Learning from the Scottish Patient Safety Programme

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@SPSP_AcuteAdult #spspDetPat

- SPSP
- Cardiac Arrest Improvement
- Our future work


HERE'S TAE US;
WHA'S LIKE US?
GEY FEW'
AND THEY'RE
A' DEID'

Patient Deterioration

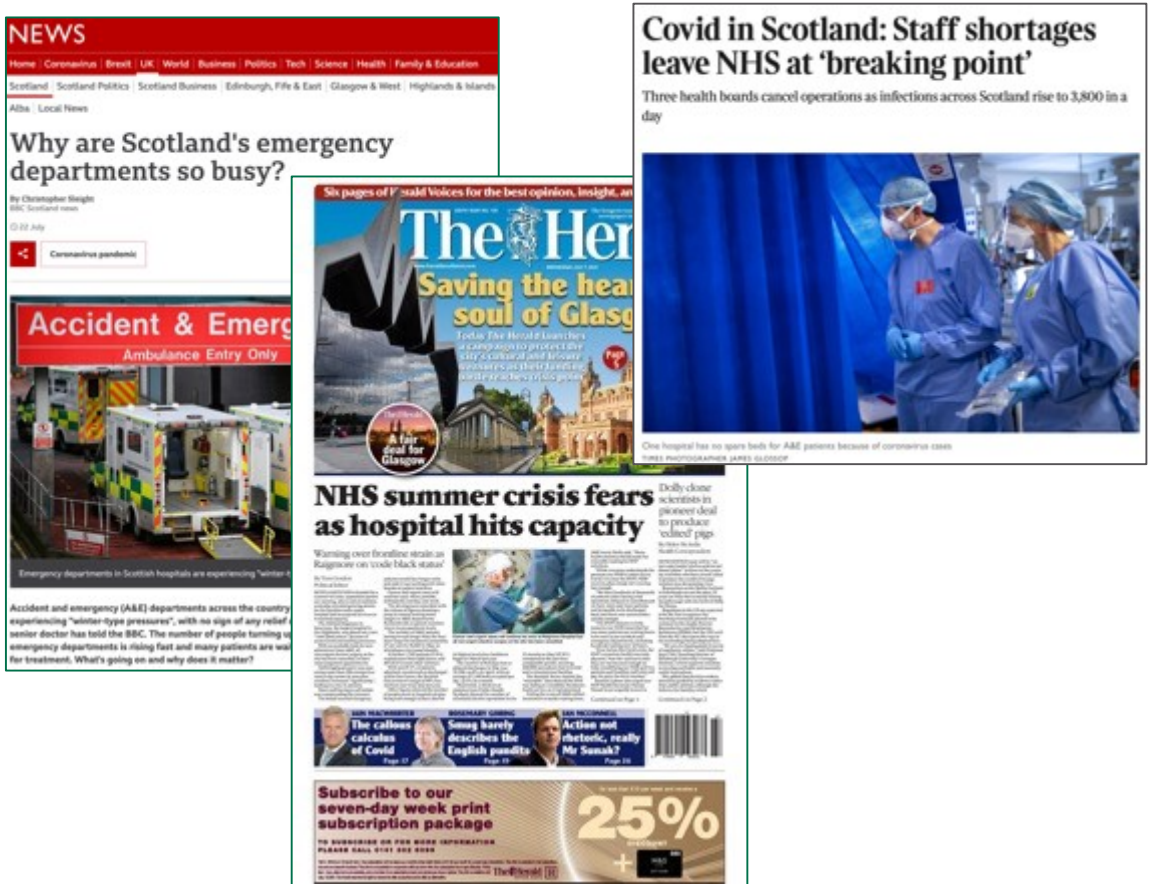
Why?

“Heal the sick, comfort the dying, and don’t get the two mixed up”

Patient Deterioration: Why is it important?

- Historically challenging times

- Everything else has changed:
  - Sepsis
  - Overdose
  - Acute Coronary Syndrome
  - Major Trauma
  - Delerium
  - Frailty



Patient Deterioration: Why is it important?

Our landscape has changed!

Patient Deterioration: Why is it important?

Our landscape has changed!

Patient Deterioration: Why is it important?

A recent case:

Bill

-Aged 63
-PMH of Schizophrenia, well managed with community support over several years
-Mental health deteriorated over lockdown
-Commenced on Clozapine trial July 2021

Patient Deterioration: Why is it important?

- Bill is increasingly drowsy
- Bill is brought to the Emergency Department by his wife
- Temp 39.1, Sats 96% on air,
- BP 126/67, Pulse 96, Unresponsive,
- GCS 12

NEWS2: 6 15:00

NEW score of 5 or more? Think sepsis!

In a patient with a **NEW score of 5 or more** and a known infection, signs and symptoms of infection, or at risk of infection, think **'Could this be sepsis?'** and **escalate care immediately.**

Chart 1: The NEWS scoring system

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	

Patient Deterioration: Why is it important?

- Bill's bloods show neutropenia, clotting deranged
- CXR shows bilateral consolidation
- Diagnosis of neutropenic sepsis made

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Air or oxygen?		Oxygen		Air			
Systolic blood pressure (mmHg)	≤90	91–100	101–110	111–219			≥220
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Consciousness				Alert			CVPU
Temperature (°C)	≤35.0		35.1–36.0	36.1–38.0	38.1–39.0	≥39.1	

NEWS2: 5 17:00

The NEWS2 is actually 8!

Patient Deterioration: Why is it important?

- SEPSIS 6, Lactate checked and less than 2
- IV access was difficult
- FY2 unable to obtain blood cultures
- No senior review of Bill is recorded
- Bill's NEWS2 remained high, errors in scoring occurred

Patient Deterioration: Why is it important?

- NEWS2 remained high on transfer to admission ward varying between 8-9
- Bill has now been in hospital for 7 hours
- Nursing staff escalate to medical staff immediately
- ”Patient commenced on oxygen.. Patient not tolerating oxygen”

Patient Deterioration: Why is it important?

- Bill's nurse has a sense of urgency:
  - Call the family
  - Cant get in touch
  - What are their wishes?

- 23.00 NEWS2 remains 9

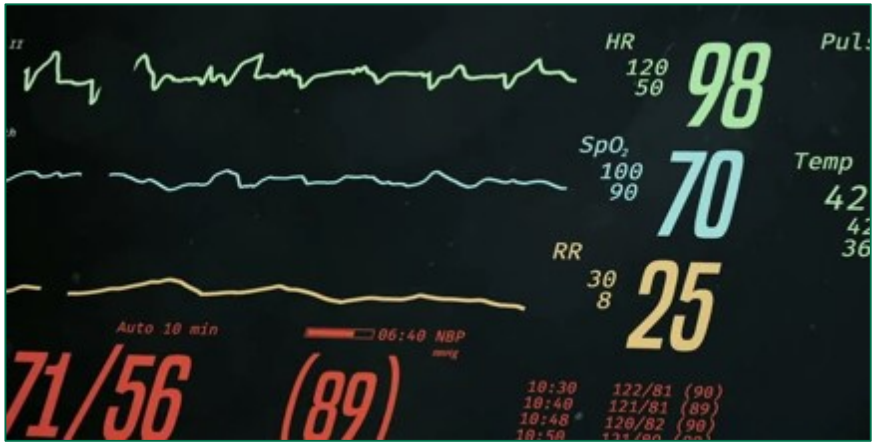
Bill is seen by junior and discussed with Registrar
Plan to "escalate to ITU if deteriorates"

- 01.00 Not keeping oxygen on so given sedation

- 02.00 Registrar attempted to attend but multiple emergencies occurring at once

Patient Deterioration: Why is it important?

- Bill's sats are now dropping
- Bill vomits
- Medical emergency call is put out
- Bill enters Cardiac Arrest
- CPR is commenced



Patient Deterioration: Why is it important?

- Reducing Cardiac Arrests Saves lives
- Recognition of Acute Deterioration Saves Lives
- Standardised Response to Deterioration Saves Lives
- Safe Communication across Care pathways Saves Lives
- Leadership to support a culture of safety at all levels Saves Lives

What does Health Improvement Scotland do?

"to enable the people of Scotland to experience the best quality of health and social care"

- Regulation of independent hospitals and clinics
- Improvement Hub(iHub)
- Community Engagement
- Health Technologies
- Clinical Guidelines (SIGN)
- Scottish Medicine Consortium
- Scottish Antimicrobial Prescribing Group
- **Scottish Patient Safety Programme (SPSP)**

Scottish Patient Safety Programme

Launched in 2008

Expanded to support improvement across a range of Healthcare settings

Acute, Primary Care, Mental Health, Maternity, Neonatal, Paediatric and Medicines Safety

EVERY PERSON 24/7 EVERY TIME SCOTTISH PATIENT SAFETY PROGRAMME

Scottish Patient Safety Programme

Improve the safety and reliability of care and reduce harm

Acute Adult healthcare setting first

Initial aim to reduce hospital mortality by 15% (16.5% achieved by 2015)

Scottish Patient Safety Programme

Acute Adult Collaborative:

- Falls
- Deteriorating Patient

Scottish Patient Safety Programme

Local SPSP Programme Manager

Clinical Lead

Local steering group

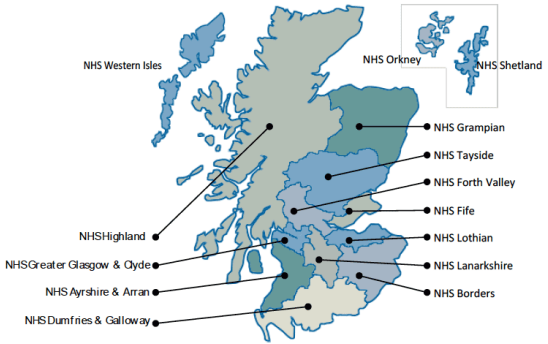
Latest Collaborative launched September 2021

Hosting webinars

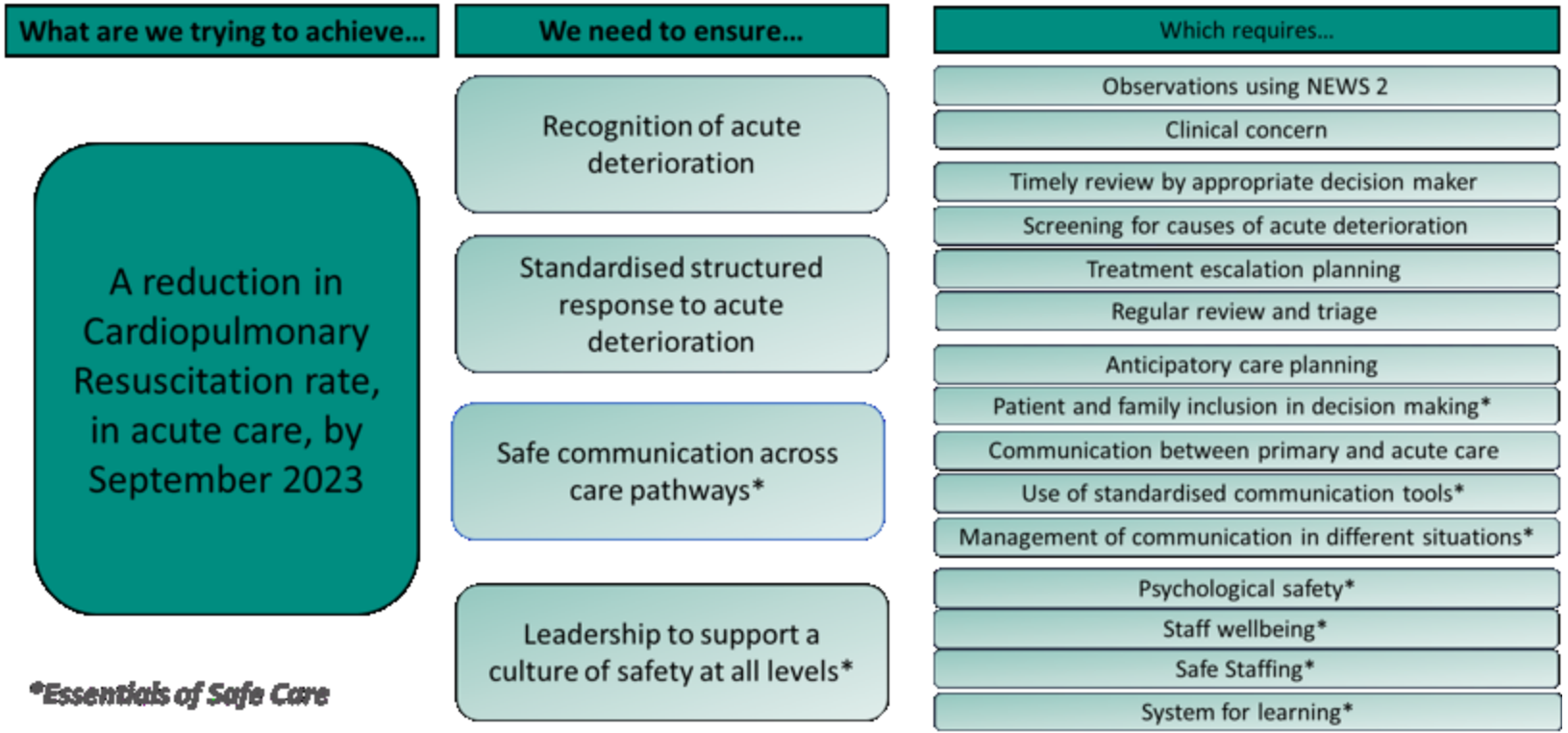
Sharing data, supporting measurement and evaluation

Supporting networks

Producing evidence summaries and case studies



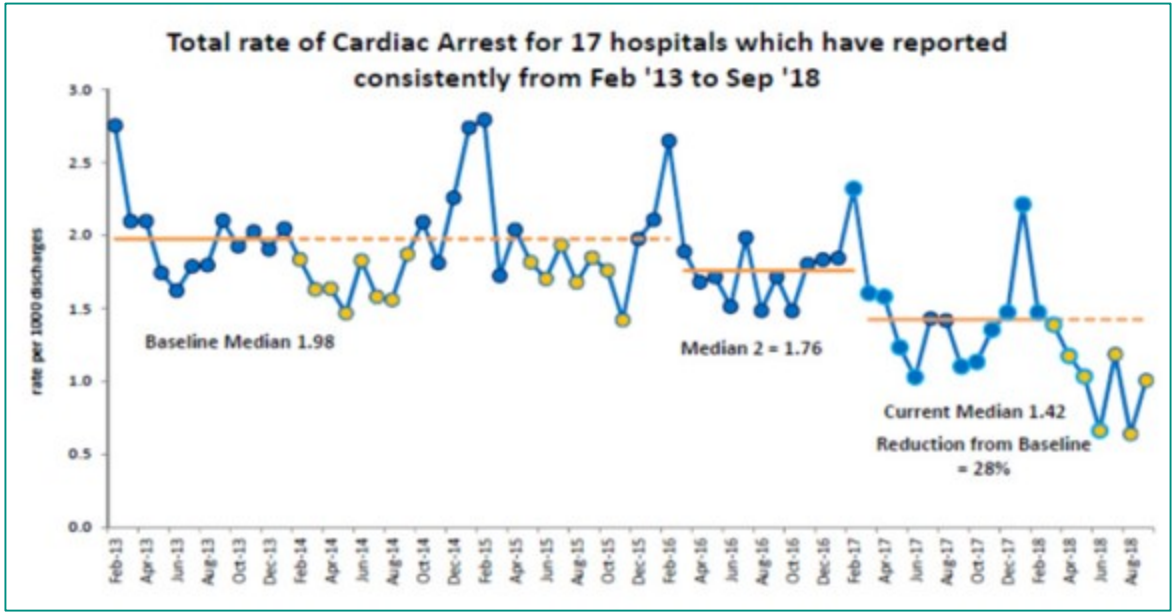
Patient Deterioration: Driver Diagram



Patient Deterioration: Measurement

Readiness for change and identifying opportunities for improvement • Readiness for change and prioritisation assessment • Regular case note review to identify opportunities for improvement	
Outcome Measures	• Cardiac arrest rate
Process Measures	• Recognition of acute deterioration – NEWS2 • Sepsis screening • Sepsis response • Delirium screening • Delirium response • Score to door time: Mean time from NEWS2 trigger to Critical Care admission • Generic response • Treatment escalation planning • Review of cardiac arrest/2222 calls
Balancing Measures	• Critical care admission rate • Overall hospital standardised mortality ratio • Patient and family experience of 'end of life' discussions *(Qualitative)* • Staff experience *(Qualitative)*

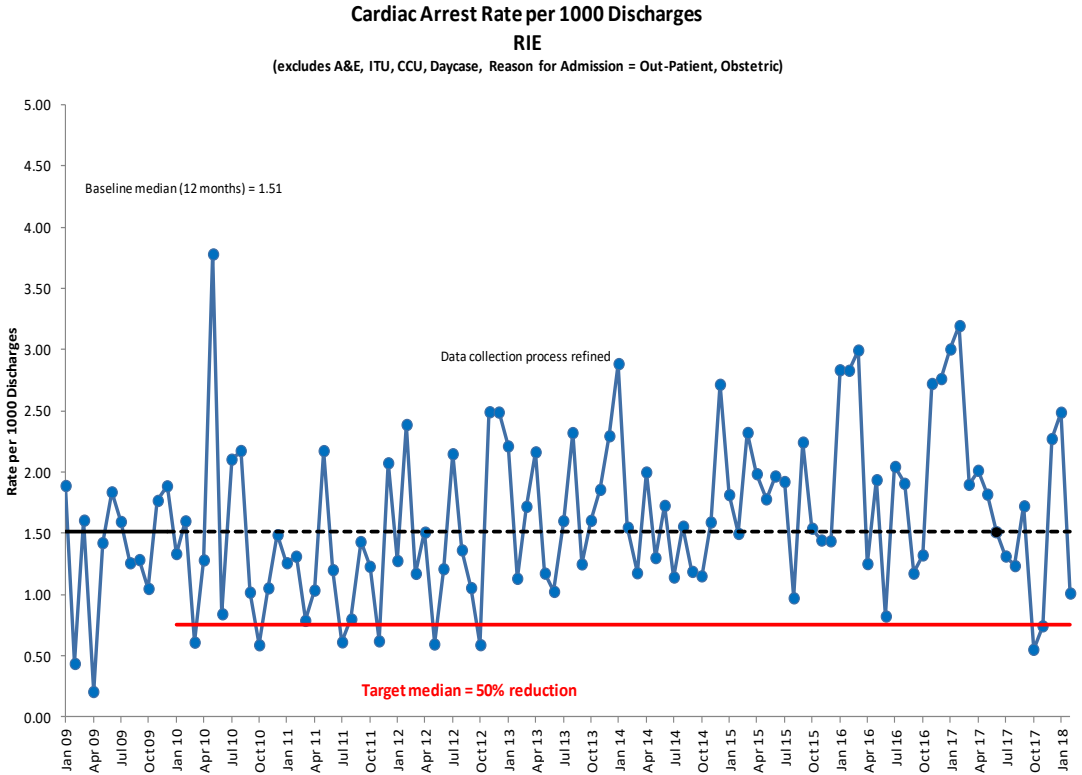
Patient Deterioration: Measurement



How did we know there was a problem

SPSP outcome measures showed that we were not improving, with wide variation in data.

Other boards were improving



A Quality Management System

- Quality Planning Phase

- Quality Improvement Phase

- Quality Control Phase

- Further Quality Planning

Understanding the system, using Deming's Lens of Profound Knowledge

Quality Planning

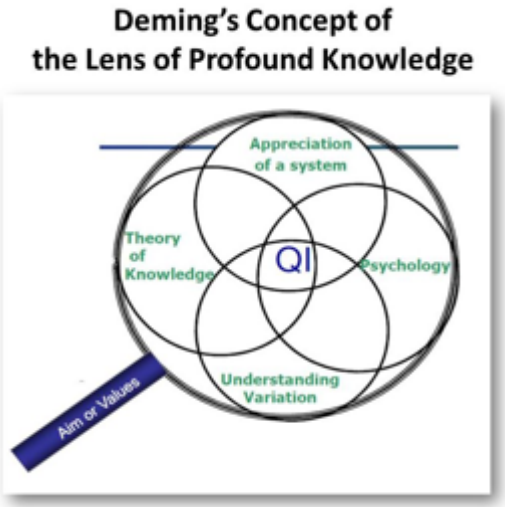
Appreciation of a System
- Clinicians conducted a large-scale review of all cardiac arrests to identify potential themes for learning

Theory of Knowledge
- Subject expert group of advisors, including a Clinical Lead (Consultant Intensivist, Resuscitation Officers, Clinical Education Team)

Human Behaviour
- Staff questionnaires – fishbone of barriers, psychological safety, knowledge base, suggestions for improvement
- Observations of practice

Understanding Variation
- Ward-based work to measure variation in process measures to obtain baselines
- SPC charts

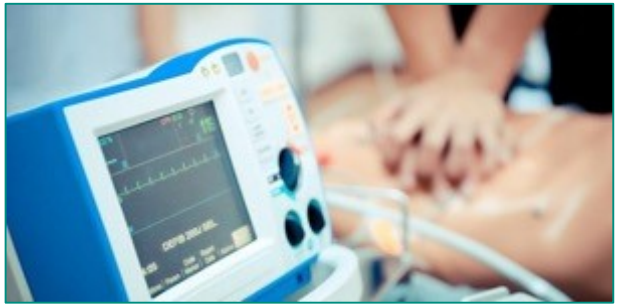
✓ Key learning from the review informed an improvement plan



Learning informed the Driver Diagram

Findings

- Wide variation in process measures e.g. observation frequency, escalation, response and reviews
- Knowledge base variable



Deteriorating Patients Improvement Programme – Driver Diagram

National AIM	Primary Drivers	Secondary Drivers	Change Ideas **separate list of change ideas available
"95% of people with physiological deterioration in acute care will have a structured response and person centred care plan" 50% reduction** in CPR attempts*** in general ward setting by March 2019 ** *Based on 2009 baseline of 1.91 (currently 1.76)* ***chest compressions and / or defibrillation and attended by the hospital-based resuscitation team – or equivalent – in response to the 2222 call	Reliable Anticipatory care	• Standardised and robust communication of Anticipatory Care through multidisciplinary lines and patients / families • Documentation of Anticipatory Care • Increased Goals of care opportunities • Staff confidence to hold inclusive, realistic 'good' conversations	- "KIS [tool]" Key Information Summary at the interface - The Hospital Anticipatory Care Plan (H-ACP) – adapted for use from the Oncology ACP - "EC4H" Effective Communication for Healthcare (http://www.ec4h.org.uk/) - "My Anticipatory Care Plan [tool]" in comunity (http://ihub.scot/media/2204/acp-guidance-for-health-professionals-1-0.pdf) - Use Deteriorating Patient Group as a forum to share learning around ACP
	Reliable Recognition & response	• Standardised and robust communication of deteriorating pts within and outside team • Documentation of each step • Reliable NEWS frequency, increased as applicable to condition • Reliable NEWS frequency, particularly overnight • Escalation and clear responsibility for each patient • Senior medical review • Medical re-review • Maximise emergency response e.g. CA team • Examine electronic solutions	- MOE tools - Structured Response Tool - Structured Critical Care Review tool - Structured Ward Round - Revision of Site Huddle script to highlight deterioration - Redevelop Deteriorating Patient Group to drive change and improvement in multiple different areas - Team training - Simulation - Electronic Early Warning Score recording
	Learning for improvement	• Rapid feedback from an event on ward to service • Establish robust learning and feedback from an event • Establish robust mechanism for monitoring Cardiac Arrests	- Standardised Case Review Tool - 'Hot' debriefs at emergency call - Outlined responsibilities and process to review / report / M&M - RO 2222 call data sheet updates - Weekly site-based 2222 reports - Local reviews & thematic analysis and rapid feedback to teams - Safety Huddles - Explore electronic solutions to build system reliability

Quality Improvement : Ward-based

- Using Model for Improvement
- Quality Directorate provided ward-based improvement coaching and data interpretation with individuals and teams to address any identified areas for improvement

Project Charters per ward

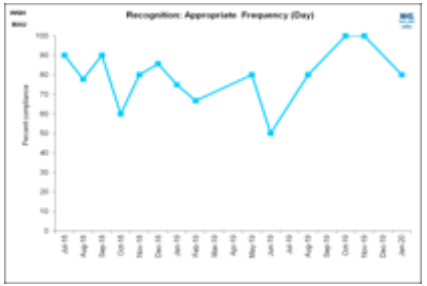
List of change ideas

Programme change ideas from which to choose and test	
General	Use completed Cardiac Arrest Review Tools and 2222 forms to inform learning e.g. reliability of overnight obs Use data measurement from tools that can be provided (for all steps) Ensure multidisciplinary staff has completed the on-line NEWS module Ensure multidisciplinary staff has completed BLS or ILS
	Anticipatory conversations documented on TRAK Clinical Note or a "back slash" prompt Ward-based treatment plan documented on TRAK Clinical Note or a "back slash" prompt Staff prompt cards for identification & care planning ACP conversation guides / printed cards (BoB resources)

Wards developed improvements in line with their data – regular feedback

Ward – scale No.	Anticipation	Recognition	Escalation	Review	Communication / Documentation
8 Scale: 2.8	• Areas of concern – new staff / student nurses not completing NEWS charts correctly. SCN discussing with individuals where required • ToC's include: SCN highlighting observations at Safety Brief, particularly frequency and correct completion of charts; laminated sheet at each bay highlighting frequency of individual patients next set of observations, including overnight observations – positive feedback from staff; data displayed on ward - display data as a % rather than run charts to support staff understanding				
9 Scale: 2.8	• New Deteriorating Patient Champion identified and data collection recommenced, supported by QIST • ToC's include: Resuscitation Officer ward-based training on NEWS2, ABCDE for all nursing staff (first session successfully held for Band 5's and 2's early November. Further sessions organised); patients with high NEWS highlighted at Safety Brief; laminated posters at bays highlighting 4 hourly observations, frequency of observations for individual patients and guidance on conducting observations – posters working well and positive feedback from staff; potential Patient at a Glance Board; and SRT tool for one patient • SCN attended SPSP National Deteriorating Patient Event in December 2019				

Wards developed improvements in line with their data – regular feedback

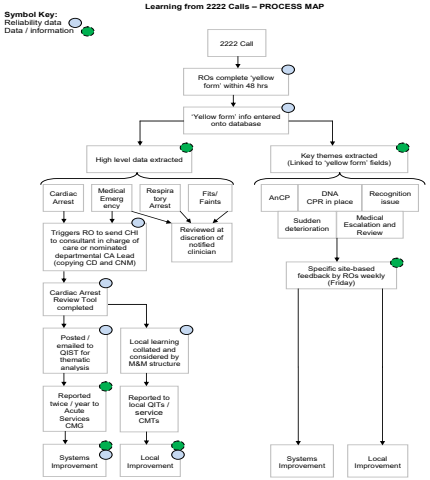


Quality Improvement: System-wide

QI Capacity & Capability

- Quality Academy
- eQI sessions
- QI Coaches
- Coaching Clinics
- Excellence in Care
- Quality Improvement Teams

Revised and standardised system for learning, theming, sharing and reporting



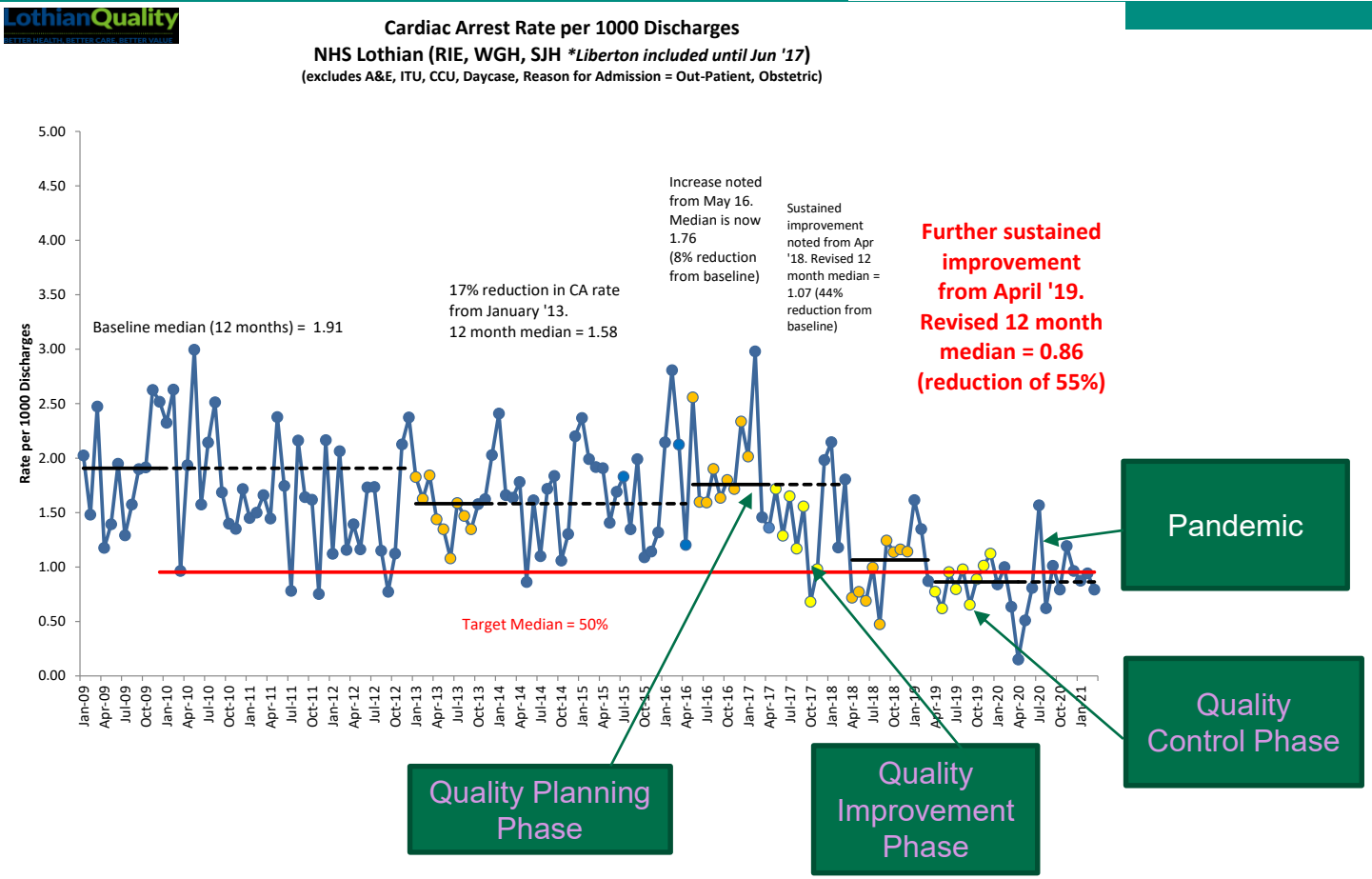
Robust Programme Management

Gantt on the management of the Deteriorating Patient Improvement Plan for RIE, WGH & SJH from September 2017 (Jan-Aug 2017 Gantt complete)

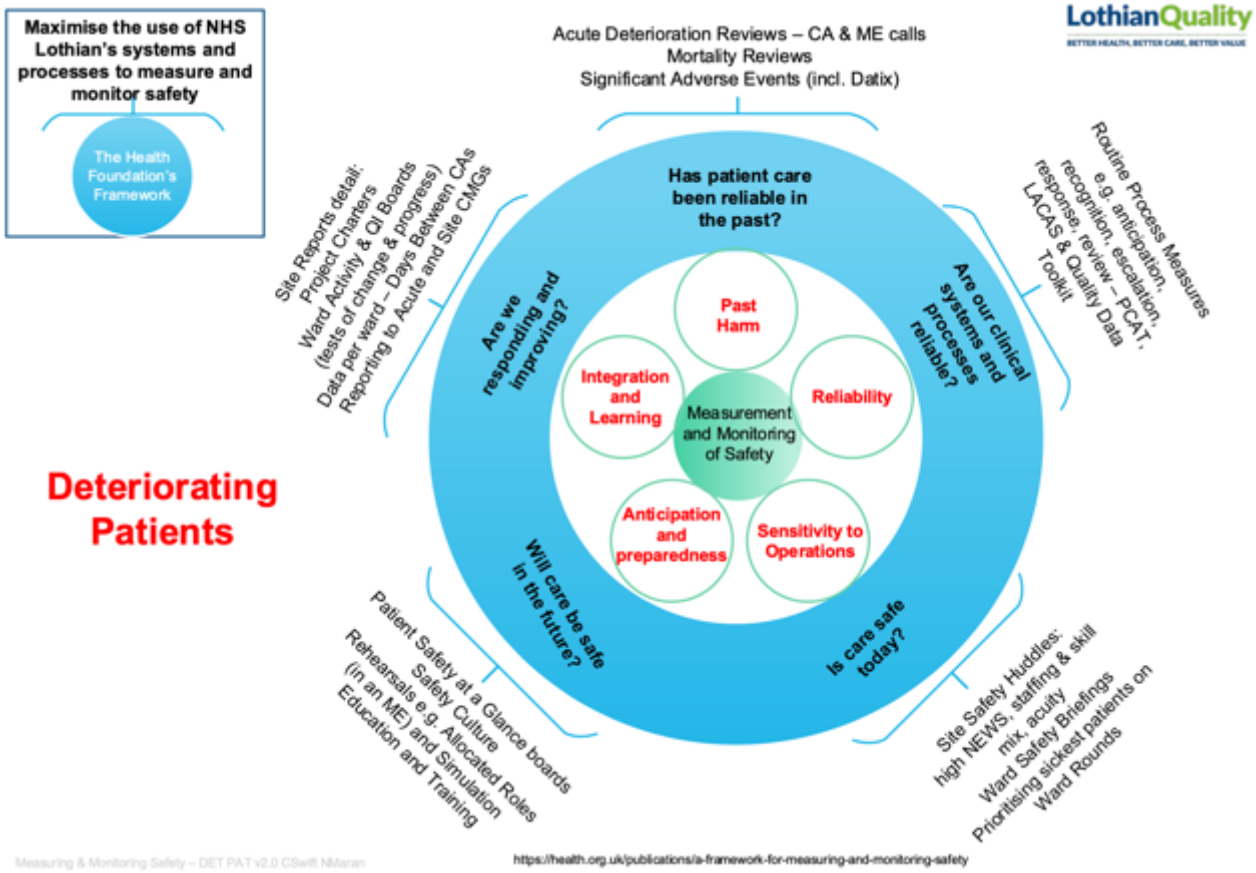
1.0	PLANNING	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	A
1.1	Executive Team leading												
1.2	Healthcare Governance Committee and Acute Hospitals Committee Assurance Reports								done				
1.3	Acute Services Clinical Management Group commitment and updates	done	verbal	verbal	verbal	verbal	verbal	done	verbal	verbal	Site Rpt	Site Rpt	v
1.4	Site Clinical Management Groups										due	Site Rpt	Sit
1.5	Driver Diagram update following further learning					up-date						up-date	
1.6	Measurement Framework update following further learning					up-date					up-date		
1.7	Communications Plan	done								up-date			
1.8	Programme Charter (original Feb 2017)								up-date				
1.9	Improvement wards - Project Charters (x14)								1/14	2/14	3/14	7/14	1
2	Develop Det Pat Site Reports										done	done	d
2.1	Develop Ward Dashboards									due	done	done	d
2	**LEARNING for IMPROVEMENT**	**Sep-17**	**Oct-17**	**Nov-17**	**Dec-17**	**Jan-18**	**Feb-18**	**Mar-18**	**Apr-18**	**May-18**	**Jun-18**	**Jul-18**	**A**
2.1	2222 call "yellow forms" - reliable completion and extraction to NHS Lothian's database								done				
2.2	Learning from 2222 database collated and shared - at site Huddles by ROs and an excel summary sheet for QIST								done				
2.3	Consistent Site Huddle reporting by ROs on a Friday								done				
2.4	Consistent reporting of high NEWS and pts of concern at daily site huddles, including plan, escalation stage and review stage, and DNACPR									due	done		

2 monthly Site Reports on outcome and process measures, progress and plans

NHS Lothian Cardiac Arrest Rate

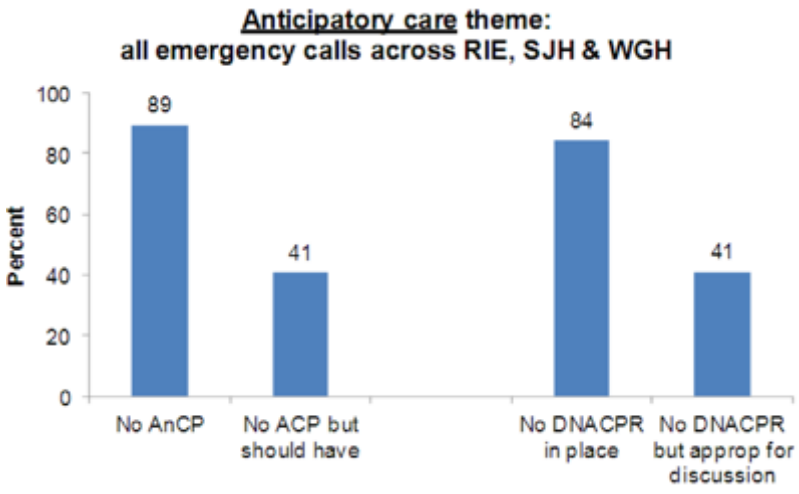


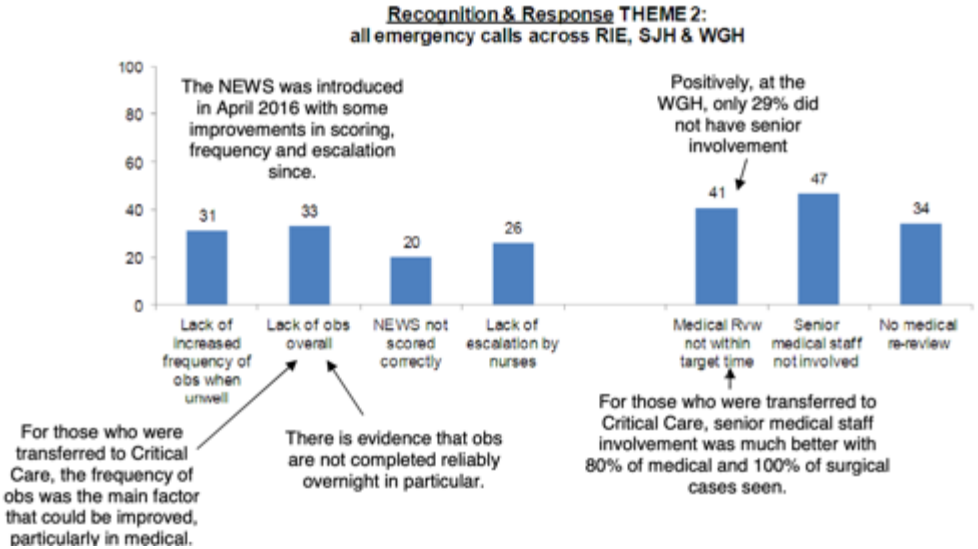
Further Planning: Measuring and Monitoring Safety



What did the QMS approach mean to the clinicians on the ground?

Quality Planning:
Review of Cardiac Arrests



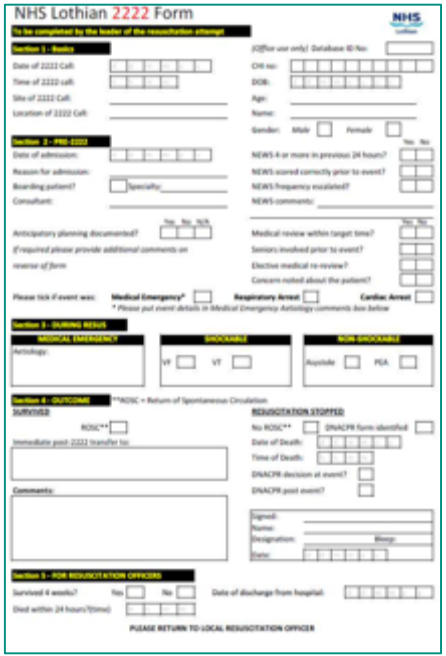


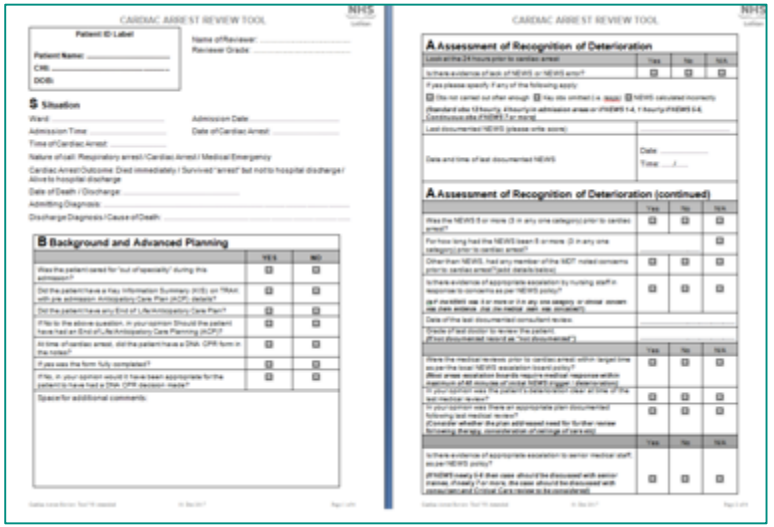
-Greater knowledge of the system across Lothian and on individual sites

-Highlighted areas which could be improved and also areas where performance was better

Quality Improvement:
Clinical Data: Clinical Engagement

- Deteriorating Patient Group brought together key clinical stakeholders
- Resus Officers collected data that informed change
- Consultants were engaged in Cardiac Arrest Review Process


NHS Lothian 2222 Form


CARDIAC ARREST REVIEW TOOL

A Assessment of Recognition of Deterioration

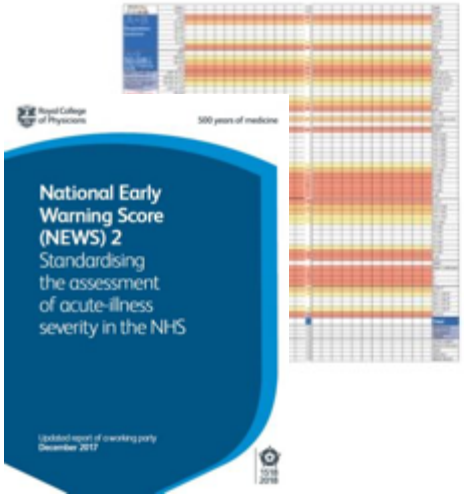
A Assessment of Recognition of Deterioration (continued)

B Background and Advanced Planning

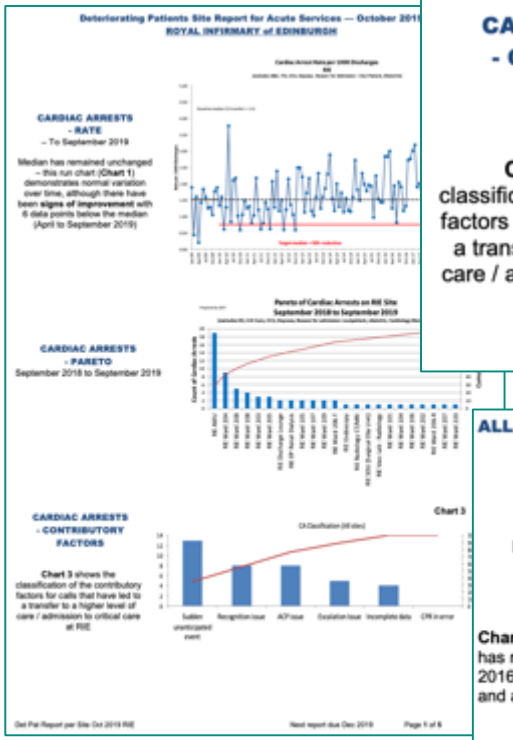
Quality Improvement: System-wide

Site Huddles were used to share learning and drive change: Focus on NEWS2 escalation and ACP

We used the introduction of NEWS2 to complete SOPs, clinical guidelines, widespread ward-based clinical education package, relaunch Escalation Boards and policy



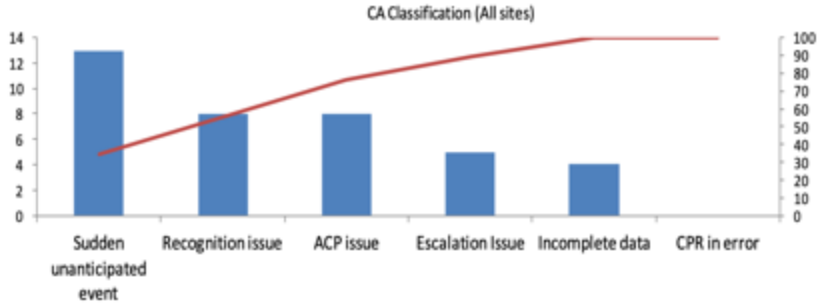
Quality Improvement & Quality Control: System-wide



CARDIAC ARRESTS - CONTRIBUTORY FACTORS

Chart 3 shows the classification of the contributory factors for calls that have led to a transfer to a higher level of care / admission to critical care at RIE

Chart 3

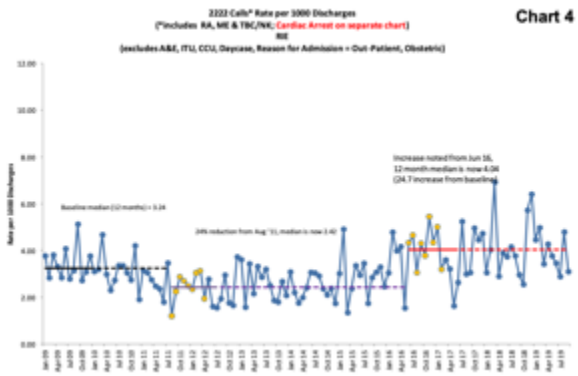


ALL EMERGENCY CALLS

EMERGENCY CALLS - RATE

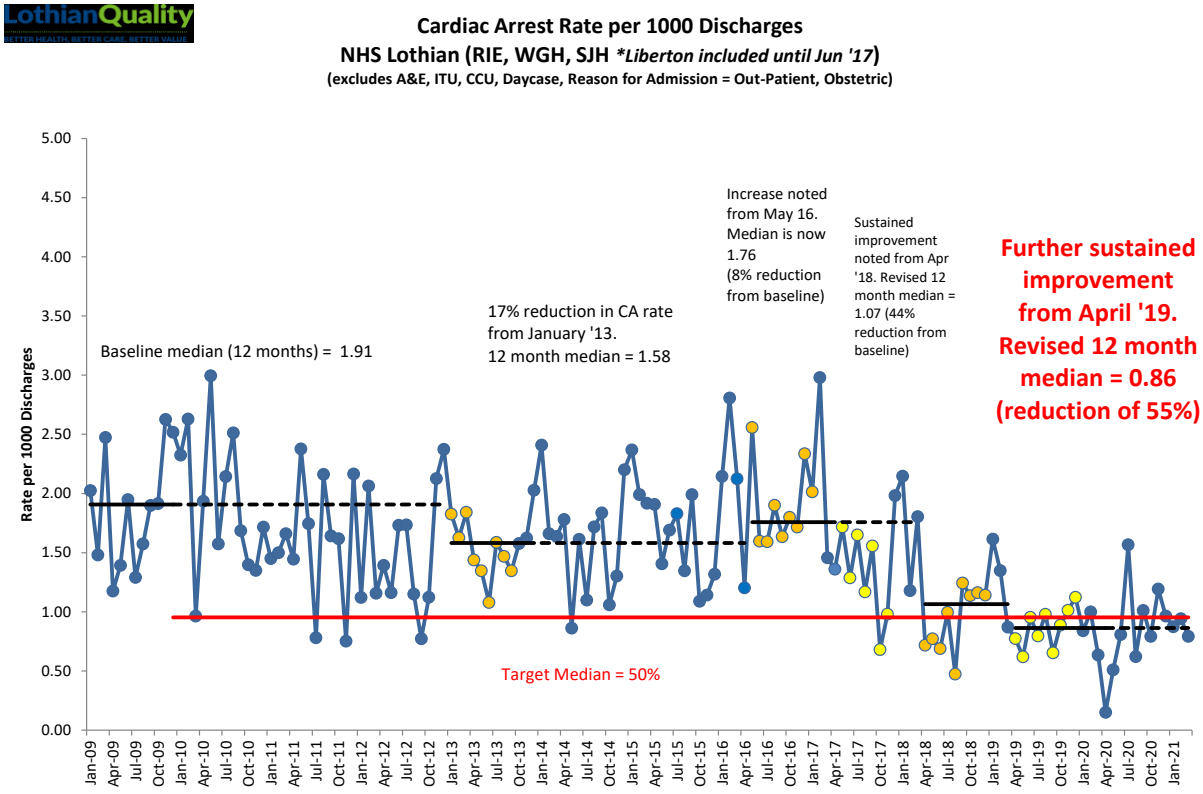
Chart 4 shows that the median has remained unchanged since 2016 despite increased acuity and activity.

Chart 4

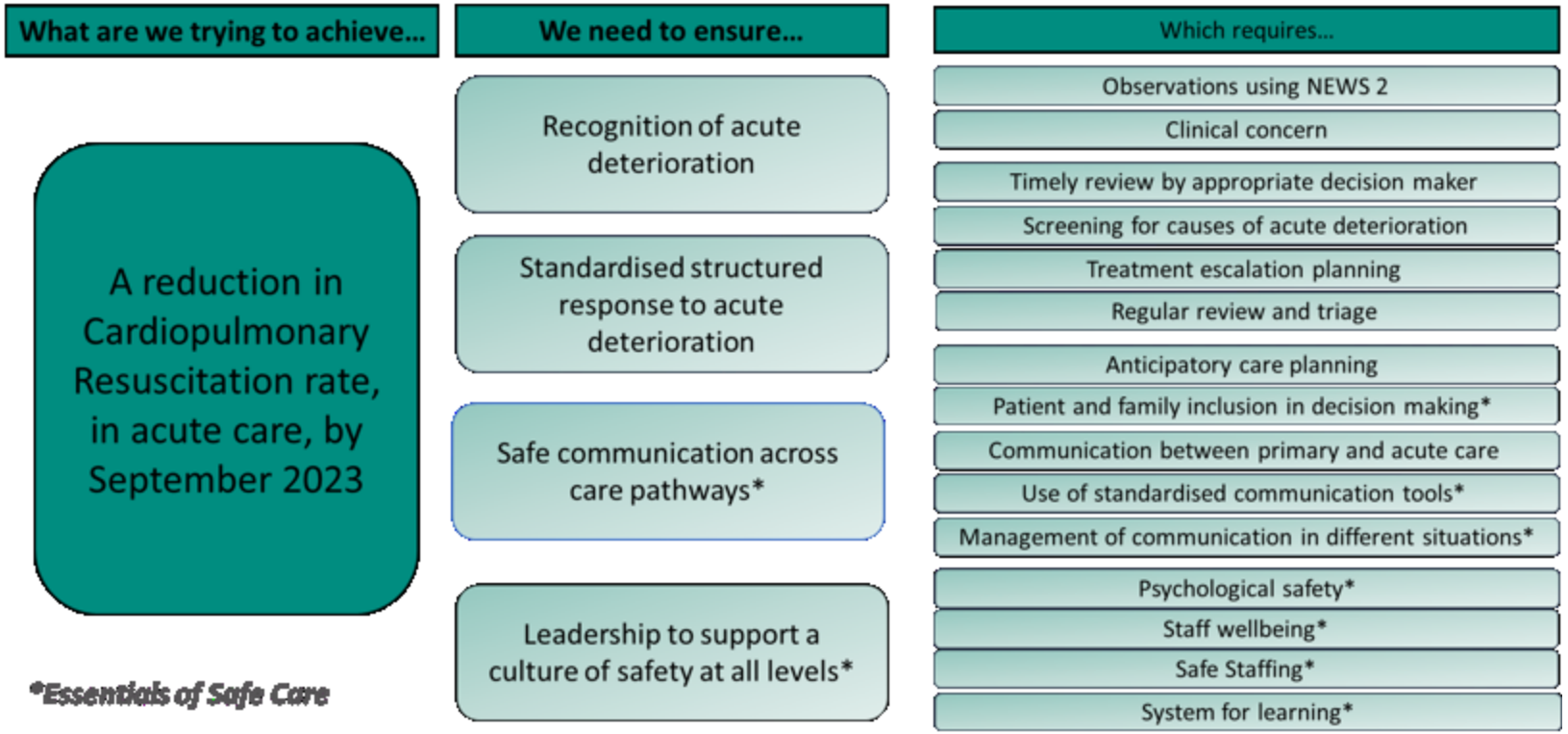


QMS: Additional clinical benefits

NHS Lothian Cardiac Arrest Rate



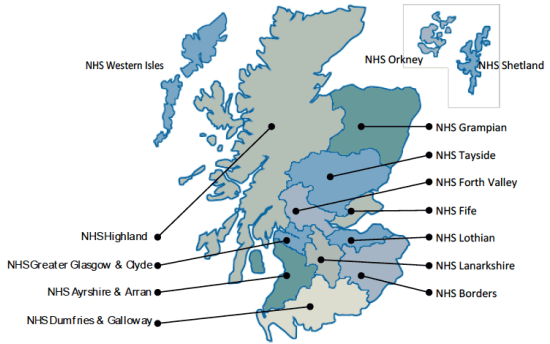
Patient Deterioration: Where now?

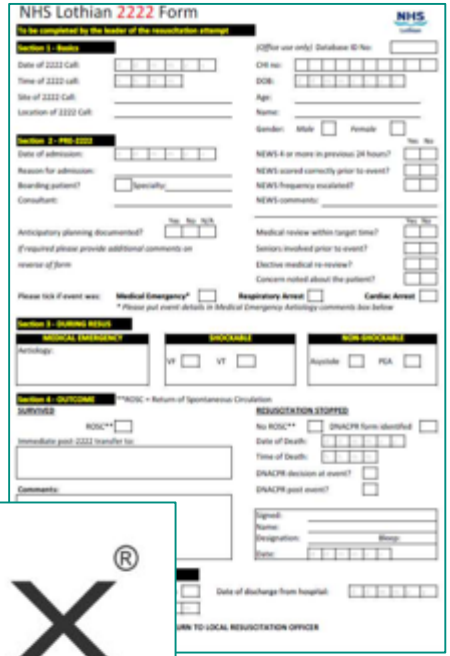


Patient Deterioration: Where now?

- Reliability of data
- Structured Response
- Treatment Escalation Planning
- Sepsis
- eObs

Patient Deterioration: Reliability of Data





Datix®

Software for patient safety

Structured Response

Structured Response

MEDICAL EMERGENCY TEAM

NHS Southend University Hospital

Critical Care Outreach

KEEP CALM AND LEAVE IT TO THE RAPID RESPONSE TEAM

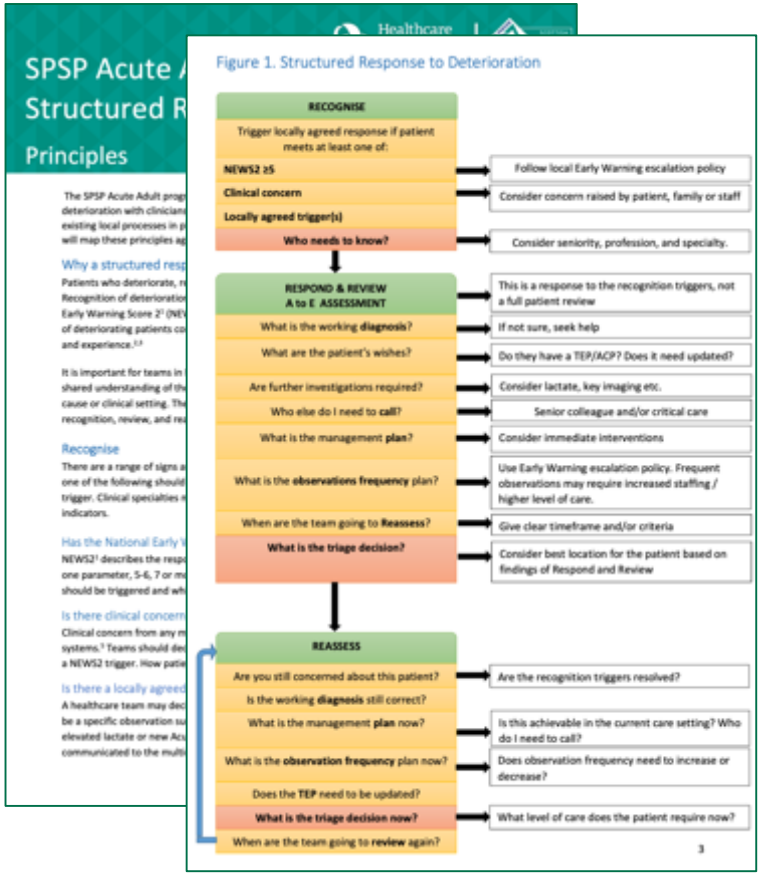
Structured Response

NHS SCOTLAND

Improving safety through a Structured Response

Toolkit components:

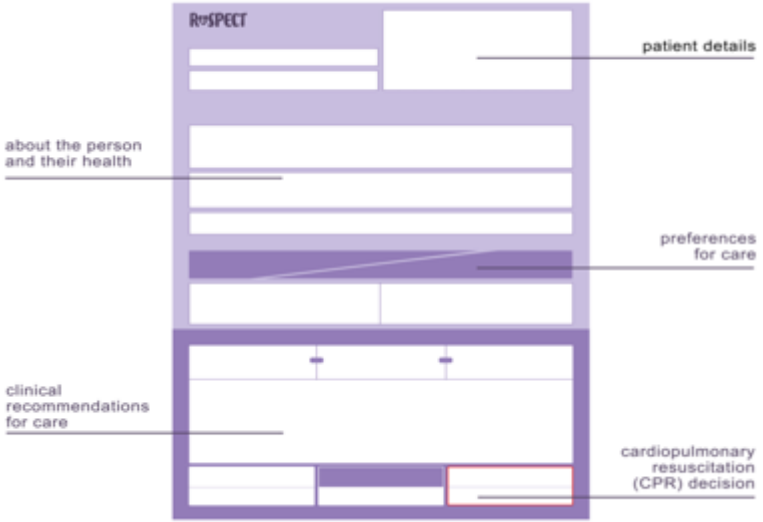
-Recognise
-Respond and Review
-Reassess

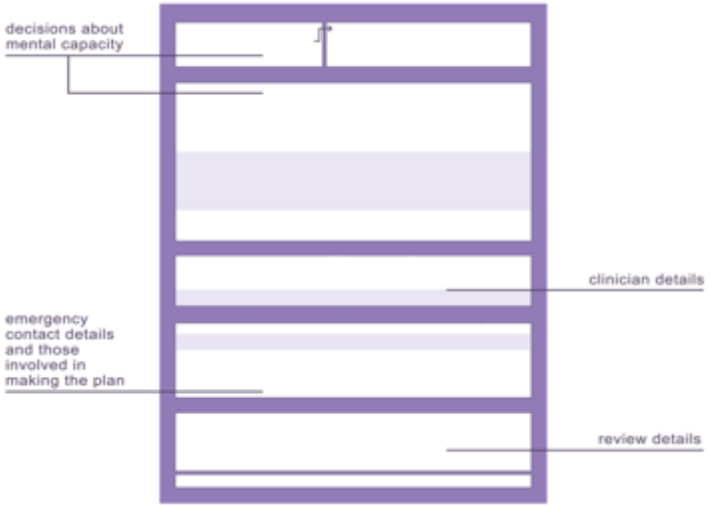


Treatment Escalation / Anticipatory Care Planning

RESPECT

Recommended Summary Plan for Emergency Care and Treatment





Sepsis: Changing Targets

The Academy of Medical Royal Colleges' (AoMRC) Position Statement on:

- Initial Antimicrobial Treatment in Sepsis
- Published May 2022

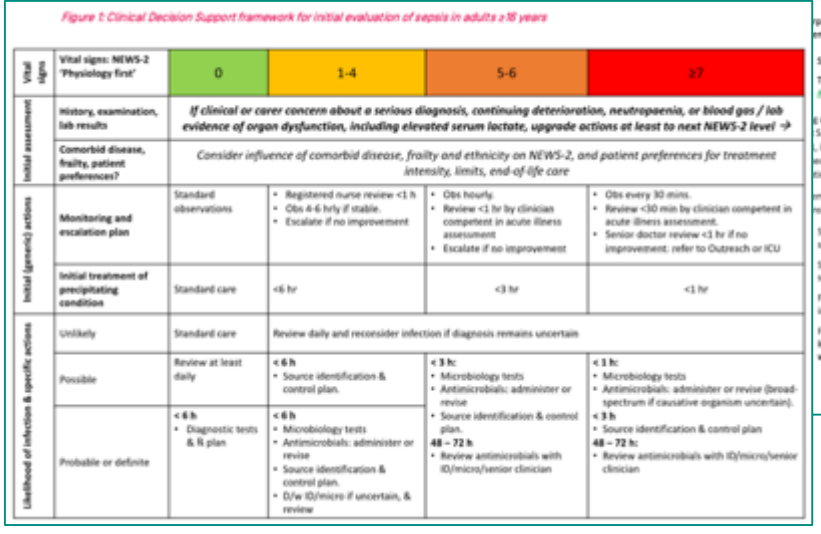
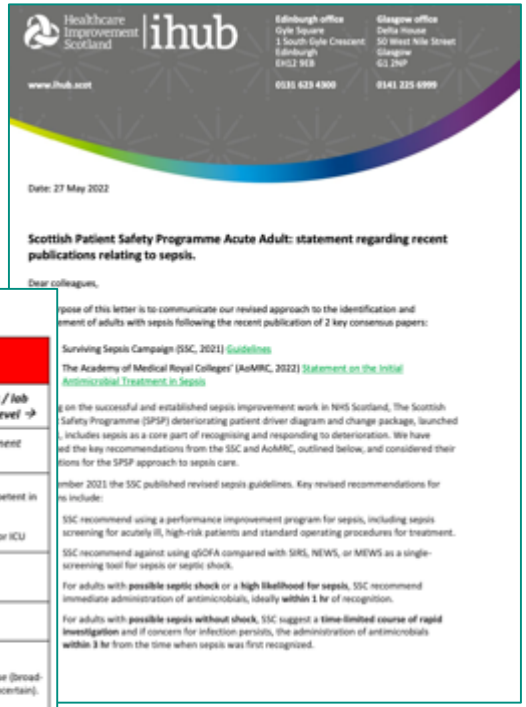


Figure 1: Clinical Decision Support framework for initial evaluation of sepsis in adults ≥16 years

Vital signs	Vital signs: NEWS-2 'Physiology first'	0	1-4	5-6	≥7
Initial assessment	History, examination, lab results	*If clinical or carer concern about a serious diagnosis, continuing deterioration, neutropaenia, or blood gas / lab evidence of organ dysfunction, including elevated serum lactate, upgrade actions at least to next NEWS-2 level* →			
	Comorbid disease, frailty, patient preferences?	*Consider influence of comorbid disease, frailty and ethnicity on NEWS-2, and patient preferences for treatment intensity, limits, end-of-life care*			
Initial (generic) actions	Monitoring and escalation plan	Standard observations	• Registered nurse review <1 h • Obs 4-6 hrly if stable. • Escalate if no improvement	• Obs hourly. • Review <1 hr by clinician competent in acute illness assessment • Escalate if no improvement	• Obs every 30 mins. • Review <30 min by clinician competent in acute illness assessment. • Senior doctor review <1 hr if no improvement: refer to Outreach or ICU
	Initial treatment of precipitating condition	Standard care	<6 hr	<3 hr	<1 hr
Likelihood of infection & specific actions	Unlikely	Standard care	Review daily and reconsider infection if diagnosis remains uncertain		
	Possible	Review at least daily	**< 6 h** • Source identification & control plan.	**< 3 h:** • Microbiology tests • Antimicrobials: administer or revise • Source identification & control plan. **48 – 72 h** • Review antimicrobials with ID/micro/senior clinician	**< 1 h:** • Microbiology tests • Antimicrobials: administer or revise (broad-spectrum if causative organism uncertain). **< 3 h** • Source identification & control plan **48 – 72 h:** • Review antimicrobials with ID/micro/senior clinician
	Probable or definite	**< 6 h** • Diagnostic tests & R plan	**< 6 h** • Microbiology tests • Antimicrobials: administer or revise • Source identification & control plan. • D/w ID/micro if uncertain, & review		



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Date: 27 May 2022

Scottish Patient Safety Programme Acute Adult: statement regarding recent publications relating to sepsis.

Dear colleagues,

rpose of this letter is to communicate our revised approach to the identification and ement of adults with sepsis following the recent publication of 2 key consensus papers:

Surviving Sepsis Campaign (SSC, 2021) Guidelines

The Academy of Medical Royal Colleges' (AoMRC, 2022) Statement on the Initial Antimicrobial Treatment in Sepsis

g on the successful and established sepsis improvement work in NHS Scotland, The Scottish Safety Programme (SPSP) deteriorating patient driver diagram and change package, launched , includes sepsis as a core part of recognising and responding to deterioration. We have ed the key recommendations from the SSC and AoMRC, outlined below, and considered their tions for the SPSP approach to sepsis care.

mber 2021 the SSC published revised sepsis guidelines. Key revised recommendations for ns include:

SSC recommend using a performance improvement program for sepsis, including sepsis screening for acutely ill, high-risk patients and standard operating procedures for treatment.

SSC recommend against using qSOFA compared with SIRS, NEWS, or MEWS as a single-screening tool for sepsis or septic shock.

For adults with **possible septic shock** or a **high likelihood for sepsis**, SSC recommend immediate administration of antimicrobials, ideally **within 1 hr** of recognition.

For adults with **possible sepsis without shock**, SSC suggest a **time-limited course of rapid investigation** and if concern for infection persists, the administration of antimicrobials **within 3 hr** from the time when sepsis was first recognized.

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Learning from the Scottish Patient Safety Programme

- SPSP
- Cardiac Arrest Improvement
- Our future work