

PATIENT SAFETY



Monitoring Risk and Improving System Safety (MoRISS):

*Design and Evaluation of a Safety Management
Checklist Tool for Scottish General Medical Practice*

Paul Bowie, Tracey Cricket, Paul Watson, Duncan McNab, Jan McCulloch, Pauline
Young, Jill Gillies, Neil Houston, John McKay



PROBLEM?



- In GP localised checking procedures exist - does not appear to be a combined (i.e. integrated) checking approach for safety-critical processes.
- Evidence suggests existing systems are applied *ad hoc* and are often found to be inadequate barriers to identifying and minimising potential and actual risks - and harm to patients and team members.

GP Checking Systems - Safety Problems [Examples identified by SEA, literature etc. (McKay et al, 2009)]

- No emergency drugs
- Out-of-date emergency drugs
- Malfunctioning equipment (e.g. re-fridgeretors, CPR, oxygen)
- Preventable needle stick injuries
- Inadequate staff induction processes
- Stolen prescription pads
- Maintaining confidentiality
- Staff not offered immunisation protection
- Doctors/nurses practising unregistered
- Stress/burnout/sickness absence
- ***Unreliable checking systems***
- ***Variable checking systems***
- ***Inadequate safety culture***



PACe (People, Activity, Environments) Analysis of a Significant Healthcare Event

(Bowie, Bruce, McNaughton et al, JCEHP, 2016)

<p>The diagram consists of three overlapping ovals: a green oval for 'PEOPLE', an orange oval for 'ENVIRONMENT', and a pink oval for 'ACTIVITY'. The central area where all three overlap is labeled 'SIGNIFICANT EVENT'. Three curved arrows labeled 'Interactions' point to the intersections between 'PEOPLE' and 'ENVIRONMENT', 'PEOPLE' and 'ACTIVITY', and 'ENVIRONMENT' and 'ACTIVITY'.</p>			<p>GUIDING PRINCIPLES</p> <ul style="list-style-type: none"> • <i>Human Factors</i> – this discipline can help us to identify and explain the different system and design factors contributing to a significant event • <i>Apply a PACe Analysis</i> – It may enable systems and design issues to be identified (e.g. related to tasks, procedures, guidelines, communication, technology or culture), understand how these interact to affect performance and prioritise them for improvement; reducing associated risks to patients, team members and the organisation • <i>Personal Impacts</i> of the cases may impede its analysis – consider your feelings about the event, support others and be sensitive to their feelings. Express any concerns before the discussion begins. • <i>Define the System</i> - be pragmatic, define the work system over which you have a level of influence and the system design issues you have limited or no influence over, and may need to raise at the organisational level and beyond • <i>Multiple Perspectives</i> - It is really important to gather the views and experiences of all relevant team members, as well as colleagues in other areas, everyone has a different perspective on why decisions were made, how the system works and how it can be improved
<p>People</p>	<p>Activity</p>	<p>Environments</p>	<p>NOTES</p>
<ul style="list-style-type: none"> • Individual e.g. physical, psychological, personality or social issues; cognitive factors, competence, skills, attitudes, risk perception, training issues • Care Team e.g. roles, support, communication, leadership • Patient e.g. clinical condition, physical, social, psychological, relationship factors • Others e.g. other health and social services 	<ul style="list-style-type: none"> • Complexity of work process or task, guidelines, policies and procedures e.g. not up-to-date, not available, unclear/unusable, not followed • Job demands, design or organisation of work processes or systems e.g. level of complexity, workload, poor design • Technology and equipment e.g. positioning, not available, not working, not calibrated, usability issues 	<ul style="list-style-type: none"> • Work setting e.g. staffing, environmental conditions, workload or hours of work, design of physical environment, administrative and/or time factors • Organisational e.g. safety culture, priorities, external risks, organisational structure • Communication e.g. verbal, written, non verbal systems, poor communication, failure to communicate • Education and training e.g. supervision, competence, availability / accessibility • Societal, cultural and regulatory influences 	

Brief description of checking-related safety incident

- A tall, overweight 55-year-old male patient collapsed in the waiting room at 4.45pm while attending the surgery with a family member.
- The practice team responded to the incident as per the emergency protocol. However, the CPR defibrillator battery was not usable because it was not charged, adrenaline was out-of-date and the 2 team members administering manual CPR did not have up-to-date training.
- A lack of timely checking processes was found to be a major contributory factor.
- A blue light ambulance attended, the patient survived but a formal complaint was received by the practice related to equipment/drug issues

Physical and emotional impacts on people

- **Patient**

Received manual CPR and adrenaline until ambulance paramedics arrived to stabilise and transfer to hospital care; recovered and discharged

- **Family Member**

Distress and anxiety; witnessed technology /drug problems

- **Care Team**

Feelings of guilt and embarrassment; apportioning individual blame; worsening interpersonal relationships; added work stress and anxiety; individual on related sick leave

- **Practice Organisation**

Formal complaint received from patient's family; adverse media publicity and in local community; deterioration in practice family relations

Brief Example of Interacting PAcE Analysis

PEOPLE

- Physically large adult male, small waiting room area
- Very emotional/anxious family member
- Clinicians and Administrators trained in emergency response
- Clinicians fatigued after long day and without a break or lunch
- Waiting room full of attending patients

ACTIVITY

- Infrequent, complicated, stressful, and physically demanding task
- Practice nurse cared for family member
- Administrators moved older, sick patients to linked corridor
- Defibrillator unusable because ageing battery did not charge
- Usability issues with defibrillator caused minor confusion
- Design of blood pressure monitor is limited for emergencies
- Stock of adrenaline available but out-of-date

ENVIRONMENTS

- CPR retraining overdue
- *Ad hoc* and informal checking process
- Prevailing climate did not prioritise checking processes
- Previous checking process events, but limited action
- Heavy workload delayed CPR training updates
- Decreasing income delayed CPR equipment purchase decision
- Practice safety focus - meeting contractual demands and maximising access to meet increasing patient demand

Brief Example of Interacting PAcE Analysis (cont'd)

Prioritisation of Interacting Contributory Factors

Feasible system boundary

- CPR training check
- Equipment checking
- Emergency drugs checking

More challenging system issues e.g.

- Workload?
- Prevailing safety climate and work prioritisation?
- Equipment usability?
- Contractual incentivisation?

Holistic System Perspective/Learning

- Safety critical checking is endemic in healthcare (including GP)
- **Inadequate procedures for routine and timely checking of safety critical issues**
- Broader learning and action around checking issues that goes beyond this single event
- Requires a system wide hazard identification and monitoring process

Action for Improvement

- Apology
- Inform family of case analysis and opportunity to contribute and/or see outcome
- Support colleagues
- Purchase new drugs and equipment
- Design and implementation of safety checking procedure
- Barriers to implementation and improvement
- Accountability and leadership
- Future monitoring and feedback

SOLUTION?

Research

Paul Bowie, Julie Ferguson, Marion MacLeod, Susan Kennedy, Carl de Wet, Duncan McNab, Moya Kelly, John McKay and Sarah Atkinson

Participatory design of a preliminary safety checklist for general practice

To identify workplace hazards that impact on safety, health and wellbeing, and performance, and co-design a standardised checklist process

25 experienced frontline staff and 'experts'

A prototype safety checklist was developed and validated consisting of six safety domains (e.g. medicines management), 22 sub-categories (e.g. emergency drug supplies) and 78 related items (e.g. stock balancing, secure drug storage, and cold chain temperature recording).

HAZARD

- Anything that can cause harm

RISK

- The chance, high or low, that any hazard will actually cause harm to people and/or organisations.

What is a Checking Process (e.g. checklists)?

- A checklist is a type of cognitive (mental) informational job aid used to reduce failure by compensating for potential limits of human memory (e.g. remembering job tasks, lack of vigilance) and attention (e.g. loss of focus, interruption, distraction).
- Ensures consistency and completeness in carrying out a task or series of tasks - a basic example is a supermarket shopping list.
- Helps to make sure things are done, standardise processes, reduce variations in practices and eliminate errors etc.
- Routinely used in high reliability organisations (e.g. pre-flight checking in aviation or space flight)
- Also recently in healthcare (e.g. pre-operative surgical checklist)

Further Testing with NHS AA - Project Purpose

As part of the next phase in the design and development of the safety checklist, this study aimed to achieve the following:

1. To critically review and update the relevance of the previously validated safety checklist content to the current general practice context in NHS Scotland
2. To classify and rank checklist items as 'mandatory', 'essential' or 'advisable' to inform and guide users on the priority importance of checking related safety performance issues
3. To describe a rationale for checklist item inclusion, outline supporting evidence and provide practical guidance examples on how checking could be performed by users.

New Checklist Classifications

- **Mandatory** – *‘where a legal, professional, contractual or regulatory obligation existed for the check to take place’;*
- **Essential** – *‘where a failure to check the item would have the potential for harm to occur to patients, GP team members, or practice visitors, or impact negatively on the performance and reputational risk of the practice’*
- **Advisable** – *‘where periodic checking of the item would be a voluntary demonstration of high quality safe system practice’.*

NHS AA - Aggregate level checklist findings divided by grouped 'Mandatory', 'Essential' and 'Advisory' items

Practice ID No.	GROUPED CHECKLIST ITEMS			PRACTICE AGGREGATE	
	Mandatory (n=25)	Essential (n=25)	Advisory (n=12)	Number (n=62)	Percentage (%)
1	23	18	11	52	83.8
2	24	23	11	58	93.5
3	25	25	11	61	98.3
4	24	22	12	58	93.5
5	24	23	11	58	93.5
6	25	23	10	58	93.5
7	25	23	12	60	96.7
8	25	24	11	60	96.7
9	24	22	10	56	90.3
10	25	23	12	60	96.7
11	23	21	11	55	88.7
12	23	23	8	54	87
13	22	23	12	57	91.9
14	24	20	7	51	82.8
15	24	24	12	60	96.7
STUDY TOTALS (n, %)	360 (96%)	337 (90%)	161 (89%)	858	(92%)

Mandatory Compliances

<90%

- Public and Employer's liability insurance are up-to-date and displayed.
- The workstations of all Display Screen Equipment (DSE) users provide adequate space and are assessed to Health & Safety legal standards.
- Sharps containers are available, correctly assembled, out of reach of children, not filled beyond indicator mark and do not contain inappropriate waste

Other areas where less than 100.0% compliance was reported included:

- (Controlled Drugs) Securely stored
- (Prescriptions & Pads) Securely stored
- Protecting Vulnerable Groups (PVG) checks are up-to-date.
- All staff have up-to-date CPR training

Essential Compliances <85%

- The location of emergency equipment is adequately signposted throughout the premises (e.g. prominent notice in each room)
- All staff are trained in standard infection control precautions, including hand hygiene and sharps/bite/splash management
- The practice Business Continuity Plan is up-to-date.
- Patient ID is always confirmed by all staff (over the telephone, face-to-face, when filing or handling records/results, writing prescriptions/referrals) using **two** of the following three characteristics: full name, date of birth and postal address (gender and CHI number if known/available can also be used)
- Evidence of monthly stock check and expiry date rotation
- Evidence of monthly equipment check (e.g. nebuliser, defibrillator, airways, anaphylaxis)

Aggregated Mean Results by Safety Domains

The aggregated mean results by each of the six safety domains was as follows:

- **Medication Safety:** 91.0% (range: 60.0% to 100.0%)
- **Housekeeping:** 93.7% (range: 66.6% to 100.0%)
- **Information Systems:** 86.6% (range: 40.0% to 100.0%)
- **Practice Team Issues:** 97.7% (range: 93.3% to 100.0%)
- **Patient Access and Identification:** 88.8% (range: 80.0% to 93.3%)
- **Health and Safety:** 92.8% (range: 80.0% to 100.0%)

Examples of System Improvement Actions by Safety Domain

Medication Safety

- Monthly stock takes - new PN to do, review date 1 month
- Display further notices for emergency equipment in each room
- Increase signposting of location of emergency equipment in reception & clinical corridor
- Include fridge alarm / battery check monthly

Examples of System Improvement Actions by Safety Domain

Housekeeping

- 1 staff member requires Hep B, review date 24/12/16
- Check weekly when controlled waste comes in
- Infection control regularly circulated to staff with sign off document
- Requires update of replaced items and new serial numbers
- NHS owned property - NHS Waste Management Procedure applies - Action: Produce own practice waste management policy
- Spot Check showed Sharp bins not signed and dated when assembled. Reminder given to Clinicians.
- Out of 12, 9 were unacceptable, either not assembled correctly, review Dec 2016

Examples of System Improvement Actions by Safety Domain

Information Systems

- Update business continuity plan, review date 3 months
- Task list for regular checking, updated whenever changed
- No official continuity plan although systems are in place in case of loss of clinical system – action to produce business continuity plan
- Business continuity plan - I need to update a few entries. Admin Lead has been asking me for some time.
- Back up data - Last restore July 16 - schedule another.

Examples of System Improvement Actions by Safety Domain

Practice Team

- Awaiting CPR training, review date Jan 2017
- Aware clinicians have applied / received, proof not kept – will remedy
- CPR training done annually due to rural location
- Action: Place marker on outlook calendar to remind of NMC registration and revalidation dates for all clinicians
- Action: Place marker to remind of renewal dates
- Need to seek evidence of GPs have completed anaphylaxis training.
- PVG checks - Change of address for 2 employees needs communicated to Disclosure Scotland.
- Anaphylaxis training - GPs due to carry this out. Combine with next CPR update.

Examples of System Improvement Actions by Safety Domain

Patient Access & Identification

- All staff aware of process, however still wrong appointments being added EG Same name, same address DOB not checked, review date 1 month
- Information for patients on practice leaflet, website, posters and recorded message
- Patient ID – Yes unless personally known to staff
- Training required on in registering teams, ongoing
- Staff not always checking 2 forms of ID - training required
- Practice booklet due to be updated

Examples of System Improvement Actions by Safety Domain

Health & Safety

- Alarm evacuation test needs repeating
- No designated first aider, consider & train
- Fleece jackets to be ordered for staff working in cold areas and relax uniform policy.
- Inadequate hot water for nurses, plumber working on repair
- Public and employer's liability insurance - Spot check revealed out of date certificate. New one now in situ.
- Fire Safety Training due updated Nov 16 via LearnPro

Feedback

- *identified issues that may impact on the safety and wellbeing of the GP team*
- *The checklist helped us identify worrying issues that could cause a risk to the practice and patients*
- *The checklist was easy to read and navigate*
- *I would recommend this checklist approach to colleagues in other general practices*
- *Our safety-related checking systems are now improved compared to before we participated in this project*
- *It is a better checking system than our current approach to checking safety issues in the practice*

“What worked well about this approach to checking safety systems?”

- *Methodical*
- *Concise approach*
- *Identified areas needing improved*
- *I know it is a thorough & complete checklist*
- *Bringing all checks together as one*
- *Allowed us to be honest*
- *All checks in one place*
- *Easy to follow*
- *Easy to use*

“What did not work so well...?”

- *Paper based when you want to be paperless*
- *Would be nice if easily linked with checks already being done e.g. fridge, emergency kit, drugs etc*
- *Setting time aside to complete*
- *Time - due to staff absence*
- *Nothing*
- *Took a long time initially*
- *Protected time was difficult*
- *Prefer electronic version – could have filters/flags to record each time completed (so frequency and changes auditable)*
- *Did out of normal hours to obtain access to consulting rooms*
- *Not everyone takes ownership - feel all PMs responsibility*

Evidence/Problems

-are mainly social and cultural e.g. undermine expertise; are infantilising; impede quick decision-making etc.
- Major assumption: a technical solution (e.g. a checklist) can solve a cultural problem in the workplace
- Successful implementation is NOT down to the 'checklist' BUT
 - *to team 'buy-in'*
 - *attitude changes*
 - *efforts to remove barriers*
 - *finding creative solutions to normalise their use*
 - *acting on the feedback and driving improvement*
 - *system redesign*
- Bottom Line?

Successful safety interventions are achieved when all three (not one or two) of the following are realised:

1. Summarise and simplify what is to be done
2. Measure and provide feedback on outcomes
3. Improve culture by building expectations of performance standards into routine work processes (e.g. normalise checklist use)

Checklist Acceptance: Three Basic Assumptions to be Met -

1. *“There must be a predefined problem that a checklist is the right tool for solving”*
2. *“The end user must not get the feeling that he or she is deprived of the opportunity to apply common sense”*
3. *“It must be better than the current way of doing things...”*

Thank You!
Any Questions or Clarifications?

Small Group Work

Please reflect and review on the Checklist and Evidence Guidance

1. What is good and what could be better?
2. How would you use it and how often?
3. What are the current and future barriers to you using it?
4. What educational and technological support would managers and practices need to help with implementation?