The AHSN Network

NHS Improvement

Implementing the Emergency Department Safety Checklist

West of England

Patient Safety Collaborative

Acknowledgements

This toolkit has been based on the ED Safety Checklist and Key Performance Indicators developed and tested by University Hospitals Bristol NHS Foundation Trust (UH Bristol) and the West of England Patient Safety Collaborative.

We would like to thank the team at UH Bristol for their work in the development of this project.

The UH Bristol pilot scheme was funded by the Health Foundation SHINE Innovation programme.

The Health Foundation
Inspiring Improvement

NIHR | Applied Research Collaboration West

NIHR CLAHRC West, now recommissioned as the NIHR Applied Research Collaboration West (ARC West), have completed an independent evaluation of the ED checklist. This toolkit has been updated in August 2019 to incorporate evidence-based recommendations from their evaluation.

Adoption and spread

The safety checklist has been adopted by all six hospital trusts and the ambulance service in the West of England, who comprise the Emergency Department Collaborative:

- University Hospitals Bristol NHS Foundation Trust
- North Bristol NHS Trust
- Royal United Hospitals Bath NHS Foundation Trust
- Great Western Hospitals NHS Foundation Trust
- Gloucestershire Hospitals NHS Foundation Trust
- Weston Area Health NHS Trust
- South Western Ambulance Service NHS Foundation Trust

Roll out to these other Emergency Departments was financially supported by the West of England Patient Safety Collaborative.

The ED Safety Checklist won **Best Patient Safety Initiative in A&E** award at the 2017 Patient Safety Awards.

The judges felt that this entry had a significant impact on patient safety in period of crowding in ED. It has already spread across multiple organisations and using established tools has potential for wider spread across the UK.

PATIENT SAFETY AWARDS
WINNER

Introduction

Aim

This toolkit supports the implementation of the ED Safety Checklist and gives advice and guidance on achieving a successful implementation in your emergency department.

This toolkit also provides information and links to resources on change management methods.

Supporting documents and resources are available at **www.weahsn.net/ed-checklist**

Who this document is for

This guide is for clinical teams in the emergency department, consultants, nurses, quality and safety leads and operational managers as well as ambulance staff.

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This document is version 5.1 September 2019

About the West of England Patient Safety Collaborative

England's 15 Patient Safety Collaboratives play an essential role in identifying and spreading safer care initiatives from within the NHS and industry, ensuring these are shared and implemented throughout the system.

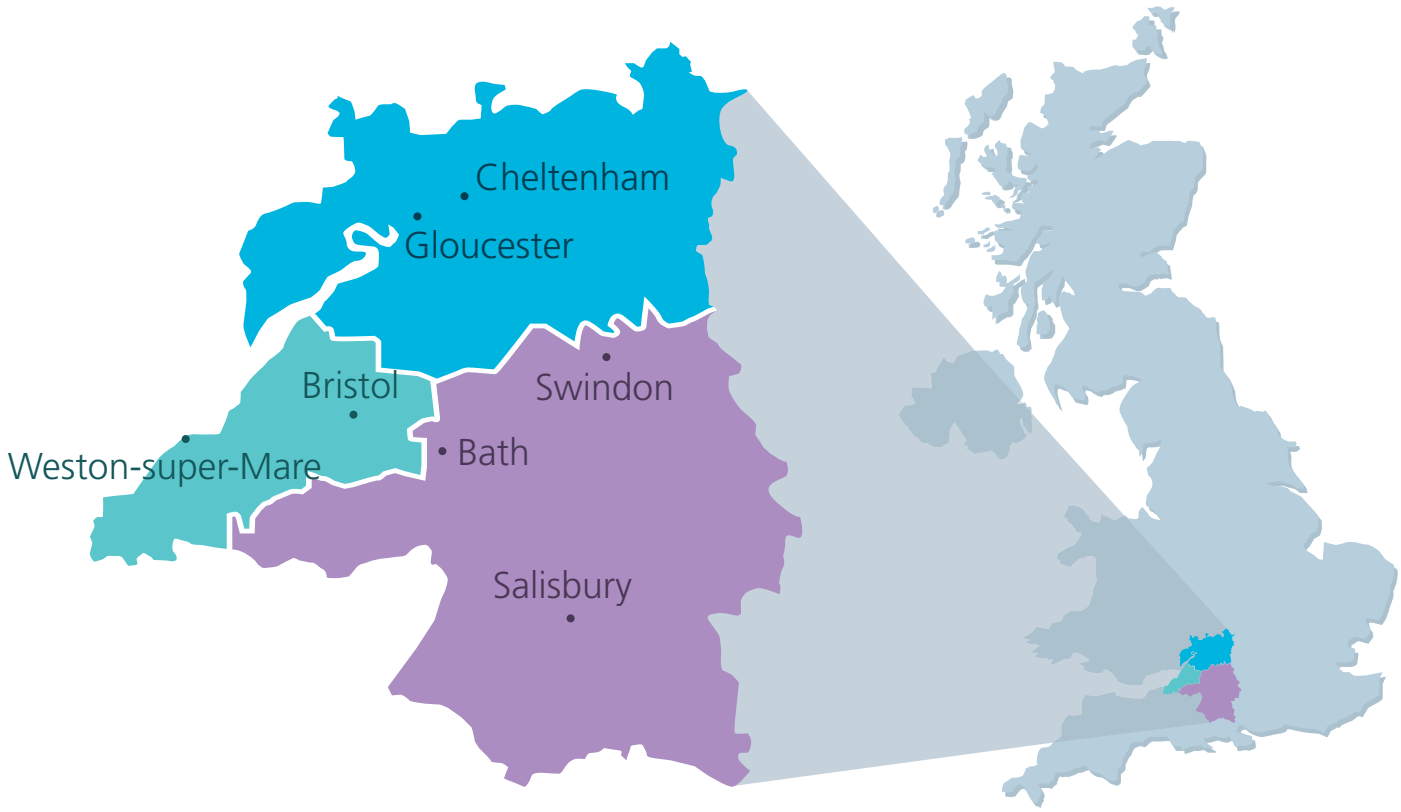
The Patient Safety Collaboratives are coordinated by the 15 Academic Health Science Networks and they are part of the national patient safety programme, with a mandate to create a culture of continuous learning and improvement in the NHS.

The **AHSN** *Network*

The West of England Academic Health Science Network (AHSN) is based in Bristol and is one of 15 AHSNs across England, established by NHS England in 2013 to spread innovation at pace and scale. As the only bodies that connect NHS and academic organisations, the third sector and industry, AHSNs are catalysts that create the right conditions to facilitate change across whole health and social care economies, with a clear focus on improving outcomes for citizens.

Find out about more about the work of the AHSN Network at www.ahsnnetwork.com.

Find out more about the West of England AHSN at www.weahsn.net and follow us on Twitter @WEAHSN.

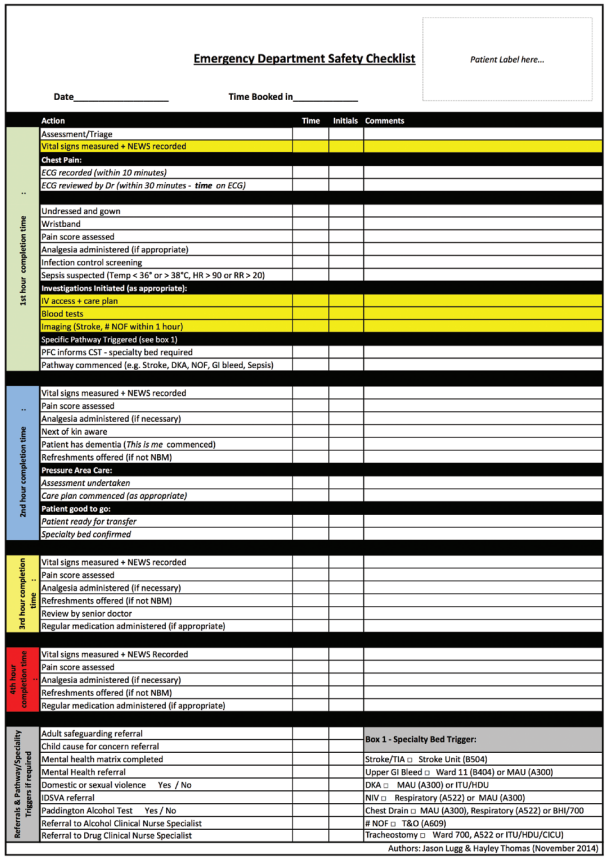


West of England Academic Health Science Network Map

- Bristol, North Somerset and South Gloucestershire STP (Healthier Together)
- Bath and North East Somerset, Swindon and Wiltshire STP
- Gloucestershire ICS (One Gloucestershire)

About the Emergency Department Safety Checklist

The aims of the Emergency Department (ED) Safety Checklist are to standardise and improve the delivery of basic care in EDs, to improve resilience in EDs during periods of crowding, to improve the safety and clinical outcomes for patients accessing the emergency care system, and to improve ED performance against Best Practice Tariffs.



Emergency Department Safety Checklist

Patient Label here...

Date_____ Time Booked in_____

	Action	Time	Initials	Comments
1st hour completion time :	Assessment/Triage			
	Vital signs measured + NEWS recorded			
	Chest Pain:			
	ECG recorded (within 10 minutes)			
	*ECG reviewed by Dr (within 30 minutes - **time** on ECG)*			
	Undressed and gown			
	Wristband			
	Pain score assessed			
	Analgesia administered (if appropriate)			
	Infection control screening			
	Sepsis suspected (Temp < 36° or > 38°C, HR > 90 or RR > 20)			
	Investigations initiated (as appropriate):			
	IV access + care plan			
	Blood tests			
	Imaging (Stroke, # NOF within 1 hour)			
	Specific Pathway Triggered (see box 1)			
	PFC informs CST - specialty bed required			
	Pathway commenced (e.g. Stroke, DKA, NOF, GI bleed, Sepsis)			
2nd hour completion time :	Vital signs measured + NEWS recorded			
	Pain score assessed			
	Analgesia administered (if necessary)			
	Next of kin aware			
	Patient has dementia (*This is me* commenced)			
	Refreshments offered (if not NBM)			
	Pressure Area Care:			
	Assessment undertaken			
	Care plan commenced (as appropriate)			
	Patient good to go:			
	Patient ready for transfer			
	Specialty bed confirmed			
3rd hour completion time :	Vital signs measured + NEWS recorded			
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	Analgesia administered (if necessary)			
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	Review by senior doctor			
	Regular medication administered (if appropriate)			
4th hour completion time :	Vital signs measured + NEWS Recorded			
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	Analgesia administered (if necessary)			
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Referrals & Pathway/Specialty Triggers if required	Adult safeguarding referral			**Box 1 - Specialty Bed Trigger:**
	Child cause for concern referral			
	Mental health matrix completed			Stroke/TIA □ Stroke Unit (B504)
	Mental Health referral			Upper GI Bleed □ Ward 11 (B404) or MAU (A300)
	Domestic or sexual violence Yes / No			DKA □ MAU (A300) or ITU/HDU
	IDSVA referral			NIV □ Respiratory (A522) or MAU (A300)
	Paddington Alcohol Test Yes / No			Chest Drain □ MAU (A300), Respiratory (A522) or BHI/700
	Referral to Alcohol Clinical Nurse Specialist			# NOF □ T&O (A609)
	Referral to Drug Clinical Nurse Specialist			Tracheostomy □ Ward 700, A522 or ITU/HDU/CICU)

Authors: Jason Lugg & Hayley Thomas (November 2014)

What is the ED Safety Checklist?

An ED Safety Checklist is a time based framework of tasks that is completed for every patient, other than those with minor complaints.

The ED Checklist is a resource for all clinical staff in the ED but will most likely be completed by nursing and nursing support staff, temporary/bank nursing staff and nursing supervisors.

Best Practice Tariffs and early triggers to specific care pathways such as sepsis are included.

What is the problem we are trying to address?

Crowding has a profound impact on the ED's ability to deliver safe care.

Delays in recognition and treatment of severe illness are common, with associated poor outcomes. This is particularly problematic for patients suffering from stroke, heart attack and sepsis.

A scarcity of staff in the ED workforce has resulted in a reliance on agency and non ED-trained staff.

Human factors - as staff become overwhelmed by the tasks they need to complete in a timely fashion and with constant interruption.

What is the evidence base for the intervention?

At University Hospitals Bristol NHS Foundation Trust (UH Bristol) the mean proportions in Key Performance Indicators (KPI) taken before and after the introduction of the ED Safety Checklist improved in 5%-25% in most cases.

Quality improvements the checklist aims to achieve:

- Improved baseline clinical care
- Less clinical incidents
- More efficient handover
- More efficient documentation
- Improved performance against best practice tariff
- Decrease avoidable harm by recognising deterioration
- Enhanced safety region-wide
- Improved communication
- Improved team morale
- Improved patient and staff feedback

Case study - University Hospitals Bristol NHS Foundation Trust

University Hospitals Bristol NHS
NHS Foundation Trust

Overcrowding has an impact on the ability of staff in the ED to deliver safe care. Delays in recognition and treatment of severe illness are common, with associated poor outcomes. This is particularly problematic for patients suffering from stroke, heart attack and sepsis.

Staffing challenges in the ED workforce have resulted in a reliance on agency and non ED-trained staff. As staff become overwhelmed by the tasks they need to complete while faced with constant interruptions there is a risk of omissions in the delivery of basic care elements, which contributes to harm and difficulty in identifying the deteriorating patient in a crowd.

Safety checklists have been shown to improve standardisation and demonstrate improvements in patient safety and care. The team at UH Bristol developed the ED Safety Checklist.

Following a period of development and testing, including input from public and patient representatives, the ED Safety Checklist was introduced to the UH Bristol adult ED in November 2014.

At UH Bristol the checklist is used for every 'major end' patient coming into the adult ED - a footfall of almost 14,000 patients every year.

The impact

UH Bristol's performance was analysed against similar baseline data. After the introduction of the ED safety checklist, performance against baseline increased with a p-value of <0.0001 in most cases.

Quantitative improvements

- Improved management of time-critical conditions, UH Bristol saw a mean increase of over 5% in CT scanning within one hour for suspected strokes.
- Earlier recognition and rescue of clinically deteriorating patients. UH Bristol saw a mean increase of 25% in hourly observations and early warning score calculations.
- Ensuring patients are on the correct care pathways out of EDs. UH Bristol saw an 11% increase in patients treated on the stroke pathway.

Qualitative improvements

- Reduced length of hospital stay.
- Better supported staff, including those less familiar with the ED and ambulance crews.
- Improved quality of handover.
- Appropriate continuity of care.

Since the introduction of the ED Safety Checklist at UH Bristol there have been no clinical incidents related to failure to recognise deteriorating patients or delay in care delivery. This can be compared with the winter prior to implementation when there were five serious incidents due to failure to recognise deterioration, three of which were in the ambulance queue.

"International evidence, highlighted in the 'Keogh Review' of Urgent and Emergency Care clearly demonstrates the risks that crowded EDs pose to patient safety and outcome.

"This intervention is designed to directly address these challenges, and has already been shown to be effective: it is entirely consistent with national policy in emergency care."

Professor Jonathan Benger, National Clinical Director for Urgent Care, NHS England

Key contacts

Dr Emma Redfern, Consultant in Emergency Medicine, University Hospitals Bristol NHS Foundation Trust, emma.redfern@uhbristol.nhs.uk

Case study - West of England Emergency Department Collaborative

University Hospitals Bristol NHS Foundation Trust (UHB) was funded by the Health Foundation SHINE innovation programme in 2014 to introduce a Safety Checklist in the Emergency Department (ED). Since April 2016, the West of England Academic Health Science Network (AHSN) has worked to support all six Trusts across the West of England region to introduce the ED Safety Checklist across seven ED's.

The Checklist was piloted in UHB on November 2014 and achieved demonstrable success in improvement in patient safety during periods of crowding. This included the support and cooperation from the South Western Ambulance Service NHS Foundation Trust who provided a National Early Warning Score (NEWS) via their Electronic Patient Care Record System and initiated the ED Safety Checklist if managing patients in queues waiting to transfer to ED.

Following the Institute of Healthcare Improvement model, an implementation toolkit was developed using the lessons learnt from the pilot site to support Trusts introduce the ED Safety Checklist in their department. An inaugural regional ED Collaborative meeting took place in May 2016 with a primary focus of implementing the ED Safety Checklist. These were held monthly and were an opportunity to regularly share learning and discuss issues.

Learning from implementation:

Benefits:

- Proven to be a useful tool in answering complaints and providing a safety net for staff
- Increased regular contact with patients and family leading to improved patient satisfaction
- Provides structure in times of overcrowding to allow effective timely treatment
- Faster transitions for some patients through ED
- An objective tool to communicate concern using a standardised language
- Better recording of pain management and reassessment
- Improved recognition of sepsis

Culture:

- Checklist is a tool to support patient care and deterioration – it doesn't take away decision making or clinical judgement
- Continuous feedback to staff on progress and areas for improvement
- Identify a Checklist champion to drive implementation
- Feedback to champion with regards to staff members for additional training

For more information and resources to help support implementation, please go to www.weahsn.net/ED-Checklist

Challenges:

- Cost of colour printing or photocopying of the Checklist
- Continued departmental pressures, as well as sometimes high use of agency staff and high staff turnover
- Initialling of the Checklist by staff (this was overcome by explaining the importance of the Checklist and its ability to enable patient safety)

Checklist:

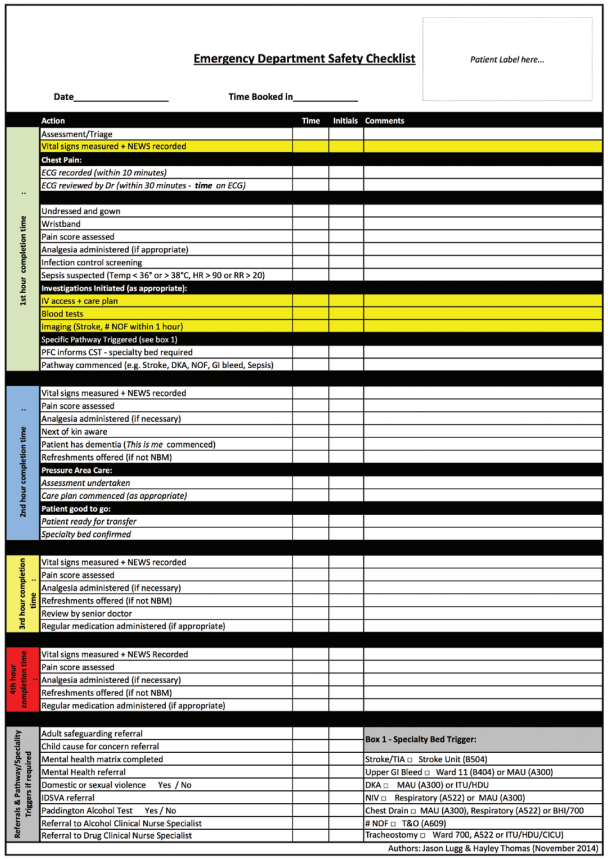
- More successful when included in observation booklet/with original notes
- Clear guidance for escalation to doctors/other colleagues/services
- Edit the Checklist as necessary to be in line with latest hospital policies/guidance
- Standard of care and documentation is clearly set out
- Some of the Trusts are noting on the Checklist if the patient is being monitored in the queue/corridor by adding a Q to the Checklist

Auditing:

- Data analyst role is key to the implementation of the Checklist and evidence its success by being able to monitor it regularly
- Checklists need to be at least 50% completed to be audited
- Staff are to initial when completed, along with time and 'n/a' if necessary
- Clear Key Performance Indicators (KPI) measured

About the Emergency Department Safety Checklist

The ED Safety Checklist is a simple time-based framework of nursing and medical tasks. The checklist systemises the observations, tests and treatments required by patients in a time-based sequence. This makes it clear what has been done and what needs to be done next. The checklist serves as an aide-memoire for busy staff. Any doctor, nurse, bank or agency staff can join the department and provide the right care. By providing this structure, the checklist results in improved outcomes for patients and a reduction in system risk.



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The ED Safety Checklist is structured into two parts:

Part 1 - Provision of basic safe clinical care

A time-based framework for vital sign measurement and calculation of the National Early Warning Score (NEWS2), pain scoring, administration of drugs and front-loading investigations.

Part 2 - Value added tasks

Include referrals to drug and alcohol services, liaison psychiatry and occupational therapy.

Commencement of pathways that demonstrably improve outcomes (e.g. fractured neck of femur, stroke and diabetic ketoacidosis).

Our experience has shown that the Phase 2 value added tasks only improved after Phase 1 (basic clinical care) was well embedded.

Best practice

The ED Safety Checklist needs to work for your ED and be specifically structured to account for your Trust specialisms, your local demographic and other environmental factors. Each implementing ED will need to assess what should be included in their ED Safety Checklist. It is suggested that a comprehensive review of ED clinical incidents should be carried out to inform these decisions prior to PDSA testing of the ED Safety Checklist.

However, the recommendations for best practice from the Royal College of Emergency Medicine are:

- Vital signs taken and NEWS2 calculated regularly.
- Front loading of investigations i.e. imaging, bloods etc.
- Pain relief

Therefore, it is our strong recommendation that these elements are included as mandatory fields. KPI data will be driven by the fields in the checklist and will be unique to each ED.

Implementing the ED Safety Checklist in your organisation

In order to implement the ED Safety Checklist in a sustainable way in your organisation, and to be able to measure the impact of this intervention, we recommend a structured Quality Improvement framework for implementation.

Quality Improvement science is the application of a systematic approach using specific methods and techniques in order to deliver measurable improvements in quality, care and safety.

The processes we describe can be adapted to meet the needs of your staff, service users and organisational context. Our approach uses the methodology developed by the Institute of Health called the **IHI Model of Improvement.**

You can find out more about the Model for improvement through the MINDSet quality improvement toolkit. Although aimed at people involved in providing and commissioning services for people with mental health projects, it is an excellent resource for practical quality improvement guidance. Available at http://mindsetqi.net/ as a PDF to download.

For an introduction to PDSA cycles watch this video https://youtu.be/xzAp6ZV5ml4

The IHI Model for Improvement

There are three questions to ask when developing implementation projects shown to the right.

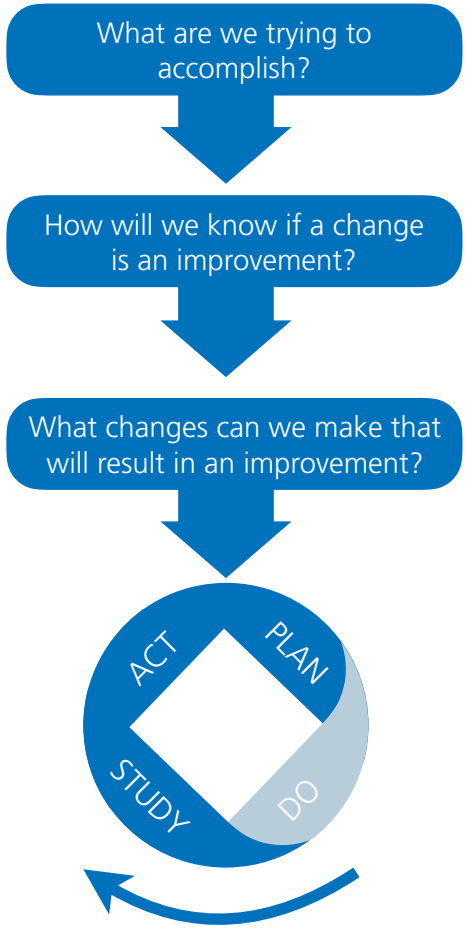
These are then followed by rapid cycle improvement using PDSA.

Plan, Do, Study, Act is an effective method that helps teams plan the actions for their model, test it on a small scale, and review before deciding how to continue.

Using PDSA cycles are a fantastic way of taking ideas, trying them in practice, learning what works, and what doesn't to help you achieve success.

You can then broaden the scale of the test, or adjust your ideas through more than one PDSA cycle — it make take a few before the idea starts to work reliably.

For a fun way to introduce a team to quality improvement, check out this blog post www.weahsn.net/2016/01/anyone-for-tennis/



Project logic model in the West of England Patient Safety Collaborative

Overcrowding in emergency departments is widespread and is associated with clinically significant delays to diagnosis, recognising deterioration and treatment. Omissions in basic clinical care are common during crowding. Checklists have been shown to improve standardisation and reliability in the delivery of healthcare.

Inputs

Existing UH Bristol Safety Checklist

Checklist implementation toolkit

Learning from West of England Collaborative

SWAST (Ambulance Service) perspective and expertise

Central clinical team

Programme faculty support

West of England Patient Safety Collaborative support

National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care West evaluation

Royal College of Emergency Medicine support

Activities

Develop and refine generic implementation toolkit - including educational material, data collection and dashboard

Recruit local implementation teams.

Implement ED Safety Checklist in all regional EDs and ambulance service.

Host masterclass for national interested parties.

Make toolkit and all resources available via West of England Academic Health Science Network website.

Outputs

Team dashboards

Team risk and issues registers

Regional dashboard (Life System)

Regional risk and issues register

Communication Strategy - including programme communication networks, tools, and Learning Set events

Evaluation data and analyses

Project reports and published outputs

Disseminiation activities

Outcomes

Improved baseline clinical care

Fewer clinical incidents

More efficient handover

More efficient documentation

Improved performance against best practice tariff

Impact

Decrease avoidable harm by recognising deterioration

Enhanced safety in all adapting EDs

Improved communication

Improved team morale

Improved patient and staff feedback

You may find it helpful to adapt this logic model to your local implementation of the ED checklist.

Role descriptions

Each ED will need to appoint individuals to specific roles within each Local Implementation Team. It is a strongly suggested that these roles are fulfilled by staff already in post working in the EDs, not staff brought in for the specific functions/roles outlined in this Toolkit. In order to release people to complete the roles specified in this Toolkits, a commitment must be given by the Trust to backfill the individuals undertaken them.

Lead Nurse

- Providing day to day nursing leadership to the Project
- Agree quality metrics for measurement (clinical and operational) to assess impact of project with Lead Consultant
- Educating ED staff on the project aims, methodology and anticipated patient safety impact, by a full range of communication methods and briefing sessions.
- Delivering appropriate training and staff briefing sessions.
- Champions of the project on the shop floor
- Ensuring regular feedback results to all staff groups
- Presenting information in a variety of formats
- Coordinate regular meetings with Project Team to discuss project progression and action plan/ delegation of responsibilities
- Target specific staff groups according to their involvement in the project (ED admin staff, clinical site managers)
- Liaise with trust data analysts to present data effectively and professionally
- Write and present reports as required

Lead Consultant

- Providing day to day medical leadership to the Project
- Agree quality metrics for measurement (clinical and operational) to assess impact of project with Lead Nurse
- Provide education support in all aspects of the project, but with specific emphasis on medical staff at all levels and consultant colleagues.
- Champions of the project on the shop floor
- Presenting project information and results in a variety of formats
- Target specific staff groups according to their involvement in the project (CSMs)
- Write and present reports as required

Audit Coordination Nurse / Data Analyst

- Collecting and collating agreed metrics
- Review retrospective data to enable comparison of current results
- Managing supporting staff involved in auditing
- Liaise with trust data analysts to present data effectively and professionally
- Contribute and present data results to project group and wider audience

Other key stakeholders

Senior Medical & Nursing Team – need to entrust commitment to project and be a champion on shop floor

Data Analyst needs to be on board and prepared to assist project with data production and presentation

Receptionist/Patient Flow Coordinators needs to be on board and understand their contribution as per local procedures

Form your local implementation team

We recommend that each team makes time for fortnightly meetings to discuss the progress of the ED Safety Checklist implementation, to ensure the practicalities of the project are being addressed, staff are being supported, messages are being appropriately disseminated and to review site data to track progress. We have provided a generic agenda, which you may find helpful to facilitate these fortnightly meetings. Please feel free to tailor this to your specific team.

LIT fortnightly meeting agenda

Housekeeping

Review of the practicalities required to introduce the ED Safety Checklist, such as printing etc

Data

Review of current data

Dashboard

Measurement strategy

Staff

Nursing and medical staff

Pioneers and laggards

Peer support

Risk & issue log

Communications & education

Project documentation

It is recommended that each team maintain a Risk & Issue Log for the duration of the project.

Once you have your aim agreed, as a team, consider what risks and issues may prevent you from achieving your aim.

An **issue** is something that is happening. A **risk** is something that might happen. Please use your own organisational risk management scoring for likelihood and impact of risks occurring.

The status of a risk can be open (action required), accepted (all mitigation in place, no action required), closed (risk or issue has been closed).

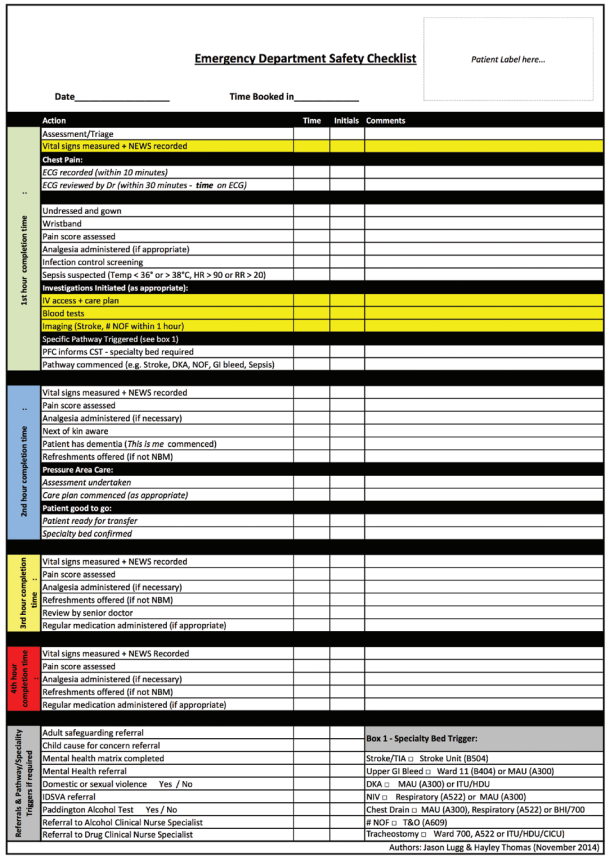
Timing of implementation

We recommend that you consider the timing of the implementation of the ED Safety Checklist.

In most EDs, winter crowding puts significant operational pressures on staff at all levels. Therefore, it would be sensible to commence the implementation project during periods when crowding is not as prevalent and staff have capacity to be released from their shop floor responsibilities.

Organise your Emergency Department

Consider how you will print, store and restock the ED Safety Checklist. Each team will need to consider how this works for their local operational procedures.



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Authors: Jason Lugg & Hayley Thomas (November 2014)

Photocopy the ED Safety Checklist

If printing in black and white, check the resolutions on all the fields.

Consider what you will do with the ED Safety Checklist once a patient has been discharged out of ED.

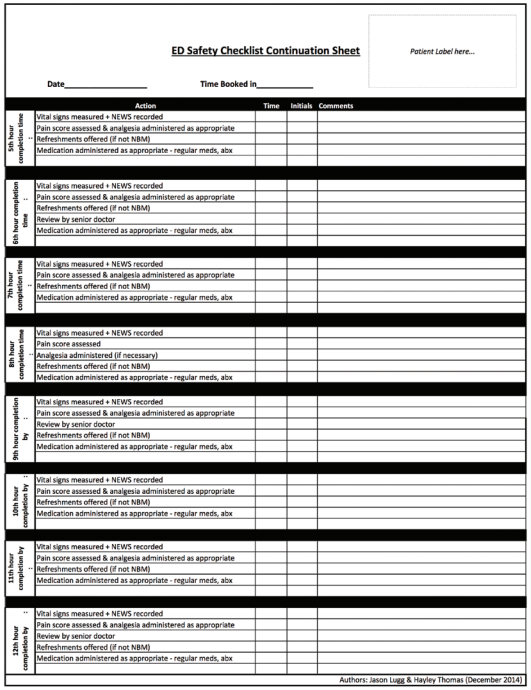
Sites in the West of England Patient Safety Collaborative found that incorporating the ED Safety Checklist into the ED notes 'booklet' saw an increase in reliability of use of the checklist for all patients. In some departments, this whole booklet gets scanned when the patient is discharged out of the department prior to being filed and/or taken with the patient to the ward, which helped with monitoring implementation.

Each team needs to consider how they will incorporate the ED Safety Checklist into their ED notes and what procedures will put in place for filing and access for audit.

Interface with the ambulance trust

Patients queuing to offload from ambulance into ED is common. The risk of patients deteriorating in this queue is a significant patient safety issue.

Teams should consider engaging with their Ambulance Trust to agree a Standard Operating Procedure (SOP) for paramedics to commence their ED Safety Checklist in the queue and as a tool at handover of care.



ED Safety Checklist Continuation Sheet

Patient Label here...

Date_____ Time Booked in_____

	Action	Time	Initials	Comments
5th hour completion time :	Vital signs measured + NEWS recorded			
	Pain score assessed & analgesia administered as appropriate			
	Refreshments offered (if not NBM)			
	Medication administered as appropriate - regular meds, abx			
6th hour completion time :	Vital signs measured + NEWS recorded			
	Pain score assessed & analgesia administered as appropriate			
	Refreshments offered (if not NBM)			
	Review by senior doctor			
	Medication administered as appropriate - regular meds, abx			
7th hour completion time :	Vital signs measured + NEWS recorded			
	Pain score assessed & analgesia administered as appropriate			
	Refreshments offered (if not NBM)			
	Medication administered as appropriate - regular meds, abx			
8th hour completion time :	Vital signs measured + NEWS recorded			
	Pain score assessed			
	Analgesia administered (if necessary)			
	Refreshments offered (if not NBM)			
	Medication administered as appropriate - regular meds, abx			
9th hour completion by :	Vital signs measured + NEWS recorded			
	Pain score assessed & analgesia administered as appropriate			
	Review by senior doctor			
	Refreshments offered (if not NBM)			
	Medication administered as appropriate - regular meds, abx			
10th hour completion by :	Vital signs measured + NEWS recorded			
	Pain score assessed & analgesia administered as appropriate			
	Refreshments offered (if not NBM)			
	Medication administered as appropriate - regular meds, abx			
11th hour completion by :	Vital signs measured + NEWS recorded			
	Pain score assessed & analgesia administered as appropriate			
	Refreshments offered (if not NBM)			
	Medication administered as appropriate - regular meds, abx			
12th hour completion by :	Vital signs measured + NEWS recorded			
	Pain score assessed & analgesia administered as appropriate			
	Review by senior doctor			
	Refreshments offered (if not NBM)			
	Medication administered as appropriate - regular meds, abx			

Authors: Jason Lugg & Hayley Thomas (December 2014)

Communication and training

It is recommended that teams ensure information about the checklist programme, 'go live' dates and the wider patient safety benefits of the checklist are communicated not only to ED but across the Trust in order to encourage a culture of support and participation in the programme. Teams should consider a communications strategy in advance of 'go live' dates via planned bulletins or within regular communications to both ED and Trust wide staff.

ED Safety Checklist training

This Toolkit recognises that each team will have their own training methods and structures for training their staff in the ED Safety Checklist.

For the pilot implementation at UH Bristol the ED Safety Checklist was introduced during the Bite size Teaching Sessions that occur daily at 8am. The emphasis during these sessions was on:

- **Culture** – ensuring organisational buy-in, especially senior nursing and medical staff.
- **Testing** – Are the fields in the ED Safety Checklist right for your ED? Do additional fields need adding?
- **Successes and challenges** – review of the testing cycles, the successes and challenges to implementation.
- **Staff feedback**.

Feedback during testing

During your testing of the ED Safety Checklist, you may find it helpful to carry out an anonymised staff survey to see how well the checklist has been received and to gather opinion on sections that work and those that need improvement. A SurveyMonkey questionnaire may be good format for this during your study period of a PDSA cycle.

Real-time feedback

To ensure ongoing compliance with the checklist once implemented and embedded, UH Bristol gave the Nurse Shift Leaders the responsibility to check and monitor that the ED Safety Checklist was being completed for all (appropriate) patients and provide 'real-time' feedback and support for those staff who were failing to consistently complete the ED Safety Checklist.

It is our strong recommendation that each adopting ED identify on-shift resource to fulfil this role and provide shop-floor support and feedback to staff.

National Early Warning Score training

A suggested field of the ED Safety Checklist is that vital signs and the National Early Warning Scores (NEWS2) are regularly calculated.

The NEWS2 is routinely used in inpatient wards but often not calculated or tracked in ED or in ambulance queues. The use of a track and trigger system in the UH Bristol pilot showed demonstrable improvements to patient safety and quality of care. If teams do not routinely use NEWS2 it may be worth considering an ED training programme to familiarise staff with the accurate calculation of the score.

Case study - evidence informed recommendations

NIHR CLAHRC West, now recommissioned as the NIHR Applied Research Collaboration West (ARC West), evaluated the implementation and use of the ED Checklist during 2017. The full findings will be available soon in a journal paper but here are some of their key recommendations for implementation. The evaluation used qualitative and quantitative data.

The research interviews and observations conducted by NIHR CLAHRC West identified the value of emphasising the primary purpose of the tool, involvement and endorsement from senior ED staff, dedicated training time and full integration with existing clinical documentation improved its implementation.

NIHR | Applied Research Collaboration West

1. Promoting the clinical purpose

The research found that the checklist was sometimes seen as an administrative rather than a clinical document which contributed to it being overlooked when busy.

Promoting the ED Checklist to be clear about its purpose and rationale for its introduction can help to implement it effectively. Taking a clear approach to its purpose is better and it should be promoted as:

- A patient safety tool aimed at avoiding undetected patient deterioration
- A framework to support staff in monitoring patient care and patient safety in busy and demanding ED environments

2. Obtaining senior staff support

Obtaining senior ED management support from doctors, managers and senior nurses **is crucial to ensuring the ED Checklist becomes integral to the department's usual workflow.**

Our research found there was better recognition and 'buy in' to the checklist when it was associated with the Department and an implementation team rather than an individual.

3. Training time

Planning dedicated staff training sessions and allowing staff time to train, ask questions and reflect on the checklist was more effective for implementation purposes that ad-hoc 'on the job' training.

This allowed a greater scope for communicating the purpose of the ED Checklist, how it can support patient safety and be integrated into the department's work processes more effectively.

4. Tailoring & integrating the ED checklist

To successfully integrate the ED checklist, two adaptations are necessary:

a) The ED Checklist needs to be tailored to your department's specialisms/clinical priorities and

b) the ED Checklist needs to be formatted and integrated into the ED paperwork and not just clipped or stapled to it

Our research indicates these adaptations will reduce the potential for the ED Checklist to be viewed as 'just another form' and will encourage smoother implementation.

One trust who has implemented the ED Checklist took several attempts and trial runs to get to the checklist they wanted and to get it integrated into their clinical workbook.

About the National Early Warning Score (NEWS2)

NEWS2 has been produced as a way of making sure that where a patient is at risk of acute deterioration, then vital signs are recorded at a frequency suitable to the clinical scenario, and that escalation of treatment is timely and appropriate where it is needed. Since then it has become promoted as a communication device providing a summary of a patient's condition and a prompt for intervention, escalation of care or referral as required.

Calculating NEWS2

Vital signs are recorded as a way of finding out if there has been a positive response to treatment, or whether a patient needs a change to an ongoing treatment plan. Whilst it is recognised that serious complications may happen to patients without any warning, in the majority of situations there are warning signs that if acted on are likely to be associated with better outcomes.

NEWS2 is an inherently simple device but its implementation may involve considerable complexity depending on the organisation in which it is being used. There are two areas that require concentrated efforts; these are ensuring that NEWS2 is recorded accurately, and ensuring that NEW Scores are well linked to escalation of treatment where this is required. There are significant training implications in any NEWS2 implementation.

To access free resources developed by the West of England Patient Safety Collaborative to support the implementation of NEWS2 visit www.weahsn.net/dp

Physiological parameter	Score 3	2	1	0	1	2	3
Respiration rate (per minute)	≤8		9–11	12–20		21–24	≥25
SpO_2 Scale 1 (%)	≤91	92–93	94–95	≥96			
SpO_2 Scale 2 (%)	≤83	84–85	86–87	88–92 ≥93 on air	93–94 on oxygen	95–96 on oxygen	≥97 on oxygen
Air or oxygen?		Oxygen		Air			
Systolic blood pressure (mmHg)	≤90	91–100	101–110	111–219			≥220
Pulse (per minute)	≤40		41–50	51–90	91–110	111–130	≥131
Consciousness				Alert			CVPU
Temperature (°C)	≤35.0		35.1–36.0	36.1–38.0	38.1–39.0	≥39.1	

The Royal College of Physicians (RCP) has led the development of the National Early Warning Score which advocated standardising the use of a NEWS system across the NHS in order to drive the 'step change' required in the assessment and response to acute illness.

Following feedback a second iteration of NEWS was published by the RCP. We recommend use of NEWS2 as an early warning score as part of the ED safety checklist.

Find out more at
https://www.rcplondon.ac.uk/projects/outputs/national-early-warning-score-news

Royal College of Physicians

Monitoring progress

Once you have started using the ED Checklist, it's important to gather evidence to establish how successful its implementation has been.

Collecting data to establish how often the ED Checklist is getting used, which tasks are being completed and looking for trends or problems using this data can be very valuable. Data collection can serve as evidence of care and its quality for each patient both internally and externally.

How to do this?

A standardised approach needs to be followed. We recommend our audit template which has a column for each patient and a row for each component of the ED Checklist. The template includes core fields and additional example fields such as 'refreshments provided within 2 hours of admission.' You will need to add additional fields depending on how you have tailored your checklist.

How often?

Decide how often you are going to audit the checklists. We recommend this is done monthly to accurately assess progress and observe how checklist completion is affected by factors such as winter pressures as well as improvements over time.

Who to audit?

Each month (or however often you choose) randomly select a sample of majors/resus patients who came into your ED the previous month. You may want to ask your IT team to help you with this. Sample size will depend on the size of your ED and should be the same proportion each month, for example, this could be 5 or 10 per cent of patients.

How to audit?

Complete the audit spreadsheet for all patients in your sample:

- For each component of a checklist which has been completed, fill in a "Yes" on the audit spreadsheet.
- If n/a or a note has been filled out for a component of the checklist to say it was not required, a "Yes" should also be filled in on the audit spreadsheet (because this is still correct use of the checklist).
- If a component has not been completed on the checklist, a "No" should be filled in on the audit spreadsheet.
- For the hourly repeated measures, a "Yes" should only be completed on the audit spreadsheet if the field has been completed for every hour up until ED discharge
- If no checklist is present in the notes, or a checklist is present but blank, all fields on the audit checklist should be recorded as "No."
- If a patient is discharged within an hour, we would not expect anything to be recorded for hour 4. So, if a patient were in the ED for 3.5 hours, NEWS should be recorded on arrival, at 1 hour, 2 hours and 3 hours.

The audit process

Each month, obtain a random set (eg 5%) of ED notes from all majors and resuscitation patients

For **ALL** sets of sampled notes, complete the audit spreadsheet with data on whether or not ED Checklist fields have been completed

(If a checklist is absent or blank, all fields on the audit spreadsheet should be completed as 'no')

Collate the data anonymously and store. The dashboard within the audit spreadsheet will summarise the data by calculating the percentage of each field completed across all sampled patients each month

Follow the same process and update the audit spreadsheet each month so you can compare your data

Different types of measures

There are different types of measures:

- **Process measures**, e.g. the number of sessions delivered each month, number of staff trained in each session, number of public contributors involved in training sessions.
- **Outcome measures**, e.g. staff attitude survey of perception of communication within the team and safety attitudes, and confidence with using SBAR before and after the intervention
- **Balancing measures**, e.g. number of 999 call outs from residential homes before and after training delivered, staff sickness and turnover rates.

What can you measure?

We can **count** something, e.g. the number of patients who have diabetes in a given population, or the number of serious adverse events in a given time period.

We can use **ratios** which consider of two numbers, a numerator and a denominator. Sometimes this number is expressed as a **percentage**. For example if there are 5 adverse events each year in a 250 population, that is 0.02 adverse events per person (ratio) or a 2% adverse event rate (percentage).

Reasons for measuring:

- Measurement for **judgement**: where measures are used to judge us against performance targets, other Trusts, etc. Improvement is not about judgement, however, you can use measures to judge and manage your own progress
- Measurement for **diagnosis**: where data is gathered to understand the process, to see if there is a problem and how big it is. This is a useful technique, especially early in your work, for example, to really understand the demand and capacity at a bottleneck in the process
- Measurement for **improvement**: where a few specific measures, linked to the your objectives and aims, demonstrate whether the changes are making improvements
- Measurement for **sustainability**: to ensure the changes and the improved outcomes are maintained and are part of everyday practice. These are long term measures linked to organisational aims
- Measurement for **spread**: specific measures to demonstrate the extent to which learning and change principles for improvement have been adopted.

Run charts

A run chart is a tool for improvement which shows how your project is going.

To show that things have improved you need to show the things that have changed, and that the change is not a one off. You must consider whether the change has been sustained. Run or control charts allow you to see if this has happened.

For more information on measuring visit Making Data Count https://improvement.nhs.uk/resources/making-data-count/

Appendixes

Supporting resources

This toolkit and supporting resources are available online at www.weahsn.net/ed-checklist

The ED Safety Checklist is available online in editable format and as a PDF for printing.

You can watch a short video here about the ED Safety Checklist pilot at UH Bristol.

SHINE 2014 Final report at http://www.weahsn.net/wp-content/uploads/EDCL2016_A7_01.docx

Research papers

http://www.nhs.uk/NHSEngland/keogh-review/Documents/UECR.Ph1Report.Appendix%201.EvBase.FV.pdf

https://www.rcplondon.ac.uk/resources/national-early-warning-score-news

https://www.england.nhs.uk/wp-content/uploads/2015/08/Sepsis-Action-Plan-23.12.15-v1.pdf

http://www.nice.org.uk/guidance/indevelopment/GID-CGWAVE0686/consultation/html-content

http://www.ncepod.org.uk/2015report2/downloads/JustSaySepsis_FullReport.pdf

Image sources

Photo on front cover and p14 from NHS Photo Library.

All other images have been developed by the West of England Patient Safety Collaborative for this toolkit.

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The most recent version of this toolkit and supporting resources are available at **www.weahsn.net/ed-checklist**