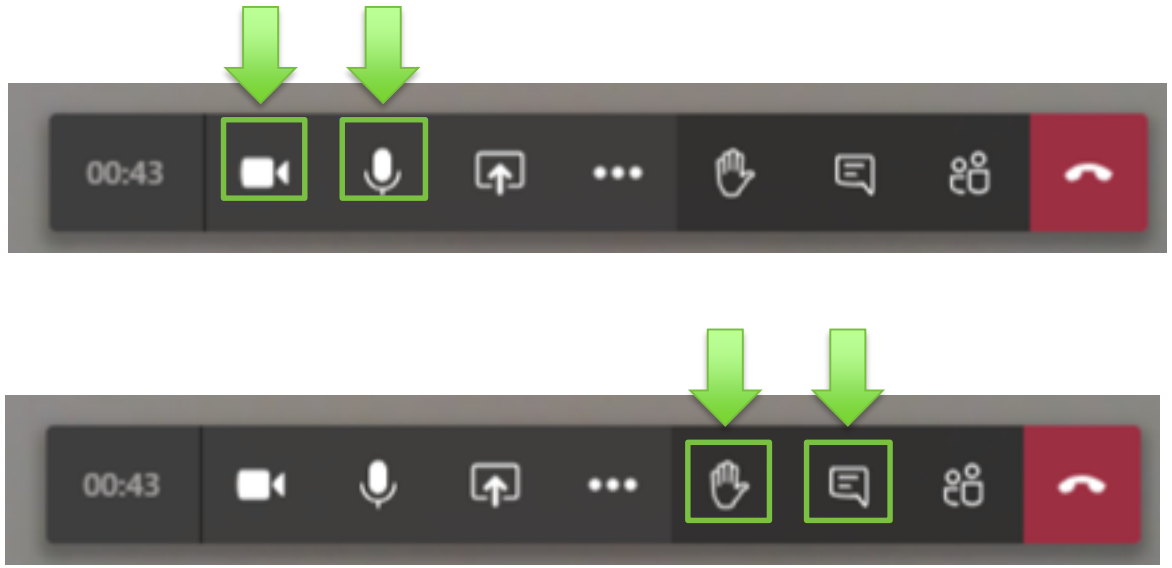
#spspDetPat

SPSP Acute Adult Deteriorating Patient Webinar:

Shock to Survival: A structured response to the patient with Cardiogenic Shock

21 March 2023

Meeting participation



- During the meeting please have your microphone on mute and video turned off
- To take part in discussions use the chat box or raise your hand and wait to be invited to speak, please then:
  - unmute your mic
  - turn on your video (if you are happy to do so)
  - after speaking please re-mute and turn your video off

Trouble shooting

Any technical issues, please contact:

- MS Teams chat or
- Email: his.acutecare@nhs.scot

Aims

- Provide an update on the SPSP Acute Adult Collaborative Deteriorating Patient work
- Hear from the author of the Shock to Survival Report and its findings
- Provide an opportunity to discuss the role of a structured response to deterioration in supporting early identification of cardiogenic shock

Agenda

Time	Topic	Lead
14:00	**Welcome, aims & introductions**	**Dr Gregor McNeill**, SPSP Acute Adult National Clinical Lead, Healthcare Improvement Scotland (HIS)
14:05	**SPSP Acute Adult Deteriorating Patient update**	**Dr Gregor McNeill**, SPSP Acute Adult National Clinical Lead, HIS
14:15	**SPSP Acute Adult Collaborative Deteriorating Patient Webinar – Shock to survival**	**Dr Alastair Proudfoot,** Consultant in Critical Care & Lead for Cardiogenic Shock, Barts Heart Centre, London
14:40	**Panel discussion – views from across Scotland:** • **Dr Alex Warren,** Visiting Researcher, University of Edinburgh • **Dr Claire Gordon,** Acute Medicine Consultant, NHS Lothian • **Dr Stephen Friar,** Consultant Intensivist, NHS Grampian • **Dr Paul Rocchiccioli,** Consultant Cardiologist, NHS GJNH • **Dr Neil Brain,** Consultant Intensivist, NHS GJNH	**All**
15:05	**Q&A**	**Dr Gregor McNeill,** SPSP Acute Adult National Clinical Lead, Healthcare Improvement Scotland
15:20	**Key dates/ Evaluation/Close**	**Dr Gregor McNeill,** SPSP Acute Adult National Clinical Lead, HIS
15:30	**Close**	

SPSP Acute Adult:
Deteriorating Patient Programme

What are we trying to achieve…

A reduction in Cardiopulmonary Resuscitation rate, in acute care, by September 2023

Essentials of Safe Care

We need to ensure…

- Recognition of acute deterioration
- Standardised structured response to acute deterioration
- Safe communication across care pathways*
- Leadership to support a culture of safety at all levels*

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Dr Alastair Proudfoot
Consultant in Critical Care & Lead for Cardiogenic Shock,
Barts Heart Centre, London

I have no conflicts to declare

I may be myopic to nuances of NHS Scotland

Shock to Survival

Shock to Survival

A framework to improve the care and outcomes of people with cardiogenic shock in the UK

October 2022

SCAN ME

Healthcare Improvement Scotland

SCOTTISH PATIENT SAFETY PROGRAMME

- Dr Seema Agarwal
- Dr Clare Appleby
- Prof Adrian Banning
- Dr Sam Clark
- Dr Claire Coleburn
- Prof Charles Deakin
- Dr Miles Dalby
- Tim Edwards
- Mary Galbraith
- Prof John Greenwood
- Dr Ajay Jain
- Dr Sern Lim
- Dr Peter McGuigan
- Dr Nick Murch
- Dr Isma Quasim
- Prof Tom Quinn
- Matthew Parkin
- Dr Stephen Pettit
- Prof Susanna Price
- Dr Alastair Proudfoot
- Dr Simon Ray
- Prof Ulrich Stock
- Dr Sean van Diepen
- Dr Stephen Webb

Association for Cardiothoracic Anaesthesia & Critical Care

British Association of Critical Care Nurses

British Cardiovascular Intervention Society

British Cardiovascular Society

British Society of Echocardiography

British Society For Heart Failure

Intensive Care Society

Resuscitation Council (UK)

Royal College of Nursing

Scottish Intensive Care Society

Society for Acute Medicine

Society for Cardiothoracic Surgery in Great Britain and Ireland

The Northern Ireland Intensive Care Society

The College of Paramedics

British Heart Foundation

Framing the problem

- True incidence of CS in UK unknown
- Commonest aetiology is ACS – mortality 50%
- Commonest reason for ICU admission is non-ischaemic
- Limited data to describe how care is delivered nationally
- Variation in care & inequity of access to quality care likely

- Commonly encountered
- Often under-recognised
- High mortality

Increase awareness

1. Increase the awareness of CS among acute care teams including critical care outreach, specifically in response to a high NEWS-2 score with evidence of hypoperfusion
2. Emphasise the high risk of death from CS and the importance of recognising it early and rapidly identifying and reversing the underlying cause to improve survival
3. Highlight hypoperfusion as the defining characteristic of CS with or without hypotension
4. Emphasise the use of FoCUS in patients with clinical evidence of hypoperfusion and/or refractory shock to support the early diagnosis of CS and guide initial management.

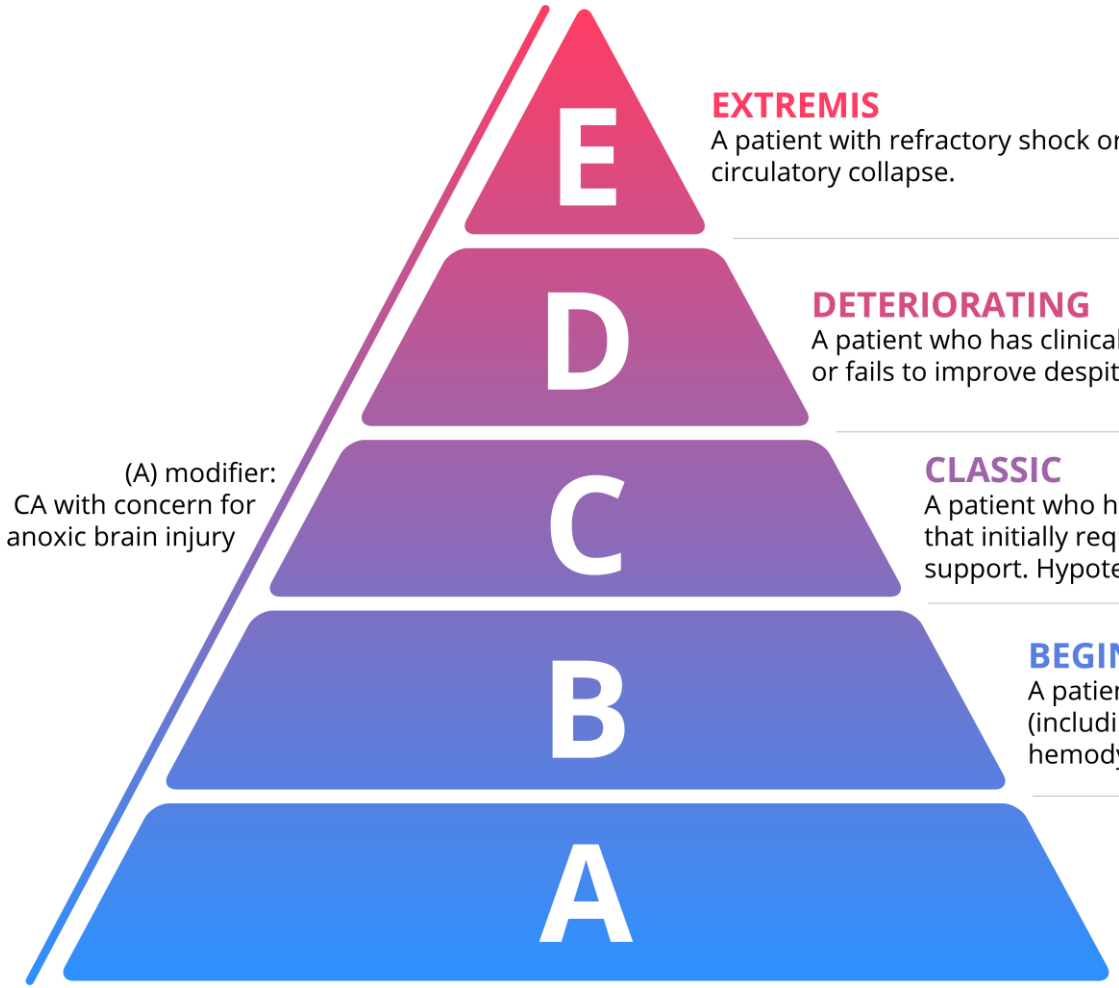
Warning signs

Elevated NEWS-2 score plus:

- Clinical signs of peripheral hypoperfusion, particularly cold, mottled extremities
- Increased lactate levels (venous or arterial)
- Existing or new cardiac pathology including heart rhythm abnormalities
- A shock state where the cause is unclear or does not respond to initial management such as fluid resuscitation or vasopressors
- Narrow pulse pressure

Improve access to emergency echocardiography / FoCUS

Triage: SCAI staging



EXTREMIS
A patient with refractory shock or actual/impending circulatory collapse.

DETERIORATING
A patient who has clinical evidence of shock that worsens or fails to improve despite escalation of therapy.

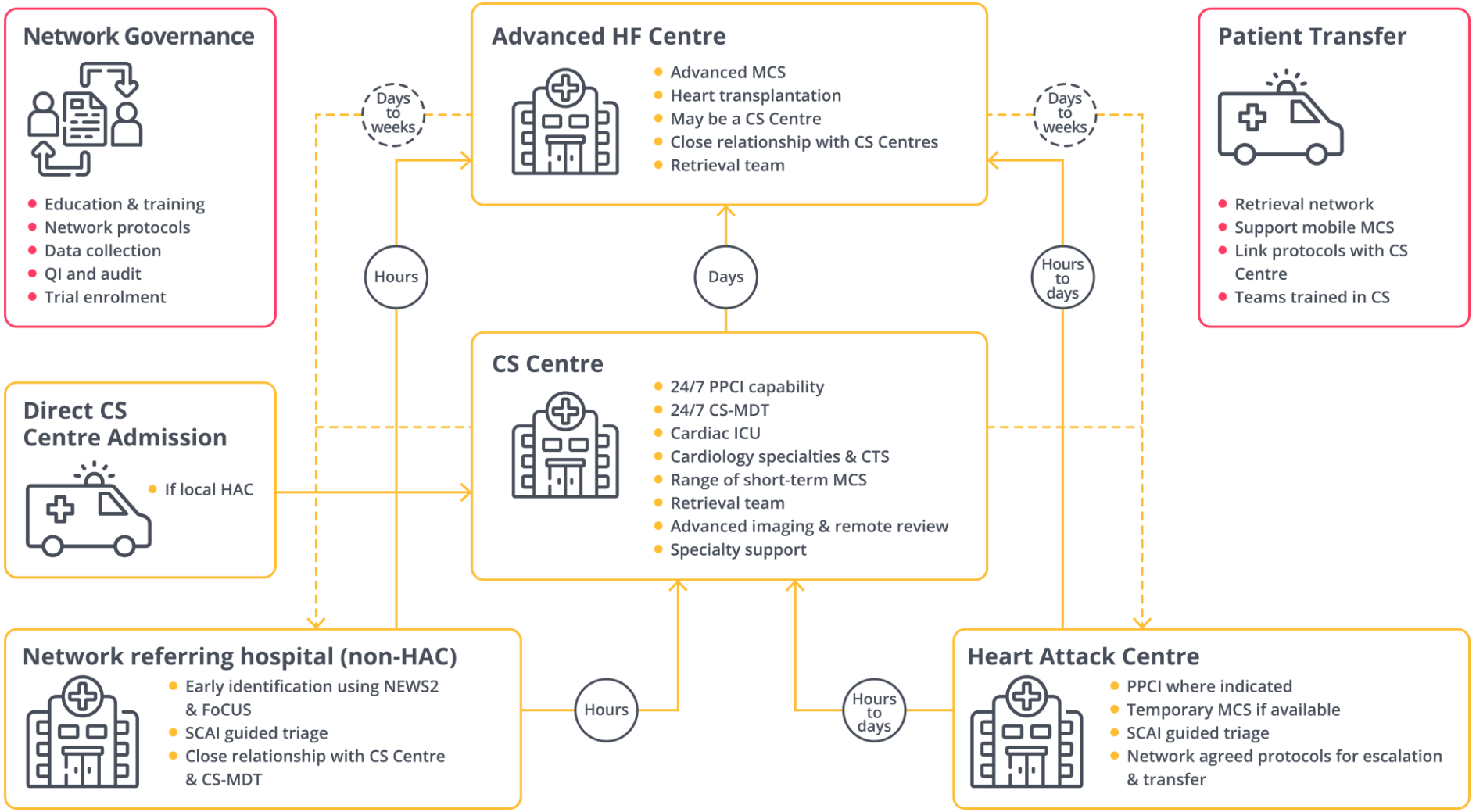
(A) modifier:
CA with concern for anoxic brain injury

CLASSIC
A patient who has clinical evidence of hypoperfusion that initially requires pharmacologic or mechanical support. Hypotension is usually present.

BEGINNING
A patient who has clinical evidence of hemodynamic instability (including hypotension, tachycardia or abnormal systemic hemodynamics) without hypoperfusion.

AT RISK
A hemodynamically stable patient who is NOT experiencing signs or symptoms of CS, but is at risk for its development (i.e. large AMI or decompensated HF).

Establish CS Centres as the hub of regional CS networks


Network Governance
Education & training
Network protocols
Data collection
QI and audit
Trial enrolment
Advanced HF Centre
Advanced MCS
Heart transplantation
May be a CS Centre
Close relationship with CS Centres
Retrieval team
Patient Transfer
Retrieval network
Support mobile MCS
Link protocols with CS Centre
Teams trained in CS
Days to weeks
Days to weeks
Hours
Days
Hours to days
Direct CS Centre Admission
If local HAC
CS Centre
24/7 PPCI capability
24/7 CS-MDT
Cardiac ICU
Cardiology specialties & CTS
Range of short-term MCS
Retrieval team
Advanced imaging & remote review
Specialty support
Network referring hospital (non-HAC)
Early identification using NEWS2 & FoCUS
SCAI guided triage
Close relationship with CS Centre & CS-MDT
Hours
Hours to days
Heart Attack Centre
PPCI where indicated
Temporary MCS if available
SCAI guided triage
Network agreed protocols for escalation & transfer

Develop and embed pathways of care and network protocols

The benefits of Shock Teams

Ensuring equity of access to CS expertise and care

- Provide clinical support to referrers: interpretation of echocardiography & haemodynamics
- Facilitate interventions if not available locally
- Triage of patients to an appropriate care location
- Identify patients unlikely to benefit from advanced cardiac care
- Support safe and timely transfer of select patients to the CS Centre
- Identify patients who may need emergency MCS to ensure equity of access to this modality

The Shock Team in Practice

1

Referring physicians would access the CS-MDT via a dedicated phone number or online referral pathway to a 24/7 duty CS clinician or coordinator (nursing or physician) at the regional CS Centre.

2

The duty CS clinician or coordinator will manage the referral and establish an emergency meeting between the referrer and the CS-MDT using conferencing platforms, now well established following the Covid-19 pandemic.

3

The duty CS clinician or coordinator will manage ongoing input from the CS-MDT, including coordination of patient transfer to the CS Centre or patient retrieval by a mobile CS team (see page 33) as well as provide ongoing follow-up and clinical support for patients not transferred to the regional CS Centre.

Right Patient

Patient with CS
Mixed shock
No other pathway
Aetiology

Right Time

Early in course
Before MOF

Right Data

Minimum dataset
Clinical
Biochemical
Imaging
OHCA

Right Specialists

Shock MDT
Local referrer
Cardiology
Critical Care
CTS

Right Intervention

MCS at fulcrum
CICU care alone
Palliative care

MCS is an essential support modality in CS. MCS will therefore continue to be used nationally at significant cost. We recommend that specialist commissioning groups explore options for reimbursement

Research & data to drive change

- Existing national audits / datasets
- Data linkage
- Parsimonious
- Longitudinal care
- Health economics
- Elevate agenda within research funding bodies
- PPI

Cardiogenic shock

NHS Barts Health NHS Trust

Early recognition → Early intervention to reverse cause → Classify shock → Early support to buy time → Early shock call for expert input

EARLY RECOGNITION

Warning signs

- Refractory or undifferentiated shock
- NEWS2: 5 or over
- Cool peripheries
- Pulmonary oedema
- SBP under 90mmHg or MAP under 60mmHg*
- Pulse pressure under 20mmHg
- HR over 100 or under 60bpm

*Some patients may be normotensive but hypoperfused

URGENT INVESTIGATIONS

- ECG
- Blood gas: lactate, pH, base excess
- Focused cardiac ultrasound (if available): assess for LV, RV and biventricular dysfunction
- Blood tests: FBC, U&E, LFT, coagulation, troponin

CLASSIFY SHOCK STAGE

EARLY SUPPORT

	Stage	Clinical assessment	Blood results	Physiology	Immediate steps
C	**Classic** Hypoperfusion without deterioration LV/RV impaired	Looks unwell Cool peripheries Delayed capillary refill Volume overload Confusion	Lactate over 2mmol/L pH under 7.35 BE under –2mEq/L Acute kidney injury Abnormal LFTs	Inopressors to maintain SBP over 90mmHg	**Identify and treat cause** Critical care review Cardiology review if available Arterial and central line Start inotrope +/– vasopressor Shock call
D	**Deteriorating** Hypoperfusion with deterioration LV/RV impaired	Any of stage C and worsening clinically	Any of stage C Lactate rising or not falling after interventions	Any of stage C and requiring multiple inopressors to maintain SBP over 90mmHg	**Identify and treat cause** As per stage C plus: Urgent shock call ICU consultant review Measure $ScVO_2$
E	**Extremis** Actual or impending circulatory collapse	Near pulselessness Cardiovascular collapse CPR	Lactate over 8mmol/L pH under 7.2 BE over –10mEq/L	No SBP without resuscitation PEA or VT / VF Hypotensive despite maximal support	2222 cardiac arrest call Call ECMO consultant on 020 3594 0666

www.bartshealth.nhs.uk/cardiogenic-shock

Thank you

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@ICUDocAP

Panel discussion

- **Alex Warren**, Visiting Researcher, University of Edinburgh
- **Dr Claire Gordon,** Consultant in Acute Medicine, NHS Lothian
- **Dr Stephen Friar**, Consultant Intensivist, NHS Grampian
- **Dr Paul Rocchioccioli,** Consultant Cardiologist, Golden Jubilee National Hospital
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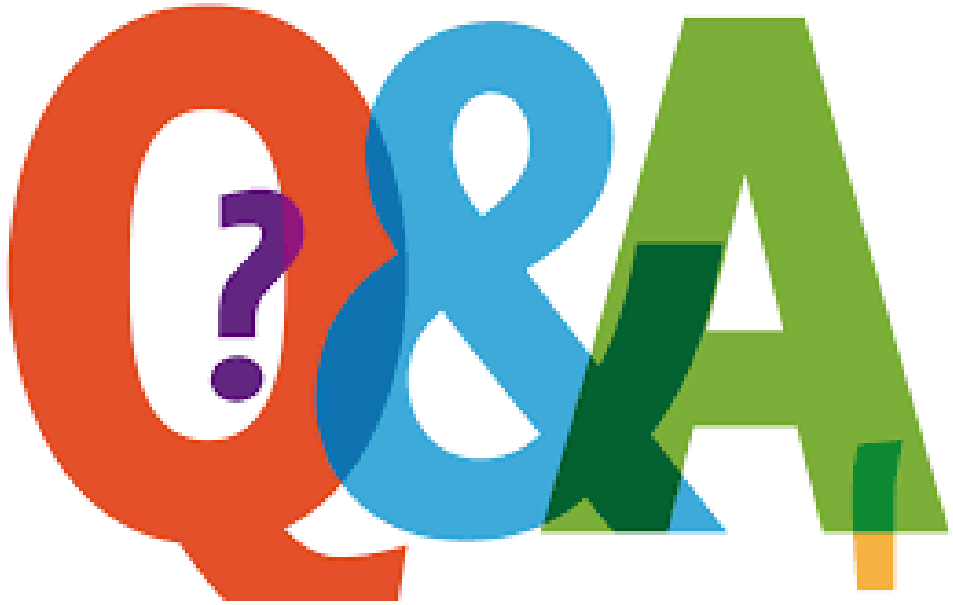
Q&A

Next steps

- Shock to Survival in Scotland
- SPSP Acute Adult Collaborative: National Learning Event 20 April 2023 to attend virtually click here
- Publication of SIGN 139: Patient Deterioration due mid 2023
- SPSP Sepsis Driver Diagram update late 2023

Feedback

Thank you

Keep in touch

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@SPSP_AcuteAdult

To find out more visit ihub.scot