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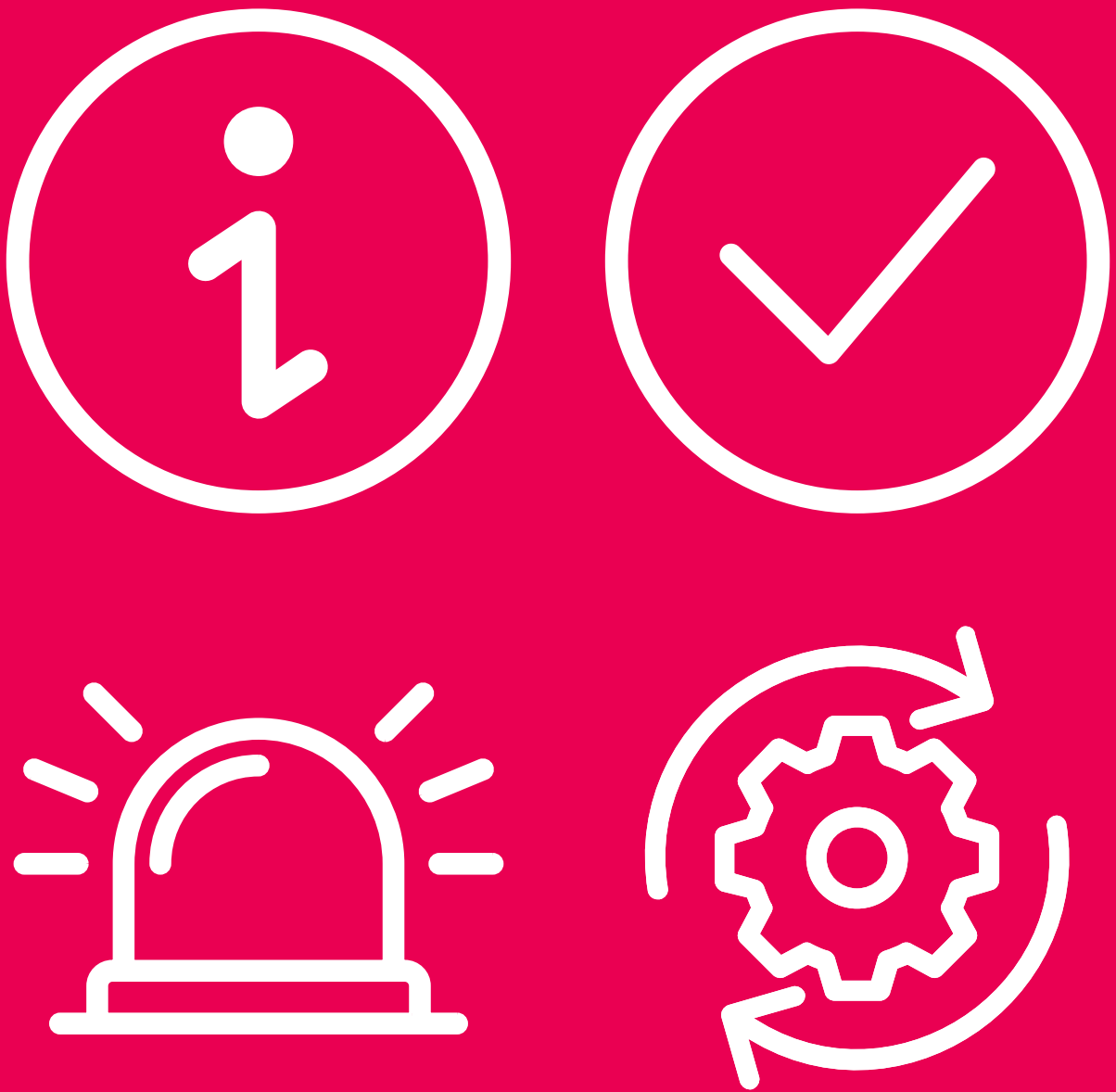
An Introductory Guide to JESIP Principles and Supporting Systems



The importance of efficient multi-agency response in an age of major incidents

Major incidents are commonly defined as events that require an extraordinary allocation of resources, either due to their location, severity, type, and/or number of victims[i]. The management of these incidents, varied by nature as they are, usually involves responders coming together from multiple rescue services. Agencies might even have to come from different jurisdictions or geographies.

Inter-service cooperation, in this context, is necessary but rarely simple. That's because responding agencies will bring their own competencies, experiences, systems, and terminology.

Melding everything together, particularly during a severe incident, is difficult, one of the starker challenges to optimal resource allocation and effective incident management.

Starting with the Incident Command System (ICS) in the late 1970s, however, major incident command[ii], control[iii], and coordination[iv] frameworks have emerged to tackle the variegated challenges associated with multi-agency cooperation, e.g., limited spans of control, the need for clearer lines of command, as well as inability to communicate effectively across organisations[v].

What's been developed and refined serves the purpose, therefore, of directing different actions in an affected region. Resultant frameworks seek to organise command and scene assessment, such that an individual structure becomes the mode of handling an incident, and local directors within that region conform to the structure in place[vi].

One such framework is the JESIP Joint Doctrine, an interoperability framework, which standardises multi-agency working. JESIP models and principles themselves, the most salient of which this guide will lay out, have become the standard for interoperability in the U.K.

JESIP principles

JESIP's initial focus was on improving multi-agency response to major incidents. Nowadays, however, the framework is scalable, with models of joint working that can be applied to any type of multi-agency incident.

What are some of the key JESIP principles?

The most important principle outlines how multiple agencies can work jointly, in all phases of an incident, irrespective of scale and whether the incident was spontaneous or pre-planned.

JESIP principles for joint working include:

Principle	Description	Notes
Co-locate	Co-locate with other responders as soon as practicably possible at a single, safe, and easily identified location.	Benefits of co-location include improved communication and understanding that support joint working. Co-location supports responders to jointly agree upon objectives and develop a co-ordinated plan to effectively resolve an incident.
Communicate	Communicate using clear language, free from technical jargon and abbreviations.	Meaningful and effective communication between responders and responder organisations underpins effective joint working. The "talk not tell" process involves control room personnel passing information and asking other organisations what their response to the incident will be. This is achieved by: • Sharing information from all available sources along with immediate resource availability and decisions • Nominating a point of contact in each control room and establishing a method of communication between all of them • Co-ordinating the setting up of multi-agency interoperable voice communications for responders and operational working if necessary

Principle	Description	Notes
Co-ordinate	Co-ordinate by agreeing on the lead organisation. Identify priorities, resources, capabilities, and limitations for an effective response, including the timing of further meetings.	Co-ordination involves control rooms and responders of all levels discussing the available resources and activities of each responder organisation, agreeing to priorities, and making joint decisions throughout the incident. Co-ordination underpins joint working by avoiding potential conflicts, preventing duplication of effort, and minimising risk. For effective co-ordination, however, one organisation generally needs to take a lead role. To decide who the lead should be, factors such as the phase of the incident, the need for specialist capabilities and investigation, during both the response and recovery phases should be considered.
Jointly understand risk	Jointly understand risk by sharing information about the likelihood and potential impact of threats and hazards, so as to agree upon appropriate control measures.	By jointly understanding risks and their associated mitigating actions, organisations can promote the safety of responders and reduce the impact that risks may have on members of the public, infrastructure, and the environment. But as different responder organisations may see, understand, and treat risks differently, each organisation should carry out their own risk assessments, then share the results, so that they can plan control measures and contingencies together more effectively. Individual dynamic risk assessment findings may be used to develop the analytical risk assessment for the incident.
Shared situational awareness	Establish shared situational awareness by using M/ETHANE and the Joint Decision Model.	Shared situational awareness is a common understanding of the circumstances, immediate consequences, and implications of the emergency, along with an appreciation of the available capabilities and the priorities of the responder organisations. Achieving shared situational awareness is essential for effective interoperability. And establishing shared situational awareness is important for developing a Common Operating Picture (COP) at all levels of command, between incident commanders, and between control rooms. Communications between control rooms greatly assists the creation of shared situational awareness in the initial stages and throughout the incident.

Shared situational awareness and the M/ETHANE mnemonic

What else contributes to shared situational awareness?

Per JESIP principles, talking to commanders before they arrive on scene as well as throughout the incident also helps. The organising process, however, should include identifying risks and hazards.

What points should be covered between control rooms? The following considerations have been singled out:

- Is it clear who the lead organisation is at this point? If so, who is it?
- What information and intelligence does each organisation hold at this point?
- What hazards and risks are known by each organisation at this point?
- What assets have been, or are being, deployed at this point and why?
- How will the required agencies continue communicating with each other?
- At what point will multi-agency interoperable voice communications be required, and how will it be achieved?

And that's where standardised methodologies for sharing information with the aim of contributing to shared situational awareness come in. The most import of these in the U.K. emergency management context is M/ETHANE.

M/ETHANE is an established reporting framework, which serves as a popular method for passing incident information between emergency services and control rooms in a consistent manner.

The mnemonic stands for:

M **Major incident declared.** Has a major incident been declared? Advise major incident "standby" or "declared." For incidents falling below the major incident threshold M/ETHANE becomes an ETHANE message.

E **Exact location of the incident.** What is the exact location and geographical area of the incident? Grid reference, road names, landmarks, etc.

T **Type of incident.** What kind of incident is it? With brief details, could include rail, chemical, road traffic collision, etc.

H **Hazards.** What hazards or potential hazards can be identified? Present and potential.

A **Access/egress.** What are the best routes for access and egress? Routes to the incident and potential rendezvous points.

N **Number of casualties.** How many casualties are there, and what condition are they in? An estimate in the first instance, then upgraded with their severity/type.

E **Emergency services.** Which, and how many, emergency responder assets and personnel are required or are already on-scene? Present and those required, including specialist input.

Stages of response to a multi-agency incident

The importance of the M/ETHANE mnemonic and reporting model is that it brings structure and clarity to the initial stages of managing a major incident.

This cannot be overstated.

During these early stages, it will take time for operational structures, resources and protocols to be established. Some, if not much, of the required information may not be available.

All of this puts undue pressure on the first responders and early control rooms.

Add to that, incident commanders may lack the necessary resources to deal with the incident. And so, a common approach, such as M/ETHANE, will be required.

How does M/ETHANE get operationalised in the field?

According to the Joint Decision Model (More later), there should be periodic consideration of the major incident designation by responders. This helps to establish whether a developing situation has indeed become a major incident.

Each responder organisation will then send a M/ETHANE message to its control room. Those organisations should then share it with relevant responder organisations as soon as possible.

It's imperative, though, that when the first resources arrive on the scene, they consider their own safety. This will involve sending a M/ETHANE message so that situational awareness can be established quickly.

The information received through multiple M/ETHANE messages will gradually accumulate to support shared situational awareness in those responding to the incident and between control rooms.

Developing a common operating picture

From there, it will be incumbent on responders to develop a common operating picture (COP). A COP is defined as a common overview of an incident, which is created by assessing and fusing information from multiple sources. The overview developed then gets shared between appropriate command, control, and co-ordinating groups to support joint decision making.

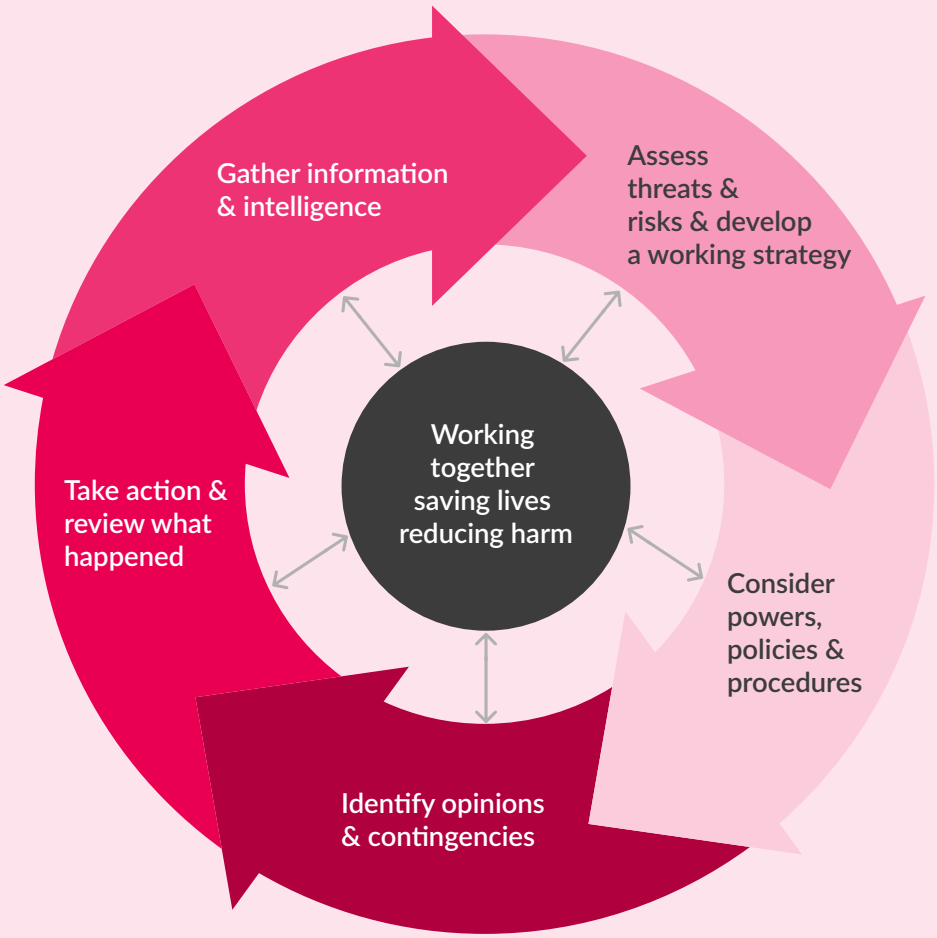
What about the COP itself? Is it a static picture? Although a common point of reference, the COP should evolve with the incident, to adequately summarise the below:

- What is happening now and what is being done about it?
- What does it all mean and what effects will it have?
- What might happen next or in the future?

What about format? Per JESIP principles, there's no set format for the COP. The COP should, however, reflect local requirements and practices. And whatever form the COP takes, it should be user-friendly, easy to navigate, and geared to the requirements of busy decision makers under pressure.

Joint Decision Model

This is where the Joint Decision Model (JDM) comes in. The JDM, depicted below, is designed to help responding agencies make effective decisions during fluid circumstances.



When using the JDM, the priority is to **gather and assess information and intelligence**. Responders should work together to build shared situational awareness, recognising that this requires continuous effort as the situation, and responders' understanding, will change over time.

Understanding the risks is vital to establishing shared situational awareness, as it enables responders to answer the three fundamental questions: what, so what, and what might? But once the process of building shared situational awareness has begun, the desired outcomes should be agreed to as the central part of a joint working strategy.

If a Strategic Co-ordinating Group (SCG) is convened to this effect, that SCG will **agree and share the joint strategy** for the multi-agency response. The strategic command teams from each organisation should then review and amend their single-agency strategy to be consistent with the joint strategy and support them in achieving the jointly defined outcomes, or overarching aim.

Deciding how all agencies will work towards the desired outcome **reflects the available capabilities, powers, policies, and procedures** (means) and the arising options, constraints, and contingencies (ways).

Identifying options and contingencies comes next. Some options, however, will not be viable, either difficult to implement, technically or logistically infeasible, or illegal and/or ethically indefensible. Such options, though, should still be logged with rationale as to why they were not achievable.

At this point, the JDM advises responders to **take action** after they've mulled over the appropriate considerations. Responders should also list the various stages taken to reach that decision.

This, of course, is just a cursory picture of the JDM. Further considerations include:

Stage	Consideration
Working together saving lives reducing harm	This is the most important consideration throughout the decision-making process. All joint decisions should be made with reference to the overarching or primary aim of any response to an emergency – to save lives and reduce harm.
Gather information and intelligence	At any incident, no single responder organisation can appreciate all the relevant dimensions of an emergency straight away. A deeper and wider understanding will only come from meaningful communication between responder organisations, with the product of those communication, i.e., intelligence, subjected to the following tests: • Evaluation, to determine its significance • Risk assessment, to determine the need for it to be acted on • Analysis, to identify critical links and associations that assist understanding of the incident
Assess threat and risk and develop a working strategy	This analytical stage involves responders jointly assessing the situation, including any specific threats, hazards, and the risk of harm. It's rare, however, for a complete or perfect picture to exist for a rapid onset incident. A working strategy, as such, should therefore be based on the information available and reviewed on a continual basis. When developing that working strategy, responders should apply decision controls, share single service risk assessments, and record and agree the joint assessment of risk. Further steps to take include: • **Identify hazards.** This begins with the initial call to a control room and continues as first responders arrive on scene. Information gathered by individual agencies should be disseminated to all first responders, control rooms and partner agencies effectively. • **Dynamic risk assessment.** Individual agencies carry out dynamic risk assessments, reflecting the tasks and objectives to be achieved, the hazards identified and the likelihood of harm from those hazards. The results should then be shared with all agencies involved. • **Identify tasks.** Each individual organisation should identify and consider their specific tasks, according to their role and responsibilities. These tasks should then be assessed in the context of the incident. *Continued over page*

Assess threat and risk and develop a working strategy *(Continued)*	• **Apply risk control measures.** Each organisation should consider and apply appropriate control measures to ensure any risk is as low as reasonably practicable. The hierarchy of control should be considered when agreeing a co-ordinated control measure approach: Elimination, substitution, engineering controls, administrative controls, and personal protective clothing and equipment. • **Have an integrated, multi-agency operational response plan.** The outcomes of the hazard assessments and risk assessments should be considered when developing this plan, within the context of the agreed priorities for the incident. If the activity of one organisation creates hazards for a partner organisation, a solution must be implemented to reduce the risk to as low as reasonably practicable. • **Record decisions.** The outcomes of the joint assessment of risk should be recorded, together with the jointly agreed priorities and the agreed multi-agency response plan, when resources permit. This may not be possible in the early stages of the incident, but post-incident scrutiny focuses on the earliest decision-making.
Consider powers, policies, and procedures	A common understanding of relevant powers, policies, and procedures is essential to ensure that the activities of responder organisations complement each other. And so, this stage relates to any relevant laws, procedures, or polices that may have an impact on the response plan and the capabilities available to be deployed.
Identify options and contingencies	Finally, contingency arrangements should be put in place to address reasonably foreseeable events that may occur from actions taken or not taken. But these potential options or courses of action should be evaluated, considering the following: • Suitability. Does it fit with the strategic direction? • Feasibility. Can it be done with the available resources? • Acceptability. Is it legal, morally defensible, and justifiable? Whatever the option chosen, though, responders should be clear on what they need to carry out. Procedures for communicating any decision to defer, abort, or initiate a specific tactic should also be clearly agreed.

Decision making support

Thoroughly assessing the information received helps to ensure quality and suitability for the task at hand. This is critical to ensuring that joint decision making is based on the best possible information, which can only happen by identifying where critical uncertainties lie.

Of course, once decisions have been made and actions agreed to, information should be relayed in a structured way. That way it can be easily understood by those who will carry out actions or support activities. This process is commonly known as briefing.

As incidents develop past their initial stages, or if they are protracted and require a handover of responsibility, a more detailed briefing tool should be used.

The mnemonic IIMARCH, short for Information, Intent, Method, Administration, Risk Assessment, Communications, and Humanitarian Issues, is commonly used in these circumstances, so that information can be briefed in appropriate detail.

Finally, the matter in which information is shared is also important to support joint decision-making. JESIP, here, recommends using a common information sharing platform, preferably digital, to share and manage information collaboratively.

What are the advantages of using a digital information sharing platform for incident response? Per JESIP, using a digital platform helps with automating aspects of sourcing, combining, analysing, and displaying data.

What platforms to consider, though?

Certain advanced emergency management platforms carry both information sharing and full-lifecycle emergency management capabilities. What's more, those platforms have the added benefit of providing JESIP incident management dashboards, as well as the capability to create both M/ETHANE reports and IIMARCH briefings.

Those aren't the only capabilities of notee.

A truly digital EOC suited for governments, corporation, and non-profits in the U.K. and abroad, these platforms have been designed for industry best practice, such as ICS and JESIP. This means, in close, that the platforms boast powerful workflows which go the critical last mile to automate key response steps, making it easier for practitioners of JESIP models and principles to collaborate, communicate, and coordinate to improve their response to major incidents.

Sources

i. *Marius Rehn et al., BMC Emergency Medicine: A concept for major incident triage: full-scaled simulation feasibility study. Available at https://cyberleninka.org/article/n/943577/viewer.*
ii. *The internal direction of the members and resources of an organisation's roles and tasks by agreement or in accordance with relevant legislation. Command operates vertically within an organisation.*
iii. *The overall direction of emergency management activities in an emergency situation. Control relates to situations and operates horizontally across organisations.*
iv. *The bringing together of organisations and other resources to support an emergency management response. It involves the systematic acquisition and application of resources in an emergency situation.*
v. *Peter Aitken and Peter Leggat, Emergency Medicine: An International Perspective: Considerations in Mass Casualty and Disaster Management. Available at https://researchonline.jcu.edu.au/25867/1/25867_Aitken_Leggat_2012.pdf.*
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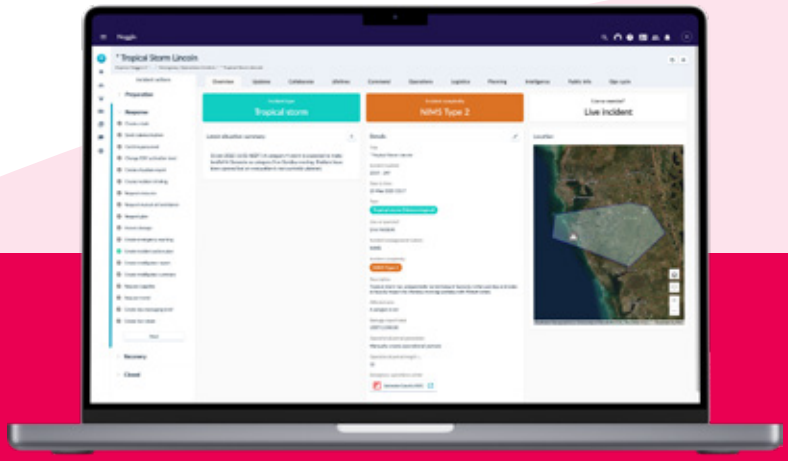

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