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Review of Persistent Lessons Identified Relating to Interoperability from Emergencies and Major Incidents since 1986

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This is a report written by Dr Pollock under commission from the Civil Contingencies Secretariat (CCS) of the Cabinet Office.

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EXECUTIVE SUMMARY

Scope

This report was commissioned to identify persistent issues that affect emergency responder interoperability as they are reported in a selection of recent inquiries[1], reviews, and other pertinent materials, available from unclassified and publically accessible sources. The identification and analysis of these themes establishes a historical and contextual evidence base, to assist the Joint Emergency Services Interoperability Programme (JESIP).

Report Structure & Approach

Chapter 1: sets the context for the research

Chapter 2: sets out the conceptual basis of interoperability, and provides a brief overview of JESIP, the UK Resilience Policy and the importance of learning lessons

Chapter 3: details the main findings from the review

Appendices: each event is summarised on a separate Appendix

The review examines 32 reports relevant to interoperability which is defined by JESIP as ***'the extent to which organisations can work together coherently as a matter of course'.*** The findings, lessons and recommendations from the reports are summarised, grouped by JESIP work area, and cross-cutting themes highlighted.

The intention was to produce a concise and accessible report structured to reflect the four main work areas of JESIP. These are:

- Doctrine & Organisation
- Operational Communications
- Shared Situational Awareness
- Training & Exercising

The JESIP work streams were used to construct a thematic framework to codify and analyse the themes and recommendations from the following 32 inquiries or events:

[1] It is beyond the scope of this review to consider any limitations of the use of public inquiries and their findings

1980s	1990s	2000s
1986 Crowd Safety at Football Grounds 1987 King's Cross Underground Fire 1987 Herald of Free Enterprise 1987 Hungerford Shooting 1988 Piper Alpha Explosion 1988 Clapham Rail Crash 1988 Lockerbie Bombing 1989 Hillsborough Stadium 1989 Kegworth Air Crash 1989 Marchioness-Bowbelle Sinking	1994 Texaco Refinery Explosion 1996 Dunblane Shooting 1996 BSE Outbreak Inquiry 1997 Southall Rail Crash 1997 Stephen Lawrence Murder Inquiry 1999 Ladbroke Grove Rail Inquiry	2000 UK Fuel Disputes 2000 Harold Shipman & 'the 3 Inquiries' 2001/2007 Foot & Mouth Disease 2001 Victoria Climbie Murder 2003 Failures in NHS Report 2003 Bichard Inquiry (Soham Murders) 2004 ICL Factory Explosion 2004 Boscastle Floods 2005 Buncefield Oil Depot Explosion 2005 London Terrorist Attacks 2005 Stockwell Shooting 2005 Carlisle Floods 2007 Hull Floods 2007 Pitt Review (UK Floods) 2009 Influenza Pandemic 2010 Derrick Bird Shootings

These events were selected because there was public inquiry, or because the event had a significant impact on the public consciousness. Analysis of publically available documents related to each event listed enabled the identification of lessons and common themes in relation to interoperability.

Many of the reports had numerous event or sector specific recommendations that fall outside the interoperability framework. These have been broadly summarised with little detail. Those recommendations relevant to interoperability have been detailed and grouped in the appropriate JESIP work stream. A summary of each event and related recommendations is contained in the Appendices.

Where key themes were identified that did not fit into the initial JESIP thematic categories, a new theme category was created.

Research Findings

Common causes of failures identified within the reports and relevant to interoperability includes:

- Poor working practices and organisational planning
- Inadequate training
- Ineffective communication
- No system to ensure that lessons were learned and staff taught
- Lack of leadership
- Absence of no blame culture
- Failure to learn lessons
- No monitoring/audit mechanism
- Previous lessons/reports not acted upon

It is notable that each of the reports reviewed included elements of clear relevance to JESIP and the major strategic issues were:

- Doctrine – provision of clear and easily understood guidance that ensures everyone is aware of their own and others roles and responsibilities;
- Operational Communications – the need for a common system used by all stakeholders with the capacity to deal with surges of activity associated with major incidents;
- Situational Awareness – the ability to quickly access and share information between stakeholders;
- Training & Exercising – the need for continuous development of stakeholders to ensure sufficient capacity to cope with a prolonged event.

JESIP Framework

The relevance of the current JESIP framework is supported by the findings of this research. However, it must be recognised that successful implementation of various JESIP work streams will take time, and the impact will only be evident over a number of years.

The findings of this research echo Lord Cullen's comments in his report on the Piper Alpha explosion, when he set out the basic and common principles required in any system when managing to prevent incidents. The principles can equally be applied to the achievement of resilience, whether in an organisation or wider community. In relation to interoperability and resilience, these are summarised as:

- Commitment by top management – setting the resilience standard and philosophy and communicating to staff
- Creating a resilience culture – safety is understood to be, and is accepted as, the number one priority
- Organisation for resilience – must be defined organisational responsibilities, and resilience objectives built into on-going operations, and part of personnel performance assessments
- Involvement of the workforce – essential that the workforce is committed and involved in resilient and safe operations, and are trained to do and do work safely, understanding their responsibility to do so

- Auditing – monitoring and auditing the process to ensure that the resilience programme is being followed; and all recommendations pursued to conclusion
- Observations on resilience management – the quality of resilience management by managers should be a component in the regulatory regime

Conclusion

The consistency with which the same or similar issues have been raised by each of the inquiries is a cause for concern. It suggests that lessons identified from the events are not being learned to the extent that there is sufficient change in both policy and practice to prevent their repetition.

The overwhelming number of recommendations calls for changes the doctrine and prescriptions are often structurally focused, proposing new procedures and systems. But the challenge is to ensure that in addition to the policy and procedures changing, there is a change in organisational culture and personal practices. Such changes in attitudes, values, beliefs and behaviours are more difficult to achieve and take longer to embed. However, failure to do so will result in the gathering of the same lessons which repeat past findings rather than identifying new issues to address and continuously improve the response framework.

Chapter 1

Introduction

This chapter sets out the context of the current review, highlighting the importance of learning lessons from previous events. It also describes the research approach taken.

Context of the Current Review

Civil emergencies have been identified in the National Security Strategy as representing a significant social, economic, environmental and public health challenge for the UK. The prevention of, response to and recovery from emergencies is an area that can be improved. In the UK, historically the approach to such events has been reactive. But in recent years, in response to the challenges faced in the 21st century, the UK Government introduced a pre-emptive policy of building resilience.

A key component of resilience is learning lessons from previous emergencies and other adverse events. However, this is an area that is often less successful in practice than in theory. This report examines whether the lessons have been learned from various UK disasters.

From the disasters[2] of the mid-1980s to the present day, a series of public inquiries, coroner's inquests, reviews and lessons identified reports have identified both proximate and underlying causes of events. Specifically, how these factors have diminished the effectiveness of the initial response. A significant number of these reports have identified interoperability failings of the response organisations. In this report, and consistent with the JESIP definition, interoperability is defined as: ***'the extent to which organisations can work together coherently as a matter of course'.***

Research Approach

The aim of this report is to undertake a comprehensive and holistic thematic analysis of a selection of recent disaster inquiries, reviews, and other pertinent materials, available from unclassified and publically accessible sources, and identify the persistent issues that affect interoperability. The identification and analysis of these themes establishes a historical and contextual evidence base, to assist the Joint Emergency Services Interoperability Programme (JESIP).

This review examines and summarises 32 reports relevant to interoperability; groups the findings, lessons and recommendations from the reports, and highlights common cross-cutting themes in a concise and accessible way structured to reflect the four main work areas of JESIP, namely:

- Doctrine & Organisation
- Operational Communications
- Shared Situational Awareness
- Training & Exercising

[2] In this research a disaster is defined as *"any event (happening with or without warning) causing or threatening death or injury to property or environment or disruption to community which because of the scale of its effects cannot be dealt with by the emergency service and local authorities as part of their day-to-day activities"* (SOHD, 1998: 2). An emergency is *"a complex and urgent problem, bound in place with no ripple effect, which is routine business for the emergency services that are trained to deal with them"* (Boin, 2010). In contrast to disasters and emergencies, what is missing from a crisis is *"a clear trace that would justify triggering the warning procedures"* (Lagadec, 1993: 45). A crisis is *"a serious threat to the basic structures or the fundamental values and norms of a system, which under time pressure and highly uncertain circumstances necessitates making vital decisions"* (Rosenthal, Charles & 'tHart, 1989: 10).

In order to identify the common themes to emerge from the inquiries into UK disasters, a thematic analysis was undertaken on the reports, structured according to the four main work streams of JESIP, which was used as a framework both to identify and group the key strategic themes present in each inquiry report.

Conclusion

This report establishes a historical and contextual evidence base for the JESIP programme and its constituent work areas. From major events since the mid-1980s to the present day, the research identifies persistent issues that are of relevance to interoperability, including lessons that may be drawn to address causes and mitigate the impacts of these shortcomings.

The major findings of these inquiries are largely consistent with the JESIP. This indicates that the JESIP work streams largely cover the major issues for effective resilience and disaster management interoperability. The emphasis should be on ensuring that the doctrine is fully implemented and the responders change their practices and values, ensuring the development of a culture, with interoperability at its core.

Chapter 2

Introduction

This Chapter sets out conceptual basis which underpins the research. It explains the principles of Integrated Emergency Management and highlights that it is dependent on interoperability to succeed. A brief overview of the Joint Emergency Services Interoperability Programme (JESIP), together with the tasks associated with it is given. The various duties of responders included in the Civil Contingencies Act 2004 and the components of the UK Resilience Policy are also detailed. The link between these components is explicitly described, together with an explanation of common organisational failures, and how these can be addressed. Finally when developing resilience in organisations, the importance of reaching the organisational culture and individual practices is highlighted, especially the need for the organisation to learn from its experiences

Integrated Emergency Management

Integrated Emergency Management is an approach based on a generic framework, which links the management of the emergency services with local authorities and other agencies. It is an expectation that all parties understand their respective roles in the IEM framework and the 'fit' with their own organisation. The IEM framework is applicable to any event, irrespective of size, nature or cause. It focuses on effects rather than causes, and ensures the multiagency response is coordinated and mutually supporting. There are 5 key areas of collaborative activity: assessment; prevention; preparation; response; and recovery. Interoperability is essential for the success of IEM, and all responding organisations must work together in a coordinated and coherent way.

JESIP

The aim of JESIP is to ensure the emergency responders are trained and exercised to work together as effectively as possible, at all levels of command in response to major or complex incidents.

JESIP seeks to address the recommendations and findings that follow from reviews of major national emergencies and disasters. In particular, the common themes which persist from review to review. The work streams and associated tasks are:

Doctrine & Organisation

- Complete the revision of ERR Chapter 4 and embed it into doctrine and training materials
- Gain commitment from blue lights to ensure interoperability is referenced in future doctrine and training materials (MoU)
- Conduct interoperability capability assessment
- Develop generic Joint Operating Principles (JOPs) for interoperability
- Produce JESIP kitemark/framework to assure future doctrine against interoperability requirements
- Establishing a Tri-Service Governance Board to sustain interoperability and implement future interoperability priorities
- Strategy for capturing and sharing lessons learnt

Operational Communications

- Review and revise national Tri-Service Airwave doctrine and guidance – produce a simple aide memoir
- Progress Airwave training modules
- Develop a regular standard test for incident commanders
- Develop Tri-Service Airwave training for Tactical Commanders
- Progress a Tri-Service common call sign structure
- Carry out a Tri-Service Command and Control review
- Develop a Tri-Services mobilisation MoU between national coordination centres for improved deployment communication

Shared Situational Awareness

- Develop Shared Situational Awareness Framework
- Agree and implement Joint Decision Making Model
- Establish Joint Dynamic Hazard/Risk Model
- Develop guidance for multiagency information and intelligence sharing
- Establish easier identification of on-scene commanders for Police

Training & Exercising

- Undertake baseline analysis to identify training opportunities
- Develop multiagency on-scene command course
- Develop multiagency tactical command course (silver)
- Embed agreed terminology through training (Lexicon and Map Symbology)
- Review interagency Liaison Course
- Develop an interoperability awareness package for all responders
- Develop training package for control room staff regarding role, responsibilities and capabilities of other services
- Establish a Joint Exercise Programme across services

By tackling these recurring themes, JESIP will improve interoperability, that is: create effective governance structures and coordination; ensure joint approaches to working and training with supporting doctrine; and shared understanding of roles, responsibilities and capabilities, leading to improved communications at incidents.

The Civil Contingencies Act

The Civil Contingencies Act 2004 provides a single framework for civil protection and seeks to reinforce partnership working at all levels. It recognises that interrelated systems provide essential services in the UK and as networks have become more complex the range of challenges in maintaining resilience has broadened. Such complexity requires collaborative partnerships working towards common outcomes. Thus the expectation of the Act is that local authorities, the emergency services and the health sector, along with other key service providers, will collaborate and be able to provide normal services in crises, so far as is reasonably practicable.

The achievement of resilience is predicated on the implementation of specific tasks by responders enshrined in the Act, namely:

- risk assessment
- business continuity management (including training & exercising)
- emergency planning (including training & exercising)
- warn, inform and advise the public
- promotion of BCM for business and voluntary organisations
- co-operation and information sharing

In particular, the exercises must include procedures for evaluation, identifying lessons, establishing improvement programmes, if necessary, as well as monitoring progress on actions taken.

UK Resilience Policy

The establishment of the Civil Contingencies Act 2004 and non-statutory guidance marked a profound shift in Government policy. Before the UK's crisis management policy and associated legislation evolved in a piecemeal manner; mainly based on civil defence, national emergencies including responding to terrorist attacks, health and safety legislation, and international collaboration. But, following a series of significant national disruptive events, the UK Government recognised the need:

- For a single framework for civil protection in the United Kingdom designed to meet the challenges of the 21st century
- To improve the UK's ability to deal with the consequences of major disruptive incidents by improving the planning process at a local level, building better contacts between agencies and improving the link between local areas and central government; and
- Clearly identifying the roles and responsibilities of local responders, ensuring consistency in civil protection activity and enhancing performance

The introduction of a UK Government policy of resilience, which incorporated not just planning, preparation, maintenance, response and recovery but also prevention of such extreme events, was a clear shift from the previous reactive response arrangements to proactive planning. The intention of which is to build more resilient organisations and communities. The research sought to examine a number of UK events to determine the effectiveness of the resilience policy and whether the lessons identified in previous inquiries and events were actually learned.

Resilient Organisations

Resilient organisations quickly capture and adapt to environmental information by changing their behaviours and structures. Resilient organisations have been described as having 4 levels[3]: strategies policies and procedures; structure, coordination and communication; organisational culture or norms and practices; and individual perceptions and beliefs of staff within the organisation. To be resilient an organisation must reach beyond the first two superficial aspects of the organisation into the hidden unseen layers, which are essential in determining whether the organisation will be crisis prone or crisis prepared. To be crisis prepared an organisation must perform well through all 4 layers.

[3] Pauchant & Mitroff's Onion Model (1992)

An essential element of resilience is learning from crises. A learning organisation will ensure that the lessons learned will result in changes to the organisational culture, norms and operating practices. These will be successfully embedded in the values and beliefs of the organisation and those who work in it.

The absence of such a culture will mean that learning will not take place. Barriers to learning include: rigid institutional beliefs, the tendency to scapegoat or blame something else for the circumstances, the minimisation of danger and the disregard of complaints or signals which may in hindsight be early warnings. The result will be systemic failure in the organisation[4].

Common causes of such recurring failures were identified by the House of Commons Health Committee, in its response to the Victoria Climbie Inquiry Report:

- Failure of communication between different staff and agencies
- Inexperience and lack of skill of individuals
- Failure to follow established procedures
- Inadequate resources to meet demands

These common failures can be overcome by a set of Basic and Common Principles, which draw on Lord Cullen's report on the Piper Alpha disaster:

- Commitment by top management – setting the resilience standard and philosophy and communicating to staff
- Creating a resilience culture – safety is understood to be, and is accepted as, the number one priority
- Organisation for resilience – must be defined organisational responsibilities, and resilience objectives built into on-going operations, and part of personnel performance assessments
- Involvement of the workforce – essential that the workforce is committed and involved in resilient and safe operations, and are trained to do and do work safely, understanding their responsibility to do so
- Auditing – monitoring and auditing the process to ensure that the resilience programme is being followed; and all recommendations pursued to conclusion
- Observations on resilience management – the quality of resilience management by managers should be a component in the regulatory regime

Conclusion

Unless these elements are in place resilience will be undermined because of the lack of monitoring and feedback mechanism, which will inhibit adaptive capacity. Consequently, learning will not take place to the extent that the lessons reach the organisational core values and individual beliefs. Instead the lessons will remain at a superficial level, resulting in changes to strategies, policies and structures. This research examined a number of UK events to determine whether lessons identified were actually learned, that is manifested in changes to cultural norms and practices.

[4] Smith & Elliott (2007)

Chapter 3

Introduction

This chapter sets out the research approach adopted and the selection criteria for the events analysed. It highlights common causes of organisational failure and the effect on interoperability.

Events Researched

The 32 events researched were selected because of the decision to hold a public inquiry into the event, or that the event had a significant impact on the public consciousness.

The intention was to consider events that represent a wide range of incident type, including: man-made terrorist attacks and shootings; industrial accidents such as Piper Alpha and Texaco explosions; natural events including flooding and extreme weather; transport disasters in air, rail and river; and sporting events.

Also included are a number of specific reports into organisational failures, such as Harold Shipman's murders and the murder of Stephen Lawrence. These reports are considered because they provide lessons directly related to interoperability, and illustrate that interoperability is much wider than the 'blue lights' response, and can have just as deadly consequences in other responder organisations.

Interoperability is the result of the shift towards greater collaborative working between a range of disparate organisations, each with their own working practices, objectives, language and culture. Therefore, the lessons have a broader application.

Each of the 32 events was analysed by way of the publically available documents related to them. These enabled the identification of lessons which can be drawn in relation to interoperability.

The table below lists the events analysed and a column for each of the JESIP themes: Doctrine & Organisation; Operational Communications; Shared Situational Awareness; and Training & Exercising. The original intention was to insert an X in each column when the theme was identified in the documents relating to the event. This would have provided a simple visual representation of the themes and enable their mapping. However, following analysis it became apparent that each of the themes occurs in every event.

Year of Event	Events	Doctrine & Organisation	Operational Communications	Shared Situational Awareness	Training & Exercising
1986	Crowd Safety at Football Grounds	X	X	X	X
1987	King's Cross Underground Fire	X	X	X	X
1987	Herald of Free Enterprise	X	X	X	X
1987	Hungerford Shooting	X	X	X	X
1988	Piper Alpha Explosion	X	X	X	X
1988	Clapham Rail Crash	X	X	X	X
1988	Lockerbie Bombing	X	X	X	X
1989	Hillsborough Stadium Disaster	X	X	X	X
1989	Kegworth Air Crash	X	X	X	X
1989/2000	Marchioness-Bowbelle Sinking	X	X	X	X
1994	Texaco Refinery Explosion	X	X	X	X
1996	Dunblane Shooting	X	X	X	X
1996	BSE Outbreak Inquiry	X	X	X	X
1997	Southall Rail Crash	X	X	X	X
1997	Stephen Lawrence Murder Inquiry	X	X	X	X
1999	Ladbroke Grove Rail Inquiry	X	X	X	X
2000	UK Fuel Disputes	X	X	X	X
2000	Harold Shipman & 'the 3 Inquiries'	X	X	X	X
2001/2007	Foot & Mouth Disease	X	X	X	X
2001	Victoria Climbie Murder	X	X	X	X
2003	Failures in NHS Report	X	X	X	X
2003	Bichard Inquiry (Soham Murders)	X	X	X	X
2004	ICL Factory Explosion	X	X	X	X
2004	Boscastle Floods	X	X	X	X
2005	Buncefield Oil Depot Explosion	X	X	X	X
2005	London Terrorist Attacks	X	X	X	X
2005	Stockwell Shooting	X	X	X	X
2005	Carlisle Floods	X	X	X	X
2007	Hull Floods	X	X	X	X
2007	Pitt Review (UK Floods)	X	X	X	X
2009	Influenza Pandemic	X	X	X	X
2010	Derrick Bird Shootings	X	X	X	X

Main Findings from the Review & Discussion

This section presents a summary of the findings from the review, an overview of the consistent issues across the reports, and considers factors that maintain these problems.

There is a separate Appendix for each event which contains the details of the report, a summary of the event, relevant comment from the inquiry, and the recommendations grouped under the JESIP interoperability headings: Doctrine & Organisation; Operational Communications; Situational Awareness; and Training & Exercising.

Many of the reports had numerous event or sector specific recommendations that fall outside the interoperability framework. These have been broadly summarised with little detail. Those recommendations relevant to interoperability have been detailed and grouped in the appropriate JESIP work stream. A summary of each event and related recommendations is contained in the Appendices.

Where key themes were identified that did not fit into the initial JESIP thematic categories, a new theme category was created. There was only one additional category created: equipment. The report into the Hungerford Shooting highlighted the usefulness of armoured police vehicles in relation to casualty evacuations and deploying police officers within the field of fire when firearms were being used illegally.

Common Causes of Organisational Failure

The overall aim of this work was to identify strategic themes of nationwide significance to enhance UK's interoperability in relation to its disaster management arrangements.

The common causes of organisational failures identified in the reports are succinctly described in the Inquiry Report into the Clapham Rail Crash. It found that the poor working practices and organisational planning, without proper training, and exacerbated by ineffective communication, which together with the absence of a system to ensure that lessons were learned and staff taught contributed to failure.

Lord Taylor's comments after Hillsborough echoed these factors. In addition to organisational complacency, general malaise and poor leadership, he highlighted that 8 previous inquiry reports had went unheeded. He made an emphatic point

> *"That it was allowed to happen, despite all the accumulated wisdom of so many previous reports and guidelines must indicate that the lessons of past disasters and the recommendations following them had not been taken sufficiently to heart…there is no point in holding inquiries or publishing guidance unless the recommendations are followed diligently. That must be the first lesson"*

However, the Maritime Accident Investigation Board report on the sinking of the Marchioness also identified previous incidents with 'distinct similarity' with 'marked common factors'; as did the NHS inquiries; and many of the others.

Even when factors have been previously identified there is no guarantee that they will be dealt with timeously. For example, in relation to the Foot and Mouth outbreak, Dr Anderson highlighted that his 2002 Report could not have been clearer in its criticism of DEFRA's information systems, and made several recommendations to tackle the shortcomings. He expressed disappointment when he discovered that little progress had been made six years later, when the second outbreak occurred.

Reasons for the lack of progress were identified by Lord Phillip in his report into the BSE outbreak. He noted that officials showed a lack of rigour in considering how policy should be turned into practice and the bureaucratic processes could cause delays.

Leadership was seen as an essential factor in avoiding organisational failure. By creating an appropriate organisational culture, where safety takes precedence over blame, leaders could instil the ethos necessary to enhance safety. After Ladbroke Grove, Lord Cullen highlighted the first priority for a successful safety culture is leadership and that a key task for leadership is the communication of safety goals and objectives. Leadership, together with the need to search for systemic problems rather than focusing on the apparent or superficial element, which, he highlights, may just be a symptom of an underlying cause, is essential in avoiding failure.

However, such a sophisticated systems approach is often inhibited by a 'blame culture'. This, together with the lack of a coordinated means of collating recommendations and ensuring that they are monitored until they are resolved, undermines organisational efforts to avoid failure. To address this, the Hayes Report into the sinking of the Marchioness recommended annual reporting by the Government of its performance on implementing recommendations that follow from reports on disasters.

The promotion of active learning from mistakes and the move from a blame culture to a safety culture was also recognised by the Government in its response to the Harold Shipman Inquiry. To ensure success staff need to be encouraged to report errors and near misses so that learning can take place. The learning needs a systematic process for reporting and analysing errors, establishing the underlying causes and, most importantly, ensuring that lessons are actually put into practice. The absence of such an approach may result in, what Lord Laming described during the Victoria Climbie Inquiry, 'a gross failure of the system'.

To avoid system failure organisations need to take all necessary steps to set high standards. Provide clear visionary leadership and engage in effective two-way communications with all staff, engender an ethos of cooperation while pursuing excellence of operations through the identification and adoption of best practice from across the sector; and develop and implement effective learning processes; as well as provide appropriate and adequate training for all staff. In short, they need to become learning organisations.

The following table summarises causes of failure and observations from the reports.

Cause	Observation from Reports
Lack of leadership	Those running organisations are failing to give adequate direction to staff or set an example and instil an ethos and culture that emphasises the importance of avoiding failure and learning from mistakes
Inadequate Training	Too many people have not been given the necessary skills to ensure effective and competent response, and to enable an organisation to resource a protracted incident. However, there is a reluctance by some to commit the necessary resources/time/cost to ensure response capacity and capability
Failure to assume responsibility - at all levels	The drive for multiagency teams may lead to lack of clarity regarding individual and organisations with specific roles and responsibilities that should not be subject to consensus
Complexity of response structures	There is a lack of understanding about where individuals and organisations (outside blue lights) actually fit into the response structure. However, complex boundaries are a fact of life - what is required is those who are sufficiently competent and flexible to work within such complexity and still achieve safety objectives. It's not just structures that are the problem, but the skills of the staff who work in them. What is critical is the effectiveness of the management and leadership
Inadequate Communication between stakeholders	Both within organisations and between organisations - from the very top to the bottom of the organisation people need clarity about what they should be doing and why. They also need the appropriate means of communicating, and that in response the system is capable of dealing with the surge of related activity
Blame Culture	There is a tendency to look for fault. The absence of no blame culture discourages near miss reporting and candour regarding potential vulnerabilities and failings. This seriously diminishes the effectiveness of organisations and their ability to learn lessons from incidents
Failure to learn lessons	There are numerous examples of inquiry reports identifying previous incidents where lessons were identified and recommendations made but not acted upon. Reasons include the absence of a monitoring / feedback mechanism or no organisational incentive to seek out and implement necessary changes
Monitoring/Audit	There is a need to proactively monitor and audit recommendations and report on them, ensuring there is a mechanism to track them to conclusion
New Legislation	There were a number of recommendations in relation to enacting new legislation to deal with incidents. However, in almost every case the key issue was not a matter of law or regulation – both already exist - but a matter of implementation failure. That is an organisational culture issue.

All reports had some element of the JESIP themes. Analyses identified the major strategic issues as:

- Doctrine – provision of clear and easily understood guidance that ensures everyone is aware of their own and others roles and responsibilities
- Operational Communications – the need for a common system used by all stakeholders with the capacity to deal with surges of activity associated with major incidents
- Situational Awareness – the ability to quickly access and share information between stakeholders
- Training & Exercising – the need for continuous development of stakeholders to ensure sufficient capacity to cope with a prolonged event

The current JESIP framework is consistent with the issues identified. However, it must be recognised that successful implementation of various JESIP work streams will take time, and the impact will only be evident over a number of years.

Conclusion

The consistency with which the same or similar issues have been raised by each of the inquiries should give some cause for concern as it suggests that lessons from the events are not being learned, to the extent that there is sufficient change in both policy and practice to prevent their repetition.

The overwhelming number of recommendations calling for a change to the doctrine indicates the frequent revision of policy. Their prescriptions are often structurally focused, proposing new procedures and systems. But the challenge is to ensure that in addition to the policy and procedures changing, there is a change in organisational culture and personal practices. Such changes in attitudes, values, beliefs and behaviours are more difficult to achieve and take longer to embed. However, failure to do so will result in the gathering of the same lessons which repeat past findings rather than identifying new issues to address and continuously improve the response framework.

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NB. Reference details of Formal Inquiry Reports are detailed in the relevant appendix

Appendix

Appendix	Year of Event	Event	Pages
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1. Crowd Safety at Football Grounds

Report	Terms of Reference	Summary	Number of Recommendations
Committee of Inquiry into Crowd Safety and Control at Sports Grounds – Interim Report (Cmnd. 9585) & Final Report (Cmnd. 9710) Chairman Mr Justice Popplewell	To inquire, with particular reference to the events at Bradford City and Birmingham football grounds on 11 May (1985), into the operation of the Safety of Sports Ground Act 1975; and to recommend what if any further steps should be taken, including any that may be necessary under additional powers, to improve both crowd safety and crowd control at sports ground	The Inquiry was established following a fire at the Bradford City Football Ground in which 56 people died and many were injured, and the serious crowd disorder at the Birmingham City football ground on the same day, in which a boy of 15 died and many were injured. On 29 May, after the Inquiry had started, 38 people died and many were injured at the European Cup Final match at Heysel Stadium, Brussels, it was agreed that Justice Popplewell should take account of any lessons arising from these events. The Interim Report focused on events at Bradford and Birmingham, with some preliminary recommendations on safety matters and crowd control. The final report dealt with Heysel, previous inquiries, legislation, regulation and guidance (Green Guide), crowd control, hooliganism, and protecting the public through improving safety standards.	Recommendations in Interim Report 24 Provisional Recommendations in Interim Report 8 (to be reviewed in Final Report) Recommendations in Final Report 15

Relevant Recommendation from Reports	Relevant Text from Report
Interim Report – in addition to recommendations related to creating offences, ensuring suitable fire fighting and first aid equipment, stadia design, inspection and registration, together with amendments to the Green Guide, the following interoperability recommendations were made: **Doctrine:** amendment of guidance **Operational Communication**: requirement for suitable police personal radio system, and CCTV introduced	Mr Justice Popplewell said "I have to say that almost all the matters into which I have been asked to inquire and almost all the solutions I have proposed, have been previously considered in detail by many distinguished Inquiries over a period of sixty years". He then details: The Shortt Report (1923); The Moelwyn Hughes Report (1946); The Chester Report (1966); The Harrington Report (1968); The Lang Report ((1969); The Wheatley Report (1972); The McElhone Report (1977); and The Dept of Environment Working Group Report (1984)

Shared Situational Awareness - Cooperation/Liaison: between police and local authority regarding safety certificates, and the Health & Safety Executive, fire authorities and local authorities about coordinating and communicating inspections and reports **Training & Exercising**: police and stewards in relation to evacuation procedures, and that stewards should be trained in fire precaution and fire fighting **Final Report** – recommendations dealt with legislation of sports stadia, fire precaution, and creating new offences and extending police power of arrest. However, lessons to be learned from Heysel were summarised and included: segregation control and enforcement, and consumption of alcohol. Particularly relevant to interoperability were comments in relation to: **Doctrine - Joint Planning & Decisions**: following good planning and close cooperation between all relevant authorities, there needs to be clear decisions made. Those in charge at the event should be involved in the planning, and clearly understand their role. There needs to be sufficient number of properly instructed to take effective action at the first sign of trouble **Operational Communication**: there was a breakdown in communication and instructions prior to and during the match. The police need to lay down and observe fixed procedures and that communications need to be efficient **Shared Situational Awareness**: there was a lack of liaison between Headquarters outside the ground and those inside the ground	All of which had addressed similar issues and made similar recommendations.

2. King's Cross Underground Fire

Report	Terms of Reference	Summary	Number of Recommendations
Investigation into the King's Cross Underground Fire (Cm 499) Desmond Fennell OBE, QC	To investigate the causes of the accident and circumstances surrounding it and to make any observations or recommendations arising out of the investigation.	On 18 November 1987 there was a fire in the King's Cross Underground station which caused 31 fatalities. "the principal lesson to be learned from this tragedy is the right approach to safety"	157 recommendations were made

Summary of Relevant Recommendation from Reports	Relevant Text from Report
In addition to recommendations in relation to station design , inspection, and clarification regarding rail operation organisational structures and reporting, in relation to interoperability, the following recommendations were made: **Doctrine:** fire-fighting and incident control procedures for underground stations. Ambulance improve procedures for timing and recording of ambulances, removal of casualties and attendance of Senior Incident Officer **Operational Communication**: the quality and scope of communication systems must be improved. modern, computer message retrieving systems, public address systems to be improved, more passenger communication facilities, CCTV improvements, Station Operation Control Rooms must be properly equipped and manned, radio system that works underground,, trains with public address systems, staff trained in communication systems **Shared Situational Awareness**: Information Sharing BTP review liaison arrangements with other emergency services, update station plans in agreement with fire service, BTP to attend pre-start meetings for works likely to affect passenger flows; London fire to attend pre-start meetings and record the work on its Risk Register	Lessons from Earlier Fires: 1. Approach to passenger safety was reactive not proactive 2. Reaction to earlier fires and warnings was imperfect 3. No system to ensure recommendations and findings were properly considered at the appropriate level 4. No incentives to pursue findings and recommendations or to translate them into action 5. Lack of foresight in relation to a fire starting and spreading quickly or with ferocity that it would endanger passengers 6. Concern was damage to escalators and service disruption not passenger safety In terms of the Management of Safety one of the most important recommendations was that the recommendations of internal inquiries into accidents must be considered at director level

Training & Exercising: Practical exercises involving the emergency services at complex stations, local training and familiarisation in technical features of stations, Emergency Response – BTP the need for training in evacuation and communication	

3. Herald of Free Enterprise

Report	Terms of Reference	Summary	Number of Recommendations
MV Herald of Free Enterprise The Merchant Shipping Act 1894: Formal Investigation (1987) Mr Justice Sheen (Report of Court No. 8074)	In the matter of a Formal Investigation…into the circumstances attending the capsizing of the Roll on/Roll off passenger ferry HERALD OF FREE ENTERPRISE in the approaches to the port of Zeebrugge with the loss of 188 lives on the 6th day of March 1987	On the 6th March 1987 (at 1805 hours) the Roll on/Roll off passenger and freight ferry HERALD OF FREE ENTERPRISE sailed from the inner harbour at Zeebrugge. On board there were 80 crew, 81 cars, 47 freight vehicles and three other vehicles, and approximately 459 passengers. The weather conditions were good. The HERALD passed the outer mole at 18.24. She capsized about four minutes later. Water rapidly filled the ship below the surface level with the result that not less than 150 passengers and 38 members of the crew lost their lives. Many others were injured. The immediate cause of the disaster was the HERALD going to sea with her inner and outer bow doors open.	The Court Finding made 24 substantive recommendations and matters for consideration

Summary of Recommendations	Relevant Text from Report
The Court found that the cause of the capsizing of the HERALD OF FREE ENTERPRISE was partly caused or contributed to by serious negligence in the discharge of their duties by the ship's Master, Chief Officer and Assistant Bosun, and partly caused or contributed to by the fault of owners of the operating company. A number of recommendations were made relating to safety of the ship, loading and stability, and lifesaving. Specific interoperability recommendations included: **Doctrine:** Research programmes must convince Government and public that conclusions are objective, not driven by commercial considerations; strict discipline; attention at all times to safety, no 'cutting corners'; a clear and firm command structure; **Operational Communication:** Use of suitable indicator lights and CCTV surveillance	Why was there not a fool proof system which would ensure that the vital task of closing the bow doors was performed irrespective of the potential failure of any one individual? This was not the first occasion on which such a failure had occurred. Before this disaster there had been no less than five occasions when one of the Company's ships had proceeded to sea with bow or stern doors open. A general instruction issued 3 years before the incident which specifically allocated responsibility for checking the doors before sailing 'had been regularly flouted' 'The instruction is not clearly worded, but whatever its precise meaning, it was not enforced. If it had been enforced this disaster would not have occurred'

is a valuable addition to safety precautions and should be recommended to operators; clear & concise orders; maintenance of proper channels of communication between ship & shore **Shared Situational Awareness**: accurate logging of information used in operational decision-making; consideration to reporting EVERY potentially hazardous occurrence **Training & Exercising:** While not a recommendation the Court commented: Sufficient has been said to demonstrate that before the casualty those charged with the management of the Company's Ro-Ro fleet were not qualified to deal with many nautical matters and were unwilling to listen to their Masters, who were well qualified	The underlying or cardinal faults lay higher up in the Company. The Board of Directors did not appreciate their responsibility for the safe management of their ships. **Clear instructions are the foundation of a safe system of operation.** It was the failure to give clear orders about the duties of the Officers on the Zeebrugge run which contributed so greatly to the causes of this disaster.

4. Hungerford Shooting

Report	Terms of Reference	Summary	Number of Recommendations
Report of Mr Colin Smith CVO QPM Chief Constable Thames Valley Police to Rt Hon Douglas Hurd CBE MP Secretary of State for Home Department 1987	This report was prepared with agreement of the Chief Constable of Wiltshire to cover all events on 19 August	On Wednesday 19 August 1987, a series of shootings occurred at two locations in Wiltshire and at Hungerford, Berkshire, resulting in the deaths of seventeen people and in injuries further fifteen persons. Michael Robert RYAN, aged 27, was responsible. He was lawfully entitled to possess 3 shotguns and 5 firearms. First issued with a shotgun certificate in 1978 and in 1986 he was issued with a firearms certificate.	The report set out a chronology of events for the Home Secretary. It did not make formal recommendations.

Summary of Recommendation from Reports	Relevant Text from Report
The report sets out a chronology of the shootings by Ryan, including direct fire at 4 police officers, and details the police response. The key points included: **Doctrine**: guidance in relation to VIPs, PM and Home Secretary visited; Victims - Chief Officer of police attended all funerals; Welfare - stress apparent and counselling provided; use of negotiator once Ryan located; Casualty Bureau: operated continuously for 48 hours; media management - 3 full press conferences held; use of helicopters by media impeded police use of helicopters **Operational Communication**: system unable to cope; information from public delayed; incorrect locations given; insufficient equipment and poor quality of communication equipment - 1 room station at Hungerford, with 2 telephone lines; local personal radio network operated from Newbury; small sub-division control room at Newbury 3 officers; dead areas (reception black spots) still exist; incoming calls received one at a time; room is also telephone reception point; outdated HQ control room (with inadequate equipment & accommodation for commanding this	The '999' and normal telephone systems were totally swamped and unable to cope. At 6.45pm British Telecom - who gave valuable support to Police in providing extra facilities - took the decision to 'blank out' significant parts of the Hungerford telephone exchange so that Police telephone numbers faced less competition for the remaining exchange facilities. Conflicting reports made the task of plotting his movements and redeploying personnel extremely difficult The first Police Officers were deployed to set up road blocks to prevent further public entry into the danger zone, to try to contain or at least monitor the gunman and to clear the public from the streets. The local Police response continued with the arrival of the Sub Divisional Superintendent…backed up with an intense build-up of resources directed from Headquarters….48 armed Officers were eventually deployed…. Command

type of incident); cellular telephones were used (at one point being the only permanent link between Hungerford and the Force Control Room); no force wide channel (force only has 3 channels); the Immediate Response Vehicle had just become defective; insufficient radios & channels for firearms officers; **Shared Situational Awareness: r**edeployment of resources was difficult because of Ryan's movement and inaccurate information of whereabouts; decision making - such was the pressure on the air-time there was no opportunity without another channel for command discussions or for decisions to be effectively co-ordinated- Eventually it became possible to dedicate one of the two Force internal telephone lines as a permanent link with Headquarters Control Room **Exercising & Training**: inadequate information re incident resulted in a complaint (used another route and husband shot) and inadequate assistance in relocating her children – training re cordons **Equipment:** usefulness of armoured police vehicle – casualty evacuations, deploying officer within range of firearms being used, reconnoitring, public order	resources, including the Chief Constable, Assistant Chief Constable, (Operations) and Senior Operations Department and CID Officers, supported by communication facilities, arrived before 2pm. Of crucial assistance to Senior Officers were thirteen Vodaphone cellular telephones; seven came from the Force's holding, the remaining six were lent to Police by Racal Vodaphone for use at the incident. …Over demand meant Recal Vodaphone had to block local subscriber services. The lack of good communications equipment and accommodation started to become significant and this might have had serious consequences had the operation become protracted.

5. Piper Alpha Explosion

Report	Terms of Reference	Summary	Number of Recommendations
The Public Inquiry into the Piper Alpha Disaster Lord Cullen (Cm 1310)	The Inquiry sought the answers to 2 questions - - What were the causes and circumstances of the disaster on the Piper Alpha platform on 6 July 1988? and - What should be recommended with a view to the preservation of life and the avoidance of similar accidents in the future?	An explosion and the resulting oil and gas fires on the North Sea oil production platform Piper Alpha destroyed it on 6 July 1988, killing 167 men, with only 61 survivors Between 1988 and 1990, the two-part Cullen Inquiry established the causes of the tragedy and made recommendations for future safety regimes offshore.	106 recommendations were made which were subsequently accepted and implemented by the offshore operators.

Summary of Relevant Recommendation from Reports	Relevant Text from Report
A number of factors contributed to the severity of the incident: including the breakdown of the chain of command and lack of any communication to the platform's crew; the presence of fire walls and the lack of blast walls - the fire walls predated the installation of the gas conversion equipment and were not upgraded to blast walls after the conversion; and the continued pumping of gas and oil by neighbouring platforms (Tartan and Claymore), which was not shut down due to a perceived lack of authority, even though personnel could see the Piper burning. Key interoperability recommendations included: **Doctrine**: the formal command structure for emergencies should form part of the Safety Management System (SMS); personnel deployment lists should be current and accurate, and copied immediately to shore **Operational Communication:** all off shore personnel should attend a muster at least once during daily tour of duty	The leak (which caused explosion) resulted from steps taken by night-shift personnel with a view to restarting the other pump which had been shut down for maintenance. Unknown to them a pressure safety valve had been removed from the relief line of that pump. A blank flange assembly which had been fitted at the site of the valve was not leak-tight. The lack of awareness of the removal of the valve resulted from failures in the communication of information at shift hand over earlier in the evening and failure in the operation of the permit to work system in connection with the work which had entailed its removal. The OIMs on Claymore and Tartan were ill prepared for an emergency on another platform with which their own platform was connected. The failure of the OIMs to cope with the problems they faced on the night of the disaster clearly demonstrates that conventional selection and training of OIMs is no guarantee of ability to cope…The post of OIM calls for decisions which may make the difference between the life and death of personnel on board. The remoteness of installations, the requirement for installations to be self-contained in the means of

Shared Situational Awareness: the circumstances of all precautionary musters should be reported to regulatory body [record near misses]; **Training & Exercising:** criteria for selection of Oil Incident Managers and their command ability should be part of the SMS; the SMS should include a system of emergency exercises which provide OIMs with practice in decision-making in emergency situations, including evacuation; minimum standards of training set for off shore workers; the SMS should include a system for emergency training and its enforcement Managing to Prevent Incidents - Basic and Common Principles: 1. Commitment by top management – setting the safety standard and philosophy and communicating to staff 2. Creating a safety culture – safety is understood to be, and is accepted as, the number one priority 3. Organisation for safety – must be defined organisational responsibilities, and safety objectives built into on-going operations, and part of personnel performance assessments 4. Involvement of the workforce – essential that the workforce is committed and involved in safe operations, and are trained to do and do work safely, understanding their responsibility to do so 5. Safety Auditing – monitoring and auditing the safety process to ensure that the safety programme is being followed; all recommendations pursued to conclusion 6. Observations on Safety Management – the quality of safety management by managers should be a component in the regulatory regime The SMS would be expected to contain a full demonstration as to how safety was to be achieved in both design and operation: • Organisational structure • Management personnel standards • Training, for operations and emergencies • Safety assessment	dealing with a rapidly developing incident, the need to obtain, verify and consider data communicated to him from various sources for immediate decision on which the lives of those on board depend demands a level of command ability which is not a feature of normal management posts. Emergency exercises are essential means of ensuring that paper procedures work in practice. They also allow for the assessment and upgrading, as , necessary, of the performance of the command structure. The system for control in the event of a major emergency was rendered almost entirely inoperative. Smoke and flames outside the accommodation made evacuation by helicopter or lifeboat impossible. Senior management were too easily satisfied that the Permit To Work (PTW) system was being operated correctly, relying on the absence of any feedback of problems as indicating that all was well. They failed to provide the training required to ensure that an effective PTW system was operated in practice. In the face of a known problem with the deluge system they did not become personally involved in probing the extent of the problem and what should be done to resolve it as soon as possible. They adopted a superficial response when issues of safety were raised by others…They failed to ensure that emergency training was being provided as they intended. Platform personnel and management were not prepared for a major emergency as they should have been. Evidence as to training for emergencies showed that the induction was cursory and, in regard to demonstrating lifeboats and life rafts, not consistently given. Muster drills and the training of persons with special duties in an emergency did not take place with the frequency laid down in procedures. The OIMs and platform management did not show the necessary determination to ensure that regularity was achieved.

• Design procedures • Procedures, for operations, maintenance, modifications and emergencies • Management of safety by contractors in respect of their work • The involvement of the workforce (operator's and contractor's) in safety • Accident and incident reporting, investigation and follow up • Monitoring and auditing of the operation system • Systematic re-appraisal of the system in the light of the experience of the operator and industry	Inspections were superficial to the point of being little use as a test of safety…they did not reveal clear cut and readily ascertainable deficiencies…[affected] by under manning and inadequate guidance The safety management system of the company should set out the safety objectives, the system by which those objectives are to be achieved, the performance standards which are to be met and the means by which adherence to those standards is to be monitored…[should be subject to internal audit and those audits reviewed by regulator] [To avoid compliance taking precedence with wider safety consideration] principal regulations should take the form of requiring stated objectives to be met. Guidance notes should give non-mandatory advice.

6. **Clapham Rail Crash**

Report	Terms of Reference	Summary	Number of Recommendations
Investigation into the Clapham Junction Railway Accident (CM 820) Sir Anthony Hidden QC	To hold a formal Investigation into the causes and all the circumstances attending the accident under section 7 of the Regulation of Railways Act 1871.	At 0810 hours on Monday, 12 December 1988, a crowded commuter train ran head-on into the rear of another which was stationary in a cutting just south of Clapham Junction station. After that impact the first train veered to its right and struck a third oncoming train. As a result of the accident 35 people died and nearly 500 were injured, 69 of them seriously. The report set out the following questions and answers: How had the accident happened? - The signalling system had failed. How had the signalling system failed? - During alterations to the signalling system a wire should have been removed. In error it was not. It was still in the system and was making an electrical contact with its old circuit. It was therefore able to feed current into the new circuit when the circuit should have been dead. That current prevented the signal from turning to red. The question of how that situation had been allowed to happen was the focus of the report. It concluded that the following were relevant factors: poor working practices, no proper training, ineffective communication, poor organisational planning, no effective monitoring of failures, **there was total failure to ensure that lessons were learnt from such failures and taught to the relevant staff…and finally, there was a total failure to communicate effectively both up and down lines of management**	The report set out 93 recommendations

Summary of Relevant Recommendation from Reports	Relevant Text from Report
The report a number of recommendations in relation to the maintenance and testing of signals, design office procedures, the structural integrity of rolling stock, and staff qualifications. In particular recommendations were made regarding: **Doctrine:** staff should be deployed in line with a deployment schedule, not dependent on overtime working; monitoring and reviewing of recruitment and retention of skilled personnel; job descriptions to include specific safety responsibilities; command and control structures need to be effective for all responders; emergency/major incident response manuals should be updated to reflect recent incidents **Operational Communication:** ensure a suitable system for instruction dissemination is in place; that cabs have radio communication; that any Major Incident declaration is communicated fully to all stakeholders, and that the means of communication is regularly tested, and that Major Incident communications should be subject to specific exercise **Shared Situational Awareness:** formal safety reporting and monitoring system is required; there should be external review and audit; reporting of all failures and feedback on the outcome; and all on-site emergency responders should be provided with personal protective equipment, and tabards to enable ease of identification **Exercise & Training:** staff to be provided with suitable training; refresher courses should be provided; certificates of testers should be subject to review; and course structures reviewed regularly to ensure currency; and joint planning and training should be in place	Reasons for BR calls being later in time had more to do with the routes chosen by BR staff for the passing on of their information. There were problems getting access to the site. The Casualty Bureau received 8,000 calls in the first 30 hours of operation. Each call takes 4 ½ to 5 minutes to complete. Alerting hospitals and the failure in communication. [There were difficulties in ensuring immediate activation of Major Incident procedures for all responders, due to breakdown in communication protocols]. This caused a delay. Lines were also busy resulting in difficulties in passing messages. Liaison between the emergency services had gone well [all emergency services agreed] and regular meetings were held between the emergency services and BR to ensure coordination. Ground rules and respective roles and responsibilities were agreed at an early meeting (1020 hours) to discuss command and control issues.

7. Lockerbie Bombing

Report	Terms of Reference	Summary	Number of Recommendations
1. Lockerbie: A local authority response to the Disaster (McIntosh) 2. The Lessons of Lockerbie (Wilkinson)	McIntosh details the measures taken by the Regional Council. It analyses and appraises the way in which the various aspects of the response were delivered and makes recommendations to the council Wilkinson sets out the key components of an effective national aviation security system (which reflect an effective safety system)	On the evening of 21 December 1988, 31,000 feet above the small Scottish town of Lockerbie, Pan Am Flight 103, bound for New York, was destroyed by a powerful mid-air explosion, killing all 259 passengers and crew and 11 people on the ground in Lockerbie. It was the worst civil aviation disaster ever in Britain, and one of the worst in the history of civil aviation. Subsequent investigation by the UK Air Accident Investigation Branch established that the explosion was caused by a terrorist bomb made of Semtex and placed in the airliner's forward cargo hold.	McIntosh makes 17 recommendations Wilkinson sets out 9 key components

Summary of Relevant Recommendation from Reports	Relevant Text from Report
The McIntosh recommendations included: **Doctrine:** call out procedures to be reviewed; ensure that the welfare of responders is considered in future planning; ensure support for communities and bereaved is built into plans; include voluntary organisation in planning; consider stress impact on responders and supporting staff; ensure effective rotation and suitable deployment; ensure special administrative and finance arrangements are included in plans and procedures; consider need for disaster appeal fund and its management; strategies and policies encompassing total support and cooperation, and phased withdrawal should be adopted as underlying principles in future emergency planning; while national aspects responses should be managed and delivered at local level **Operational Communication**: need for adequate communication facilities and systems; ensure effective media strategies, including effective working	Reports of a major incident were received by the emergency services almost immediately. As the scale of the incident unfolded during the evening it became clear that the local emergency and other services were facing an emergency of quite unprecedented scale. Within the first few hours it became evident that the response to the Disaster both in terms of the necessary investigations and the recovery of Lockerbie would require resources and commitment of a degree never before experienced by the vast majority of the personnel involved…The police force responded to the incident and undertook the role of incident command with immediacy and total commitment. With the essential and invaluable support of their colleagues from police forces throughout Scotland, particularly Strathclyde, they have carried out the most difficult and, at times, harrowing of tasks in a sensitive and understanding manner…they have pursued the criminal investigations, a task of international

relationships; a comprehensive de-briefing process is essential **Shared Situational Awareness:** pre-plan potential accommodation to enable multiagency close proximity working/cooperation in response; continue to develop close working relationships with emergency services, voluntary sector, community, government and other agencies through forward planning; **Training & Exercising:** establishment of dedicated resources identified as Emergency Planning Team; training of key personnel; continuous improvement and development **The Wilkinson Report included:** **Doctrine:** ensuring effective command and control structures to enable coordination and policy implementation; the need for adequate resources, not only technological but also human **Operational Communication:** a balanced approach to the provision of public information in relation to threats or risk, but when being issued should be swiftly and efficiently communicated to all those involved; media relationships should be established and maintained, although caveated that the media has its own objectives **Shared Situational Awareness**: highlighting problems with intelligence gathering, particularly if it is beyond the border of the concerned agency or country; coordination failures, from tensions and rivalries between different agencies; effective and stringent procedures (akin to a safety system) with inspection and reporting regimes; coordinated liaison and cooperation with the military (or any other interested party) **Training:** the availability of trained and competent specialists to support the system	dimensions undertaken in the constant glare of publicity, in a manner that brings great credit to the Region and the Scottish police force as a whole.

8. Hillsborough Stadium Disaster

Report	Terms of Reference	Summary	Number of Recommendations
The Hillsborough Stadium Disaster 15 April 1989 Inquiry by Lord Justice Taylor (Cm 962)	To inquire into the events at Sheffield Wednesday Football Ground on 15 April 1989 and to make recommendations about the needs of crowd control and safety at sports events	On 15 April 1989, Liverpool Football Club played Nottingham Forest Football Club in the semi-final of the FA Cup. The match was played at Hillsborough, the stadium of Sheffield Wednesday Football Club. 96 Liverpool fans died as a result of being crushed when the pens holding them in the Leppings Lane end of the ground became overcrowded.	Interim Report – 43 detailed recommendations Final Report – 76 detailed recommendations

Summary of Relevant Recommendation from Reports	Relevant Text from Report
In addition to recommendations on stadia structure, design, management responsibilities, first aid provision, creation of specific offences and revision of the Green Guide, Lord Taylor made interoperability recommendations: **Doctrine:** amendment of guidance **Operational Communications**, specifically sufficient command and control channels, equipment and resources, complemented by a separate system of landlines; and lines of communications from stadium control room to all emergency services local headquarters are maintained at all times to enable immediate emergency response **Shared Situational Awareness:** Police Planning - specifically liaison with police, club and local authorities; Coordination of Emergency Services - specifically liaison between police, fire and ambulance through nominated senior officers at each designated ground, that the police provide details of event information and intelligence to fire and ambulance services **Training & Exercising**: police and stewards trained in monitoring terraces and match commanders be provided with specific training	Three Sombre Lessons after Hillsborough: 1. **Previous Reports Unheeded**. Lord Taylor comments "It is a depressing and chastening fact that mine is the ninth official report covering crowd safety and control at football grounds. He goes onto to say "That it was allowed to happen , despite all the accumulated wisdom of so many previous reports and guidelines must indicate that the lessons of past disasters and the recommendations following them had not been taken sufficiently to heart…there is no point in holding inquiries or publishing guidance unless the recommendations are followed diligently. That must be the first lesson" 2. **"It Couldn't Happen Here"** ie complacency 3. **A Blight on Football.** He referred to a picture of 'general malaise' and 'poor leadership'

9. Kegworth Air Crash

Report	Terms of Reference	Summary	Number of Recommendations
Report on the accident to Boeing 737-400 - G-OBME near Kegworth, Leicestershire on 8 January 1989 Aircraft Accident Report No: 4/90 (EW/C1095)	Air Accident Investigation Board to establish circumstances and cause of air crash.	Flight left Heathrow Airport for Belfast at 1952 hours with 8 crew and 118 passengers (including 1 infant) on board. The cause of the accident was that the operating crew shut down the No.2 engine after a fan blade had fractured in the No.1 engine. This engine subsequently suffered a major thrust loss due to secondary fan damage after power had been increased during the final approach to land. 39 passengers died in the accident and a further8 passengers died later from their injuries. Of the other 79occupants, 74 suffered serious injury.	31 safety recommendations

Recommendations	Relevant Text from Report
The following factors contributed to the incorrect response of the crew: • The combination of heavy engine vibration, noise, shuddering and an associated smell of fire were outside their training and experience • They reacted to the initial engine problem prematurely and in a way that was contrary to their training • They did not assimilate the indications on the engine instrument display before they throttled back the No. 2 engine • As the No 2 engine was throttled back, the noise and shuddering associated with the surging of the No 1 engine ceased, persuading them that they had correctly	The speed with which the pilots acted was contrary to both their training and the instructions in the Operations Manual. If they had taken more time to study the engine instruments it should have been apparent that the No 2 engine indications were normal and that the No 1 engine was behaving erratically. The commander himself might have had a better chance to observe these abnormal indications if he had not disengaged the autopilot but this action by itself should not have prevented him from taking whatever time was necessary to assimilate the readings on all the engine instruments.

identified the defective engine • They were not informed of the flames which had emanated from the No.1 engine and which had been observed by many on board, including 3 cabin attendants in the aft cabin. In relation to interoperability the following are of note: **Doctrine:** increase inspection regime; review advice; provide specific instruction to assist identifying system failure; standardised method of assessing effectiveness; all stakeholder guidance to be amended; publication of design specifications **Operational Communication**: use of discrete frequency for emergency **Shared Situational Awareness**: need to advise others [pilots] of circumstances; provision of visual information to crew; use of CCTV; monitoring and recording data; attention getting facility to draw attention to warning indicator **Training & Exercising**: to ensure familiarisation before undertaking role; joint training for all crew to improve coordination in an emergency; to include abnormal condition decision making	Both pilots reacted to the emergency before they had any positive evidence of which engine was operating abnormally. Their incorrect diagnosis of the problem must, therefore, be attributed to their too rapid reaction and not to any failure of the engine instrument system to display the correct indications. Flight crew co-ordination - There is no suggestion that any large ability mismatch on the flight deck affected coordination. Co-ordination between the flight deck and the cabin - It was extremely unfortunate that the information evident to many of the passengers of fire associated with the left engine did not find its way to the flight deck… [But] it must be emphasised, nonetheless, that present patterns of airline training do not provide specifically for the exercise of co-ordination between cabin and flight crew in such circumstances. The influence of stress - One aspect of flying that is extremely difficult to address in training is the stress presented by an emergency…there is no evidence that this crew was abnormally affected by stress.

10. Marchioness-Bowbelle Sinking

Report	Terms of Reference	Summary	Number of Recommendations
Marchioness-Bowbelle Marine Accident Investigation Board (MAIB) 1990	Established by Secretary of State for Transport under Regulation 9 of the Merchant Shipping (Accident Investigation) Regulations 1989	The collision between the passenger vessel the Marchioness and the dredger Bowbelle on the River Thames on 20 August 1989. The Marchioness sank and 51 people lost their lives. No public inquiry was held at the time. Marine Accident Investigation Board investigation reported to Secretary of State Transport in 1990	MAIB Report made 27 recommendations
Hayes Report (1992) (Cm 1991)	The Hayes Report was asked to carry out an inquiry into the Department of Transport's handling of its responsibility for the safety of vessels on rivers and inland waterways	Further recommendations were made in the 1992 Hayes Report and by the inquest jury in 1995.	The Hayes Report made 22 recommendations
Thames Safety Inquiry (into the Marchioness-Bowbell disaster) (Cm 4558) Lord Justice Clarke	To review the responsibilities of Government Departments, the Port of London Authority and any other persons or bodies for promoting safety on the River Thames (the River) and advise: - whether they are sufficient for the purpose and are properly allocated; - whether they are properly	Lord Justice Clarke was then appointed on 20 September 1999 to conduct and inquiry, and to make interim recommendations on arrangements for safety on the River Thames by December 1999 On 14 February 2000, the Secretary of State for the (then) Environment, Transport and the Regions asked Lord Justice Clarke to undertake an inquiry under section 268 of the Merchant Shipping Act 1995, to consider the question whether there is a case for a further investigation or inquiry into the circumstances surrounding the Marchioness disaster	Lord Justice Clarke's Interim Report made 44 recommendations in relation to safety on the River Thames. Lord Justice Clarke's Inquiry reported in March 2001 and made 30 recommendations.

	discharged; - whether there are in place effective arrangements to ensure that all relevant persons and bodies co-operate effectively - whether the safety measures applied to vessels on the River are sufficient and adequately enforced - whether the safety procedures and rescue facilities on the River are sufficient to respond to emergencies arising from collision or otherwise; and - whether there is a case for a further investigation or inquiry into the circumstances surrounding the Marchioness disaster and its causes on 20th August 1989. There will be additional use of the River as part of the celebrations during the Millennium year. The judge appointed to conduct the inquiry will therefore be asked to make recommendations on arrangements for safety on the River by December 1999.		

Summary of Relevant Recommendation from Reports	**Relevant Text from Report**
MAIB made a number of recommendations regarding river going vessels, including design, river use, equipment to be carried and the introduction of regulations. The	MAIB found that the immediate cause of the casualty was failure of look-out in each vessel, and that the principal contributory factors were seriously restricted

interoperability recommendations are: **Doctrine**: a full revision of the Port of London Emergency Plan, to ensure its application is clear; allocation (by operator) of an onshore specific senior person to have responsibility for technical and safety aspects of vessels **Operational Communication**: Radio communication between look-outs and bridge; safety announcements cutting out all on-board Public Address/Music systems; a signalling system controlling river vessels **Shared Situational Awareness**: look-outs stationed forward at all time and frequently astern; river traffic broadcasts routinely monitored before and immediately prior to departure; navigational broadcast by the Port Authority preceded by an alerting tone **Training & Exercising:** in addition to minimum operating crew, other personnel should be trained in emergency procedures; there should be a minimum qualification before able to command a vessel	visibility for each vessel, that both were using the middle part of the river to avoid bridge arches, and clear instructions were not given to the forward look-out in the Bowbelle The report identified previous incidents with 'distinct similarity' with 'marked common factors, the most important being the failure of the launch to see the ship coming up on her from astern, apparently because of lack of visibility from her wheelhouse'. 'It is, therefore, clear that the incidents of the early 1980s were recognised at the time as providing a warning of the possibility of a major accident. It seems however that as time passed the perceived need for special caution gradually passed'.
The Hayes Report was established following criticism of the Department of Transport. Mr John Hayes, the Secretary of the Law Society, conducted an inquiry into the Department's handling of its responsibility for the safety of vessels on rivers and inland waterways. Interoperability recommendations included: **Doctrine**: early review of rescue arrangements and equipment (on the Thames); legislation should be rationalised; more spot checks; annual report, by the Government, of its performance against implementing the recommendations that follow the reports on all major disasters **Operational Communication:** the department should take a much higher profile in promoting safety	The report concluded that the Department showed "technical competence and dedication but lacked the vision and drive to lead the river marine industry into accepting that high safety standards and commercial success were compatible"
Lord Justice Clarke – Interim Report The Government accepted all 44 of Lord Justice Clarke's recommendations, and expressed the intention to pursue the recommendations on a UK-wide basis. An action plan on river safety was then published, explaining how the Department for the	"The safety regime on the river today is very different from that which obtained in 1989" "It is clear from the Department report on the Hayes recommendations, prepared in October 1999, that matters have come on a long way since the Hayes

Environment, Transport and the Regions (DETR), working with the Maritime and Coastguard Agency (MCA) and the Port of London Authority (PLA), intended to implement the recommendations. These included: **Doctrine:** funding for a formal safety assessment of search-and-rescue facilities on the Thames; and funding for experimental life-saving equipment at locations along the Thames **Operational Communication:** consultation on the consumption of alcohol by people in charge of vessels In his second report, published on 14 February 2000, Lord Justice Clarke made the following recommendations: 1. The Secretary of State should exercise his power under section 268 of the Merchant Shipping Act 1995 to cause a formal investigation to be held into the collision between the Marchioness and the Bowbelle, the loss of the Marchioness, the loss of life and the injuries suffered by those who survived. 2. Although I take the view that the remit of a formal investigation would include the search and rescue operation, I recommend that the Secretary of State give an express direction to that effect in accordance with regulation 4(1) of the Merchant Shipping (Formal Investigations) Rules 1985, as amended. Consequently the Secretary of State announced a judicial inquiry, under section 268 of the Merchant Shipping Act 1995, into the collision between the Marchioness and the Bowbelle, and the search and rescue operations that followed the collision. He appointed Lord Justice Clarke to act as Wreck Commissioner to the investigation. **Lord Justice Clarke – Final Report** The report of the Formal Investigation is in two volumes and contains a detailed account of the causes of and responsibility for the accident and gave an update on the many previous recommendations. The interoperability recommendations are: **Doctrine**: failure to act in response to previous knowledge of problems; deficiencies in	Report, although there is still work to be done in some areas". On the question of a public inquiry, Lord Justice Clarke concluded that "... in this case the facts have at no time been open to the kind of public scrutiny which would be appropriate" and that, therefore, "The secretary of State should exercise his power ... to cause a formal investigation to be held" into the incident and its immediate aftermath, including the search and rescue operation Note: By 2003 40 of the 74 recommendations had been completed and a further 29 had action in hand but not yet completed. Legislation was also introduced creating alcohol limits for mariners. Although no further inquiries were conducted into the Marchioness following the publication of the Clarke Report in March 2001, there were a number of reviews

post mortem identification methods and treatment of deceased with respect; response - Metropolitan Police were ill-prepared in that there was no specific contingency plan to deal with a major disaster on the river **Operational Communication**: management failure to properly instruct/monitor crew **Shared Situational Awareness**: failure to keep lookout (basic cause of collision)	commissioned. For example, the Director of Public Prosecutions was due to report on whether it would be appropriate to take action against Captain Henderson or any other party and the MCA was tasked to undertake an urgent review of Captain Henderson's fitness to hold a British Masters Certificate of Competency. He was allowed to retain his certificate.

11. Texaco Refinery Explosion

Report	Terms of Reference	Summary	Number of Recommendations
Explosion Texaco Refinery, Milford Haven Health & Safety Executive (1997)	A report of the investigation by the Health and Safety Executive into the explosion and fires on the Pembroke Cracking Company Plant at the Texaco Refinery, Milford Haven on 24 July 1994'	The 1994 explosion and fires at the Texaco Milford Haven refinery injured twenty-six people and caused damage of around £48 million and significant production loss. Key factors that emerged from the Health and Safety Executive's (HSE's) investigation were: • There were too many alarms and they were poorly prioritised. • The control room displays did not help the operators to understand what was happening • There had been inadequate training for dealing with a stressful and sustained plant upset In the last 11 minutes before the explosion the two operators had to recognise, acknowledge and act on 275 alarms.	9 recommendations

Recommendations	Relevant Text from Report
A series of events occurred including a lightning strike causing a fire. But the explosion that occurred was a combination of failures in management, equipment and control systems during the plant disruption, namely a control valve being shut when the control system indicated it was open – a modification that had been carried out without assessing all the consequences; control panel graphics that did not provide necessary process overviews; and attempts to keep the unit running when it should have been shut down. Recommendations were made in relation to: failures in technical measures; control systems; maintenance procedures; modifications; control room design; decision	High operator reliability requires: ● very obvious display of the specific alarm ● few false alarms ● a low operator workload ● a simple well-defined operator response ● well trained operators ● testing of the effectiveness of operators' responses An effective system should 'direct the operator's attention towards conditions

making; and emergency response. In relation to interoperability the following are of note: **Doctrine**: maintenance procedures lacked clarity; procedures amended without adequate risk assessment of consequences; requirement for clear roles and responsibilities; system should be subject to audit **Operational Communication**: control room displays did not adequately communicate what was happening; poor design and layout hampered response **Shared Situational Awareness**: excessive alarms reduced operator response capability; flawed decision to continue operating instead of shutting down **Training & Exercising**: lack of training regarding emergency operating procedures and spill control	requiring timely assessment or action' and so should: ● Alert, inform and guide the operators, allowing them to diagnose problems and keep the process within its 'safe envelope' ● Prevent unnecessary emergency shutdown ● Only present the operator with useful and relevant alarms ● Use prioritisation to highlight critical alarms ● Have a defined response to each alarm ● Be ergonomically designed to meet user needs and capabilities ● Allow enough time for the operator to respond.

12. Dunblane Shooting

Report	Terms of Reference	Summary	Number of Recommendations
Public Inquiry into the Shootings at Dunblane Primary School The Hon Lord Cullen Cm. 3386	"To inquire into the circumstances leading up to and surrounding the events at Dunblane Primary School on Wednesday 13 March 1996, which resulted in the deaths of 18 people; to consider the issues arising therefrom; to make such interim and final recommendations as may seem appropriate; and to report as soon as practicable."	Thomas Hamilton, having entered the school, shot Mrs Gwen Mayor and 16 members of her Primary 1/13 class and inflicted gunshot wounds on 10 other pupils and three other members of the teaching staff. The Inquiry sought the answers to the following questions: (i) What were the circumstances leading up to and surrounding the shootings at Dunblane Primary School on 13 March 1996? (ii) What should be recommended with a view to safeguarding the public against the misuse of firearms and other dangers which the investigation brought to light? The report describes the response of the teaching staff, emergency services and police to the incident, with an account of various lessons which have been learned from the experience.	The report set out 28 recommendations

Summary of Relevant Recommendation from Reports	Relevant Text from Report
There were recommendations made regarding the requirements of a firearms certification system, including legislation and statutory powers, the availability of firearms, vetting and supervision of those working with children and young people. The report also detailed interoperability lessons: **Doctrine**: effective management of cordons to enable effective scene management and interviews with families; Casualty Bureau need to ensure accurate data recording, including times **Operational Communication**: ability prioritise incoming/outgoing calls, dedicated lines, encrypted radios, communication command vehicle	The first police officers arrived from Dunblane Police Office at about 9.50 am in response to the telephone call from Mr Taylor. They immediately summoned further police assistance … about 10.10 am senior police officers were on the scene, including the Chief Constable who had put into force the strategy for major incidents. In accordance with this a casualty bureau was set up at police headquarters in Stirling. The Chief Constable also delegated various tasks to his commanders. Police established cordon around school… By 10.30 am a considerable number of people had approached the school, not merely anxious relatives of school children but also representatives of the media. The emergency services had to make their

Shared Situational Awareness: cooperation between police's own press team and those of other emergency services; that as much information should be provided to relatives; also advance sharing intelligence/information for enquiry officers **Training & Exercising**: school staff in dealing with emergencies, and in general cultivating a sense of safety; pupils being aware of security and evacuation procedures	way through some 200-300 people in proceeding to and from the school. Family Liaison Team: of 2 officers and a social worker was organised to communicate information to parents of children who had died. There were difficulties in confirming identification…police took the deliberate decision to withhold information about any deceased until all of them had been identified.

13. BSE Outbreak Inquiry

Report	Terms of Reference	Summary	Number of Recommendations
The BSE Inquiry Report (2000) Lord Phillips	To establish and review the history of the emergence and identification of BSE and variant CJD in the United Kingdom, and of the action taken in response to it up to 20 March 1996; to reach conclusions on the adequacy of that response, taking into account the state of knowledge at the time; and to report on these matters to the Minister of Agriculture, Fisheries and Food, the Secretary of State for Health and the Secretaries of State for Scotland, Wales and Northern Ireland.	The report considers the emergence and identification of BSE and variant CJD in the UK and the response to it up to March 1996. It highlights things that went right as well as to some of the errors, inadequacies and shortcomings in the response to BSE. At the conclusion of the report, the number of people dead or thought to be dying was over 80. BSE developed into an epidemic as a consequence of intensive farming practice – the recycling of animal protein in ruminant feed. This practice, unchallenged over decades, proved a recipe for disaster.	14 Lessons to be learned

Summary of Relevant Recommendation from Reports	Relevant Text from Report
The report identifies many specific lessons from particular episodes (some of which are detailed below), together with lessons to be learned about five topics which run right through the story: the use of advisory committees; dealing with uncertainty; legislative loopholes; crisis management; and the experience of the victims of vCJD and their families. Episodes in the BSE story included: **Emergence**: Precautionary measures need to be applied to reduce the potential risk to as low as reasonably practicable **Transmission**: risk of transmission…will be greatly reduced if high risk tissues are removed from the food chain **Spread**: A lengthy incubation period…may spread the disease widely before its emergence is detected **Identification**: A [proactive rather than passive] effective system of …surveillance is a	At the heart of the BSE story is the question of how to handle hazard – a known hazard to cattle and an unknown hazard to humans. The Government took measures to address both hazards. They were sensible measures, but they were not always timely nor adequately implemented and enforced. At times officials showed a lack of rigour in considering how policy should be turned into practice, to the detriment of the efficacy of the measures taken. At times bureaucratic processes resulted in unacceptable delay in giving effect to policy. The Government introduced measures to guard against the risk that BSE might be a matter of life and death not merely for cattle but for humans, but the possibility of a risk to humans was not communicated to the public or to those whose job it

prerequisite to effective control **Implications**: where animal or public health is at stake, resort should be to the best source of scientific advice, wherever it is to be found, without delay **Investigation**: provision should be made for training…and data upon which conclusions are based [should be made available] Lessons from the Introduction [of Actions], relative to interoperability: **Doctrine**: When a precautionary measure is introduced, rigorous thought must be given to every aspect of its operation with a view to ensuring it is fully effective; reference to outside expert committees involves delay. It should be avoided, where possible, in a situation of urgency; Uncertainty can justify action; Enforcement - clear guidance should be given to the local authorities as to the importance of the Regulations and the manner of their enforcement…central government should monitor the standards of compliance and enforcement; Emergence: where there is uncertainty all reasonable practicable precautions should be taken; precautionary measures should be strictly enforced even if the risk that they address appears remote; Families/Victims - speedy diagnoses; informed and sympathetic advice; speedy assistance; coordinated care package; [where necessary] a suitable institutional environment…for incapacitated and terminally ill **Operational Communication**: Reliance on trade association or other body to communicate the importance of a precautionary measure is not always appropriate; Department Representatives at Advisory Committees should see their departments are promptly informed of any matters which may require a response from government **Shared Situational Awareness**: Where a policy decision turns to human health, the Department of Health should be involved in the formulation of policy from the outset; Advice by Advisory Committees must be reviewed 'to ensure that the reasons for it are understood and appear sound'…ensure it is effective and its purpose and application understood…Government Departments should clearly tell both the public and those responsible for enforcement the reasons for, and the importance of, any precautionary measures they introduce **Training & Exercising**: Advisory Committees should: Draw a clear distinction between	was to implement and enforce precautionary measures. The Government did not lie…it believed the risks posed by BSE to humans was remote…[it] was preoccupied with preventing an alarmist over-reaction to BSE because it believed that the risk was remote…this campaign was a mistake…confidence in government pronouncements about risk was a further casualty of BSE. Interdepartmental Structures: relations between MAFF and DH with regard to BSE did not fall within the framework of any formal interdepartmental structure…Matters were further complicated when other Departments were involved. Central and Local Government – the greatest impediment to the efficacy of the Government's response…was the structure laid down in statute…regulations relating to standards and practice rested with District Councils

any information provided by others, which it has not reviewed, and its own conclusions; Explain the reasoning on which its advice is based; When giving advice, make it clear what principles, if any, of risk management are being applied; Not water down its formulated assessment of risk out of anxiety not to cause public alarm; Contingency planning is a vital part of government. The existence of advisory committees is not an alternative to this; Devolved Government Arrangements need to be in place [and exercised] to facilitate a synchronised approach	

14. Southall Rail Crash

Report	Terms of Reference	Summary	Number of Recommendations
Southall Rail Accident Inquiry Professor John Uff QC	The purpose of the Inquiry is to determine why the accident happened, and in particular to ascertain the cause or causes, to identify any lessons which have relevance for those with responsibilities for securing railway safety and to make recommendations	Inquiry into the cause of a major rail accident which occurred on 19th September 1997, 9 miles west of Paddington, the first major accident to occur within the British rail network since privatisation of the railway industry. The collision resulted in the death of seven passengers and 139 injured in varying degrees of severity. The Public Inquiry was delayed for two years by criminal proceedings against the driver and train operating company.	The report concludes with 93 specific recommendations.

Summary of Relevant Recommendation from Reports	Relevant Text from Report
Recommendations were made in relation to driver training, operating rules, fault reporting, fleet maintenance, infrastructure maintenance, regulation, vehicle design, research and development, automatic train protection, general safety issues, accident investigations and inquiries and post-accident procedure. Interoperability recommendations: **Doctrine:** Post-Accident Procedures - evacuation routes to avoid distressing scenes, identification of victims should be speeded up and information released to next of kin at earliest possible time, Casualty Bureau to remain in operation for as long as required **Operational Communication:** Operating Rules clear & unambiguous, avoiding duplication, clear steps re safety system failure, emphasis on compliance with no deviation from the rule; safety briefings or other appropriate means of communicating safety information, paper based systems must not become divorced from reality **Shared Situational Awareness**: effective liaison with hospitals & casualty gathering areas; policy changes preceded by risk assessment; a single body to specify safety	The principal lesson to be learned from the emergency response to the accident was one of success, particularly in the rescue and treatment of injured passengers. [Train operator arrangements for onward transmission of injured passengers was criticised] 'These arrangements were not wholly successful. A number of passengers considered that the arrangements were insensitive, for example, putting crash victims back onto trains.' Casualty Bureau – BTP accepted that better provision was needed for answering telephone calls, such as switching to other stations; the Police Casualty Bureau closed too early; and the release of info by teletext was to be avoided Potential Conflicts – crime scene management by police versus safety investigation by HMRI De-briefing exercises were carried out both in relation to the emergency services and the railway industry. It is surprising that no procedure existed for a combined de-briefing, which should have occurred.

standards for equipment, audits should be backed up by unplanned inspections, the reporting of all actual or suspected faults; debriefing to involve all involved, e.g. Rail Industry and Emergency Services **Training & Exercising**: to incorporate human behaviour studies, make use of simulators for observance of behaviour, include abnormal situations national qualification system, monitoring those trained, crews to be given improved training and briefing on emergency actions, including evacuation exercises, those undertaking risk assessments are appropriately qualified and informed	

15. Stephen Lawrence Murder Inquiry

Report	Terms of Reference	Summary	Number of Recommendations
The Stephen Lawrence Inquiry (1999) Sir William Macpherson Cm 4262-I	"To inquire into the matters arising from the death of Stephen Lawrence on 22 April 1993 to date, in order particularly to identify the lessons to be learned for the investigation and prosecution of racially motivated crimes."	Stephen Lawrence had been with a friend on 22 April. They were on their way home when they came at around 22:30 to the bus stop in Well Hall Road. Stephen went to see if a bus was coming, and reached a position almost in the centre of the mouth of Dickson Road. His friend saw the group of five or six white youths who were responsible for Stephen's death on the opposite side of the road. One of the youths called out "what, what nigger?" With that the group came quickly across the road and literally engulfed Stephen. During this time one or more of the group stabbed Stephen twice. The whole incident which led to his murder probably lasted no more than 15-20 seconds. The Inquest jury returned a unanimous verdict after a full hearing in 1997, that "Stephen Lawrence was unlawfully killed in a completely unprovoked racist attack by five white youths".	70 recommendations

Recommendations	Relevant Text from Report
Recommendations were made in relation to openness and accountability; defining a racist incident and reporting and recording of related incidents and crimes; police practice and investigation; family liaison and handling of victims and witnesses; prosecution and use of legislative powers; training and the role of education; employment, including recruitment and retention, discipline and complaints Relevant to interoperability are: **Doctrine:** service provision should be standards based; performance indicators for implementing strategies; system should be subject of inspection regime; chief officers made vicariously liable for acts and omissions of their officers; clear and common	Anybody who listened to the evidence of the officers involved in the initial police action after the murder would, so all the members of the Inquiry feel, be astonished at the lack of command and the lack of organisation of what took place… there is almost a total lack of documentation and record in connection with the whole of the first night's operations. Not a single police officer of any rank either made or initiated a log to record the decisions made and the actions taken. It can be seen at once that the whole picture is one of disarray and uncertainty… Nobody gave proper instructions to the officers in the earliest stages of the investigation, and no plan was made which might have led to the discovery and arrest of the suspects

language used **Operational Communication**: proactive use of contacts in systems; notification of decisions with speed and sensitivity **Shared Situational Awareness**: - Liaison procedures reviewed to ensure coordination; the degree of multi-agency cooperation and information exchange; Freedom of Information should apply (except in cases of 'substantive harm'; comprehensive system for recording **Training & Exercising**: Adequacy of provision of training, and the nature and extent of the training, including first aid and situational and cultural awareness; senior officers aware of their command responsibilities; joint training with other agencies; training should be monitored	The main conclusion that we reach is that the inadequacy of the steps taken was as the result of the failure of direction by supervisory officers. The standard of command and co-ordination during the first two hours after this murder was in the opinion of the Inquiry abysmal. The impression we gain is of officers doing things without any real direction or information. Much of what was done was, in essence, doomed to be ineffective because of inadequate co-ordination or control. The lack of co-ordination and control of the varying activities at the scene by senior officers stands out and must be roundly criticised…The scene of a murder may well be hectic and initially disorganised. But it is surely vital that more senior officers grapple with that disorganisation and attack the situation with energy and imagination. The senior officers of Inspector rank and upwards at this scene signally failed to act in this way.

16. Ladbroke Grove Rail Inquiry

Report	Terms of Reference	Summary	Number of Recommendations
The Ladbroke Grove Rail Inquiry The Rt Hon Lord Cullen Part 1 Report	1. To inquire into, and draw lessons from, the accident near Paddington Station on 5.10.99, taking account of the findings of the HSEs investigations into immediate causes. 2. To consider general experience derived from relevant accidents on the railway since the Hidden Inquiry [into the 1988 Clapham Rail Crash], with a view to drawing conclusions about: (a) factors which affect safety management (b) the appropriateness of the current regulatory regime. 3. In the light of the above, to make recommendations for improving safety on the future railway.	A rail crash at Ladbroke Grove junction between two trains operated by Thames Trains and First Great Western. There were 31 fatalities. Part 1 of the Inquiry is concerned with the investigation of the causes of the crash and the circumstances in which it occurred, lessons which should be drawn from what happened, and the recommendations for the improvement of safety in the future. Part 2 of the Inquiry is concerned, in regard to the railways, with the management of safety and the regulatory regime.	The Part 1 Report made 89 detailed recommendations The Part 2 Report made 74 detailed recommendations

Summary of Relevant Recommendation from Reports	Relevant Text from Report
In addition to recommendations relating to technical recommendations re track and signalling, crashworthiness, fire resistance of trains, and signage, specific recommendations were made in Part 1 in relation to: **Doctrine:** Implementation of Formal Inquiry procedures including specific timescales, periodic reporting & monitoring, identified person responsible for implementation, recommendations not to be abandoned except in fully justified cases, affected management systems aligned, effectiveness of recommendation audited, full records	In the years preceding the crash a number of measures had been mooted to improve safety. Very little had been achieved… There was a lamentable failure on the part of Railtrack to respond to recommendations of inquiries into two serious incidents (In 1995 and 1998). [The problem was known but response] activity was so disjointed and ineffective that little was achieved. Evidence of a serious and persistent failure to deal with the recognised problems … in a prompt, proactive and effective manner… [Mr Wadey] told inquiry that … took part in exercises but did not get any feedback from them.

of progress and a means of central tracking **Operational Communication**: common numbers for public seeking info, development of culture where information is communicated without fear of recrimination, the quality of communication during safety audit should be improved, briefing & appropriate dissemination of information which may assist elsewhere, national system of radio communication between drivers & signallers, passengers should be given general safety advice before and after boarding, **Shared Situational Awareness:** a system should be established for the collection of human factors information pertinent to issues of passenger safety, the code of practice on public information should be kept up to date, evacuation or escape information should be standardised **Training & Exercising**: joint training process to develop mutual understanding, training and testing programmes should reflect specific, relevant and validated criteria, all on-board staff should be trained in evacuation and protection Part 2 In addition to recommendations in relation to rail industry structure, use of contractors, accreditation & licensing, regulation, and independent accident investigation, specific recommendations were made in relation to: **Doctrine**: Safety leadership - continuous commitment to improve safety performance, implementation of safety system, safety management strategic leadership teams meeting regularly **Operational Communication**: two-way communication between management and staff, and directly linked to safety management system **Shared Situational Awareness:** standard setting and also greater use of risk assessment	Part 2: The evidence indicated that a high proportion of accidents, incidents and near misses followed unsafe actions resulting from underlying deficiencies in the management of safety. The first priority for a successful safety culture is leadership…A key task for leadership is the communication of safety goals and objectives Need for continuous learning…reluctance to search for industry wide or system problems. Instead, investigations concentrated on local faults…the immediate cause may only be a symptom of the underlying cause Call for 'a system that enables the full lessons to be learnt from every accident and near miss' (p.73) Para 1.15 The evidence clearly demonstrated that the rail industry needs to develop its ability to behave as a learning organisation. I identify a number of areas of importance. First, identifying unsafe acts and conditions and taking prompt steps to deal with them. Secondly, applying and disseminating the lessons of accidents and incidents (including near misses). Here the evidence showed that the process was inhibited by the "blame culture", and the lack of a co-ordinated system for the collation of recommendations and ensuring that they were followed up. Thirdly, using risk assessment in order to drive improvements in safety. Fourthly, gaining benefit from the process of auditing. This has been less than fully effective. Fifthly, using data and analytical tools. The evidence showed there were weaknesses in the industry's use of these materials. Sixthly, training, with particular reference to refresher courses, into which greater effort requires to be put. Para 5.68 Conclusions The way forward is clear. The industry needs to take all necessary steps to set high safety standards through clear leadership; good two-way communications; a relentless pursuit of excellence of operations through the identification and adoption of best practice, learning processes, training and the involvement of all employees; a new focus on the real concerns and interests of customers; and a new ethos of co-operation across the industry.

17. UK Fuel Disputes

Report	Terms of Reference	Summary	Number of Recommendations
Fuel Strike 2000	The purpose of this document is to examine the impact of the fuel price protests in the United Kingdom (UK) during September 2000 on the country's critical infrastructure (CI) and emergency management (EM) sectors.	During the eighteen month period between January 1999 and July 2000, petrol and diesel prices in the UK rose strongly. In September 2000, British farmers and truck drivers launched a dramatic campaign of direct action to protest a fuel duty. Their campaign followed a similar one by farmers, truckers, and fishermen in France, which had resulted in concessions from the French government. The UK protesters blockaded fuel refineries and distribution depots, and, within days, created a fuel crisis that paralyzed CI sectors and brought the country to a virtual halt. The impact of the protest was much deeper than anticipated because it struck at a particularly vulnerable point of the UK economy -- the oil distribution network, which had been organized along just-in-time delivery principles. This, combined with anticipated shortages by fuel consumers and consequent panic buying, magnified the impact of the protests on practically all Critical Infrastructure sectors in the UK. The disruption in the energy sector created a chain reaction among other Critical Infrastructure sectors such as transportation, health care, food distribution, financial and government services due to their interconnectivity and interdependencies. The financial impact of the week-long fuel drought was estimated at close to £1 billion	Fuel strike was key driver for Civil Contingencies Act 2004 The British government set up a ministerial task force, headed by then -- UK Home Secretary, Jack Straw, to examine the practical lessons learned from the week-long fuel crisis and to decide what emergency preparedness measures were necessary to safeguard the country's fuel supplies in the future. The task force was also made up of senior oil industry figures, top police officers and ministers.

Summary of Relevant Recommendation from Reports	Relevant Text from Report
The Government identified those services eligible for priority access to fuel including Emergency services; Armed forces; Health and social workers; Food industry; Agriculture, veterinary and animal welfare; and other essential workers The main elements of the planning, information and management system would include: (a) Implementation of early warning systems and related contingency plans (b) Reviewing the level, location and role of oil fuel stocks in the event of disruption (c) Facilitating the movement of oil fuels to users, and, in particular, to defined essential users (d) Controlling the delivery of oil fuels to customers in the event of disruption to supplies. (e) Agreeing crisis management systems. **Doctrine**: An essential element of the arrangements was an agreed system with clear guidelines **Operational Communication**: communication and consultation with the workforces and the relevant trade unions at national and local level **Shared Situational Awareness**: A jointly managed approach to the distribution of oil fuels be implemented; flexibility for local implementation in accordance with local circumstances; **Training & Exercising**: responses; prioritisation of distribution; maintenance of continuity, without prejudice to safety	After the fuel crisis, one minister was quoted as saying, 'We pulled the levers and nothing happened'. But in July 2001, Prime Minister Tony Blair announced the formation of a crisis management unit in the cabinet office to deal with national emergencies. The 'civil contingencies secretariat' is allocated the tasks of providing an early warning system for impending disasters and of drawing up a strategy for dealing with them – and also, presumably, of preventing the prime minister from appearing unprepared and powerless again. The secretariat is also charged with undertaking routine 'horizon scanning' to look for potential crises. The Civil Contingencies Act 2004 requires responders to undertake: • risk assessment • business continuity management (including training & exercising) • emergency planning (including training & exercising) • warn, inform and advise the public • promotion of BCM for business and voluntary organisations • co-operation and information sharing

18. Harold Shipman & 'the 3 Inquiries'

Report	Terms of Reference	Summary	Number of Recommendations
Safeguarding Patients: The Government's response to the recommendations of the Shipman Inquiry's fifth report and to the recommendations of the Ayling, Neale and Kerr/Haslam Inquiries (2007) Cm 7015	Shipman Inquiry (a) After receiving the existing evidence and hearing such further evidence as necessary, to consider the extent of Harold Shipman's unlawful activities; (b) To enquire into the actions of the statutory bodies, authorities, other organisations and responsible individuals concerned in the procedures and investigations which followed the deaths of those of Harold Shipman's patients who died in unlawful or suspicious circumstances; (c) By reference to the case of Harold Shipman to enquire into the performance of the functions of those statutory bodies, authorities, other organisations and individuals with responsibility for monitoring primary care provision and the use of controlled drugs; and (d) Following those enquiries, to recommend what steps, if any, should be taken to protect patients in the future, and to report its findings to the Secretary of State for the Home Department and to the Secretary of State for Health.	This report sets out the action which the government is taking in response to four reports relating to the abuse of trust by health professionals – the Shipman Inquiry's Fifth Report, and the reports of the Ayling, Neale and Kerr/Haslam Inquiries. The nature of the abuse differs between the four reports, but the underlying question is the same in each case: why did the NHS at the time fail to identify the risk and take the appropriate action to protect patients. The case of Harold Shipman, the trusted GP from Hyde in Greater Manchester who murdered around 250 of his patients over a 20-year period, is well known…this [report sets out the] formal response to the recommendations in the Fifth Report, relating to the monitoring and local discipline of health professionals and the handling of complaints and concerns. Neale was an obstetrician who was struck off the register in Canada for incompetent performance of surgical procedures but nevertheless managed to maintain his registration and obtain employment in the UK for several years afterwards. Ayling – a GP in Sussex – and Kerr and Haslam – consultant psychiatrists in York – were responsible over many years for the sexual abuse of female patients. [The report] deals mainly with enhancements to the systems …to identify, investigate and respond to actions by health professionals which could put the safety and wellbeing of patients at risk.	The reports between them contain a total of 228 recommendations,

	Note. The terms of reference for the three inquiries [Ayling, Neale and Kerr/Haslam] were almost identical, apart from the details of the doctors concerned and the periods over which the alleged offences were committed.		

Recommendations	**Relevant Text from Report**
The report considers aspects which are relevant to interoperability: • Appointment and screening processes • the use of routine monitoring data to detect apparent failures • "triangulation" of information from different sources • use of information from complaints and from concerns expressed • systems in place to deal with performance and behavioural issues; and • the response of regulators to concerns raised The action plan includes: **Doctrine**: review and revise guidance; embed the culture of governance – define common set of standards, provide advice, strengthen accountability; clear policies; national action plan **Operational Communication**: undertake consultation; national advisory group with all relevant stakeholders represented **Shared Situational Awareness**: relevant information is held by different organisations – it's only by triangulation the full extent of situation is revealed; liaison - setting up networks for mutual support **Training & Exercising**: training for professionals	Quality Standards: Three interlocking components (i)Explicit standards (ii) Assurance of, and continuous improvement in, the systems and process for local delivery, and (iii) National monitoring of performance in relation to the standards Promoting active learning from mistakes requires moving from a "blame culture" to a "safety culture" in which staff are encouraged to report errors and near misses so that learning can take place; and systematic processes for reporting and analysing errors, establishing the underlying causes, and ensuring that lessons are put into practice. The systems, processes and behaviours underlying governance include: • Effective leadership at all levels • Effective multi-disciplinary team working • Formal processes for assessment • Participation of all in multi-disciplinary audit and continuous professional development • Benchmarking against best national or international practice • Provision of information to enable informed choice • Proactive sampling of feedback of service provided • Meaningful engagement [of all stakeholders] • Proactive risk assessment and management of environment in which service is delivered • Learning from complaints and expressions of concern • Systematic learning through root cause analysis, including 'near misses' • Full participation in national learning and reporting system • Robust and transparent processes for identifying and addressing concerns over performance

19. Foot & Mouth Disease

Report	Terms of Reference	Summary	Number of Recommendations
Foot & Mouth Disease 2007: A Review & Lessons Learned HC 312 Dr Iain Anderson CBE	[Dr Anderson was] asked by the Prime Minister and the Secretary of State for the Environment, Food and Rural Affairs to conduct a review to find out if the lessons of 2001 had indeed been learned and whether there might be new lessons and further recommendations	August 2007 animals in Surrey were found to have symptoms of Foot and Mouth Disease. The following day, after analysis, the Institute for Animal Health informed DEFRA that tests had confirmed the presence of Foot and Mouth Disease. The public announcement later that day sent shock waves across the country and above all into all rural communities, many of which were still scarred by the experience of the disease in 2001. The contingency plans of government, DEFRA, the Animal Health agency and the devolved administrations of Scotland and Wales – developed over the past six years in response to the outbreak in 2001 – came into action	26 recommendations made Lessons Learned: Maintain Vigilance Be Prepared React with Speed & Certainty Explain Policies, Plans & Practices Respect Local Knowledge Apply Risk Assessment & Cost Benefit Analysis Use Data & Information Systems Have a Legislative Framework Base Policy Decisions on best available Scientific Advice

Recommendations	Relevant Text from Report
The overall response in handling the outbreak was good. Many of the lessons identified in the 2002 Report had been acted upon and performance, taken as a whole, was much improved. This report however, makes a number of recommendations: **Doctrine**: Standing zone around Pirbright (Government Facility & Source of outbreak); review skills in key skills (such as data handling); review scalability of response; documents in plain English; increase devolved decision-making; review devolution concordats; reinforce & formalise core group decision making; more rigorous cost benefit analysis model; DEFRA agree with EU specific exemptions from trade restrictions; DEFRA, EU & devolved administrations develop regionalised risk based approach to animal disease management; DEFRA's Audit & Risk Committee review	At national strategic level, the response was overseen and steered by the Cabinet Office Briefing Room (COBR), the government's central crisis management committee…The Prime Minister and the Secretary of State for Environment Food and Rural Affairs both gave a strong lead in placing themselves at the forefront of the response. Compared to 2001 the nation is now far more vigilant and aware of the threat posed by FMD but the risk is real and likely to increase. Better controls are in place to reduce the risk of an exotic animal disease entering the country. Emergency preparedness is taken seriously by Animal Health and understood to be a core function. Nevertheless there is still work to be done.

process & publish its findings; reform programme prioritised and funded; contingency plan to secure existing systems (while new Business Reform programmes being developed) **Operational Communication**: develop a 'menu of communication opportunities' for use in any crisis; improve local media engagement; transparency in publishing scientific advice; DEFRA drive debate ensuring issues communicated clearly and properly explained; use of GIS into future data systems **Shared Situational Awareness**: Liaison - DEFRA to work with UKBA; Animal Health managers build relationships with key stakeholders; DEFRA increase technical & scientific expertise available on day-to-day basis (not just during crisis) **Testing & Exercise**: DEFRA test full emergency response chain; overhaul of selection, training & deployment (Regional Ops Directors and Managers); develop & test its policies and arrangements for emergency vaccinations; response arrangements regularly rehearsed	Ministers, officials and stakeholders at all levels were seized by the critical importance of speed. There was a certainty and clarity in the DEFRA response that was absent six years ago. Communications were much better handled in 2007. Nevertheless the overall consistency of DEFRA's communication with stakeholders and the wider farming community could be improved. With only one Local Disease Control Centre (LDCC), some local stakeholders did not feel fully integrated into the response, although relationships did improve over time. Decisions are now far more routinely based on risk assessment – although the quality of some of these was hampered by poor data and evidence. The 2002 Report could not have been clearer in its criticism of DEFRA's information systems, and made several recommendations to tackle the shortcomings. It was disappointing to discover how little progress had been made over the last six years…DEFRA remains in a vulnerable position in the event of a disease outbreak. The Civil Contingencies Act provides the legal powers for the wider framework for government management of emergencies. The legislative changes made since 2001 were critical in responding effectively to the 2007 outbreak but could be tested further in a larger outbreak.

20. Victoria Climbié Murder

Report	Terms of Reference	Summary	Number of Recommendations
The Victoria Climbié Inquiry (2003) Lord Laming CM 5730	To establish the circumstances leading to and surrounding the death of Victoria Climbié. 2. To identify the services sought or required by, or in respect of Victoria Climbié, Marie-Therese Kouao and Carl Manning from local authorities in respect of their social services functions, the Health bodies and the Police between the arrival of Victoria Climbié and Marie-Therese Kouao in England in March 1999 and Victoria Climbié's death in February 2000. 3. To examine the way in which local authorities in respect of their social services functions, the health bodies and the police: (i) responded to those requests, or need for services (ii) discharged their functions (iii) co-operated with each other (iv) co-operated with other services including the local education authorities and the local housing authorities; in respect of the three persons named above during the period referred to above and thereafter. 4. To reach conclusions as to the circumstances leading to Victoria	On 25 February 2000, Victoria Adjo Climbié died in the Intensive Care Unit at St Mary's Hospital Paddington. She died as a result of months of appalling ill-treatment at the hands of two individuals who were supposed to be caring for her. On 12 January 2001 at the Central Criminal Court, Marie-Therese Kouao and Carl John Manning were convicted of her murder. Both were sentenced to life imprisonment Lord Laming referred to the circumstances as: Not one of the agencies empowered by Parliament to protect children in positions similar to Victoria's – funded from the public purse – emerge from this Inquiry with much credit. The suffering and death of Victoria was a gross failure of the system and was inexcusable. It is clear to me that the agencies with responsibility for Victoria gave a low priority to the task of protecting children. They were underfunded, inadequately staffed and poorly led. Even so, there was plenty of evidence to show that scarce resources were not being put to good use… Even after listening to all the evidence, I remain amazed that nobody in any of the key agencies had the presence of mind to follow what are relatively straightforward procedures on how to respond to a child about whom there is concern of deliberate harm. It is important to understand what went wrong in the way individual social workers, police officers, doctors and nurses responded to Victoria's needs, and how deficiencies in their organisations contributed to this.	108 recommendations: 1-18 general recommendations; 19-63 social care recommendations; 64 - 90 healthcare recommendations; 91 – 108 police recommendations

	Climbié's death and to make recommendations to the Secretary of State for Health and to the Secretary of State for the Home Department as to how such an event may, as far as possible, be avoided in the future.		

Recommendations	**Relevant Text from Report**
Recommendations in relation to: establishing a national structure chaired by a Cabinet Minister; with a regional level to ensure implementation of policy and legislation at a local level, as well as reporting upwards to government; **Doctrine**: common language used across all agencies; disseminate best practice; a step-by-step guide; ensure consistent application; standards based service; properly supervised and led; fully investigated **Operational Communication**: common rules for information exchange; managers asking pertinent questions **Shared Situational Awareness**: sharing information between professional groups; feasibility of national database **Training & Exercising**: national training programme for all agencies involved in system to demonstrate effective joint working; effectiveness should be subject to inspection; staff must demonstrate their practice is up to date by successfully completing appropriate training courses; training to equip officers with confidence to question other professionals, no matter how eminent **Government Response – House of Commons Health Committee: The Victoria Climbié Inquiry Report: 6th Report of Session 2002-03 (HC570)** Since 1948 there have been around 70 public inquiries into major cases of child abuse…While the particular circumstances of each case are different, there are also areas of considerable similarity. In particular, the following features recur time after	That there was concerns about: widespread organisational malaise; management issues; accountability; the exchange of information; the need for a national database; eligibility for services; availability of services; the use of agency and locum staff; the training and supervision provided; and the clarity and use of practice guidance and documentation. He highlighted that Child Protection is: • A multi-disciplinary task • Different agencies have separate and distinctive responsibilities they must fulfil. Gathering staff in a dedicated team might blur responsibilities • There is not an untapped source of talent • The legislative framework is in place – it is not a matter of law but in its implementation • It's not just structures that are the problem, but the skills of the staff who work in them…what is critical is the effectiveness of the management and leadership • Current inter-agency arrangements for protecting children depend very heavily on the key agencies in health, the police and social services working within closely related geographical boundaries. [But] this is no longer the case – more local authorities (150), fewer health authorities (30) and growing numbers of Primary Care Trusts (over 300), and 43 police forces (in England & Wales) "Those who sit in judgement often do so with the great benefit of hindsight" I readily acknowledge that staff who undertake the work of protecting children

time: • Failure of communication between different staff and agencies • Inexperience and lack of skill of individual social workers • Failure to follow established procedures • Inadequate resources to meet demands As various commentators have pointed out, the Laming Inquiry was by no means the first to attempt to grapple with a hugely complex issue, "and his predecessors' reports have ended up on shelves gathering dust." Gross Failures of the System - The Inquiry Report identified an absence of basic good practice: "Sometimes it needed nothing more than a manager doing their job by asking pertinent questions or taking the trouble to look in a case file. There can be no excuse for such sloppy and unprofessional performance" Widespread Organisational Malaise: Lord Laming expressed this as follows: "We cannot operate a system where the safety and well being of children depends upon the personal inclinations or ability or interests of individual staff. It is the organisations which must accept accountability" The Inquiry Report highlighted the apparent failure of those in senior positions to understand, or accept, that they were responsible for the quality, efficiency and effectiveness of local services. Common Sense Recommendations: Many of the Report's specific recommendations are extraordinarily basic. Lord Laming acknowledged that this was the case, and that he was almost embarrassed to offer some of these. However, the fact such 'common sense' recommendations had to be made "just shows how far we are from acceptable practice at the present time", a point of view which we share. As Lord Laming pointed out, basic things such as adequate case recording are "not rocket science", but if they are not done, and cases are not properly monitored, there are enormous implications for the quality of practice, and the potential for harm to children at risk. We agree with the Inquiry Report that in future there must be a clear line of accountability "from top to bottom, without doubt or ambiguity about who is responsible at every level for the well-being of children." We urge the Government to	and supporting families on behalf of us all deserve both our understanding and our support. It is a job which carries risks, because in every judgement they make, those staff have to balance the rights of a parent with that of the protection of the child. The organisations with responsibility for co-ordinating child protection services at a local level, have generally become unwieldy, bureaucratic and with limited impact on front-line services. It is unrealistic for service delivery to be managed centrally. The managers of local services must be given the responsibility to assess local need and to respond accordingly… The future lies with those managers who can demonstrate the capacity to work effectively across organisational boundaries. Such boundaries will always exist. Those able to operate flexibly need encouragement, in contrast to those who persist in working in isolation and making decisions alone. Such people must either change or be replaced. The joint training of staff and the sharing of budgets are likely to ensure an equality of desire and effort to make them work effectively. The variety and range of referrals, together with the degree of risk and urgency, needs strong leadership, effective decision-making, reliable record-keeping, and a regular review of performance.

put in place the necessary structural reforms to ensure this unbroken and explicit line of accountability is established as a matter of the utmost priority. (Paragraph 83)	

21. Failures in NHS Report

Report	Terms of Reference	Summary	Number of Recommendations
Inquiries: Learning from Failure in the NHS? (2003) Kieran Walshe PhD	[The Report] explores the use of Inquiries in the NHS…presents an overview and reviews how their findings and recommendations are used. It concludes by outlining some lessons for policymakers and other stakeholders	The NHS is making more use of inquiries than ever before. Examining instances of major failure in the NHS through inquiries or investigation can undoubtedly contribute to future improvement. However, it is far from clear that the NHS is learning all it can from failures, or making the most of the opportunities for improvement that they offer.	Reviewed inquiries: Identified 5 common factors in system failure: Isolation; inadequate leadership; systems and process failure; poor communication; and disempowerment of staff

Recommendations	Relevant Text from Report
Although the circumstances in different organisational contexts may vary widely, five key factors are generally present in some combination: • Isolation - in organisational or geographic terms, which leaves clinicians and others left behind by developments elsewhere **(Training & Exercising)**, unaware of new ideas or suspicious of them, and unexposed to constructive critical exchange and peer review **(Shared Situational Awareness)** • Inadequate leadership - by managers or clinicians, characterised by a lack of vision, an inability to develop shared or common objectives, a management style which can be weak or bullying, and a reluctance to tackle problems even in the face of extensive evidence **(Doctrine)** • System and process failure - in which a series of organisational systems and processes are either not present or not working properly, and the absence of these checks and balances allows problems to occur or develop. Systems involved may include those for clinical audit, appraisal, personal development, business planning, performance review, budgeting and so on **(Doctrine)** • Poor communication - affecting both communication in the healthcare	The report lists a structured summary of 10 inquiries held between 1969 & 2001; highlighting the number of recommendations can vary from just 13 to almost 200. In the last three years[prior to 2003] there have been five major inquiries - into security and other issues at Ashworth Hospital; pathology services at Alder Hey Hospital; the conduct of gynaecologist Rodney Ledward; paediatric cardiac services at the Bristol Royal Infirmary; and the activities of general practitioner Harold Shipman. The consistency with which the same or similar issues have been raised by inquiry after inquiry in areas like long term care and child protection should give some cause for concern, since it may suggest that the lessons from inquiries, embodied in their findings and recommendations, are not resulting in sufficient change in policy and practice to prevent their repetition. Many of the common problems outlined above are largely cultural in nature, but it is difficult for inquiries to make concrete recommendations for change in this area. Instead, their prescriptions are often structurally focused, proposing new procedures and systems.

organisation and between healthcare professionals and service users such as staff and patients **(Operational Communication).** It is common to find that many stakeholders knew something of the problems subsequently investigated by an inquiry but no-one was able to see the full picture in a way that would prompt action **(Shared Situational Awareness)** • Disempowerment of staff and service users - in which those who might have raised problems or concerns were discouraged from doing so either because of a learned sense of helplessness in the face of organisational dysfunction or because the cultural norms of the organisation precluded such actions **(Shared Situational Awareness & Doctrine)**	While those systems and structures may be necessary to prevent similar problems recurring, they may not be sufficient in themselves. Changes in attitudes, values, beliefs and behaviours may be needed too. [Otherwise] Inquiries may provide a useful reiteration of past lessons rather than really saying anything new.

22. Bichard Inquiry (Soham Murders)

Report	Terms of Reference	Summary	Number of Recommendations
The Bichard Inquiry Report Sir Michael Bichard HC653	'Urgently enquire into child protection procedures in Humberside Police and Cambridgeshire Constabulary in the light of the recent trial and conviction of Ian Huntley for the murder of Jessica Chapman and Holly Wells. In particular to assess the effectiveness of the relevant intelligence-based record keeping, the vetting practices in those forces since 1995 and information sharing with other agencies, and to report to the Home Secretary on matters of local and national relevance and make recommendations as appropriate.'	On 17th December 2003, Ian Huntley was convicted of the murders of Jessica Chapman and Holly Wells. It emerged that Huntley had been known to the authorities over a period of years, coming into contact with the police and/or social services in relation to 11 separate incidents involving allegations of criminal offences, between1995 and 1999. Nine of these were sexual offences. This was not discovered in the vetting check carried out by Cambridgeshire Constabulary when he was appointed caretaker of Soham Village College late in 2001.	31 recommendations

Recommendations	Relevant Text from Report
The report made a number of recommendations in relation to national IT database; procurement; investment in PNC; a code of practice re data input; sharing data; performance measurement; dealing with allegations of sexual offences against children, including notification, decision making, recording, inspection; training to reflect importance of safeguarding children; registration scheme and disclosure system; and clarification and improvement of the processes. In relation to interoperability the following are of note: **Doctrine**: code of practice; clear guidance **Operational Communication**: lack of integrated systems	Huntley repeatedly came to the attention of Humberside Police and Social Services, with numerous allegations of rape, sexual assault and underage sexual intercourse, but they failed to share information effectively with other agencies and each case was looked at in isolation. The failures in the way in which Humberside Police managed their intelligence systems led to information being lost without appropriate review, or not recorded at all. The poor quality of information available prevented Huntley's behaviour pattern from being identified soon enough. The problems in Humberside were, in the words of the Chief Constable, 'systemic

Shared Situational Awareness: Info Sharing: to enable stakeholders to access information held across boundaries **Training & Exercising**: for those with responsibilities in the system; subject to inspection and review to ensure its existence and effectiveness; part of selection and recruitment process	and corporate'… There was a failure to identify the problems over a period of several years, because of a lack of effective management audits and inspections to ensure that systems were working. Resource Levels - CRB was suffering general staff shortages, a shortage of fully trained staff, large volumes of work and staff absence

23. ICL Factory Explosion

Report	Terms of Reference	Summary	Number of Recommendations
The ICL Inquiry Report Lord Gill HC 838 SG/2009/129	Terms of Reference • To inquire into the circumstances leading up to the incident on 11 May 2004 at the premises occupied by the ICL group of companies, Grovepark Mills, Maryhill, Glasgow. • To consider the safety and related issues arising from such an inquiry, including the regulation of the activities at Grovepark Mills. • To make recommendations in the light of the lessons identified from the causation and circumstances leading up to the incident. • To report as soon as practicable.	On Tuesday 11 May 2004, at about noon, an explosion occurred at Grovepark Mills, Maryhill, Glasgow which caused the substantial collapse of the former Mill building. As a result, 9 people lost their lives and 45 people were seriously injured or exposed to the risk of death or injury. All but one of the fatalities occurred as a result of the collapse of the building rather than as a direct result of the explosion. The premises at Grovepark Mills were owned by ICL Plastics Limited and occupied by ICL Technical Plastics Limited (ICL Tech) and Stockline Plastics Limited (Stockline), all of them members of what I shall call the ICL Group. The ICL Group consists of seven privately owned limited companies. ICL Plastics is the holding company. ICL Tech and Stockline are two of the six operating subsidiaries. Most of the victims of this disaster were employees of one or more of these companies. The investigation established that the explosion was caused by the ignition of an explosive atmosphere that had formed in the basement area of the building.	The report recommended that there should be an Action Plan for all bulk LPG installations and industrial premises in the UK. The plan should be carried out in four phases: 1. Identify and replace underground metallic pipework 2. Establish a permanent and uniform safety regime (concurrent with first phase) 3. Continuing and planned development of safety regime 4. Permanent system by which safety questions will be reviewed and dealt with on an industry-wide basis, by which advances in knowledge will be communicated

Summary of Relevant Recommendation from Reports	Relevant Text from Report
The report made a number of recommendations specifically in relation to LPG. However, there are broader points which can be drawn: **Doctrine**: the complex state of the current legislative framework is a particular concern; the existing safety system was inadequate, and gave rise to significant risks;	The Police, the Fire and Rescue Service and medical teams promptly arrived at the scene. By 12.15 pm, the police had set up a control point at the site. By 12.30 pm the Police Incident Commander had declared a Major Incident, had put in place

lack of uniformity of practice in the demarcation of roles and responsibilities; inadequacies of risk assessment systems – compliance with statutory risk assessment provision gives only limited reassurance of safety; equipment: was not subject to any systematic inspection regime and maintenance, or data recording of inspection and maintenance **Communication:** lack of effective communication to users of the risks; a lack of effective sharing of knowledge of risks between users and suppliers; and a lack of prompt and effective notification of incidents; and the lessons to be learned from them, to other interested parties **Shared Situational Awareness**: there were weaknesses in the awareness and mitigation of risks; physical surroundings changed without any consideration being given to the implications for safety; lack of prioritised system of inspection by external bodies; and failure to ensure effective follow up inspections that have shown up risks **Training & Exercising**: insufficient training for inspectors of the safety system	arrangements for coordinating the rescue effort and had established security cordons… Hundreds of emergency service personnel from across the United Kingdom offered help, including the members of specialist rescue teams throughout Scotland and the north of England...The members of the emergency services who attended the scene showed outstanding professionalism and dedication. **Note – the following details were provided by the Police Incident Officer** On the morning of the explosion the police were hosting a major incident exercise, which meant that when the explosion occurred many were already gathered together. There was initial confusion and frustration about the need for limited specialist resources. The control of the media became very important. The Chief Fire Officer remained at the scene instead of attending gold command to respond to the media demands for information. Evidence gathering – after consultation with Procurator Fiscal and Health and Safety Executive there was agreement that the site would be plotted, rubble removed and sifted for the recovery of property and the security of evidence. 5000 Tonnes of rubble; 6 months to search; 1200 One Tonne bags of documentary evidence to search; Site Cleared in 6 - 8 weeks.

24. Boscastle Floods

Report	Terms of Reference	Summary	Number of Recommendations
Major Flooding at Boscastle & Surrounding Areas of North Cornwall 16th August 2004 A Multi Agency Report Sponsored by the South West Regional Resilience Forum	'To use the experiences of nominated representatives from agencies involved in the incident to conduct a review, in order to learn lessons from those experiences and to inform the process of developing improved future responses to other multi-agency incidents'	During the afternoon of Monday 16th August 2004, heavy rainfall in north Cornwall caused a flash flood in the village of Boscastle on the north Cornwall coast, within North Cornwall District Council's area of responsibility. The first rainfall was recorded above Boscastle at about 12.30 p.m., with heavy rainfall over a concentrated area falling for the next hours. It is estimated that 1,422 million litres of rain fell in just two hours, with some areas in North Cornwall recording 200+ mm of rainfall between 11.00 a.m. and 6.00 p.m. The River Valency, which runs through the centre of the small village, quickly became a torrent and overflowed. An estimated three-metre depth of water poured through the village, washing away cars, trapping residents and tourists and leading to a major rescue operation. About 200 people were rescued by the helicopters and others on the ground. There were only 8 minor injuries reported, and no-one is known to have died. However, damage to properties and infrastructure was substantial.	Action Plan with 7 key themes

Recommendations	Relevant Text from Report
Less successful aspects included: • There was a delay in the incident being declared and accepted by all agencies as a 'Major Incident' • Communications problems caused significant negative aspects during the initial stages of the emergency response • Initial ineffective integrated emergency management	The emergency response phase of this major incident was hampered in the early stages by problems with communications, both within responding agencies and between them….In brief, radio communications from the scene to the 'blue light' services' control rooms did not work until remedial measures were put in place several days later. This also applied to mobile phone communications with only one service provider with coverage at the scene.

• Initial ineffective co-ordination of media handling • Lack of resilience in ability to handle multi-site incidents Successful aspects included: • Multi-agency training • Implementation of emergency plans • Longer-term media management • Provision of public information • Solo contributions – personal initiatives • Longer-term effective combined response Recommendations: **Doctrine:** Introduce an 'index' of roles and responsibilities for each agency to increase awareness of capabilities; Produce a joint 'master' incident log that each agency could access – a possible move towards this interoperability is to design generic templates for joint use; assemble a master list of resources available, locally and regionally **Operational Communication**: Develop a cascade contact system, or group e-mail or other alerting system for major incident notification **Shared Situational Awareness**: improved networking for all local agencies; sharing expertise & better coordination **Training & Exercising**: Increase, or in some cases initiating, joint training at Gold or chief executive level; Extend the scope of joint training and exercises to include a wider range of agencies	Media coverage was extensive, the incident drawing local, national and international attention…the early lack of a co-ordinated response by emergency responders and the absence of a single point of contact at the scene led to inconsistencies and 'mixed messages'. An emerging theme at the debrief was the lack of multi-agency training and exercising at the strategic level. There is a clear need to equip local authorities with appropriate training and advice as to what their role and responsibilities are when co-ordinating other organisations and agencies in such testing circumstances.

25. Buncefield Oil Depot Explosion

Report	Terms of Reference	Summary	Number of Recommendations
Buncefield Major Incident Investigation Board Rt. Hon Lord Newton	Terms of reference 1 To ensure the thorough investigation of the incident, the factors leading up to it, its impact both on and off site, and to establish its causation including root causes. 2 To identify and transmit without delay to duty holders and other appropriate recipients any information requiring immediate action to further safety and/or environmental protection in relation to storage and distribution of hydrocarbon fuels. 3 To examine the Health and Safety Executive's and the Environment Agency's role in regulating the activities on this site under the COMAH Regulations, considering relevant policy guidance and intervention activity. 4 To work closely with all relevant stakeholders, both to keep them informed of progress with the Investigation and to contribute relevant expertise to other inquiries that may be established. 5 To make recommendations for future action to ensure the effective management and regulation of major	Early on Sunday 11 December 2005, a series of explosions and subsequent fire destroyed large parts of the Buncefield oil storage and transfer depot, Hemel Hempstead, and caused widespread damage to neighbouring properties. The main explosion took place at 06.01:32 hours and was of massive proportions. It was followed by a large fire that engulfed 23 large fuel storage tanks over a high proportion of the Buncefield site. The incident injured 43 people. Fortunately, no one was seriously hurt and there were no fatalities. Nevertheless, there was significant damage to both commercial and residential properties near the Buncefield site. About 2000 people had to be evacuated from their homes and sections of the M1 motorway were closed. The fire burned for five days, destroying most of the site and emitting a large plume of smoke into the atmosphere that dispersed over southern England and beyond. A major incident investigation was formally established by the Health and Safety Commission (now the Health and Safety Executive)1 under section 14(2)(a) of the Health and Safety at Work etc Act 1974. The investigation's eight terms of reference included identifying the causes of the incident; reviewing the Competent Authority's policies and procedures for regulating the Buncefield site; and making recommendations for future action.	A total of 78 recommendations were made

	accident risk at COMAH sites. This should include consideration of off-site as well as on-site risks and prevention of incidents, preparations for response to incidents, and mitigation of their effects. 6 To produce an initial report for the Health and Safety Commission and the Environment Agency as soon as the main facts have been established. Subject to legal considerations, this report will be made public. 7 To ensure that the relevant notifications are made to the European Commission. 8 To make the final report public.		

Summary of Relevant Recommendation from Reports	**Relevant Text from Report**
This report sets out recommendations to improve both planning for emergencies and the effectiveness of the response to emergencies at Buncefield-like sites and other high-hazard industrial facilities regulated under the COMAH regime. The areas of leadership, standards and guidance, and the timetable for implementation are three key areas for maximising the chances of preventing another incident like Buncefield. The report made a number of recommendations addressing design and operation of storage sites; advice to planning authorities; the roles of HSE and Environment Agency in regulating the site; and further work to understand the actual mechanism for generating the unexpectedly high explosion overpressures. Of particular interest here is the work stream on emergency preparedness for, and response to, incidents, and the recommendations made: **Doctrine**: operators should review emergency arrangements; audited by competent authority; who should also review existing COMAH guidance; plans to be updated, and	[In relation to] emergency preparedness and response, we called for joined-up leadership between industry, regulators, local authorities and emergency responders to achieve more effective arrangements. Such arrangements require substantial involvement by Government. Effective standards are those that are both authoritative and enforceable. But a number of approaches to achieve this are possible… Where standards and guidance need to be developed or overhauled there should be programmes agreed for the relevant bodies to take the work forward – while of course recognising that agreed timetables must be realistically achievable

audited by competent authority; Competent Authority & CCS integrate COMAH with CCA; Cabinet Office should review Lead Govt Arrangements to ensure continuity of government attention throughout; CCS should review guidance to responders to ensure appropriate scales of response at local, regional and national levels; plans should include welfare needs of responders; CCS to review use of air [scientific] data; CCS & DoH should clarify roles - local arrangements should be in place in advance to allow health agencies quickly who will do what; lessons learned should be put into place; Cabinet Office should confirm, formally, where Lead Ministerial Responsibility lies for recovery phase; Communities and LA review options for govt support without delay – including funding – responsibility of Lead Minister – should be monitored for effectiveness; HPA etc should agree a framework for continued coordination of health impact assessment and response after the acute incident response phase stands down; equipment - ensure suitable response facilities, such as control centre; review critical response resources and put in place contingency arrangements; plan should clearly demonstrate that adequate arrangements are in place between operator and [off site] service provider; Communities & LAs initiate assessment of need re national-level funding for specialist equipment etc; equipment availability to be reviewed nationally **Operational Communication**: review communication plan with community, form & frequency, dealing with complaints, and include joint communications with the local authorities; health [and other stakeholders] should provide local contact details to LA & LRFs…will ensure clear consultation routes; CCS review procedures and arrangements for deploying liaison staff to ensure effective communications between central government and SCG (should minimise demand but maximise efficiency) **Shared Situational Awareness**: The Environment Agency (in consultation with SEPA etc) should complete a review of methodologies for assessing potential harm…to improve information provided to aid planners. Should be aligned with Science & Technical Advice Cell (STAC); operators on sites with risks of large explosions – in consultation with F&RS should put in place mutual aid arrangements; to ensure that recovery plans dovetail – all relevant organisations are involved at an early stage **Training & Exercise**: operators to ensure relevant staff are trained and competent to execute plan; LA to ensure identify facilities, resources and actions critical to successfully respond…that relevant staff are trained and competent	

26. London Terrorist Attacks

Report	Terms of Reference	Summary	Number of Recommendations
Coroner's Inquests into the London Bombings of 7 July 2005 Lady Justice Hallett	Where a Coroner is satisfied that the evidence gives rise to a concern that circumstances creating a risk of other deaths will occur or continue to exist in the future, and is of the opinion that action should be taken to prevent the occurrence or continuation of such circumstances, she may report the circumstances to a person whom she believes has power to take action. [Lady Justice Hallett] announced in court on 11th March 2011 that [she] was proposing to make such a report under Rule 43 of the Coroners Rules 1984 ("the Rules").	Fifty two members of the public were killed as a result of four bombs being detonated on London's transport system on 7th July 2005 ("7/7"). The four men who detonated the bombs and therefore murdered the fifty two innocent people were Mohammed Siddique Khan ("Khan"), Shehzad Tanweer, Jermaine Lindsay and Hasib Hussain.	9 recommendations were made

Summary of Relevant Recommendation from Reports	Relevant Text from Report
The report falls into two sections: "Preventability" and "Emergency response" Preventability **Doctrine**: consider whether procedures can be improved to ensure that 'human sources' …are shown copies photographs of best quality; improvement in recording decisions in relation to the assessment of targets; Although considerable progress has been made over the last six years, each	I remind myself of the wise words of Megarry J (in a different context) in the case of Duchess of Argyll v Beuselinck [1972] 2 Lloyd's Rep 172. At page 185 (col. 1) he said this: "In this world there are few things that could not have been better done if done with hindsight. The advantages of hindsight include the benefit of having a sufficient indication of which of the many factors present are important and which are unimportant. But hindsight is no touchstone of negligence"

organisation has accepted that there are lessons to be learnt from 7/7 and improvements to be made…However, despite substantial progress, there remains more that could and should be done. Emergency Response: It is surprising that, making all allowances for the inevitable confusion and chaos at the beginning of a major incident, the Network Control Centre was not sure of the facts earlier. To meet these competing demands the Network Control Centre needed to receive, assimilate and disseminate information effectively. However in July 2005 operators in the Centre passed information by word-of-mouth and recorded it on a handwritten log. This meant that operators were distracted from answering calls and, therefore, were not kept updated with relevant information. The information they did receive was not communicated to others in a timely and effective fashion…such issues now addressed by the implementation of new technology…[but] the evidence indicated that there was a lack of adequate information sharing between emergency services and TfL's control rooms 1. Network Control Centre was overly dependent on BTP to act as liaison with other emergency services 2. No rep of London Underground at the Gold meeting at New Scotland Yard…because the NCC was unaware it was taking place 3. CentreComm (TfL's control room for its subsidiary, London Buses Services Ltd) was unaware until 0953, after the explosion on the number 30 bus, that the incidents on the Underground may have been the result of terrorist attack While all the emergency services struggled to some extent to cope with the sheer volume of radio and telephone calls, the evidence suggests that the difficulties experienced by the LAS's Central Ambulance Control were particularly pronounced….also delay in setting up Gold Control The evidence demonstrates, therefore, a need for a review of the extent and scope of inter-agency training. Such training is vital in helping to reduce confusion and in fostering a better understanding of the emergency services' respective roles….	Liaison: between the Security Service and the various police forces has changed beyond recognition and brought considerable benefits. Bombs Detonated: A certain level of chaos is inevitable but one of the main functions of the first responders is to create order out of such chaos. Two questions dominated – what had happened and where had it happened? Answering these questions was problematic for three reasons. First, the location of the three explosions in the tunnels meant that there were limited eye witnesses as to what had occurred. Second, communications in the tunnels were limited. Third, the widespread disruption caused by the explosions resulted in an avalanche of incoming calls overwhelming radio operators and causing congestion on all radio and telephone communications. The protocols and procedure in place between the police forces for managing 'cross-jurisdictional' incidents were applied effectively. The confusion and chaos at each of the bomb scenes provides the relevant context for analysing and assessing the emergency response. At any major incident, the speed at which order is brought to bear is integral to its effective management. [GSB] On 7/7 such command structures were effectively not in place until close to, or after, the 'golden hour' (the initial response stage) had passed…The importance of effective inter-agency liaison and good communications at the earliest opportunity should not be under-estimated. The 7th July 2005 Review Committee concluded that communications within and between the emergency services 'did not stand up on 7 July'. The evidence revealed not merely failings in the communications systems then in place, but some basic misunderstandings between the emergency services as to their respective roles and operations, for example, failure by some emergency personnel to appreciate and understand the obligation on the part of the first LAS staff in attendance to act as ambulance incident officers as opposed to becoming involved in the treatment of casualties.

[extensive interagency training at Gold & Silver but] considerably less inter- agency training available for those 'frontline' members of the emergency services tasked with responding to the initial chaos, carnage and confusion of a major incident Recommendations grouped under interoperability headings: **Doctrine**: review protocols by which TfL (i) is alerted to MI declared by the emergency services that affect underground network, and (ii) informs the emergency services of an emergency on its own network; TfL & London Resilience Team review procedures by which (i) a common initial RVP is established, and its location communicated to all arriving emergency services (ii) the initial RVP is permanently manned by an appropriate member of London Underground; TfL & LRT review procedures by which confirmation is sought on behalf of any or all of the emergency services that the traction current is off, and by which that confirmation is disseminated; LAS, together with the Barts and London NHS Trust (on behalf of the LAA) review existing training in relation to multi casualty triage (ie the process of triage sieve) in particular with respect to the role of basic medical intervention; the Department of Health, the Mayor of London, the London Resilience Team and any other relevant bodies review the emergency medical care of the type provided by LAA and MERIT and, in particular (i) its capability and (ii) its funding; that TfL (i) reconsider whether it is practicable to provide first aid equipment on underground trains, either in the driver's cab or at some suitable location, and (ii) carry out a further review of station stretchers to confirm whether they are suitable for use on both stations and trains **Operational Communication**: integrate BTP systems & other forces; the declaration of MI and Network Code Amber/Code Red **Shared Situational Awareness**: Initial Rendezvous Point: Fennell recommended that RVPs be introduced for the emergency services at all London Underground stations... as a result of there being no one common rendezvous point on 7/7 at which all emergency responders might liaise, the emergency services encountered real difficulties in locating each other's initial responders; 'dynamic risk assessment'…risk assessments and decisions may have to be revisited as protocols are overtaken by events; consider it is desirable that the LESLP should consult LAA and thereby recognise and harness their expertise in the emergency planning process	There was evidence of a lack of communication between incident commanders on the surface and those in the tunnel, of the lack of proper contact between King's Cross and Russell Square stations, and of how one senior commander was unaware of the location of the Joint Emergency Services Control Centre, set up on platform 8…Fennell recommended (King's Cross Inq) 'the emergency services shall review the exchange of information between themselves and London Underground during an incident, both at their controls and at the site'. The use of 'plain English' was highlighted but not subject of a recommendation Lady Justice Hallett had been invited to make a recommendation in relation to: the training of civilian paramedics in connection with bomb blast trauma; covering of bodies; invasive post-mortems and LAA ('HEMS')/Medical Emergency Response Incident Teams ('MERIT'). She made no recommendations in relation to these matters.

Training & Exercising: review provision of MI training for frontline staff	

27. Stockwell Shooting

Report	Terms of Reference	Summary	Number of Recommendations
Inquest into the death of Jean-Charles de Menezes (2009) Sir Michael Wright	It is the purpose of this Report to identify points of concern, not to prescribe specific solutions. That is best done by those who have the difficult task of overseeing policing in general and anti-terrorist operations in particular. This Report addresses the practices in use in July 2005.	Mr deMenezes was shot and killed by officers of the Metropolitan Police at Stockwell underground station on 22 July 2005, having been mistaken for one of those who had attempted to detonate suicide bombs on the London transport network the day before. The office of the Metropolitan Police Commissioner had been tried and convicted of a breach of health and safety legislation in 2006. That trial, and the investigations of other bodies such as the Independent Police Complaints Commission and the Metropolitan Police Authority, had revealed a series of organisational and individual failings that led to Mr de Menezes' death.	8 substantive recommendations

Summary of Relevant Recommendation from Reports	Relevant Text from Report
Doctrine: 1. Command Structure: The Command Structure adopted for the operation on 22nd July 2005 was repeatedly criticised as lacking clarity and being open to misunderstanding • The MPS might usefully review the command structure and the Manual, and consider whether there can be further clarification of the continuing role played by the Gold Commander after setting his strategy. • Maintenance of chain of command (nominating interim replacements) • Designated Senior Officer: in all cases, it is important that all officers should know (i) when the DSO becomes involved in commanding an operation and (ii) precisely what command role he performs. Is the DSO to assume command from the start, or only to step in when an armed intervention is required? **Operational Communications:**	MPA Response: Command Structure Our discussions with the MPS confirm that some changes have been made in response to your report and the recommendations we made last year, in particular the term DSO is no longer in use. However, progress has been slow. Communication System The Authority remains concerned about the capacity of Airwave to cope in a major incident Rules of Engagement & Code-words We are confident that the

2. Communication Systems: a number of particular concerns arose including: • Radio operation & maintenance (resulting in impromptu relay systems and running repairs during operation) • Radio coverage above ground (radio black spots meant officers resorted to mobile phones limiting information delay and dissemination) • Radio coverage underground (none of the systems worked underground) • Communications between teams (including effective comms between teams from different branches of MPS, control room, firearms & surveillance teams) • Language: terminology confused rather than clarify 3. Radio Discipline: • Speaker did not identify himself • Acknowledging messages: was not required **Shared Situational Awareness**: 4. Location Information: command team must have accurate information about the location under surveillance • Maps in control room • Use of maps to assess surveillance plot • Transferring imagery • Tracker technology 5. Identification: failure to obtain and provide better photographic images of suspect (See also London Bombings): • Terminology – to indicate level of confidence with which a particular id is made • Use of photographs – officers should take photographs unless situation dictate otherwise • Provision of photographs – how other agencies can be contacted to obtain photos quickly; provision of guidance on reviewing related operational files; guidance re use of photos from crime scenes • Transmission of photographs – electronically could be valuable (to & from	MPS has learnt lessons in this area from 22nd July 2005…In our view, it is the clarity of command that is important, not necessarily the words used. Surveillance/Firearms Officers We have been updated on the progress being made to develop better working relationships between firearms and surveillance teams, including joint training Exercises…We will be seeking regular progress reports to ensure that these concerns are being addressed. Miscellaneous Issues The MPA echoes your concerns about the weaknesses in record keeping and in some respects this reflects concerns we raised about whether control rooms were fit for purpose. There has been considerable investment in the control room environment since 2005, so that activity can be properly recorded. As you note in your report, the MPA raised serious concerns about the practice of police officers writing up their notes together after a serious incident and our report made several recommendations in this area. The MPA does recognise that some progress has been made, largely as a result of changes to the ACPO guidance in this area, and in a recent shooting in Romford, the new guidance was successfully followed. Nevertheless we still have serious concerns firstly about whether there are processes in place to ensure that compliance can be audited and secondly that the guidance only applies to death and serious injuries involving police officers.

control room/surveillance teams) 6. Rules of Engagement & Code Words: • Provide criteria, link to id level, devise practical training • Use a system of code-words to take particular action • Communication of intelligence – to those on the ground who should be kept informed **Training & Exercising**: 7. Surveillance/Firearms Officers: • Joint Briefing & Joint Training Operations If possible) • Awareness of other officers: teams to be made aware of each other's presence • Training of Surveillance Officers (to perform stop of suspected suicide bomber) **Doctrine:** 8. Recording of briefings and control room activity (consider recording important discussions/operations) 9. Preparation Notes/Statements – as soon as practicable and with conferring	

28. Carlisle Floods

Report	Terms of Reference	Summary	Number of Recommendations
Carlisle Storms and Associated Flooding: Multi-agency Debrief Report (2005)	To identify the strengths and weaknesses of the emergency response to the 2005 Carlisle storms, and to identify actions required to enhance the response to any future incident in Cumbria.	Storms and flooding affected Carlisle in January 2005, resulting in storm and flood damage in many areas. Flooding affected 2,700 homes. In Carlisle three people died, 1,844 properties were flooded and there was significant disruption to residents, businesses and visitors. The cost of the flooding was estimated at over £400 million. The flooding followed prolonged heavy rain, and was caused by a combination of floodwater from the Rivers Eden, Pettereril and Caldew and localised flooding from sewers and road drainage.	48 recommendations; formed an action plan

Summary of Relevant Recommendation from Reports	Relevant Text from Report
The issues were gathered under a series of headings: • Pre-alert and alert stage • Functioning of Gold and Silver command • Responders • Communications and information for decision makers • Co-ordination of resources • Public information / media • Business continuity • Planning, exercises and training **Doctrine:** stakeholders to review information gathering and warning procedures; ensure welfare support for responders; recording & coordinating evacuees & property searched; funding responsibilities to be clarified; review reception centre plans & use technology, if possible; management of volunteers and assistance; all stakeholders to identify critical infrastructure and ensure BCM; including resource deployment capability; consider alternative locations for command facility; review BCM arrangements	The recommendations in the report will be taken forward by the Cumbria Resilience Forum… Support in delivering the recommendations will be provided by regional and national organisations where necessary. Pre-Alert/Alert Stage: Providing the earliest possible warning of the timing and scale of severe weather and flooding is essential to enable responders to activate emergency plans and put resources on standby. Command Structure: Some differences in organisational culture did become apparent (e.g. some organisations wanted to follow the emergency response plan, deviating from it only where absolutely necessary, whilst others adopted a more flexible approach to its use), Some organisations recognised they would have difficulty in providing full 24/7 cover in Gold command, and this was recognised, in some instances, as a barrier to developing a clear picture of what work was being progressed on the ground at any point in time.

Operational Communication: audio voice messaging used to warn public; close media relations; ensure comms & back up plans fit for purpose; use of media outlets for public messages; ensure capacity to deal with media surge during Major Incident **Shared Situational Awareness**: improve access and provision of info between responders; maintain close and effective arrangements; ensure comprehensive membership; awareness raising to improve understanding of roles, and capabilities; media liaison mutually beneficial **Training & Exercising**: voluntary sector on C&C response structure; suitable scenarios (e.g. severe weather); full attendance/representation from stakeholders; through to recovery phase; sufficient resources for protracted incident	The loss of the Civic Centre due to flooding meant that the nearest Emergency Control Centre could not be activated as the County Plan required upon declaration of a major incident… Issues were faced with the absence of a power supply to Silver, and with a temporary power cut at Gold but the back-up generators enabled normal service to continue. Lack of knowledge about the role and capabilities of [some] organisations may mean they are not utilised to their full extent. Communication: between Gold and Silver command were not good…[and comms] between emergency services on the ground were also hampered by the lack of a common radio system The availability of information (location maps, photographs, etc) about organisations' critical infrastructure (e.g. the electricity sub-station at Willowholme) would also have been helpful in prioritising work programmes A lack of clarity was noted around who is responsible for ordering and organising transport to take evacuated people from the "beaching points" to the reception centres. Training & Exercises: it was noted, that there had been poor uptake from other agencies on exercises previously organised by the Local Authorities

29. Hull Floods

Report	Terms of Reference	Summary	Number of Recommendations
The June 2007 floods in Hull Final Report by the Independent Review Body 21st November 2007	To enquire into, examine, and form an initial view on the factors which contributed to or exacerbated the flooding of particular areas of the city on this occasion, and affected the nature and scale of the damage and disruption caused by the resulting flood waters. To list comprehensively and make clear recommendations on practical actions which should be taken, by each, and all, responsible agencies, to improve flood prevention and response in Hull, in any such future situation of this kind.	In June 2007, the city of Kingston upon Hull experienced unusually high rain fall. Over 8600 households (20 000 people) were affected by the June 25th 2007 floods. Of these 6 300 people were forced to live in temporary accommodation with over 1 400 people in caravans.	34 recommendations

Summary of Relevant Recommendation from Reports	Relevant Text from Report
The report set out recommendations in relation to the inspection of potentially flooded properties; insurance premiums & methods of underwriting flood risk; upgrading water facilities & capacities; improving design of water facilities while increasing contingency capability; mandatory industry standards; investment by water company operators; improved regulatory powers; review of planning & development in flood areas. In relation to interoperability, the following are of interest: **Doctrine**: integrate community & tenant associations into local emergency plans; supportive measures to minimise schools disruption; better integrate community & voluntary sector; pluvial flooding Emergency Planning taken as matter of urgency; area	Schools were especially badly hit in Hull, with only 8 out of 99 schools unaffected by the flooding… over 114 000 pupil days were lost The floods in 2007 were severe, and some flooding was perhaps inevitable. However, as many properties in Hull were only flooded by a few centimetres of water (or less), we conclude that had the recommendations offered since 1996 been followed, some properties in Hull would not have been flooded. Providing accurate information, both between agencies and to the public, increases the effectiveness of all emergency efforts. The Humber Local Resilience

based EP & incorporated into City's overall emergency planning; retrofit vital social infrastructure (e.g. schools) to flood proof; adaptive strategies of living with threat of flooding (e.g. infrastructure changes); necessary equipment & resources allocated & centrally coordinated **Operational Communication**: 2nd command centre designated, equipped & maintained; awareness campaign; clear written advice and information; well executed campaign to inform & educate; consider appropriate communication methods **Shared Situational Awareness**: maintain database to effectively assess risk, and share data whenever possible; strategy; monitoring - independent & rigorous review; performance & operations of water company in public domain **Training & Exercising:** staff with requisite skills & experience pre-designated & trained; consider community training events	Protocol 'Communicating with the Public' should be completed, providing clarity of responsibility and widening participation with appropriate resources made available Internally the Council should review its business continuity plan including communications staff being assigned a given role with training. The responsibility for the lead role for storm and other events needs to be confirmed perhaps with a presumption for the Emergency Services to take initial responsibility due to their greater resources.

30. Pitt Review (UK Floods)

Report	Terms of Reference	Summary	Number of Recommendations
Summer Floods of 2007 Sir Michael Pitt	The Review should be wide-ranging and consider all available evidence on the flooding that occurred in England during June and July 2007, its impacts and what this means for the future. It should hear from those involved at the local, regional and national level, including the public, their elected representatives, public organisations, businesses, the farming community and professional associations. The Review should focus specifically on issues around: a. Flood risk management, including the risk posed by surface water flooding and the way in which the public and private sectors might adapt to future risks. b. The vulnerability of critical infrastructure, including: i. The ability of critical infrastructure to withstand flooding, and what improvements might be made. ii. The resilience of dams and associated structures, and what improvements might be made. c. The emergency response to the flooding, including social and welfare issues.	During the summer of 2007 flooding was exceptional. It was the wettest summer since records began, with extreme levels of rainfall compressed into relatively short periods of time. 55,000 properties were flooded. Around 7,000 people were rescued from the flood waters by the emergency services and 13 people died. There was the largest loss of essential services since World War II, with almost half a million people without mains water or electricity. Transport networks failed, a dam breach was narrowly averted and emergency facilities were put out of action. The insurance industry is expected to pay out over £3 billion – other substantial costs were met by central government, local public bodies, businesses and private individuals.	92 recommendations

	d. Issues for wider emergency planning arising from the actual or potential loss of essential infrastructure. e. Issues arising during the transition period from the response to recovery phases. f. Issues arising during the recovery phase. The Review should build on previous reviews of the response to serious flooding events, other relevant reports and policy developments including making best use of resources and maximising value for money.		

Summary of Relevant Recommendation from Reports	**Relevant Text from Report**
There were a number of recommendations in relation to: flood standards, forecasting techniques, planning regulation, investment, insurance; legislation; sewerage systems, long term health care. In relation to interoperability the following are of note: **Doctrine:** prioritise programmes to help society cope; Environment Agency should be national overview of all flood risk; other stakeholders to collaborate; Government to publish national framework and guidance; public education programme; extend BCP duty to CI Cat 2, annual benchmarking exercise; Government should issue clear guidance on expected levels of Category 2 responders' engagement in planning, exercising and response and consider the case for strengthening enforcement arrangements; establish a programme to support and encourage individuals and communities to be better prepared; LA should establish mutual aid agreements; Upper tier local authorities should be the lead responders in relation to multiagency planning for severe weather emergencies; the police, unless agreed otherwise locally, should convene and lead the multi-agency response; Gold Commands should be established at an early stage on a precautionary basis	"In terms of scale, complexity and duration, this is simply the largest peacetime emergency we've seen." – Chief Constable Tim Brain Currently, no organisation is responsible for overseeing and planning for surface water flooding… The Environment Agency's proposed strategic overview role means that it will be better placed to provide a warning system to cover surface water flooding. Inaction on local flooding is exacerbated by unclear ownership and responsibilities. Many of the people affected by the events of summer 2007 did not know who to turn to and their problems were passed from one organisation to another. …The majority of submissions agree that a single unifying act with 'clear responsibilities and obligations' is a good idea. .."There is much confusion between partner agencies and the public." Information Provision - Organisations with responsibilities for informing and

Operational Communication: Local Resilience Forums should continue to develop plans for door-knocking, coordinated by local authorities; The Met Office and Environment Agency should urgently complete the production of a sliding scale of options for greater personalisation of public warning information; Local authority contact centres should take the lead in dealing with general enquiries; The Cabinet Office should provide advice to ensure that all Local Resilience Forums have effective and linked websites; Council leaders and chief executives should play a prominent role in public reassurance and advice through the local media **Shared Situational Awareness**: Environment Agency should provide specialised site specific flood warning; Met Office & EA should issue warnings against lower thresholds to increase preparation lead in times; Met Office & EA should issue joint warnings; EA should make relevant flood visualisation data…available online for Gold and Silver Commands; EA work with partners to progressively develop and bring into use flood visualisation tools to meet needs of flood risk managers and emergency planners and responders; Relevant government depts. and EA should work with infrastructure operators to identify vulnerability and risk of assets to flooding; Government & infrastructure operators to work together build resilience **Training & Exercise**: A national flooding exercise should take place at the earliest opportunity in order to test the new arrangements	warning the public must also improve their performance. There are weaknesses in the system. Responsibility is split between agencies, notably the Met Office and the Environment Agency. During the floods, people experienced the effects of the lack of joined-up communication across these agencies. Response Frameworks - Mutual aid arrangements enabled local organisations engaged in the emergency response to seek urgent support from other parts of the country. ..well-established and effective arrangements already exist for the provision of mutual aid between police forces and fire and rescue services…However, there were few structured arrangements for mutual aid beyond these organisations The activation of COBR in July 2007 was welcomed by Gold Commands, and played an important role. Departments felt that the response during July was better coordinated and more focused than during June 2007. This experience points to earlier activation of COBR on a precautionary basis in the future in the event of serious flooding Better Planning through Information Sharing - The information available was at best inconsistent, and at times unavailable. Agencies were severely hampered in their ability to respond quickly as events unfolded Better advice - During the summer 2007 floods, the public were confused by the numerous sources of information relating to flood mitigation measures, health advice, and actions to take before and during flooding. Not only did the multiple sources mean that people did not know where to look for advice, but the information given was often inconsistent. Roles and responsibilities during Recovery - Clarity over roles and responsibilities is crucial to the effective management of recovery. …Outcomes were most successful where there was clear leadership, where roles and responsibilities were understood, and where local authorities worked systematically with communities. However, there were inconsistencies in the approaches taken Recording and reporting - generated the requirement for effective information flows to a wide range of national, regional and local organisations…. This created

	a bureaucratic burden, particularly for local government

31. Influenza Pandemic

Report	Terms of Reference	Summary	Number of Recommendations
The 2009 Influenza Pandemic: an independent review of the UK response to the 2009 influenza pandemic (2010) Dame Deirdre Hine DBE, FFPH, FRCP	To review the appropriateness and effectiveness of the UK strategy for responding domestically to the H1N1 pandemic, given the information and knowledge available at each stage; and To make recommendations to update and refine planning for any future influenza pandemic.	The UK government and devolved administrations have been preparing for an influenza pandemic for some years – a pandemic that might kill many thousands of people and have a severe impact across the UK. The H1N1 pandemic which emerged in 2009 turned out to be a relatively mild illness for most of those affected, though it must not be forgotten that for some people its effects were very serious. Sadly, 457 people are known to have died during the pandemic in the UK as of 18 March 2010. In accordance with common practice, a review was established to learn lessons from the UK response to the pandemic.	28 recommendations

Summary of Relevant Recommendation from Reports	Relevant Text from Report
The recommendations presented were recognition of the aim to improve systems and the way in which services are planned and delivered. Recommendations were made in relation to: central government response; scientific advice; containment; treatment; vaccine; and communication. In relation to interoperability, the following recommendations are of note: **Doctrine:** (worse-case v most likely outcome) how to ensure response is proportionate, and how it will guide decision-making; enshrine 4 nation mechanism in CONOPS; appropriate planning assumptions (deaths) linked to other mass fatality arrangements; process for unified scientific advice; appropriate use of public planning assumptions/scenarios; JCVI and SAGE roles in reporting to central emergency meeting – mechanism; more flexible evidence based approach to triggering actions & clear guidance; balance between local flexibility & UK wide public confidence; agreed triggers & stand down – National Framework; incorporate lessons from Swine Flu;	[Report] does not focus on the operational responses to the pandemic in each of the four countries. [it] identifies the lessons to be learned rather than one that second guesses the decisions made during the response…responsibility to use hindsight sparingly. The UK's current central government crisis management arrangements have been in place since 2002, and have been tested in various crises and exercises and refined through those experiences…During the H1N1 pandemic, central government's crisis management arrangements effectively supported and facilitated decision-making in an atmosphere of considerable uncertainty and pressure. The Cabinet Office played a key role in driving decision-making, balancing views and ensuring strong co-ordination. In order to further enhance scientific advice in future pandemics, ministers and

advanced purchase agreements; scenario planning re vaccination strategies; commission rapid implementation programme with officials pre-placed **Operational Communication**: release of government scientific advice/briefings; explore … core response measures; clarity of message – some language unclear & caused confusion; proactive and wide communication strategies (inc social media); proactive & accurate communication approach; potential use of direct clinical advice (phone/internet) **Shared Situational Awareness**: methods to measure & surveillance; balance of contribution; 4 Health Ministers should meet at least once a year and officials more regularly; technological support to ensure remote conferencing; build relationships (DoH & various subgroups/committees/policy & communication teams; independent evaluation … value for money, risk analysis and any potential for wider application **Training & Exercising**: sufficient resilience in key roles for protracted incident; re use/effectiveness of scientific advice; include 4 nation mechanism in exercise programme	key officials should be briefed on the strengths and weaknesses of the likely available information… The transparency of scientific advice should be maximised to build confidence and trust The containment phase of the response lasted for longer and consumed more resources than had been anticipated by those responsible for its implementation A national strategic approach can and should be compatible with increased subsidiarity and therefore increased variation according to circumstances; triggers agreed and understood on a UK-wide level could be applied flexibly in different geographical areas on the basis of local circumstances [High level of public awareness and understanding] supports an effective response by promoting preventative strategies Although communications materials were in general good, certain terms used during the pandemic were unclear and caused confusion Government media briefings succeeded in keeping the media informed and engaged, helping reporting to remain largely accurate and removing space in which more speculative and alarmist stories could develop

32. Derrick Bird Shootings

Report	Terms of Reference	Summary	Number of Recommendations
Operation Bridge: Peer Review into the Response of Cumbria Constabulary following the actions of Derrick Bird on 2nd June 2010 ACC Chesterman West Mercia Police	On behalf of the Chief Constable of Cumbria Constabulary, conduct a Peer Review into the circumstances surrounding Cumbria Constabulary's response to Operation Bridge in West Cumbria on Wednesday 2nd June 2010. To consider policing issues arising there from, and any lessons which can be learned by Cumbria, the region or nationally and, to make such recommendations, as may seem appropriate.	Derrick Bird went on a shooting spree. The report was commissioned following the tragic events of 2nd June 2010 during which 12 innocent members of the public lost their lives and a further 11 people were seriously injured, at the hand of Bird. In addressing the Terms of Reference there were two key questions to be considered, these were: • Could this incident have been prevented before it started? • During the incident, could more have been done to stop Derrick BIRD any sooner?	This report makes 15 formal Observations and 9 Recommendations. Note. While the Observations relate to Cumbria Constabulary; the Recommendations should lead to improvements in [wider policing] policy or professional practice.

Summary of Relevant Recommendation from Reports	Relevant Text from Report
Two of the observations are of high national importance. Observations: **Doctrine**: police interoperability with ambulance service (differing risk thresholds); use of specialist negotiator; priority to stop Bird rather than render first aid; re-examine existing standard operating procedures and interoperability (re provision of air support) – helicopters used in casualty evacuation ambulance have a pivotal role; re-assess its position on overt carriage of firearms by ARVs **Operational Communication**: Airwave police radio networks was very nearly overwhelmed; recognised duty to inform public and used multiple media including sky shouts from helicopter – also resulted in route being deserted; informing ARVs of tactical options is good practice; reinforce command protocols to ensure commander is	The only incidents within the whole of the UK which would compare with the events in Cumbria on the 2nd June 2010 were those which occurred in Hungerford on the 19th August 1987 and Dunblane School on 13th March 1996. This Peer Review has highlighted areas of weakness, for example, a lack of clarity of command in the early stages of the response and the immediate availability of armed police officers in West Cumbria. The Review Team is unable to conclude that had these areas of weakness not been present, that Derrick BIRD would have been stopped any sooner. The concept of 'professional discussions' was created to ensure that were not only able to obtain facts but were able to establish the feelings and emotions that were present within the various departments that collectively worked to

clearly defined; ensure appropriate communication links in place between the force's 2 control rooms; consider UK nationally recognised call-signs Recommendations: **Doctrine**: review deployment of ARVs (re challenge of geography and road network); designated firearms commander start of each tour of duty; CNC adopt glossary of terms and tactical options used by Home Office Forces; contemporaneous recording of decision making (use of loggist or dictaphone); call sign structure that enables identification of role, geographic location, and whether armed **Operational Communications**: Suite suitable for Tactical Firearms command; complete Automatic Resource Location System **Shared Situational Awareness**: need for access to intelligence resources weekends and evenings **Training & Exercising**: instigate a process of monitoring the accreditation retraining of all Firearms Commanders to ensure that all accreditation remain current	stop Derrick Bird from his offending. Radio being overwhelmed became more acute when armed officers from external forces deployed to Cumbria as they were unable to access the local channel Within 1 hour, 30 armed officers deployed and officers showed bravery in actions taken