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Accident investigation in another industry

RAIB – Rail Accident Investigation Seminar

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Investigating clinical incidents

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Essay

Learning from failure: the need for independent safety investigation in healthcare

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Tragedies are powerful motivators for learning and improvement. The only honourable response to the victims is to try to ensure that similar tragedies are not repeated in the future. In the NHS the report that led to the National Reporting and Learning System was entitled 'An Organisation with a Memory' precisely because of the ambition to capture the learning inherent in tragic incidents.[1] The recent Berwick review into patient safety in the NHS similarly speaks of 'A Promise to Learn' but also, tellingly, of a 'Commitment to Act'.[2] We clearly need a capacity for intelligent, thoughtful reflection on the causes of tragic events and, still more, a capacity for using this hard won knowledge to build a safer healthcare system. In this paper we suggest that this would be most effectively achieved by the creation of a small, permanent independent agency charged with coordinating major inquiries and safety investigations in the NHS. Such a model, if successful, could be applied in other healthcare systems.

Safety investigation in the NHS

The NHS currently has no consistent approach to investigating and learning from safety issues. There is a smorgasbord of approaches to investigate and address systemic safety issues at various levels of the healthcare system with little apparent consistency, logic or strategy underlying their design or execution. These span locally managed independent investigations, commissioning and regulatory investigations, rapid reviews, service reviews and independent and public inquiries (see online supplemental file for details and examples).

Individual NHS trusts conduct large numbers of investigations into serious safety incidents, sometimes with the assistance of external advisers. These investigations can lead to important local safety improvements, particularly when linked to a broader safety strategy. However, the scope of these investigations is necessarily focused on a specific trust. With occasional exceptions,[3] local investigations rarely encompass the wider systemic factors that can contribute to serious failures of care, such as ambiguous regulatory requirements or inappropriate commissioning.

Regulators, commissioners, and other NHS and professional bodies all conduct their own different forms of safety investigation. These provide important insights into patient safety from the perspective of the agency involved.[4] However, these investigations are necessarily conducted by organisations that may themselves inadvertently contribute to the emergence of system-wide safety issues and recommendations from these inquiries tend to focus on punitive sanctions, regulatory enforcement and performance management.

At a national level efforts to learn from major tragedies take a variety of forms. The most high-profile approaches are independent or public inquiries, such as those into the failures of care at Mid Staffordshire NHS Foundation Trust.[5,6] Inquiries can have considerable impact and provide much-needed public explanation after terrible events.[7] However, each one starts afresh and determines its own unique approach rather than building on systematic and established methods of safety investigation.[8,9] Inquiry teams are short-lived and are dissolved once the report is complete; they therefore have no capacity to independently review progress against recommendations. And the legal orientation of independent and public inquiries is not well suited to developing strategies for improving safety. In practice the question of building a safer system may only be given serious consideration late in the process. Public inquiries appear to spend 90% of the time examining what happened and 10% of the time considering the future, arguably this allocation of time and resources should be reversed.

Investigation in safety-critical industries

Safety-critical industries such as aviation, shipping and the railways all face the risk of major failures

"In this paper we suggest that [learning] would be most effectively achieved by the creation of a small, permanent independent agency, charged with coordinating major inquiries and safety investigations in the NHS."

Independent inquiries

- Each start afresh and determine own unique approach
- Teams are short-lived and dissolved once the report is complete
- No capacity to review progress against recommendations
- Rare, costly, conducted years after the events occurred, no capacity to drive organisational change

Investigations in other industries

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AAIB
Air Accidents Investigation Branch

1915 1912 Brooklands Flanders monoplane crash

MAIB
MARINE ACCIDENT INVESTIGATION BRANCH

1989 1987 Herald of Free Enterprise (193)

RAIB
Rail Accident Investigation Branch

2005 1999 Paddington rail crash (31/520)

Healthcare?

HSIB team (national)

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- Functionally independent
- 12 investigators: clinical, air accident, military, **human factors**
- 3 Principal National Investigators
- Up to 30 investigations per year
  - 1.8m+ reports on NRLS
  - 24,000+ serious incident reports
- Improving the standard of investigations across the NHS

Expanded remit

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- In November 2017, the Secretary of State for Health and Social Care announced a new maternity safety strategy detailing plans for HSIB to undertake **~1000** independent safety investigations
- The investigation element is part of an overall strategy to improve maternity safety
- A maternity implementation team was set up to develop the approach, methodology, and recruit investigation teams
- Programme roll out began in **April 2018**, with full national coverage by **April 2019**

Researching potential risks

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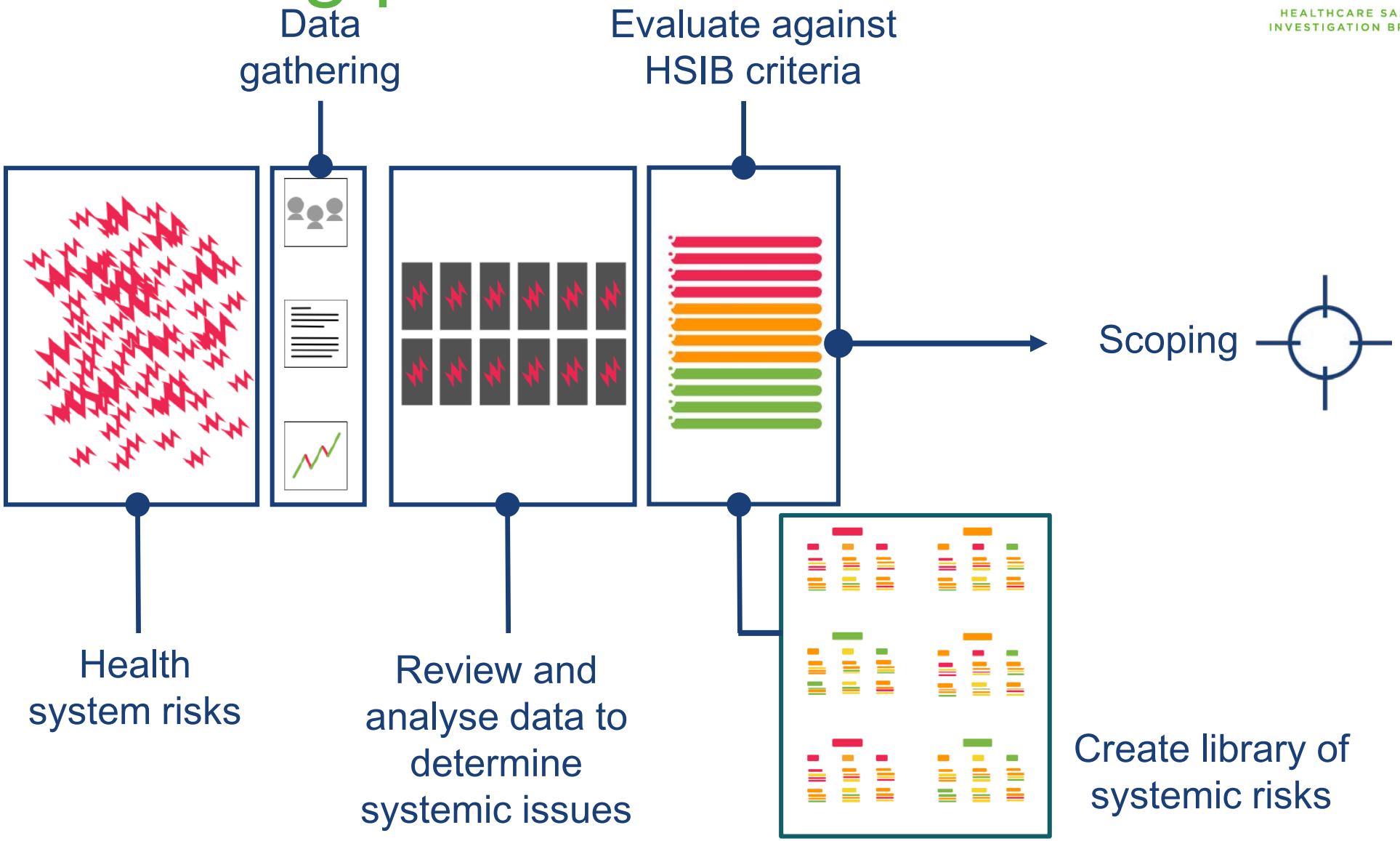

HSIB criteria

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Outcome Impact

- **People:** physical, psychological, loss of trust
- **Service:** quality and reliability, capacity and capability
- **Public:** confidence, political attention, media profile

Systemic Risk

- **Systemic safety deficiency:** range of care settings; geographic/specialist spread; scale through system structures; complexity of interactions
- **Dormancy period:** time taken to identify risk; route of discovery
- **Persistence and expansion:** Permanence; potential for escalation and spread

Learning Potential

- **Potential for increased knowledge:** new knowledge; gap in current knowledge;
- **Potential for systemic improvement:** opportunity to positively influence system, practices, safety culture
- **Practicality of action:** feasibility of conducting effective investigation; practicality of issuing influential recommendations
- **Value of intervention:** adequacy and scope of safety actions by others; potential to develop HSIB capacity and capability

Investigation principles

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- System wide safety issues
- Systems, not individuals
- Insights from **human factors** science
- A Just Culture approach
- Safe Space principles
- Learning from near misses as well as serious harm

HSIB investigations

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July 2017	Cardiac and vascular pathways
Sept 2017	Provision of mental health services in the ED
Oct 2017	Recognising and responding to critically unwell patients
Nov 2017	Wrong route administration of an oral drug into a vein
Nov 2017	Insertion of an incorrect intraocular lens
Jan 2018	Safe delivery of oxygen
June 2018	The primary management of acute onset testicular pain
Aug 2018	Button battery ingestion
Sept 2018	Communication and follow up of unexpected significant radiological findings
Oct 2018	ePrescribing systems and safe discharge
Oct 2018	Management of chronic health conditions in a prisoner
Oct 2018	The diagnosis and management of ectopic pregnancy

Sept 2017	Wrong site interventions
Oct 2017	Transitions from CAHMS to AMHS
Nov 2017	Implantation of the wrong prosthesis

Recommendations

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Investigation into the implantation of wrong prostheses during joint replacement surgery

1. **Recommendation 2018/001:** NHS Improvement amends the national Prosthesis Verification Standard to incorporate the specific aspects of verification practice developed to mitigate error identified in this investigation.
2. **Recommendation 2018/002:** The British Standards Institute amends existing standards for prosthesis labels to include details of design that make them easier to read in operating theatres. The American Society for Testing and Materials' 'Standard Guide for Presentation of End User Information for Musculoskeletal Implants' is a useful reference.
3. **Recommendation 2018/003:** The National Joint Registry changes the response when data is entered into the registry suggesting the wrong prosthesis has been implanted due to incompatible manufacturers, so that it is consistent with the response when data indicates the wrong size or side has been implanted.
4. **Recommendation 2018/004:** The Department of Health and Social Care expands the remit of the working group consisting of Derby Teaching Hospitals NHS Foundation Trust's Scan4Safety Programme, the National Joint Registry, and the Medicines Healthcare products Regulatory Agency to include alerts to identify wrong prostheses prior to implantation.
5. **Recommendation 2018/005:** The Department of Health and Social Care commissions the development and implementation of an interim basic scanning system to identify wrong prostheses prior to implantation.

Investigation into administering a wrong site nerve block

1. **Recommendation 2018/012**: The Royal College of Anaesthetists establishes a specialist working group to evaluate the current practices used to reduce wrong site block incidents. This group should consider how safety initiatives to reduce wrong site blocks can be standardised in anaesthesia training and practice.

   It is recommended that the specialist working group consider the impact of: the patient's state of consciousness, changes in a patient's position and the prevalence of wrong site block incidents compared to the number of blocks administered.
2. **Recommendation 2018/013:** The Royal College of Anaesthetists ensures any further work identified by the specialist working group to reduce wrong site block incidents is subject to human factors-based testing and evaluation.

Observations

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The national serious incident reporting system does not require inclusion of data regarding human factors such as environmental conditions, and individual and team factors. It would be beneficial for future developments to the system to collect such data.

The development of patient safety initiatives should incorporate human factors and safety science specialism. This can help ensure that appropriate planning, testing, and evaluation take place to ensure a strong evidential basis for patient safety initiatives.

Investigation themes

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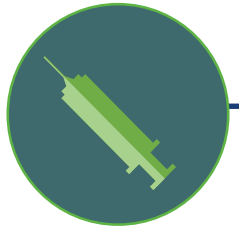
Equipment Design / Use

Diagnostic



Medication

Transfer

Communications

Cognitive Biases

Coordination of work

National Guidance

Procurement

HSIB's emergence onto the NHS Landscape

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- Drivers for change
- Challenges the health system faces when engaging with cultural change agenda
- The impact of these challenges on how HSIB operates
- The next five years

Drivers for HSIB's establishment

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- Five public inquiries between 2010 and 2015
- All identified fundamental issues compromising safety, public accountability, professional culture in the health service, and the rights of patients
- Significant cost

Public Inquiries into NHS Hospital Care

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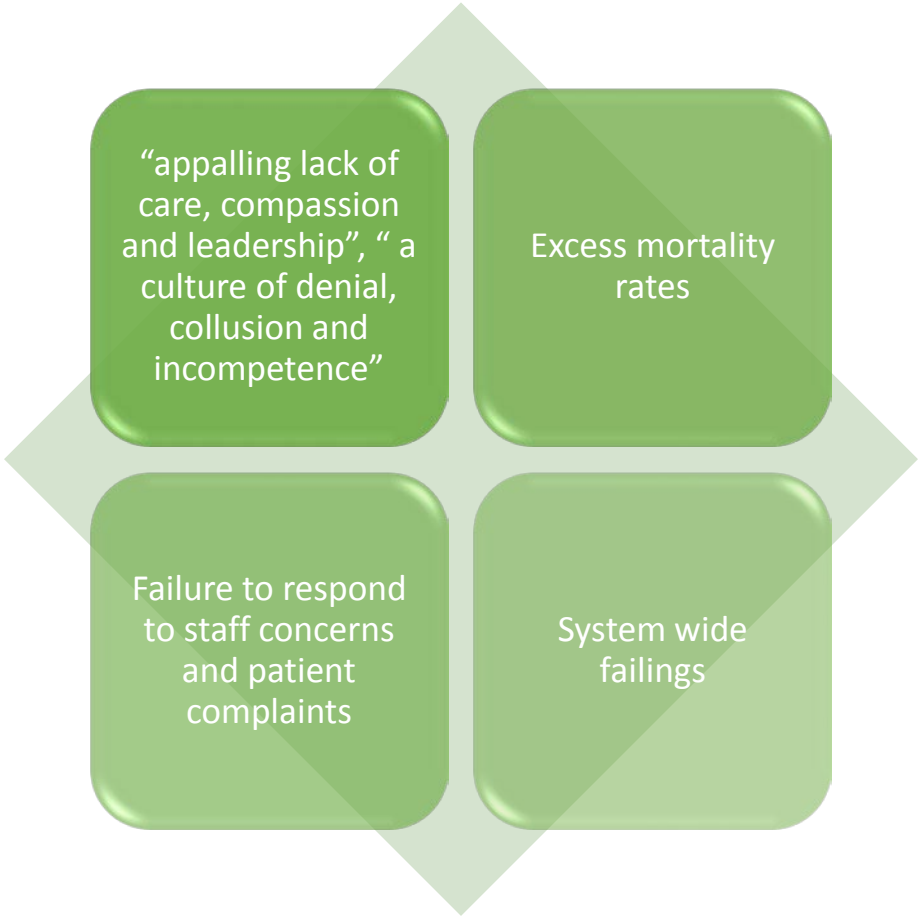
- The Report of the Public Inquiry into children's heart surgery at the Bristol Royal Infirmary (2001)
- Mid Staffordshire NHS Trust Public Inquiry (2013)
- Review into the quality of care and treatment provided by 14 hospital trusts in England: overview report (2013)
- Freedom to Speak Up (2015)
- Morecambe Bay Investigation (2015)

Findings of Public Inquiries



Investigation Specific Findings

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- Culture of fear and intimidation, staff afraid to speak up
- Families stories disregarded, lack of involvement in investigations
- Investigations lacked independence
- Trusts lacked investigation capability and capacity

PHSO investigation into Sam Morrish 2016

- Sam was 3 years old and died from Sepsis in December 2010.
- 2014 investigation found that had Sam received appropriate care he would have survived
- BUT the investigation failed to explain why he died
- PHSO found the investigation not fit for purpose in that it failed to identify extensive series of errors
- Didn't focus on learning or span organisational and hierarchical barriers
- Investigation excluded the family and many staff


The Daily Telegraph

3,000 more patients have died needlessly in hospital

Paris £48.99

Erosion of public trust in the NHS

A Health Accident Investigation Branch is Born

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- Public shaming
- Erosion of trust
- Widespread lack of investigative capability and capacity
- Developing patient safety movement since 2000 applying established safety science to healthcare

HSIB Principles

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- **Objectivity**

Recommendations are for learning and improvement not to attribute blame or liability

- **Transparency**

Reflecting a model of openness through genuine engagement

- **Independent in action, thought and judgement**

Operating without fear or favour and exercising independence when investigating any area of of patient safety

- **Expertise**

Staffed by investigation experts with a range of backgrounds

- **Learning for improvement**

Use findings to deliver practical solutions, address causes and contributory factors and provide provide support to increase the capability within local NHS systems

Challenges

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- What should we investigate?
- How do we involve families?
- How do we engage with NHS organisations?
- How do we engage with other statutory bodies?

What should we investigate?

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- Consistent challenge to measure the scale of patient safety in healthcare.
- In UK 10% patients suffered harm when receiving hospital care (Vincent et al 2001).
- 3.6% rate of preventability of mortality (Hogan et al 2015)
- Approx 230,000 hospital deaths = 8,280

Is it all about death?

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- Most hospital deaths do not involve error AND
- Most errors do not result in death but can result in significant harm, suffering and distress
- Incident reporting – 2 national incident reporting systems, significant overlap
- National Reporting and Learning System (NRLS) 1.3 million per year (Woodward 2017),
- Only 5% of incidents captured in either of reporting systems (Woodward 2017)

HSIB Investigation selection

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- Individual incidents are the basis of our investigations
- Safety Awareness Notice open to all, public professionals, NHS organisations, external organisations such as Police
- Intelligence Unit review incident reporting systems identify potential investigations
- Identification of themes of national importance and then identifying incidents to initiate an investigation

How do we involve families?

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- Critically important for HSIB, given the history of NHS investigations
- What level of involvement?
- How do we maintain our independence?
- Head of Family Engagement
- Now ensuring that family engagement is considered at the earliest stages of each investigation
- Model of engagement will develop over time

Engagement with NHS organisations

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- Mixed response so far
- Some NHS Trusts are wary of us; are we another regulator?
- Investigation teams understand that these relationships are critical for future success
- No powers so far but ensures investigation teams take a collaborative approach
- Independence!

Essential investigation ingredients

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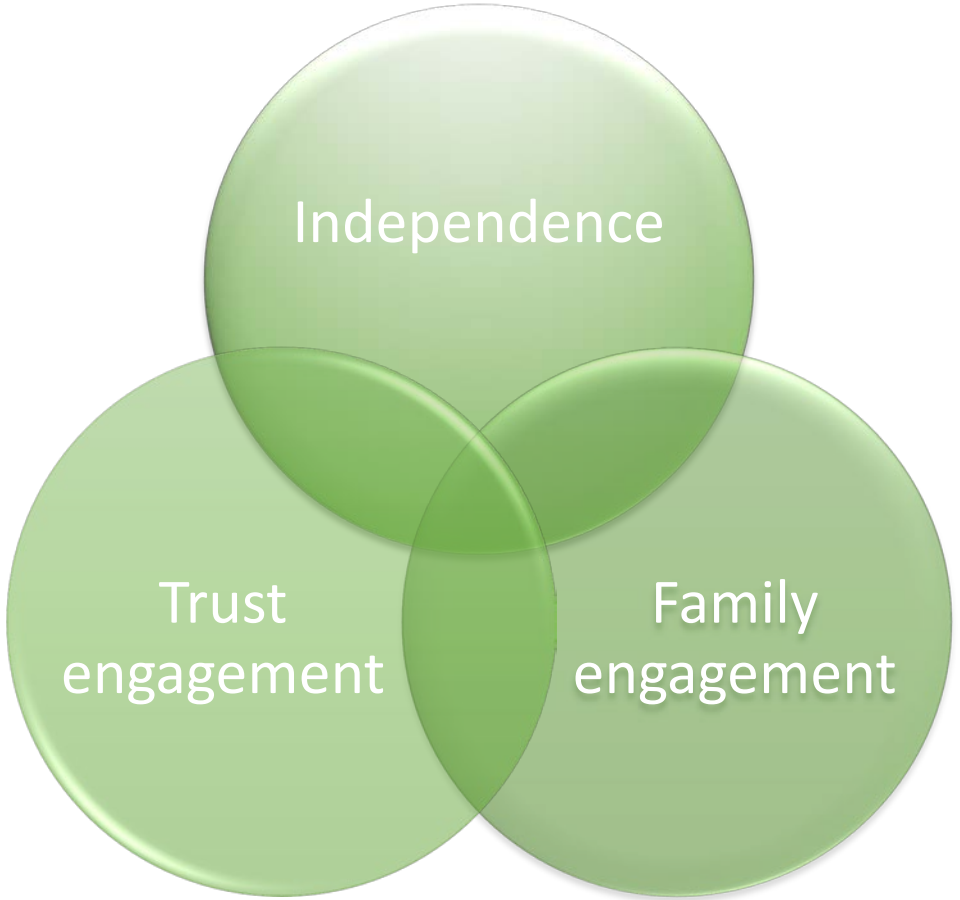

Engagement with statutory bodies

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- NHS regulators, CQC, NHSI
- Coroner
- HSE
- Police

Findings so far

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- System based errors,
- referral between agencies and departments
- Work arounds,
- Work as done, not imagined
- Assumptions being made about competencies
- Families/patients ignored during the investigation process
- Compromised investigation capability and capacity
- Revert to who did or didn't do it
- Cultural limitations regarding understanding errors

Next five years

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- Embryonic organisation
- Legislative change – HSSIB Bill
- Establishment on statutory basis with powers
- Review impact of HSSIB