating the building, a fire alert and emergency exit alarms are triggered. The Emergency Response (ER) in the building (of the

²² Sources:

- <https://www.nti.org/analysis/articles/cns-global-incidents-and-trafficking-database>
- <https://web.evs.anl.gov/uranium/guide/ucompound/health/index.cfm>
- https://www.atsdr.cdc.gov/csem/uranium/physiological_effects.html
- <https://www.nrc.gov/docs/ML0900/ML090070576.pdf>

municipality building itself) is assisting with the evacuation of staff and visitors. The evacuated persons are collected at the west and southeast collection points. ER is waiting for the first responders at the west collection point to provide instructions and assist where necessary.

Witnesses of the incident report an ammonia smell and can provide a description of the suspect. The victims show the following **symptoms**:

- **Mildly affected** (6 persons outside) show symptoms of (mild) respiratory distress, irritation of the eyes, nose and throat. None of the victims have liquid ammonia on their clothing.
- **Severe affected** (2 persons inside) show symptoms of (severe) respiratory distress, narrowing of the throat and swelling. The upper airway is obstructed resulting in low oxygen levels and loss of consciousness.

Multiple camera systems are monitoring the various areas inside the public service desk of the municipality building and the various entrances to the building. The spraying system is laying on the floor near the south entrance of the public service desk.

Elements to be considered



Figure 17 (CREDIT NEEDED)

A critical aspect in this scenario is to stress the fact that the perpetrator acted alone and fled the incident scene. If a perpetrator is still present in the building, the response will be postponed due to potential risks for the first responders, and they will wait for dedicated police units to apprehend the suspect. Due to the size of the rooms in the building, exposure risks to the first responders are likely limited (even if at this stage nobody can be totally sure of this assumption), nonetheless, respiratory protection will be required until aeration of the building has been performed and any liquid spill is contained.

Elements to be considered by **facility personnel**

Note: In such a scenario, it is critical to define the safe actions that can be taken before specialized search and response units arrive. While stressing that the perpetrator fled the scene, it must be acknowledged that the initial response by emergency services will be limited if there is any uncertainty about the presence of the perpetrator or the nature of the substance used. The possibility of contamination and the unknown threat may prevent both law enforcement and medical teams from entering the scene immediately.

Q? Should the facility personnel undertake any actions? A:

First: Area isolation, Site management should collect information to identify the innermost safe perimeter for law enforcement, medical aid, and decontamination.

Second: Situation assessment, and situation report to the RS (What should be reported?).

Third: Risk communication to everyone affected (formulate the message).

Fourth: Safe evacuation without direct exposure. (Note: Due to the building's layout, exposure risk for responders may be minimal, but respiratory protection remains necessary until RS declares the area safe or defines PPE requirements.

Fifth: Decontamination of evacuated individuals. Emergency decontamination for those contaminated with liquid, cross-contamination, and decontamination wastes should be contained until RS decides, on the basis of detection results, that it is safe to let it into the community sewage system.

Sixth: Evidence preservation - including any device or container left behind and CCTV footage - is essential. The pursuit and identification of the perpetrator are outside the objectives and scope of training.

Scene adjustments: The trainer may adapt the scenario so that some victims independently present to healthcare services, enabling trainees to practice triage, forensic sampling, and risk assessment in secondary locations.

The trainer could consider adapting the scenario in such a way that (some of) the victims are self-referring to the GP office or EMS to allow trainees from these target audiences to perform a risk assessment, triage and possibly assess forensically relevant materials.

Outbreak at a celebration

Note: While not altering the text for the reason of sticking to ©, for the purpose of the exercise, make the event as The Local African Community celebration at the rented hotel infrastructure

Scenario Description

The local African community is holding a day of celebration following the wedding of two important members of the community, with dozens of people participating. During the day, many traditional dishes and drinks are served, and the celebrations go on until the late hours of the night.

A few hours into the party, **one participant starts feeling a headache and nausea, but relates it to the alcohol drunk during the reception.** During the following hour, other participants felt ill with headache, nausea, dizziness, and **abdominal pain.** Many of the people involved begin **vomiting, experiencing diarrhoea, shortness of breath, and rapid heart rates.** Alerted by the large number of people showing symptoms, the owner of the venue where the wedding is being held calls the emergency services, asking for medical assistance.

When the FRs arrived on the scene, they found at least **30 people presenting symptoms.** The medical staff **suspected** the outbreak to be caused by **food poisoning.** Two people died before being admitted to the hospital. Over the following hours, more people presented with the same symptoms and were admitted to the hospitals. An investigation to determine the cause of the outbreak revealed that the outbreak resulted from the consumption of a cassava dish made by combining hot water with cassava flour. The implicated batch of cassava flour was traced back to the retailer of the owner of the venue.

The laboratory investigation found high levels of **cyanogenic glycosides in the implicated cassava flour,** meaning that the cassava was not properly treated.





Figure 18 (CREDIT NEEDED)

Cassava is an edible tuberous root that is resistant to drought, diseases, and pests, is a major source of carbohydrates in tropical areas. It is often made into flour, contains cyanogenic glycosides, which **can result in fatal cyanide poisoning** if not properly detoxified by soaking, drying, and scraping before being consumed.

Common **immediate symptoms** of cyanide poisoning are **Headache, Dizziness, Nausea and Vomiting, Weakness, Rapid breathing, Rapid heart rate and Restlessness**. Large amount of cyanide can even lead to death. Showing these signs and symptoms does not necessarily mean that a person has been exposed to cyanide. Ingested cyanide may allow a few hours to a couple of days for treatment. Emergency medical attention is critical. Lethal dose depends on the exact compound and several other factors. As a rough estimate, about half a gram of ingested cyanide will kill a 75kg adult.

Cassava is exported in **three forms**: as a **human food**, as a **starch**, and as an **animal feed ingredient**. The cassava export markets are primarily Europe and North America, where the driving force appears to be the ethnic community. It is the second most widely grown and consumed food in Uganda after bananas, and a staple in the diet for a large part of the Uganda population. It is therefore likely that cassava is consumed during a celebration held by an African community living in Europe or North America.

Although the cyanogenic content of sweet cassava is substantially less than that of wild cultivars (up to 100 ppm), the sweet cassava cultivars still require detoxification before they are consumed; this involves peeling the tubers, soaking them in water for 4–6 days, and sun-drying or roasting them. The outer layer is then scraped off and the remainder ground into flour. This process promotes enzymatic degradation of cyanogenic glycosides. If the soaking or drying time is too short, enzymatic degradation will be inadequate, and cyanogenic glycosides remain high. In this scenario it is important to consider the possibility that the cassava provided by the retailer of the owner of the venue was not treated properly on purpose, making this incident an intentional event²³.

²³ Sources

Based on the Outbreak of Cyanide Poisoning Caused by Consumption of Cassava Flour — Kasese District, Uganda, September 2017.

Elements to be considered by the trainees

Before medical teams arrive, venue staff and incidental responders could perform the following actions (please note that each decision should be taken case-by-case, and this is not a general recommendation):

First: Assess the situation, assemble the evidence, and report to the medical emergency.

Q: What should be collected for the report and further investigation?

Second: Stop further exposure: immediately halt all food and drink service and isolate every remaining dish and utensil for sample collection.

Q: How would you do that? Describe.

Third: Isolate and relocate: guide symptomatic individuals into a well-ventilated outdoor area, let each affected one rest lying on their side, maintain safe distances, and fresh air flow to minimize secondary exposures.

Q? How?, Set up a scene and rehearse

Fourth: Basic supportive care:

Q? How offer emesis receptacles; don at least gloves and masks (or improvised face coverings) when assisting anyone who is vomiting or experiencing diarrhoea. If it is assumed that the cyanide poisoning is confirmed, (a) seek advice on a dedicated supportive care, or (b) you may consult the advised response activities in case of cyanide as described in **Response Statements** Section (table 6.3) of **Annexe IV to the CLP** Regulation.

Fifth: Individual information gathering: record each person's name, contact details, exact symptom onset times, and what they consumed. This preliminary epidemiological log will accelerate triage and investigation.

Q. How do you keep the records and pass them to the MEDs?

Sixth: Evidence preservation: Secure any leftover food samples, packaging, cooking implements, and related waste without altering or cleaning them - these may be vital for forensic or laboratory analysis.

Tas: arrange a scene and rehearse

Seventh: Liaison with authorities:

Q. How do you organize liaising with authorities?

Notify medical First Aid about the initial case count, symptom profile, and suspected source, so they can prepare targeted interventions. They will convey the information further. In case any environmental signs and symptoms appear, inform agricultural or environmental health services.

Alitubeera PH, Eyu P, Kwesiga B, Ario AR, Zhu B. Outbreak of Cyanide Poisoning Caused by Consumption of Cassava Flour — Kasese District, Uganda, September 2017. *MMWR Morb Mortal Wkly Rep* 2019;68:308–311. DOI: <http://dx.doi.org/10.15585/mmwr.mm6813a3>

- <https://www.cdc.gov/mmwr/volumes/68/wr/mm6813a3.htm>
- <https://emergency.cdc.gov/agent/cyanide/basics/facts.asp>
- <https://www.thoughtco.com/overview-of-cyanide-poison-609287>
- <https://www.ncbi.nlm.nih.gov/books/NBK507796/>
- <https://www.fao.org/3/y5287e/y5287e0a.htm>

Here's some examples of diseases related to food poisoning:

Salmonella	
Symptoms begin 6 hours to 6 days after exposure:	Diarrhoea, fever, stomach cramps, vomiting.
Common food sources	Raw or undercooked chicken, turkey, and meat; eggs; unpasteurized (raw) milk and juice; raw fruits and vegetables
Other sources	Many animals, including backyard poultry, reptiles and amphibians, and rodents (pocket pets)

Staphylococcus aureus (Staph)	
Symptoms begin 30 minutes to 8 hours after exposure:	Nausea, vomiting, stomach cramps. Most people also have diarrhoea.
Common food sources	Foods that are not cooked after handling, such as sliced meats, puddings, pastries, and sandwiches.

Vibrio	
Symptoms begin 2 to 48 hours after exposure	Watery diarrhoea, nausea, stomach cramps, vomiting, fever, chills.
Common food sources	Raw or undercooked shellfish, particularly oysters.

Clostridium perfringens	
Symptoms begin 6 to 24 hours after exposure	Diarrhoea, stomach cramps. Usually begins suddenly and lasts for less than 24 hours. Vomiting and fever are not common.
Common food sources	Beef or poultry, especially large roasts; gravies; dried or precooked foods.

Norovirus	
Symptoms begin 12 to 48 hours after exposure	Diarrhea, nausea/stomach pain, vomiting.
Common food sources	Leafy greens, fresh fruits, shellfish (such as oysters), or unsafe water.
Other sources	Infected person; touching surfaces that have the virus on them

Clostridium botulinum (Botulism)	
Symptoms begin 18 to 36 hours after exposure	Double or blurred vision, drooping eyelids, slurred speech. Difficulty swallowing and breathing, dry mouth. Muscle weakness and paralysis. Symptoms start in the head and move down as the illness gets worse.
Common food sources	Improperly canned or fermented foods, usually homemade. Prison-made illicit alcohol (pruno).



Campylobacter	
Symptoms begin 2 to 5 days after exposure	Diarrhea (often bloody), stomach cramps/pain, fever.
Common food sources	Raw or undercooked poultry, raw (unpasteurized) milk, and contaminated water.


E. Coli (Escherichia Coli)	
Symptoms begin 3 to 4 days after exposure	Severe stomach cramps, diarrhea (often bloody), and vomiting. Around 5-10% of people diagnosed with E. coli develop a life-threatening health problem.
Common food sources	Raw or undercooked ground beef, raw (unpasteurized) milk and juice, raw vegetables (such as lettuce), raw sprouts, unsafe water.


Cyclospora	
Symptoms begin 1 week after exposure	Watery diarrhoea, loss of appetite, and weight loss. Stomach cramps/pain, bloating, increased gas, nausea, and fatigue.
Common food sources	Raw fruits or vegetables and herbs.


Listeria	
Symptoms begin 1 to 4 week after exposure	Pregnant women usually have a fever and other flu-like symptoms, such as fatigue and muscle aches. Infections during pregnancy can lead to serious illness or even death in newborns.
Common food sources	Queso fresco and other soft cheeses, raw sprouts, melons, hot dogs, pâtés, deli meats, smoked seafood, and raw (unpasteurized) milk.
Other people (most often older adults)	Headache, stiff neck, confusion, loss of balance, and convulsions in addition to fever and muscle aches.


Annex III: Compendium of CBRN procedures and methodologies


GUIDELINES FOR CBRN RECOGNITION: 5S PROCEDURE

SIGHTS	
	<p>Description of the place: Where are you? What do you see?</p> <p>What can you see that may explain the situation? The absence of a simple explanation could indicate the presence of hazardous materials as a cause.</p>

SIGNS	
	<p>Description of the situation.</p> <p>Is there some evidence of hazardous materials at the scene or nearby?</p> <p>Look for the presence of technical/hazard signs/number(s) or data sheets; Hazardous material containers; Vehicles or warning signs; Premises that may store or use hazardous materials.</p> <p>Are there certain signs of the possible presence of hazardous materials?</p> <p>People showing unexplained signs of illness; Unexplained vapour or mist clouds; Oily droplets on surfaces or water; Dead or distressed animals or birds; Withered plants; Unusual materials or equipment at the scene.</p>

SYMPTOMS	
	<p>Are there multiple casualties with unexplained symptoms or symptoms that may indicate the presence of hazardous material?</p> <p>Irritation of the skin, eyes, airway; Breathing difficulties; Nausea, vomiting, sweating; Pinpoint pupils or blurred, painful vision; Twitching, fitting, or unconsciousness; Unexplained fatalities.</p>

SMELLS	
	<p>Are there any unusual smells, or reports of smells, that do not fit the situation?</p> <p>Smell of a Swimming pool, Explosives, Almonds, Ammonia, Fuel, Burning.</p>

SOUNDS	
	<p>What can you hear and what are the reports of any unusual sounds from other people from inside any buildings, vehicles, containers or bags?</p> <p>A hissing sound/escape of gas from somewhere; breaking of glass inside a rucksack; a firework, shot or explosion.</p>



A combination of 2 or more sights, signs, symptoms, smells or sounds significantly increase the likelihood that CBRN materials are present.

Hotel security and staff should not put themselves or anyone else in danger to assess the situation. **IF THEY SUSPECT** the presence/involvement of CBRN/hazardous

materials, they should inform colleagues and give their reason so the person in charge can decide what action to take.

QUICK GUIDE FOR CBRN SECURITY AT HOTELS & CONFERENCE CENTRES

First steps to increase your resilience for a CBRN incident:

1. **REVIEW** the security organization, its reaction to changes, investment needs, staff awareness level, security information, emergency plan, and its protocols.
2. **REMEMBER** to apply appropriate **personnel security standards** to **staff, contractors** and **visitors**, especially those with frequent access to your hotel/conference centre.
3. **REVIEW** the design and physical security of your air handling systems, such as access to intakes and outlets, avoiding the use of ground-level or near-ground-level air intakes.
4. Ensure a CBRN response is included in your **emergency plan**.
5. Consider **evacuation routes**.
6. Consider the **use of pre-prepared messaging**.
7. **IMPROVE** air filters or upgrade your air-handling systems, as necessary.
8. **RESTRICT** access to water tanks and other **key utilities**.
9. **REVIEW** the security of your **food** and **drink** supply chains and people in charge of its manipulation.
10. **IMPLEMENTATION** of the Hazard Analysis and Critical Control Points (HACCP) System
11. Consider **whether you need to make special arrangements for mail** or parcels, such as a separate post room, possibly with dedicated air-handling, or even a specialist off-site facility, because mail rooms can be a high-risk area.
12. Consider **including some CBRN capacities** into medical services during events (CBRN-trained medics, adding CBRN components into first aid kits).



In most situations, it should be possible to provide a standard list of 'immediate actions' that security/staff should follow, to mitigate the effects of a CBRN attack and to call on the relevant emergency services response.

Steps to improve your Response to a CBRN incident:



It is strongly recommended that managers and security/staff are briefed on, and able to implement **the REMOVE, REMOVE, REMOVE procedure** as the most effective method of limiting the health effects of a CBRN incident

Emergency plans and briefings should include:



- Where victims will be told to go once removed from the affected area
- Provision for absorbent materials such as tissue paper
- Provision of corrosive treatment first aid packs
- Where the closest available running water is
- What information to pass in messages to control rooms, other staff, and the emergency services (such as **ETHANE**)

GUIDELINES FOR INITIAL ACTIONS AT A CBRN EMERGENCY

RECOGNISE the indicators of a CBRN attack	
<i>Any one of these may be indicators of a CBRN incident & multiple indicators may increase the likelihood that it is CBRN-related</i>	
Physical symptoms <ul style="list-style-type: none"> • Disorientation and sweating • Twitching and convulsions • Airway irritation and breathing difficulties • Eye and skin irritation • Nausea and vomiting 	Signs <ul style="list-style-type: none"> • Three or more people incapacitated for no explainable reason • Unexplained liquids, powders or vapours • Unexplained smells or tastes • Unusual and/ unattended materials, devices or equipment • Dead insects/animals, withered plants
ASSESS the incident to inform an appropriate response strategy	
<i>Stay safe - do not put yourself or others in danger to assess the incident</i>	
<ul style="list-style-type: none"> • Where are CBRN indicators present? <ul style="list-style-type: none"> ➤ To avoid moving people on the site through affected routes. • Where are casualties located? <ul style="list-style-type: none"> ➤ To identify who is exposed and advise Emergency Services. • Where are other people on the site located? <ul style="list-style-type: none"> ➤ To identify who is not exposed and near evacuations routes • Which routes are unaffected? <ul style="list-style-type: none"> ➤ To identify unaffected routes for evacuation of people. • Are there any obvious secondary threats? <ul style="list-style-type: none"> ➤ To reduce the risk of a further non-CBR attack. <p><i>If there are significant external hazards, consider moving people to a safer area upwind or inside if possible</i></p>	
REACT appropriately to reduce the harm to everyone	
Communicate <ul style="list-style-type: none"> • With emergency services as soon as possible, and say what you see 'REMOVE, REMOVE, REMOVE²⁴ <i>message to all those affected (Figure No.3)</i> • With people on the site to move them to an unaffected location via unaffected routes 	Act <ul style="list-style-type: none"> • To prevent all but essential access to affected locations • To keep potentially exposed individuals in an unaffected location, separate from those unexposed • On planned processes to modify building functions e.g., lifts and aircon systems if appropriate

²⁴https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/807034/REMOVE_advice_-_Awareness_poster.pdf

REMOVE X3 PROCEDURE

1

REMOVE affected individuals from the immediate area

ADVISE affected individuals to REMOVE themselves from the affected area

- Fresh air is important
- If the substance is airborne, they should head uphill as well as into the wind if possible
- If it is safe to do so, help the others who may be affected
- If the skin is itchy or painful as a result of contact with an unknown liquid or solid, they must urgently find a water source and wash the affected area

REASSURE

- Leaving the immediate area will avoid further exposure to any material in the air

REMEMBER

- You may need to shout or direct from a safe distance to avoid exposing yourself; shouting increases your exposure to airborne contaminants
- You will likely have to improvise and think on your feet
- Remain alert - incidents involving a hazardous substance can change very quickly
- Continue to REPORT: 112/supervisor/control room

2

REMOVE outer clothing

ADVISE

- REMOVE outer clothing if it has been affected by the substance; while removing, try to touch only inside surfaces of the clothing
- Try to avoid pulling clothing over the head if possible
- Do not attempt to remove clothing stuck to the skin
- Do not smoke, eat, or drink, or touch mouth, eyes, nose
- Once this has been done, move away from the discarded clothing

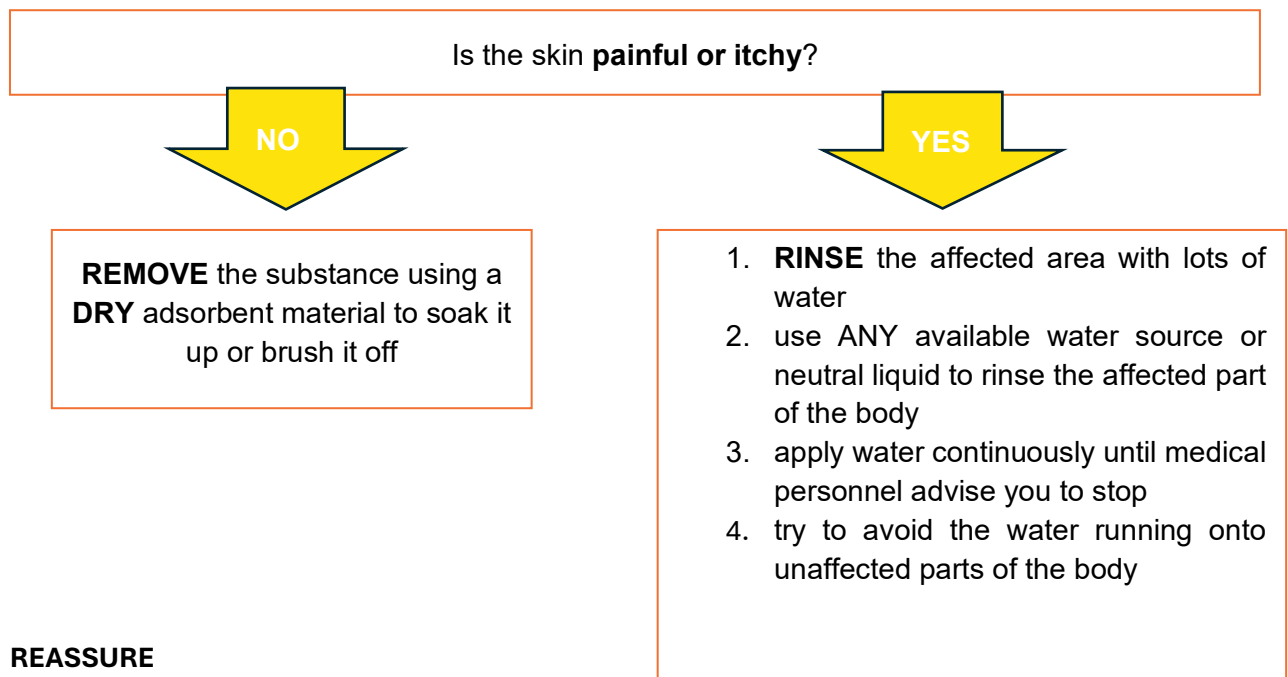
REASSURE

- Removal of outer clothing reduces the risk of further exposure by up to 80%
- Move your removed clothing out of track, so others don't step on it
- If clothing has stuck to the skin, trying to pull it off risks further harm. Removal should be done by a medical professional as soon as it is practical and safe to do so

REMEMBER

- You will likely have to improvise, and think on your feet
- Stay aware of any changes in the situation – incidents involving a hazardous substance can change fast

3 **REMOVE the substance from the skin** **ADVISE**



REASSURE

- The actions taken for the symptoms give the best chance of reducing harm
- Don't let contaminated water splash on others
- The casualty should not leave the scene as they may suffer delayed symptoms or still have a small amount of hazardous material on them, which could present an ongoing risk of being spread to others

REMEMBER

- Remain aware of new or worsening signs & symptoms in casualties and others in the vicinity, including responders.

If you think someone has been exposed to a **HAZARDOUS SUBSTANCE**

Use caution and keep a safe distance to avoid exposure yourself.
TELL THOSE AFFECTED TO:



REMOVE THEMSELVES...

...from the immediate area to avoid further exposure to the substance. Fresh air is important.

If the skin is itchy or painful, find a water source.

REPORT... to the emergency services.



REMOVE OUTER CLOTHING...

...If affected by the substance.

Try to avoid pulling clothing over the head if possible.

Do not pull off clothing stuck to skin.



REMOVE THE SUBSTANCE...

...from skin using a dry absorbent material to either soak it up or brush it off.

RINSE continually with water if the skin is itchy or painful.

ACT QUICKLY. These actions can **SAVE LIVES.**

Figure 19 Remove x3 procedure

CHECKING YOUR VENUE FOR SUSPICIOUS ITEMS

SEARCH CONSIDERATIONS

Regular searches will enhance a **good security culture** and **reduce the risk of a suspicious item** being placed or remaining unnoticed for long periods. Additionally, if you receive a threat and, depending upon how credible it is, you may decide to conduct a '**SEARCH**' for suspicious items. In such cases:

1. **ENSURE plans are in place** to carry out an effective search in response to a threat.
2. **IDENTIFY who in your venue** will coordinate and take responsibility for conducting searches.
3. **INITIATE a search** by messaging over a public address system (using a coded message avoids unnecessary disruption and alarm), by text message, personal radio, or by a telephone cascade.
4. **DIVIDE your venue** into areas of a manageable size for 1 or 2 searchers. Ideally staff should follow a search plan and search in pairs to ensure nothing is missed.
5. **ENSURE those conducting** searches are familiar with their areas of responsibility. Those who regularly work in an area are best placed to spot unusual or suspicious items.
6. **FOCUS on areas that are open to the public**; enclosed areas (e.g., cloakrooms, stairs, corridors, lifts, etc.), evacuation routes, assembly points, car parks, and other external areas such as loading bays.
7. **DEVELOP appropriate techniques for staff** to be able to routinely search public areas without alarming any visitors present. If more specialised techniques are considered (such as bag searches on entry), then specialised training, equipment, and policies may be needed (such as what items should not be allowed inside the place of worship).
8. **ENSURE all visitors know** who to report a suspicious item to and have the confidence to report any suspicious behaviour.

>>> Do not touch or move anything assessed as a suspicious item - immediately start evacuation and dial 112 <<<

CBRN RESPONSE PROCEDURES – HOT PROTOCOL

H – HIDDEN



An item that is intentionally placed in a location or manner designed to make its detection or discovery difficult. Deliberate concealment may involve physically hiding the object or masking its presence using various camouflage techniques.

Is it hidden? Identify substances or items that are concealed or not easily visible but may pose a threat.	Yes	No
--	------------	-----------

O – OBIOUSLY SUSPICIOUS

It is an item that immediately raises suspicion due to its location, appearance, or other characteristics like:



- Protruding electrical wires, power sources or electronic components connected to other equipment.
- Clocks and other time devices combined with any other object.
- Antennas, mobile phones, and radios combined with other items
- Objects of military origin (weapons, cartridges, bullets, grenades, explosives, etc.)
- Emitted sounds (ticking, hissing, etc.), fumes, strange smells, and smoke.
- Containers with chemicals, laboratory equipment, and PPE

Is it obviously suspicious? Recognize materials or behaviours that clearly indicate potential danger.	Yes	No
Has the item been deliberately concealed or is it obviously hidden from view?	Yes	No
Does it have wires, circuit boards, batteries, tape, liquids or putty-like substances visible?	Yes	No
Do you think the item poses an immediate threat to life?	Yes	No


T – TYPICAL



Is the object typical for a given place – an object that, by its appearance, function, and location, aligns with the characteristics of a specific environment. Its presence is natural and expected, consistent with the daily use and function of the space in which it is found.

Is it typical? Identify common items or situations that are typically associated with CBRN threats, based on established patterns or intelligence.	Yes	No
--	------------	-----------

CBRN RESPONSE PROCEDURES – 4C

C- CONFIRM	
<p>C- CONFIRM C- CLEAR C- COMMUNICATE C- CONTROL</p>	<p>Based on the characteristics of the object and the circumstances, try to confirm whether the object is suspicious or not. To confirm, use the HOT protocol. If you classify the found object as suspicious, then continue with procedure 4C.</p> <div style="display: flex; align-items: center;">  <p>Most lost property is found where people congregate ask if anyone has left the item</p> </div>
<p>If the item is assessed to be unattended rather than suspicious, examine it further before using the lost property procedure BUT if the ‘HOT’ assessment leads you to believe the item is suspicious you should.</p>	

C- CLEAR	
<p>C- CONFIRM C- CLEAR C- COMMUNICATE C- CONTROL</p>	<p>Do not touch, tamper with, move to another location Do not cut cables, wires or other attached objects Do not change natural or artificial lighting Do not smoke or use an open flame, eat or drink Do not alter any switches Leave the room immediately Lock the door Try to turn off ventilation if it is safe to do Take control and move people/guests to a safe distance. Even for a small item such as a briefcase move at least 100m away from the item starting from the centre and moving out (emergency may recommend at least 200m distance for a car sized explosive threat and 400m for a truck sized explosive threat). This is a general rule, but in general, if you can't see the object, you are better protected from it. Consider what you can hide behind. Choose something sturdy and stay away from glass, such as windows. Cordon off the area</p>
<p>If you have been exposed to a hazardous substance, follow the REMOVE REMOVE REMOVE PROCEDURE.</p>	

CALL THE EMERGENCY SERVICES

C- COMMUNICATE	
<p>C- CONFIRM C- CLEAR C- COMMUNICATE C- CONTROL</p>	<p>Inform (INSERT NAME/INTERNAL ROLE OF PERSON IN CHARGE) Do not use mobile phones or radios within fifteen metres of the suspicious item.</p>
<p>Inform your superiors at each stage of the procedure (use ETHAN protocol)</p>	



ACCESS TO CORDONED AREA

C- CONTROL	
<p>C- CONFIRM C- CLEAR C- COMMUNICATE C- CONTROL</p>	<p>The public should not be able to approach the area until it is considered safe Try and keep eyewitnesses nearby so they can tell the emergency services what they saw try to get contact details before witnesses move away Control the cordoned area. Guests and other individuals should not have access to the area until it is deemed safe. This will prevent accidental entry into the contaminated area and minimise casualties. Remember to only perform the steps of the procedure if you are sure you are safe.</p>



STEPS 123+ PROCEDURE²⁵

This procedure assumes no other CBRN training, knowledge, or access to CBRN personal protective equipment (PPE). If first responders have any PPE on hand, it should be used in accordance with any training provided and the manufacturer’s instructions. This procedure emphasizes acting according to the number of observed victims.

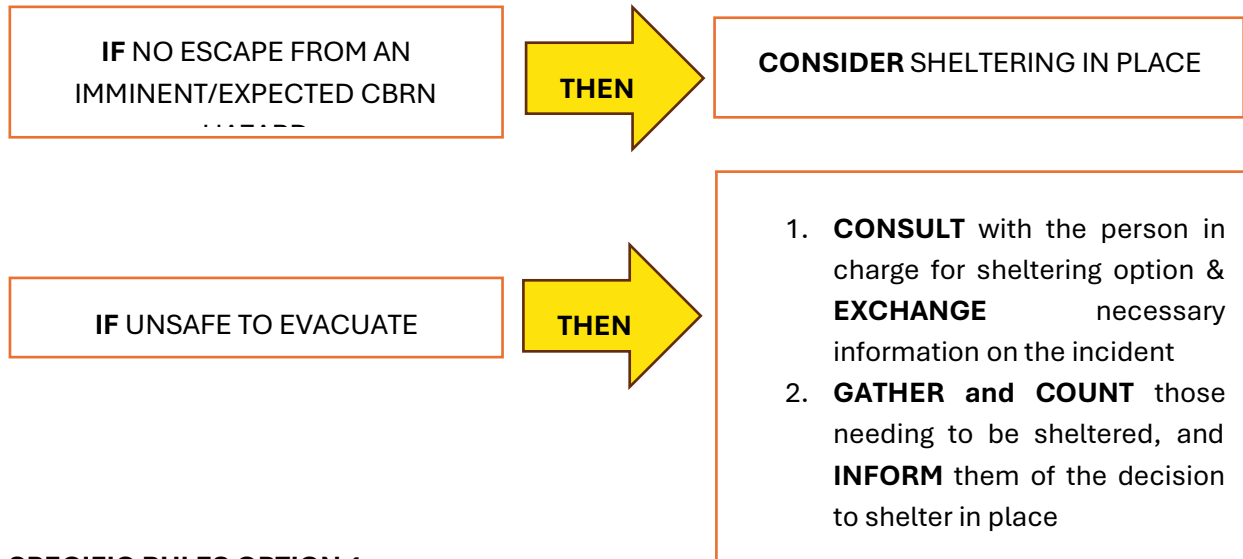
Please note that 1,2,3+ procedure is intended to mostly for first responders.

Step 1	One individual involved	Approach using NORMAL procedures CBRN event unlikely
Step 2	Two individuals involved	Approach with CAUTION , consider all options CBRN contamination possible 5S procedure should be used Report on arrival, update control If possible or suspected, follow advice for STEP 3
Step 3	Three or more individuals involved	DO NOT APPROACH – CBRN INCIDENT CONTAMINATION LIKELY Identify hazards Control scene 5S procedure should be used Give METHANE report as soon as possible Direct ambulance individuals to place of safety Make risk assessment and provide help to non-ambulant individuals if benefit outweighs risk using minimum personnel and appropriate PPE

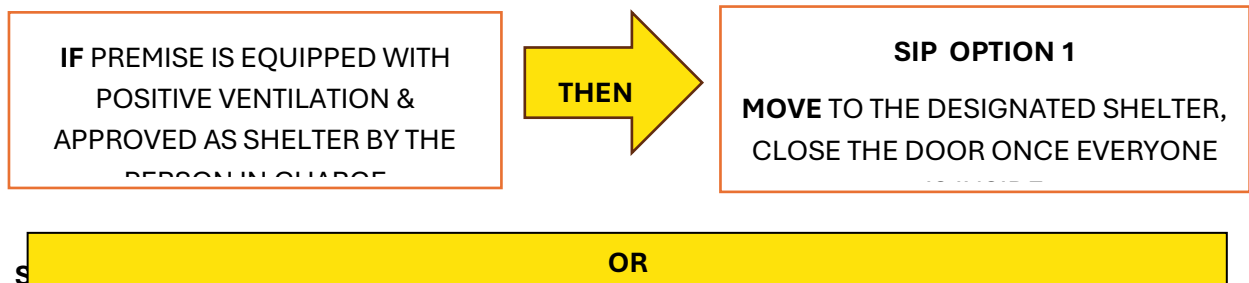
²⁵https://assets.publishing.service.gov.uk/media/5b10120c40f0b634d14c21ed/Chemical_biological_radiological_and_nuclear_incidents_clinical_management_and_health_protection.pdf

SHELTERING IN PLACE PROCEDURE

GENERAL RULES



SPECIFIC RULES OPTION 1



SIP PROCEDURE OPTION 1

1. Check with C3 if: the communication is working, the ventilation air supply is operating
2. Move to the designated shelter and close the door once everyone is inside.
3. Check air inflow
4. Prepare for SIP option 2 in case air inflow ceases

SIP PROCEDURE OPTION 2

1. **Move** to the designated shelter and **close the door** once everyone is inside.
2. **Close** all doors and windows, **seal** tight the openings with available means, and **lock** and secure the building as far as possible.
3. **Turn off any air conditioning** or ventilation fans.
4. **Seal** the overlapping material on the door frame and wall by securely fastening them together with duct tape.
5. **Place damp towels** at the bottom of the door to reduce the air entering under the door.
6. Anyone showing any signs of exposure to CBRN agents should immediately **remove** all clothing, **wash** using soap and water, dry themselves with a towel, and put on clean clothing; then **seal** the clothing, using wipe cloths and towel in the heavy-duty plastic bags using the duct tape; **cover** any cuts or breaks in the skin with adhesive wound dressings.
7. **Contact the person in charge** or the pre-arranged contact person (as per the agreed communication procedure) and inform them that [specify number] of persons are sheltering in place.
8. **Await** further instructions (as per the agreed communication procedure). **Never eat, drink or smoke** whilst sheltering in place. **Avoid** contact between hands and face to minimize the possibility of inadvertent intake of CBRN agents.

OR

SIP GUIDANCE

A. Location of the shelter

Wherever possible the shelter allowing the above-defined actions should be located:

1. **Above ground level but not on the roof** (note that the shelter should never be in a basement as many CBRN agents are heavier than air and tend to concentrate in basements and cellars).
2. In the **center of the building**, ideally with no windows or as few (well-fitting) windows as possible.
3. In a room with substantially constructed walls and a well-fitting, preferably lockable door.

B. Shelter conditions

Premises selected for SIP are equipped with **external positive pressure ventilation** with air intake known to be safe from CBRN emission hazards.

OR

Can be **sealed tight from the outside**, including sealing-tight doors openings, windows, intake and exhaust ventilation

AND

Cubic dimensions of premises selected for SIP are **large enough to satisfy that the amount of air** is not less than 4.3 [l/person/min] otherwise damages due to CO₂ poisoning outweigh any sheltering benefits. The number is average-based; a significant percentage of adult men or children will alter the calculations.

WHEN TO STOP SIP

Sheltering in place is a temporary measure to reduce the potential for exposure to harmful levels of CBRN agents. Without specialist collective protection facilities, the time for which sheltering in place can be maintained is **limited**. This is because:

1. No improvised shelters can keep out all contamination – after a period of **two hours**, the concentration of contamination inside the shelter is likely to equal or exceed that outside the shelter.
2. As the exchange of air with the outside is restricted, levels of exhaled carbon dioxide may exceed safe levels inside the shelter after a period of a few hours. Sheltering in place should therefore be limited to **two hours** unless extreme circumstances prevail (for example, an ongoing bombardment by CBRN munitions, which makes the risk of leaving the shelter greater than those of remaining within it).

Before leaving the shelter, every effort should be made to determine whether it is safe to do so. Whilst it is difficult to do this accurately without detection and monitoring equipment, some indicators that the concentration of agents has fallen below levels immediately dangerous to life and health may include the following:

1. An **evacuation request** from the person in charge
2. **Released congestion** on the evacuation routes



EMERGENCY DECONTAMINATION PROCEDURES

Emergency services will set up a designated area for emergency decontamination with prominently marked boundaries for visibility.

Access to the decontamination area should be restricted to individuals wearing CBRN protective clothing and those confirmed to be contaminated (excluding those not requiring decontamination).

Separate male/female undressing areas may need to be set up.

Special cases of vulnerable people (pregnant women, children without their parents, dependent elderly people, or people who do not understand what is being asked of them) must be subject to a special attention from hotel, maintaining a proper and safe distance.

Emergency decontamination procedures, to be carried out by the hotel while awaiting the arrival of specialized emergency services, are intended to **LIMIT** the consequences of contamination on people. These procedures are exclusive to individuals and should **NOT** be conducted on equipment, infrastructure, or the surrounding environment. **NO** emergency decontamination action should be carried out on the premises before the arrival of the police investigating services or health authorities. Early decontamination of the premises by hotel staff would lead to the distortion of the samples which will be taken by specialized services for laboratory analysis to identify involved.

Emergency Decontamination during Radiological Contamination
<i>In the event of contamination by radioactive dust</i>
<ul style="list-style-type: none"> • Move away from the suspected contaminated spot, inform where and what, radiology protection has to measure the strength of the source and define from of radiation before any response activities take place • Remove the outer clothing, drop it away from the traffic corridors • Use respiratory protection. • Use water or any non-hazardous liquid to wash suspected contamination body parts ; try to contain decontamination fluids in a basin or a space with impermeable floor/ground • Contaminated clothes must be place in closed bags and identified to be returned after advice from specialist emergency services regarding the absence of contamination/danger; personal items such as watches, cell phones, jewellery must also be isolated. • Emergency first aid treatment can be immediately undertaken in the event of physical or bodily injuries.
<p>In the case of inhalation exposure to radioactive particles, neither undressing nor showering will be effective, because the radiation is likely to have already caused its effect inside the body it has passed through.</p> <p>Remark: while irradiation is not transmittable it may be a source of cross-contamination.</p>

Emergency Decontamination during Biological Contamination
<i>In the event of contamination by substances suspected of being biological agents such as viruses, bacteria, or toxins</i>
<ul style="list-style-type: none"> • Move away from the suspected contaminated spot • Remove outer clothing if someone splashed suspicious liquid, coughed, or sneezed on it • Wash your hands and affected body parts with soapy water or hydroalcoholic solution • or shower, if possible, especially if liquid or powder splashes have occurred on parts of the body other than the hands. • Contaminated clothes must be placed in closed bags, marked as biohazard, and identified to be returned after advice from specialist emergency services regarding the absence of contamination/danger; personal items such as watches, cell phones, jewellery must also be isolated. • Bleach with 0.5% concentration in chlorine is an effective dosage on most biological agents and even on certain chemical agents, and could be used for items or surface decontamination. • DON'T use decontamination solutions containing active products, excessively hot water, or applying excessive friction during washing, as these actions may result in skin lesions, compromising its natural barrier against biological agents. • Use respiratory protection. • Emergency first aid treatment can be immediately undertaken in the event of physical or bodily injuries.
<p>In the biological domain, it must be remembered that symptoms of illness often appear several days after initial contamination and that a person is not contagious until they show symptoms of illness.</p> <p>Reaction to ingested toxins may appear after tens of minutes.</p>

Emergency Decontamination during Chemical Contamination
<i>In the event of real or suspected chemical attack</i>
<ul style="list-style-type: none"> • Move away from the suspected contaminated spot • Undress the outer layer of clothing (undress if contaminated, otherwise undressing at the decon line) if contaminated with liquid or solid • To decontaminate skin, use any liquid product or adsorbent material (adsorbent paper or powders such as sugar/flour). • If a water source is available, wash with soapy water; contain water in a basin or let it on the impermeable ground: water will be considered contaminated after use. In case of eye irritation, wash eyes first using lukewarm water only. • Wait for full decontamination provided by specialised services • Contaminated clothes must be placed in closed bags and identified to be returned after advice from specialist emergency services regarding the absence of contamination/danger; personal items such as watches, cell phones, jewellery must also be isolated. • Emergency first aid treatment can be undertaken AFTER decontamination
<p>If the mode of dispersion of chemical contamination is only in the form of gas, neither undressing nor showering is essential, as gases are only marginally absorbed in the skin, hair,</p>



or clothing. However, in the event of aerosolization of the chemical product, undressing and washing are necessary, as in the case of liquid contamination.

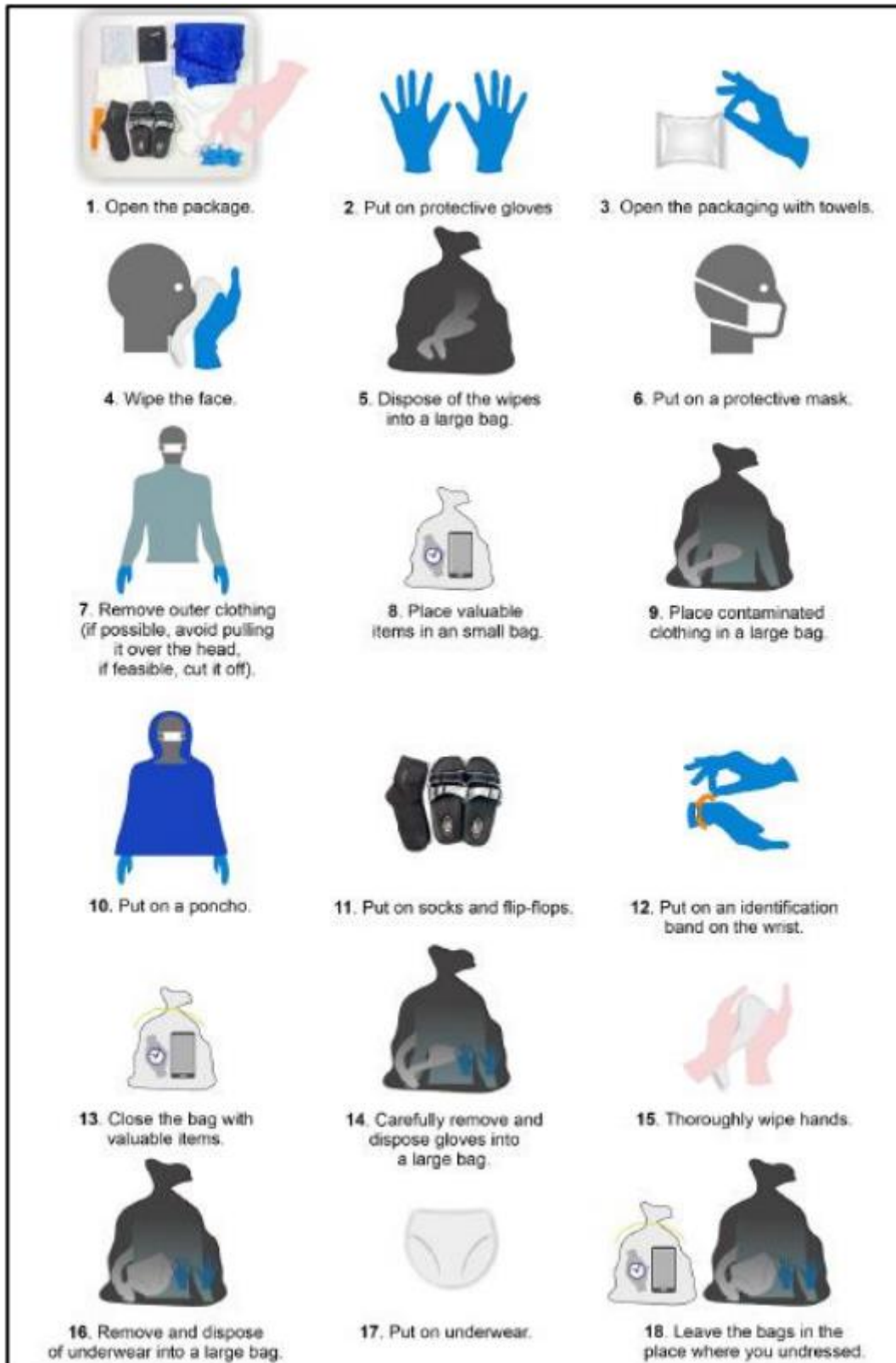


Figure 20 Graphic instruction for initial decontamination.
Source: Own source

GUIDELINES FOR INTEROPERABILITY WITH THE EMERGENCY SERVICES



Advance consultation and joint planning/plans between the emergency services and the hotel/conference centre is good practice to ensure a timely and effective response by the emergency services and hotel/conference centre in case a terrorist/extremist threat or attack was to ever occur.

The best pre-determined options and locations for emergency activities should be selected, agreed and included in plans held by the emergency services and the hotel/conference centre, examples include:

- **Forward command post(s)** - for a representative from the hotel/conference centre to attend and provide cooperation, support, and coordination of the response.
- **Rendezvous Point(s) for emergency services** - for their resources to assemble close to the scene and for briefings of their staff so they can be deployed.
- **Triage and treatment areas** - for emergency medical services to establish their medical responses for processing casualties and transporting them to medical facilities for further treatment if necessary.
- **Mass decontamination area(s)** - for large-scale decontamination of people if needed as a result of a CBRN incident/attack.
- **Traffic Management plan(s)** - to ensure speed of access to the site/event for emergency vehicles and implementation of road-blocks/diversions to keep people and traffic safely away from the area, to deal with potential points of congestion that may impede their response and ensuring ambulances can leave the area to transport casualties to hospital.

The hotel/conference centre should:

- **Design specific emergency procedures** to complement and facilitate the emergency services' response plans into their own plans (e.g., closing car parks and keeping access roads/points clear so as not to block emergency service access and/or surrounding road networks).
- **Share emergency plans and procedures with the emergency services** so evacuation/invacuation/lockdown plans and routes are known, together with any designated protected/refuge areas where guests may be directed to shelter.
- **Plan where and how they will hand-over incident management responsibility** to the emergency services as soon as possible after they arrive at the scene and provide ongoing support to them by coordinating the response of the hotel/conference centre (consider access to CCTV, guest and staff communications etc).
- **Agree a procedure for reversing lockdown** and the release of people from protected/refuge areas so emergency services have a predetermined and structured approach to this aspect of their intervention and the rescue of guests who are sheltering inside the hotel/conference centre (and staff at the hotel/conference centre can be trained accordingly).
- **Exercise** their plans and procedures with the emergency services to test and validate them, which can also provide an opportunity for staff training and rehearsal and mutual learning that can lead to improvements to plans, procedures, cooperation and interoperability.

GUIDELINES FOR INCIDENT MANAGERS DURING TERRORIST THREATS & INCIDENTS

The **INCIDENT MANAGER** has overall responsibility and authority for decisions and resources during an emergency. In the case of a terrorist/extremist threat or attack, the aim of the incident manager is:

- To **protect** people (and property) from harm by keeping them as safe as possible
- To **deter** and to **delay** the threat/attack as much as possible
- To **inform the emergency services** with timely and accurate information while waiting for them to attend and deal with the threat/attack.
- To further cooperate with emergency services

In case of hotels and conference centres, there should be an **EMERGENCY PLAN** that contains emergency procedures clearly defining **roles, responsibilities** and the **actions** to be taken in the case of various emergency situations, including the role and responsibilities of the **INCIDENT MANAGER** in charge of the response (usually the Security Manager or General Manager). The incident manager should act in accordance with the plan. If the **EMERGENCY SERVICES** are present and integrated into an event, such a high-profile event or with VIP guests, the incident will usually act on the guidance and instructions of the emergency services to **support** the overall response to the emergency by **communicating** and **coordinating** the response at the hotel/conference centre.

In case of day-to-day normal operations at the hotel/conference centre without an emergency services' presence, there should always be a **NOMINATED INCIDENT MANAGER** in place to take responsibility and authority during an emergency situation.

They must:

- have **responsibility** for leading and coordinating the response during an emergency
- **be known** by the staff as the responsible person and reference point during emergencies, so they are ready to implement any decisions that are made.
- **hand over** the management of the threat/attack to the emergency services as soon as possible after their arrival
- **act in a supporting role** to the emergency services by coordinating the response of the hotel/conference centre.

In case of terrorist/extremist threat or attack the incident manager must conduct the steps mentioned in

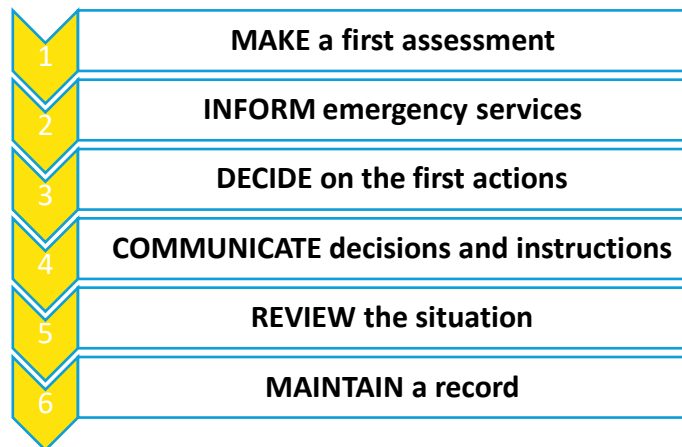


Figure No 1:

Figure 21 Steps made by

incident manager

MAKE a first assessment
<ul style="list-style-type: none"> • Consider if the threat/attack is credible and requires a response or not. • Recognise the gaps in the currently available information. • Establish as much as possible about: <ul style="list-style-type: none"> ○ What has happened? (its nature, scale) ○ When did it happen? (Timeline, ongoing or not) ○ Where is the threat/incident/attack? (Location(s), weapons involved, static or moving/changing) ○ Who is involved? (Attacker(s), descriptions, direction of travel, casualty types/numbers/location(s)) ○ Why has it happened? (motive/explanation, context) • Initiate enquiries to fill any information gaps and then update/maintain situational awareness. • Confirm if the emergency services have already been informed, if they provided any guidance or instructions and if they are attending.
INFORM emergency services
<ul style="list-style-type: none"> • A nominated person should immediately alert emergency services about a credible threat/attack so they can mobilise their resources to attend, report back when it is done. • An uncertain situation can also be reported to the emergency service for their general information and to receive advice. • Make the fullest possible first report (or updated/second/confirmatory report) as soon as possible. Use ETHANE structured report (Figure No. 2) to provide the key information needed by the emergency services. • Assume that an updated/second/confirmatory report should be made after your first assessment so emergency services can be updated, confirm their expected attendance/time, and confirm/update any previous guidance or instructions that were given and provide any updated advice. • Collect data and information

- How many staff members are in the premises and where
- Any contact with the staff, delegate contacting the staff and collecting data
- How many guests may be present
- Place of incident

DECIDE on the first actions

- Recognise **THEY** must take personal responsibility to manage the response to a credible threat/attack until the emergency services attend and take over.
- **Follow** any guidance or instructions given by the emergency services.
- Decide to implement the **best tactical option(s)** to protect people (and property) to keep them as safe as possible while waiting for the emergency services to attend and deal with the threat/attack. This may involve a mixture of evacuation/invacuation/lockdown depending on the characteristics of the site and the assessment of the threat/attack.
- Implement measures (if possible) to **deter and/or delay** the attack while keeping people as safe as possible.
- Recognise that **quick decisions** may be needed about evacuation / invacuation / lockdown to keep people safe based on incomplete information about the threat/attack.
- Delaying decisions while waiting for more information may put people at increased risk from the threat/attack.

COMMUNICATE decisions and instructions

- To **STAFF** - about evacuation/invacuation/lockdown implementation using predetermined protocols/alarms/code words (but NOT fire alarm for evacuation). REMEMBER that attackers may hear any instructions given on the PA system or Radios (such as the location of protected spaces).
- To **GUESTS/VISITORS** - use pre-scripted, clear, and concise messages to provide instructions about where to go and what to do. REMEMBER that an evacuation may need to be followed by a dispersal rather than an assembly in the case of some types of threats/attacks.
- To **NEIGHBOURS** - so they can take action to keep themselves and others safe in accordance with their own emergency plans and procedures.
- To **EMERGENCY SERVICES** - keep them regularly updated on developments and relevant new information while they are on their way, so they are prepared with the best understanding of the situation (keep updating the key information using ETHANE reports).
- By delegating clearly specified tasks and messages to nominated/trained staff, such as communications with emergency services, neighbours, making the pre-scripted public announcements, etc.

REVIEW the situation

- By actively **monitoring** and understanding the developing situation and the activities of staff who are implementing the emergency procedures .
- By making further/updated **assessments** based on any new/changing information.
- By **sharing information** with the emergency services (using updated ETHANE reports) and receiving any new/updated guidance or instructions from them.

- By **developing** and implementing the **best possible actions**/response(s) by confirming/adapting decisions and by making new ones based on the changing situation and advice of the emergency services.
- By clear, concise and timely **communications** with staff, worshippers and neighbours.

MAINTAIN a record

- Of **information** received and requested for building and maintaining the situation awareness (including timings, who requested/provided).
- Of **decisions** made (including timings) and the supporting reasons (what options were considered, the rationale for rejecting/accepting specific options).
- Of significant **communications** that were made (to who, including timings).

The incident manager will need to rely on the following capabilities as the basis for implementing an effective response to terrorist/extremist threats or attacks:



Personal Training

Personal training for their role and responsibilities, including opportunities to rehearse and exercise them.

2**A Plan**

Setting out tactical options for responding to a terrorist/extremist threat or attack; with reference to the specific threat context and vulnerabilities of the hotel/conference centre.

3**A Location**

A preferred secure location known to staff for carrying out incident management functions with sufficient security, access to communications, resources, CCTV, copies of plans, and contact lists. Back-up options should also be identified in case the preferred location is compromised by the incident. The emergency services should also know where to find/consult the incident manager and take over responsibility for incident management from them as soon as possible after arriving at the scene.

4**Relevant emergency procedures**

Designed specifically for the characteristics of the site/event.

5**Staff/Teams**

The human capacity for implementing the tactical options and emergency procedures; they must be familiar with the plans/options/procedures and have been trained/exercised in them - particularly evacuation (including non-fire and CBRN emergencies), invacuation and lockdown; this should include nominated staff/roles for leading and implementing specific procedures. The role of the incident manager is a critical function, and they should always have a nominated deputy available to take over their role (maintained competency/training, updated call out lists etc.)

6**Communications**

Tested and reliable communications capabilities for giving/receiving/exchanging information/decisions with staff; to announce information and instructions to worshippers; contact lists for emergency situations (internal and external); nominated staff/teams for delegation of communications tasks.

GUIDELINES FOR REPORTING: ETHANE and MIST

ETHANE STRUCTURE REPORT

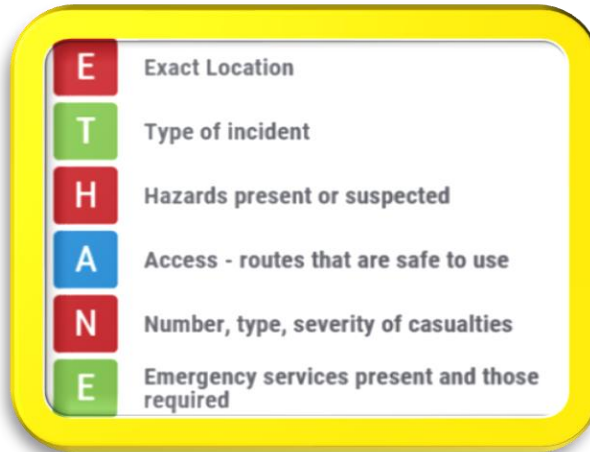


Figure 22 ETHANE structure report

DECIDE on the first actions

EXACT LOCATION
<ul style="list-style-type: none"> Where the threat/attack is What part of the site/building(s) are affected Where any attackers were last seen and where they were going
TYPE OF INCIDENT
<ul style="list-style-type: none"> What type of incident/threat/attack (suspicious package, bomb threat, active shooter, attack with a bladed weapon, use of CBRN-hazardous materials, etc)
HAZARDS
<ul style="list-style-type: none"> What hazards/potential hazards are involved (possible explosives, weapons seen/used, CBRN materials, etc) Report description(s) of the attacker(s)
ACCESS
<ul style="list-style-type: none"> What are the best routes for emergency access and exit (consider options from any plans previously agreed/held by emergency services)
NUMBER OF CASUALTIES
<ul style="list-style-type: none"> How many casualties What type of injuries Follow MIST protocol to gather and deliver information regarding victims
EMERGENCY SERVICES
<ul style="list-style-type: none"> which ones and how many emergency services are there which ones and how many are needed for the specific threat(s), hazard(s) impacts of the emergency situation



MIST: AVPU

The AVPU scale is a quick and simple tool used by emergency responders and healthcare providers to assess a person's level of consciousness. It's especially useful in pre-hospital settings, mass casualty incidents, and environments like CBRNe events where time and clarity are crucial.

A – alert	Patient is fully awake, responsive, and oriented (even if confused).
V – verbal	Responds to verbal stimuli (e.g., opens eyes or moves when spoken to).
P – pain	Responds only to painful stimuli (e.g., sternal rub, pinching).
U - unresponsive	No response to verbal or painful stimuli.

EXPECTED CROWD BEHAVIOURS AT A CBRN EMERGENCY

Inaccurate understandings of public behaviour can lead to dangerous and counterproductive practices in crowd management.

Key findings on Expected Crowd Behaviour

- Commonly held **false** assumptions about crowd behaviours during an emergency can be characterized as a belief that:
 - selfish and competitive behaviours will override social norms,
 - emotions will override rationality,
 - crowds will overact in ways that are disproportionate to the threat,
 - crowds will make unreasonable and ineffective efforts to escape,
 - information about the threat/emergency should be withheld to prevent "mass panic",
 - misinformation will spread throughout the crowd like a contagion.
- Empirical data shows that typical human behaviour in disaster and emergency situations is **prosocial**.
- A **fleeing crowd may not be a panicked crowd**; this may represent a rational and reasonable response to a threat and be in line with professional advice (such as RUN, HIDE, TELL).
- Empirical data also show that symptoms like collapsing people trigger psychosomatic effects.
- An effective **communication strategy** leads to increased speed and efficiency of the decontamination process, increased compliance, reduced anxiety, and increased cooperative behaviour among members of the public.
 - Ensure messaging is **CLEAR, CONCISE, RELEVANT, SPECIFIC** about threats and risk(s).

EMERGENCY RESPONSE²⁶

Situation analysis
<ol style="list-style-type: none"> 1. Stay calm 2. Try to find out what the source of danger is 3. In the event of an obvious danger, make an evacuation decision yourself 4. Contact security 5. Check that it is safe to move around the area 6. Do not expose yourself to immediate danger - protect yourself (use protective equipment) 7. Analyse if evacuation routes are safe to move through 8. If evacuation is not possible, analyse the shelter possibility in a safe room.
Evacuation
<ol style="list-style-type: none"> 1. Evacuate the room/area in accordance with the emergency instructions 2. Consider alternative escape routes in case of possible danger along the main escape routes (including windows) 3. Minimise the time spent in the danger zone 4. Maximize your distance from the hazard 5. Go to the evacuation assembly point indicated by the evacuation leader 6. 6. Follow the instructions of security at the evacuation assembly point.
Shelter in place
<p>In the case of releasing CBRN agents and lack of ability to evacuate the affected area, try to find shelter to guarantee temporary cover. It is an emergency measure -choose it only as a last resort (2 hours maximum).</p>
Post evacuation
<ol style="list-style-type: none"> 1. Keep calm 2. If you feel any effects of the contamination, seek medical attention 3. If you may have been contaminated, do not hide it from the emergency services - this will allow the services to take appropriate action, which may save your life 4. Follow the security or emergency services instructions on arriving on the scene

²⁶ The following are general guidelines for organizing an evacuation in such areas. However, during an evacuation they should follow specific instructions implemented by the security manager.

GUIDELINES FOR THE PUBLIC TO STAY SAFE DURING A CBRN INCIDENT

1. **REMOVE** yourself from the area and get away from anything that may be dangerous, like:
 - unusual smells
 - unexplained vapor or mist clouds
 - dead or unwell people or animals
 - oily droplets or films on surfaces or water
 - unusual materials or equipment
2. Even if you feel unwell, **DON'T** sit or lie down, you might not be able to get up again
3. If inside, try to go **OUTSIDE** into fresh air if possible
4. If you see people who are unwell or passing out, **HELP them leave** the area without retracing your steps
5. As soon as you get to a safer area, carefully **REMOVE** your outer clothing – it may be contaminated
6. **DON'T TOUCH** the outside surface of the clothing with your hands
7. **DON'T** let the outside surface touch your face when you take off your clothing
8. If possible, try to **ISOLATE CLOTHING** in a plastic bag or leave them on the ground outside evacuation routes and keep away. Tell emergency responders where they are when they arrive to help
9. If possible, **REMOVE** any hazardous substance from your skin using a dry absorbent material to soak it up or brush it off. **RINSE** continually with water if the skin is itchy or painful.
10. **USE** your mobile phone to alert the emergency services on 112 about:
 - The location of the incident
 - Your location (if different)
 - That hazardous materials might be involved
11. **WAIT** for emergency services and follow their instructions
12. Once the assembly point, **DON'T** go home because you may contaminate your family
13. **DON'T** visit a medical facility, you may contaminate other people and emergency workers
14. The emergency services will organize a place nearby where you can receive medical treatment
15. **DON'T** touch anyone
16. **DON'T** touch your face
17. **DON'T** drink, eat or smoke

DETAILED CLEANING CHECKLIST

A - All situations

N – NO RISK

O – at orange level

R – at red level

Planning CBRN cleaning	
Have the procedure for declaring risk status at every level other than NO RISK	Hotel manager, sanitary/ person in charge of sanitary matters, in consultation with the general manager
Prepare cleaning instructions depending on the assessed CBRN (epidemiological in practice) risk	
Have the initial CBRN risk assessed	Criteria and levels NO RISK if nothing reported ORANGE RISK if: (i) existing likelihood of C/B/R contamination, (ii) an area-specific warning by sanitary authority, (ii) any warning from inside the chain or industry; (iii) accumulated reports from the hotel staff or gathered evidence RED RISK: (i) a declared state of epidemics or contamination in the area (ii) existing reports and recommendations from the chain managers/coordinators (iii) repeated evidence from inside assessed as a possible biothreat
Announce it to the staff, eg, through colour-coding	
Rooms	
It is recommended to put your dust/surgical/ FFP mask on (A)	Put your FFP mask on (O,R)
Ensure all unused lights and air conditioning are switched off;(A)	
Treat any large spills, excretions of body fluids using regular procedures	In case of any large spills, excretions of body fluids, treat them as biohazards etc. (R)
Ensure the curtains are opened and the room is ventilated;(A)	Ensure curtains are opened, and the room is ventilated through the window or exhaust AC (O, R)
Empty and damp-wipe ashtrays; (N)	Empty and damp-wipe ashtrays; place the content in the marked trash bag (O,R)
Remove rubbish from rubbish bins and dispose it off correctly, damp wipe bins(N);	Remove rubbish from rubbish bins and dispose of it correctly in the marked trash bag, and damp-wipe the bins. If the bin contains bodily fluids or other suspicious organic matter, make an appropriate note on the cleaning checklist. The sanitary manager shall



	decide on the application of a professional disinfection procedure; (O, R)
Wash and dry cups and glasses;(N)	Collect dirty crockery and glassware for dishwashing (O,R)
Wipe down all surfaces and items, such as ice tray, kettle, and drawers;(N)	Use deep cleaning procedure, (O,R)
Systematically damp-dust bedroom, starting at the main door and working around room, including drawers; (N)	Use deep cleaning procedure (O, R)
Replenish guest supplies and advertising literature;(N)	If the room may be qualified for deep cleaning skip that step, mark the fact on the checklist (O, R) Room may be qualified for disinfection
Straighten lampshades and pictures;(A)	
Ensure curtains are in place and furniture in position; (A)	
Vacuum carpet and soft furnishings, ensuring furniture is moved in order to vacuum all areas, including corners and edges;(N)	Plan your cleaning so you don't cross the path you already cleaned to avoid possible cross-contamination
Vacuum corridor carpet, outside doors;(A)	
Remove all soiled linen from bed and bathroom;(N)	Remove all soiled linen from bed and bathroom Put soiled linen in a bag marked with the room number they originate from. Avoid deep breathing when handling bed and bathroom linen
Check bedspreads, blankets, bed pads and inner slips for soiling and replace if necessary;	Handle soiled items with caution. If any surfaces/items are soiled, record that fact on the checklist and bag all soiled items in a bag marked with the room number from which they originate.
Make up beds using fresh linen. (N)	Follow or ask for the specific instructions from the manager (O, R)
Bathrooms	
Use standard procedure (N)	Use deep cleaning procedure (O, R)
Corridors	
Vacuum corridors outside rooms, dust skirting and pictures;(A)	
Replenish trolleys for the following day (A)	



DETAILED CLEANING SECURITY CHECKLIST

DESCRIPTION			<u>Attendant Signature</u>	<u>Supervisor Signature</u>
			TO FILL	TO FILL
Daily Primary Check	Corridors	Yes/No		
	Staircases	Yes/No		
	Public Spaces	Yes/No		
	Restrooms	Yes/No		
Corridors	No suspicious objects	Yes/NO		
	No suspicious Person	Yes/NO		
	No damages	Yes/NO		
	No suspicious smell	Yes/NO		
	No suspicious sign of dirt	Yes/NO		
	No suspicious sound	Yes/ NO		
Staircases	No suspicious objects	Yes/NO		
	No Suspicious Person	Yes/NO		
	No Damages	Yes/NO		
	No Suspicious smell	Yes/NO		
	No Suspicious sign of dirt	Yes/NO		
	No suspicious sound	Yes/ NO		
Public Space	No suspicious objects	Yes/NO		



	No suspicious person	Yes/NO		
	No damages	Yes/NO		
	No suspicious smell	Yes/NO		
	No suspicious sign of dirt	Yes/NO		
	No suspicious sound	Yes/ NO		
Restrooms	No suspicious objects	Yes/NO		
	No suspicious person	Yes/NO		
	No damages	Yes/NO		
	No suspicious smell	Yes/NO		
	No suspicious sign of dirt	Yes/NO		
	No suspicious sound	Yes/ No		

During my shift, I did not observe any suspicious activities or items that could indicate a security threat. All areas were monitored regularly, and no incidents or irregularities were reported or detected. The environment remained safe and secure throughout my duty period.

[Your Name]

[Your Position]

[Date]