

**SPSP Acute Adult Programme Deteriorating Patient Change Package**

**© Healthcare Improvement Scotland 2024**

**Published March 2024**

This document is licensed under the Creative Commons Attribution-Noncommercial-NoDerivatives 4.0 International Licence. This allows for the copy and redistribution of this document as long as Healthcare Improvement Scotland is fully acknowledged and given credit. The material must not be remixed, transformed or built upon in any way. To view a copy of this licence, visit https://creativecommons.org/licenses/by-nc-nd/4.0/

[**www.healthcareimprovementscotland.org**](http://www.healthcareimprovementscotland.org)

Contents

[Introduction 4](#_Toc160612198)

[How the change package was developed 5](#_Toc160612199)

[Sepsis Driver Diagram 2023 6](#_Toc160612200)

[What are we trying to achieve… 6](#_Toc160612201)

[We need to ensure… 6](#_Toc160612202)

[Which requires… 6](#_Toc160612203)

[Essentials of Safe Care 7](#_Toc160612204)

[Primary Driver: Early recognition of sepsis 8](#_Toc160612205)

[Secondary driver: Recognition of infection and new organ dysfunction 8](#_Toc160612206)

[Secondary driver: Regular reassessment for worsening physiology or clinical concern 9](#_Toc160612207)

[Secondary driver: Recognition and escalation of patient, family and carer concern 10](#_Toc160612208)

[Secondary driver: Escalation of clinical concern 11](#_Toc160612209)

[Primary Driver: Timely structured response to sepsis 12](#_Toc160612210)

[Secondary driver: A structured response to deterioration 12](#_Toc160612211)

[Secondary driver: Sepsis Six and source control informed by illness severity and likelihood of infection 13](#_Toc160612212)

[Secondary driver: Effective Antimicrobial stewardship 14](#_Toc160612213)

[Secondary driver: 15](#_Toc160612214)

[Primary Driver: Safe communication 16](#_Toc160612215)

[Secondary driver: Person and family centred care planning 16](#_Toc160612216)

[Secondary driver: Effective multidisciplinary and multiagency team working 17](#_Toc160612217)

[Secondary driver: Psychological safety which supports escalation of concerns 18](#_Toc160612218)

[Primary Driver: Leadership to support a culture of safety 19](#_Toc160612219)

[Secondary driver: Visible leadership at all levels 19](#_Toc160612220)

[Secondary driver: Safe staffing and resources to enable delivery of safe care 20](#_Toc160612221)

[Secondary driver: System for learning to support continuous improvement 21](#_Toc160612222)

[Secondary driver: Staff wellbeing 22](#_Toc160612223)

[2023 SPSP Sepsis driver diagram and change package contributors 23](#_Toc160612224)

[Contributors 23](#_Toc160612225)

[Contact 25](#_Toc160612226)

[END 25](#_Toc160612227)

# Introduction

Background

The [Scottish Patient Safety Programme (SPSP) Deteriorating Patient Programme](https://ihub.scot/improvement-programmes/acute-adult/) includes a focus on adult sepsis in acute hospitals.

This publication is the latest version of the SPSP sepsis change package, first published in 2012, and last updated in 2018.

The change package provides an evidence-informed resource to support teams to improve outcomes for adults with sepsis.

Overview

The main driver diagram page includes a **National aim**, **Primary Drivers** and **Secondary Drivers.**

Each primary driver is broken down to include **secondary drivers** and associated **change ideas**.

**Evidence, guidelines, tools, and resources** are included for each secondary driver.

Additional resources available on our [website](https://ihub.scot/improvement-programmes/acute-adult/deteriorating-patient/):

* Shorter version without tools and resources
* Accessible version with tools and resources
* Measurement framework

# How the change package was developed

Expert Reference Groups (ERG)

An **Expert Reference Group (ERG)** was formed as part of the co-design process. The ERG included clinical and quality improvement colleagues from across NHS Scotland.

People with lived experience

With support from [Sepsis Research (FEAT)](https://sepsisresearch.org.uk/), **people with lived experience of sepsis** were invited to contribute to the driver diagram by sharing their perspectives using [discovery conversations.](https://ihub.scot/project-toolkits/people-led-care/care-experience-discovery-conversation-guide/)

Evidence and Guidelines

The update has been informed by the latest **evidence and guidance**,including publications from the [Academy of Medical Royal Colleges (AoMRC)](https://www.aomrc.org.uk/reports-guidance/statement-on-the-initial-antimicrobial-treatment-of-sepsis-v2-0/) (2022), the [Surviving Sepsis Campaign Adult Guidelines](https://www.sccm.org/SurvivingSepsisCampaign/Guidelines/Adult-Patients) (2021) and [SIGN 167 Care of Deteriorating Patients guideline](https://www.sign.ac.uk/media/2091/sign-167-care-of-deteriorating-patients.pdf) (June 23).

# Sepsis Driver Diagram 2023

## What are we trying to achieve…

Improve outcomes for people with sepsis by reducing infection-related mortality by 10%

## We need to ensure…

* Early recognition of sepsis
* Timely structured response to sepsis
* Safe communication
* Leadership to support a culture of high quality care and patient safety

## Which requires…

### Early recognition of sepsis

* Recognition of suspected infection and new organ dysfunction
* Regular reassessment for worsening physiology or clinical concern
* Recognition and escalation of patient, family and carer concern
* Escalation of clinical concern

### Timely structured response to sepsis

* A structured response to deterioration
* Sepsis Six and source control informed by illness severity and likelihood of infection
* Effective antimicrobial stewardship
* Senior clinical decision maker review

### Safe communication

* Person and family centred care planning
* Effective multidisciplinary and multiagency team working
* Psychological safety to support escalation of concerns

### Leadership to support a culture of high quality care and patient safety

* Visible leadership at all levels
* Safe staffing and resources to enable delivery of safe care
* System for learning to support continuous improvement
* Staff wellbeing

# Essentials of Safe Care

Elements of SPSP Essentials of Safe Care are integrated throughout this driver diagram. The sections of this driver diagram which directly link to the SPSP Essentials of Safe care are:

Primary Driver: Safe communication

* Person and family centered care planning
* Psychological safety to support escalation of concerns

Primary Driver: Leadership to support a culture of high quality care and patient safety

* Safe staffing and resources to enable safe delivery of care
* System for learning to support continuous improvement
* Staff wellbeing

For further information, please see the [Essentials of Safe Care](https://ihub.scot/improvement-programmes/scottish-patient-safety-programme-spsp/spsp-essentials-of-safe-care/).

# Primary Driver: Early recognition of sepsis

## Secondary driver: Recognition of infection and new organ dysfunction

### Change ideas:

* Use of NEWS2 to identify deterioration and organ dysfunction
* Process to determine likelihood of infection, e.g. AoMRC decision making framework
* Use of electronic observations to support clinical decision making
* Process to identify variation in presentation, e.g. considerations of ethnicity in pulse oximetry, deterioration in optimal posture

### Evidence and Guidelines:

* Academy of Medical Royal Colleges. [Statement on the initial antimicrobial treatment of sepsis V2.0](https://www.aomrc.org.uk/reports-guidance/statement-on-the-initial-antimicrobial-treatment-of-sepsis-v2-0/)  2022.
* Bangash MN, Hodson J, Evison F, et al. [Impact of ethnicity on the accuracy of measurements of oxygen saturations: A retrospective observational cohort study.](https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(22)00158-4/fulltext) EClinicalMedicine. 2022;48:101428.
* Nsutebu EF, Ibarz-Pavón AB, Kanwar E, et al. [Advancing quality in sepsis management: a large-scale programme for improving sepsis recognition and management in the North West region of England](https://pubmed.ncbi.nlm.nih.gov/30087164/). Postgrad Med J. 2018;94(1114):463-468.
* Scottish Intercollegiate Guidelines Network. [SIGN 167 Care of deteriorating patients. A national clinical guideline.](https://www.sign.ac.uk/media/2091/sign-167-care-of-deteriorating-patients.pdf) 2023.
* Society of Critical Care Medicine. [Surviving Sepsis Campaign Guidelines 2021.](https://www.sccm.org/Clinical-Resources/Guidelines/Guidelines/Surviving-Sepsis-Guidelines-2021) 2021.
* Warttig S, Alderson P, Evans DJ, Lewis SR, Kourbeti IS, Smith AF. [Automated monitoring compared to standard care for the early detection of sepsis in critically ill patients](https://pubmed.ncbi.nlm.nih.gov/29938790/). Cochrane Database Syst Rev. 2018;6(6):CD012404.

### Tools and Resources:

* NHS Education for Scotland (NES). [National early warning score (NEWS) in NHS Scotland.](https://learn.nes.nhs.scot/2983/patient-safety-zone/sepsis/national-early-warning-score-news/national-early-warning-score-news-in-nhs-scotland) 2021.
* Nutbeam T, Daniels R on behalf of the UK Sepsis Trust. [Clinical Tools](https://sepsistrust.org/professional-resources/clinical/). 2023.
* Royal College of Physicians. [National Early Warning Score (NEWS).](https://www.rcplondon.ac.uk/projects/outputs/national-early-warning-score-news-2) 2017.

Primary Driver: Early recognition of sepsis

## Secondary driver: Regular reassessment for worsening physiology or clinical concern

### Change ideas:

* NEWS2 charting allows documentation of clinical judgement that may alter frequency of observations
* Patients, families, and carers are given advice to support identification of further deterioration
* Local process to proactively identify and reassess people at higher risk of deterioration, e.g. neutropenia
* Patient, family and carer view of illness and concerns consistently sought e.g. asking ‘how well are you feeling compared to the last time we asked you?’

### Evidence and Guidelines:

* Goodacre S, Fuller G, Conroy S, Hendrikse C. [Diagnosis and management of sepsis in the older adult](https://www.bmj.com/content/382/bmj-2023-075585). BMJ. 2023;382:e075585.
* National Institute for Health and Care Excellence. [National Early Warning Score systems that alert to deteriorating adult patients in hospital.](https://www.nice.org.uk/advice/mib205/resources/national-early-warning-score-systems-that-alert-to-deteriorating-adult-patients-in-hospital-pdf-2285965392761797) 2020.
* Scottish Intercollegiate Guidelines Network. [SIGN 167 Care of deteriorating patients. A national clinical guideline](https://www.sign.ac.uk/media/2091/sign-167-care-of-deteriorating-patients.pdf). 2023.

### Tools and Resources:

* NHS Education for Scotland (NES). [National early warning score (NEWS) in NHS Scotland.](https://learn.nes.nhs.scot/2983/patient-safety-zone/sepsis/national-early-warning-score-news/national-early-warning-score-news-in-nhs-scotland) 2021.
* NHS Inform. [Communication and involving you](https://www.nhsinform.scot/care-support-and-rights/health-rights/communication-and-consent/communication-and-involving-you). 2023.

Primary Driver: Early recognition of sepsis

## Secondary driver: Recognition and escalation of patient, family and carer concern

### Change ideas:

* Provision of accessible information to patients, families, and carers to support early recognition and access to treatment in sepsis
* Process for patients, families, and carers to raise concerns about acute deterioration
* Locally agreed process for staff to document and escalate concerns raised by patients, families and carers
* Process to reliably provide feedback to the person who raised concern

### Evidence and Guidelines:

* Bucknall T, Quinney R, Booth L, McKinney A, Subbe CP, Odell M. [When patients (and families) raise the alarm: Patient and family activated rapid response as a safety strategy for hospitals](https://pubmed.ncbi.nlm.nih.gov/34888450/). Future Healthc J. 2021;8(3):e609-e612.
* Demos. [Martha’s Rule: A new policy to amplify patient voice and improve safety in hospitals](https://demos.co.uk/research/marthas-rule-a-new-policy-to-amplify-patient-voice-and-improve-safety-in-hospitals/). 2023.
* McCoy L, Lewis JH, Simon H, et al. [Learning to Speak Up for Patient Safety: Interprofessional Scenarios for Training Future Healthcare Professionals](https://pubmed.ncbi.nlm.nih.gov/32647749/). J Med Educ Curric Dev. 2020;7:2382120520935469.
* McKinney A, Fitzsimons D, Blackwood B, McGaughey J. [Patient and family involvement in escalating concerns about clinical deterioration in acute adult wards: A qualitative systematic review](https://pubmed.ncbi.nlm.nih.gov/33345386/). Nurs Crit Care. 2021;26(5):352-362.
* Mills M. [Martha's rule: a hospital escalation system to save patients' lives](https://pubmed.ncbi.nlm.nih.gov/37813419/). BMJ. 2023;383:2319.

### Tools and Resources:

* NHS Inform. [Communication and involving you](https://www.nhsinform.scot/care-support-and-rights/health-rights/communication-and-consent/communication-and-involving-you). 2023.
* Sepsis Research FEAT. [Sepsis Awareness.](https://sepsisresearch.org.uk/sepsis-awareness/) 2023.

Primary Driver: Early recognition of sepsis

## Secondary driver: Escalation of clinical concern

### Change ideas:

* Locally agreed escalation framework that incorporates clinical concern
* Reliable notification of deterioration to consultant in charge of patient’s care
* Reliable timely triage of people with sepsis including in transition from NHS24, primary care, and SAS
* Consider system-wide escalation mechanisms e.g. outreach team, electronic NEWS2 and decision support

### Evidence and Guidelines:

* Care Quality Commission. [PEOPLE FIRST: Escalation](https://www.cqc.org.uk/publications/people-first/escalation). 2023.
* Ede J, Petrinic T, Westgate V, et al. [Human factors in escalating acute ward care: a qualitative evidence synthesis](https://doi.org/10.1136/bmjoq-2020-001145). BMJ Open Quality 2021;10:e001145.
* Scottish Intercollegiate Guidelines Network. [SIGN 167 Care of deteriorating patients. A national clinical guideline](https://www.sign.ac.uk/media/2091/sign-167-care-of-deteriorating-patients.pdf). 2023.
* Wood C, Chaboyer W, Carr P. [How do nurses use early warning scoring systems to detect and act on patient deterioration to ensure patient safety? A scoping review](https://pubmed.ncbi.nlm.nih.gov/31002971/). Int J Nurs Stud. 2019;94:166-178.

### Tools and Resources:

* Healthcare Improvement Scotland. SPSP Acute Adult. [Principles of Structured Response to Deterioration](https://ihub.scot/media/9254/spsp-principles-of-structured-response-to-deterioration-v10.pdf). 2022.
* Healthcare Improvement Scotland. SPSP Acute Adult. [Structure Response to Deterioration Mapping Tool.](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fihub.scot%2Fmedia%2F10397%2F20231025-spsp-structured-response-mapping-tool-v16.docx&wdOrigin=BROWSELINK) 2023.
* NHS Education for Scotland (NES). [National early warning score (NEWS) in NHS Scotland](https://learn.nes.nhs.scot/2983). 2021.

# Primary Driver: Timely structured response to sepsis

## Secondary driver: A structured response to deterioration

### Change ideas:

* Locally agreed standardised approach to structured response to deterioration
* Shared decision making  supported by access to any existing future care plan
* Locally agreed criteria for completion of person centred TEP
* Reassessment criteria documented as part of management plan e.g., worsening NEWS2 despite treatment

### Evidence and Guidelines:

* Pearse W, Oprescu F, Endacott J, Goodman S, Hyde M, O'Neill M. [Advance care planning in the context of clinical deterioration: a systematic review of the literature](https://pubmed.ncbi.nlm.nih.gov/30718959/). Palliat Care. 2019;12:1178224218823509.
* Pel-Littel et al. Barriers and facilitators for shared decision making in older patients with multiple chronic conditions: a systematic review. BMC Geriatr. 2021;21:112. <https://doi.org/10.1186/s12877-021-02050-y>
* Scottish Intercollegiate Guidelines Network. [SIGN 167 Care of deteriorating patients. A national clinical guideline.](https://www.sign.ac.uk/media/2091/sign-167-care-of-deteriorating-patients.pdf) 2023.
* Taylor DR, Lightbody CJ, Venn R, Ireland A. [Responding to the deteriorating patient: The rationale for treatment escalation plans](https://pubmed.ncbi.nlm.nih.gov/36147009/). J R Coll Physicians Edinb. 2022;52(2):172-9.

### Tools and Resources:

* Healthcare Improvement Scotland. Right Decision Service. [Response to deterioration](https://rightdecisions.scot.nhs.uk/care-of-deteriorating-patients-sign/response-to-deterioration/). 2023.
* Healthcare Improvement Scotland. SPSP Acute Adult. [Principles of Structured Response to Deterioration](https://ihub.scot/media/9254/spsp-principles-of-structured-response-to-deterioration-v10.pdf). 2022.
* Healthcare Improvement Scotland. SPSP Acute Adult. [Structure Response to Deterioration Mapping Tool.](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fihub.scot%2Fmedia%2F10397%2F20231025-spsp-structured-response-mapping-tool-v16.docx&wdOrigin=BROWSELINK) 2023.

Primary Driver: Timely structured response to sepsis

## Secondary driver: Sepsis Six and source control informed by illness severity and likelihood of infection

### Change ideas:

* Use of AoMRC decision making framework to support timely delivery of Sepsis Six
* Process to ensure assessment for source control and implementing any source control interventions in a timely manner
* Collection of appropriate samples for infection investigations, including blood cultures, prior to first antimicrobial
* Clinical assessment considers non-bacterial causes (e.g. viral infection) and associated de-escalation

### Evidence and Guidelines:

* Academy of Medical Royal Colleges. [Statement on the initial antimicrobial treatment of sepsis V2.0](https://www.aomrc.org.uk/reports-guidance/statement-on-the-initial-antimicrobial-treatment-of-sepsis-v2-0/). 2022.
* Goodacre S, Fuller G, Conroy S, Hendrikse C. [Diagnosis and management of sepsis in the older adult.](https://www.bmj.com/content/382/bmj-2023-075585.full) BMJ 2023; 382 :e075585
* National Institute for Health and Care Excellence. Guidance. [Start smart then focus: antimicrobial stewardship toolkit for inpatient care settings](https://www.gov.uk/government/publications/antimicrobial-stewardship-start-smart-then-focus/start-smart-then-focus-antimicrobial-stewardship-toolkit-for-inpatient-care-settings). 2023.
* NHS National Services Scotland. [National Infection Prevention and Control Manual](https://www.nipcm.hps.scot.nhs.uk/). 2023.
* Society of Critical Care Medicine. [Surviving Sepsis Campaign Guidelines 2021.](https://www.sccm.org/Clinical-Resources/Guidelines/Guidelines/Surviving-Sepsis-Guidelines-2021)

### Tools and Resources:

* The UK Sepsis Trust. [Our Clinical Tools](https://sepsistrust.org/professional-resources/our-clinical-tools/). 2024.
* [Antimicrobial prescribing](https://eur01.safelinks.protection.outlook.com/?url=https%3A%2F%2Frightdecisions.scot.nhs.uk%2Fcollections%2Fcollection%3Fname%3Dantimicrobial-prescribing%26page%3D1&data=05%7C02%7Cdonna.frew3%40nhs.scot%7C0fb64b55d7e043f55c7608dc32bb63ef%7C10efe0bda0304bca809cb5e6745e499a%7C0%7C0%7C638441027608135677%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=mS8YHv%2FGal%2FUsID9D2sY0SASEcKRx8aZrfmVVQFXKgg%3D&reserved=0) guidance and resources are available from collections within the Healthcare Improvement Scotland Right Decision Service.

Primary Driver: Timely structured response to sepsis

## Secondary driver: Effective Antimicrobial stewardship

### Change ideas:

* Process to establish true allergy status to maximise opportunity for first line antimicrobials
* Antimicrobial plan documented in clinical notes, HEPMA and handover
* Daily antimicrobial review informed by clinical assessment and microbiology results
* Antimicrobials prescribed in line with local guidance, severity, and relevant past medical history
* Daily antimicrobial review considers IV-Oral Switch Therapy (IVOST) in line with local guidance

### Evidence and Guidelines:

* National Institute for Health and Care Excellence. [Guidance. Start smart then focus: antimicrobial stewardship toolkit for inpatient care settings.](https://www.gov.uk/government/publications/antimicrobial-stewardship-start-smart-then-focus/start-smart-then-focus-antimicrobial-stewardship-toolkit-for-inpatient-care-settings) 2023.
* Atkins PE, Bastin MLT, Morgan RJ, Laine ME, Flannery AH. [Pharmacist Involvement in Sepsis Response and Time to Antibiotics: A Systematic Review](https://pubmed.ncbi.nlm.nih.gov/37608990/). J Am Coll Clin Pharm. 2023;6(8):942-953.
* Ture Z, Güner R, Alp E. [Antimicrobial stewardship in the intensive care unit](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10391567/). J Intensive Med. 2022;3(3):244-253.

### Tools and Resources:

* [Antimicrobial prescribing](https://eur01.safelinks.protection.outlook.com/?url=https%3A%2F%2Frightdecisions.scot.nhs.uk%2Fcollections%2Fcollection%3Fname%3Dantimicrobial-prescribing%26page%3D1&data=05%7C02%7Cdonna.frew3%40nhs.scot%7C0fb64b55d7e043f55c7608dc32bb63ef%7C10efe0bda0304bca809cb5e6745e499a%7C0%7C0%7C638441027608135677%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=mS8YHv%2FGal%2FUsID9D2sY0SASEcKRx8aZrfmVVQFXKgg%3D&reserved=0) guidance and resources are available from collections within the Healthcare Improvement Scotland Right Decision Service.

Primary Driver: Timely structured response to sepsis

## Secondary driver:

### Change ideas: Senior clinical decision maker review

* Local escalation processes enable early involvement of a senior clinical decision maker
* Locally agreed process for critical care review
* Consultant review at least daily and within 14hrs of hospital admission
* Local escalation processes set out who to contact and when

### Evidence and Guidelines:

* Campling N, Cummings A, Myall M, et al. [Escalation-related decision making in acute deterioration: a retrospective case note review.](https://pubmed.ncbi.nlm.nih.gov/30121604/)BMJ Open. 2018;8(8):e022021.
* National Institute for Health and Care Excellence. [Emergency and acute medical care in over 16s. Quality standard [QS174].](https://www.nice.org.uk/guidance/qs174/chapter/quality-statement-3-consultant-assessment-and-review) 2018.
* Scottish Intercollegiate Guidelines Network. [SIGN 167 Care of deteriorating patients. A national clinical guideline.](https://www.sign.ac.uk/media/2091/sign-167-care-of-deteriorating-patients.pdf) 2023.

### Tools and Resources:

* Healthcare Improvement Scotland. Right Decision Service. [Response to deterioration](https://rightdecisions.scot.nhs.uk/care-of-deteriorating-patients-sign/response-to-deterioration/). 2023.

# Primary Driver: Safe communication

## Secondary driver: Person and family centred care planning

### Change ideas:

* Person centred care plans include recognition of deterioration in people with complex needs e.g. postural care
* Locally agreed process to understand pre-hospital baseline
* Use of ‘what matters to you’ to identify individual needs and preferences
* Documented person centred discussion with patient and family about recovery trajectory and rehabilitation planning

### Evidence and Guidelines:

* Grant N, Hewitt O, Ash K, et al. [The experiences of sepsis in people with a learning disability – a qualitative investigation](https://onlinelibrary.wiley.com/doi/full/10.1111/bld.12416?casa_token=rKva9ZXjKR4AAAAA%3ApybpS6A6TDBp1GiOqzpLcZGuAKxyFWg1XuezPDCdmWEZJvP5LCuR4TdGC7VQbl3xNoc94iqErNNKfmQ). Br J Learn Disabil. 2021; 50(4):514-524.
* Islam Z, Pollock K, Patterson A, et al. [Thinking ahead about medical treatments in advanced illness: a qualitative study of barriers and enablers in end-of-life care planning with patients and families from ethnically diverse backgrounds](https://pubmed.ncbi.nlm.nih.gov/37464868/). Health Soc Care Deliv Res. 2023;11(7):1-135.
* King HA, Doernberg SB, Miller J, et al. [Patients' Experiences With Staphylococcus aureus and Gram-negative Bacterial Bloodstream Infections: A Qualitative Descriptive Study and Concept Elicitation Phase To Inform Measurement of Patient-reported Quality of Life](https://pubmed.ncbi.nlm.nih.gov/32445467/). Clin Infect Dis. 2021;73(2):237-247.
* Warner BE, Lound A, Grailey K, Vindrola-Padros C, Wells M, Brett SJ. [Perspectives of healthcare professionals and older patients on shared decision-making for treatment escalation planning in the acute hospital setting: a systematic review and qualitative thematic synthesis](https://pubmed.ncbi.nlm.nih.gov/37588625/). EClinicalMedicine. 2023;62:102144

### Tools and Resources:

* The Health Foundation. [Person-centred care made simple. What everyone should know about person-centred care.](https://www.health.org.uk/sites/default/files/PersonCentredCareMadeSimple.pdf)
* NHS Education for Scotland (NES). [Equality and Diversity zone.](https://learn.nes.nhs.scot/72773) 2023.
* NHS Education for Scotland (NES). [Once for NES: Learning Disabilities. Equal Health.](https://learn.nes.nhs.scot/59031) 2023.
* NHS Education for Scotland (NES). [Person-centred resources.](https://learn.nes.nhs.scot/18920) 2023.

Primary Driver: Safe communication

## Secondary driver: Effective multidisciplinary and multiagency team working

### Change ideas:

* Patients of concern identified during board rounds, unit safety briefs and hospital huddles
* Structured handovers within and between teams e.g. use of SBAR
* Process for engaging all specialist and community teams involved in the person’s care, e.g. social work, home care
* Clarity of team roles and responsibilities in the care of a deteriorating patient

### Evidence and Guidelines:

* Association of Ambulance Chief Executives. [Delayed hospital handovers: Impact assessment of patient harm](https://aace.org.uk/wp-content/uploads/2021/11/AACE-Delayed-hospital-handovers-Impact-assessment-of-patient-harm-FINAL-Nov-2021.pdf). 2021
* Hong JQY, Chua WL, Smith D, Huang CM, Goh QLP, Liaw SY. [Collaborative practice among general ward staff on escalating care in clinical deterioration: A systematic review](https://pubmed.ncbi.nlm.nih.gov/37154497/). J Clin Nurs. 2023;32(17-18):6165-6178.
* McLaney E, Morassaei S, Hughes L, Davies R, Campbell M, Di Prospero L. [A framework for interprofessional team collaboration in a hospital setting: Advancing team competencies and behaviours.](https://pubmed.ncbi.nlm.nih.gov/35057649/) Healthcare Management Forum. 2022;35(2):112-117.
* Scottish Intercollegiate Guidelines Network. [SIGN 167 Care of deteriorating patients. A national clinical guideline.](https://www.sign.ac.uk/media/2091/sign-167-care-of-deteriorating-patients.pdf) 2023.

### Tools and Resources:

* Healthcare Improvement Scotland. [Understanding the key components of effective morning Hospital Huddles](https://ihub.scot/media/8884/20211217-hospital-huddles-findings-and-core-elements-v10.pdf). 2021.
* NHS Education Scotland (NES). [SBAR](https://learn.nes.nhs.scot/3408/quality-improvement-zone/qi-tools/sbar). 2017.

Primary Driver: Safe communication

## Secondary driver: Psychological safety which supports escalation of concerns

### Change ideas:

* Processes to support a culture which supports staff and students to raise concerns
* Process for managers at all levels to effectively recognise and respond to patient safety concerns
* Promotion of Speak Up advocates and ambassadors to encourage staff to raise concerns
* Process to reliably provide feedback to the person who reported concern

### Evidence and Guidelines:

* Martin GP, Chew S, Dixon-Woods M. [Why do systems for responding to concerns and complaints so often fail patients, families and healthcare staff? A qualitative study](https://doi.org/10.1016/j.socscimed.2021.114375). Social Science & Medicine. 2021. 287:114375.
* NHS Providers. [Psychological Safety and Why It Matters.](https://nhsproviders.org/news-blogs/blogs/psychological-safety-and-why-it-matters) 2020.
* Pian-Smith MC, Simon R, Minehart RD, et al. [Teaching residents the two-challenge rule: a simulation-based approach to improve education and patient safety](https://pubmed.ncbi.nlm.nih.gov/19444045/). Simul Healthc. 2009;4(2):84-91

### Tools and Resources:

* NHS Education Scotland (NES). [National Whistleblowing Standards training](https://learn.nes.nhs.scot/40284/national-whistleblowing-standards-training). 2021.
* NHS Education Scotland (NES). [Speaking up: national whistleblowing guidance for nursing and midwifery students in Scotland](https://learn.nes.nhs.scot/51465/future-nurse-and-midwife/speaking-up-or-raising-concerns/speaking-up-national-whistleblowing-guidance-for-nursing-and-midwifery-students-in-scotland). 2021.

# Primary Driver: Leadership to support a culture of safety

## Secondary driver: Visible leadership at all levels

### Change ideas:

* Conduct and share learning from leadership walkrounds
* Opportunity for senior leaders to review sepsis related data and trends
* Access to clinical and improvement leadership time to support sepsis improvement work
* Sepsis improvement work aligns with organisational priorities

### Evidence and Guidelines:

* Churruca K, Ellis LA, Pomare C, et al. [Dimensions of safety culture: a systematic review of quantitative, qualitative and mixed methods for assessing safety culture in hospitals](https://pubmed.ncbi.nlm.nih.gov/34315788/). *BMJ Open*. 2021;11(7):e043982
* Foster, M., Mha, B. S., & Mazur, L. (2023). [Impact of leadership walkarounds on operational, cultural and clinical outcomes: a systematic review](https://doi.org/10.1136/bmjoq-2023-002284). BMJ open quality, 12(4), e002284.
* Kirkpatrick I, Altanlar A, Veronesi G. [Doctors in leadership roles: consequences for quality and safety.](https://doi.org/10.1080/09540962.2023.2217344) Public Money & Management. 2023 Jun 8:1-8.

### Tools and Resources:

* Institute for Healthcare Improvement. [Leading a Culture of Safety: A Blueprint for Success](https://www.ihi.org/resources/publications/leading-culture-safety-blueprint-success). 2017.
* NHS Education for Scotland. [Safety Culture Discussion Cards](https://learn.nes.nhs.scot/61108/human-factors-hub/human-factors-tools/safety-culture-discussion-cards/safety-culture-discussion-cards). 2023.
* The King’s Fund. [The practice of collaborative leadership: Across health and care services](https://www.kingsfund.org.uk/publications/practice-collaborative-leadership). 2023.

Primary Driver: Leadership to support a culture of safety

## Secondary driver: Safe staffing and resources to enable delivery of safe care

### Change ideas:

* Identify and mitigate staffing needs using real time staffing tools, including acuity assessment
* Process to escalate staffing shortfalls
* Education and induction includes local processes for early recognition and response for sepsis
* Identify and mitigate time periods where escalation response is less reliable

### Evidence and Guidelines:

* Hotta S, Ashida K, Tanaka M. [Night-time detection and response in relation to deteriorating inpatients: A scoping review](https://pubmed.ncbi.nlm.nih.gov/37095606/). Nurs Crit Care. Published online April 24, 2023. doi:10.1111/nicc.12917
* Liu Q, Zheng X, Xu L, Chen Q, Zhou F, Peng L. [The effectiveness of education strategies for nurses to recognise and manage clinical deterioration: A systematic review.](https://pubmed.ncbi.nlm.nih.gov/37172445/) Nurse Educ Today. 2023;126:105838.
* Zaranko B, Sanford NJ, Kelly E, et al. [Nurse staffing and inpatient mortality in the English National Health Service: a retrospective longitudinal study](https://doi.org/10.1136/bmjqs-2022-015291). BMJ Quality & Safety 2023;32:254-263.

### Tools and Resources:

* Healthcare Improvement Scotland. [Workforce capacity and capability](https://ihub.scot/improvement-programmes/scottish-patient-safety-programme-spsp/spsp-essentials-of-safe-care/person-centred-care/workforce-capacity-and-capability/). 2021.
* Healthcare Improvement Scotland. [Inclusion and involvement](https://ihub.scot/improvement-programmes/scottish-patient-safety-programme-spsp/spsp-essentials-of-safe-care/person-centred-care/inclusion-and-involvement/). 2021.
* Healthcare Improvement Scotland. [Staffing level (workload) tools and methodology.](https://www.healthcareimprovementscotland.org/our_work/patient_safety/healthcare_staffing_programme/staffing_workload_tools.aspx)
* NHS Education for Scotland. [Health and Care Staffing in Scotland](https://learn.nes.nhs.scot/61827). 2022.

Primary Driver: Leadership to support a culture of safety

## Secondary driver: System for learning to support continuous improvement

### Change ideas:

* Collect, share, and act on data and learning between teams, hospitals, and boards
* Identify and share learning through existing processes e.g. MDT morbidity and mortality meetings
* Structured process for multidisciplinary hot and cold debriefs
* Forums for staff, patients and families to identify areas for improvement

### Evidence and Guidelines:

* Healthcare Improvement Scotland. [Learning from adverse events through reporting and review. A national framework for Scotland: December 2019](https://www.healthcareimprovementscotland.org/our_work/governance_and_assurance/management_of_adverse_events/national_framework.aspx). 2019.
* Institute for Healthcare Improvement. [Leading a Culture of Safety: A Blueprint for Success](https://www.ihi.org/resources/publications/leading-culture-safety-blueprint-success). 2017.
* James S, Subedi P, Indrasena BSH, Aylott J. [Review DebrIeF: a collaborative distributed leadership approach to “hot debrief” after cardiac arrest in the emergency department–a quality improvement project](https://www.emerald.com/insight/content/doi/10.1108/LHS-06-2021-0050/full/html). Leadership in Health Services. 2022. Jun 28;35(3):390-408
* Steel EJ, Janda M, Jamali S, Winning M, Dai B, Sellwood K. [Systematic Review of Morbidity and Mortality Meeting Standardization: Does It Lead to Improved Professional Development, System Improvements, Clinician Engagement, and Enhanced Patient Safety Culture?](https://journals.lww.com/journalpatientsafety/abstract/9900/systematic_review_of_morbidity_and_mortality.172.aspx) Journal of Patient Safety. 2023. 19:10-97.

### Tools and Resources:

* Healthcare Improvement Scotland. [The Essentials of Safe Care: System for Learning](https://ihub.scot/improvement-programmes/scottish-patient-safety-programme-spsp/spsp-essentials-of-safe-care/leadership-and-culture/system-for-learning/). 2021.
* Oliver N, Shippey B, Edgar S, Maran N, May A. [The Scottish centre debrief model](https://www.ijohs.com/article/doi/10.54531/lvxq6860). Int J Healthcare Simulation. 2023.

Primary Driver: Leadership to support a culture of safety

## Secondary driver: Staff wellbeing

### Change ideas:

* Use of effective health and wellbeing conversations to identify and mitigate risks to wellbeing
* Prioritise civility through communication and teamwork, e.g. use of TeamSTEPPS
* Support job satisfaction through evidence-based interventions, e.g. Professional Identity Development Programme
* Access to senior support and discussion for all staff, e.g. through clinical supervision

### Evidence and Guidelines:

* Cohen C, Pignata S, Bezak E, Tie M, Childs J. [Workplace interventions to improve well-being and reduce burnout for nurses, physicians and allied healthcare professionals: a systematic review.](https://bmjopen.bmj.com/content/13/6/e071203) BMJ Open. 2023;13(6):e071203.
* Sabancıogullari S, Dogan S. [Effects of the professional identity development programme on the professional identity, job satisfaction and burnout levels of nurses: A pilot study](https://doi.org/10.1111/ijn.12330). International Journal of Nursing Practice. 2015;21(6):847-57.
* Tulleners T, Campbell C, Taylor M. [The experience of nurses participating in peer group supervision: A qualitative systematic review](https://pubmed.ncbi.nlm.nih.gov/36989698/). Nurse Educ Pract. 2023;69:103606.

### Tools and Resources:

* Agency for Healthcare Research and Quality. [Team STEPPS. Team Strategies & Tools to Enhance Performance & Patient Safety](https://www.ahrq.gov/teamstepps-program/index.html). 2023.
* Healthcare Improvement Scotland. [The Essentials of Safe Care: Staff Wellbeing](https://ihub.scot/improvement-programmes/scottish-patient-safety-programme-spsp/spsp-essentials-of-safe-care/leadership-and-culture/staff-wellbeing/). 2021.
* NHS Education for Scotland (NES). [Staff Wellbeing Resources](https://www.nes.scot.nhs.uk/news/staff-wellbeing-resources/). 2021.
* NHS Education for Scotland (NES). [Clinical supervision Resource. Supervision for nursing, midwifery and allied health professions (NMAHP)](https://learn.nes.nhs.scot/3580/clinical-supervision). 2018.
* NHS Employers. [Health and wellbeing conversations](https://www.nhsemployers.org/articles/health-and-wellbeing-conversations). 2023.

# 2023 SPSP Sepsis driver diagram and change package contributors

|  |
| --- |
| Healthcare Improvement Scotland | SAPG |
| NHS 24 |
| NHS Ayrshire & Arran |
| NHS Borders |
| NHS Dumfries & Galloway |
| NHS Eileanan Siar Western Isles |
| NHS Fife |
| NHS Forth Valley |
| NHS Golden Jubilee |
| NHS Grampian |
| NHS Great Glasgow and Clyde |
| NHS Highland |
| NHS Lanarkshire |
| NHS Lothian |
| NHS Orkney |
| NHS Shetland |
| NHS Tayside |
| Public Health Scotland |
| Scottish Ambulance Services |
| Sepsis Research FEAT | The voice of people with lived experience |

## Contributors

**Expert Reference Group Chair:** Dr Gregor McNeill, Consultant Intensive Care Medicine, NHS Lothian

**Contributors to the Expert Reference Group included**:

|  |  |
| --- | --- |
| **Name** | **Job Title** |
| Kelly Aitken | Clinical Effectiveness Manager |
| Dave Bywater | Lead Consultant Paramedic, Medical Director Office |
| David Craig | Clinical Effectiveness Manager |
| Dr Simon Dewar | Consultant Microbiologist |
| Dr Stephanie Dundas | Consultant in Infectious Diseases |
| Dr Grant Franklin | Consultant in Acute Medicine & Infectious Diseases |
| Dr Stephen Friar | Consultant in Anaesthesia |
| Stephanie Frearson | QI Lead Acute |
| Sue Gillan | Data Measurement & BI |
| Lucy Ann Glasgow | Improvement Advisor |
| Michelle Hankin | Clinical Governance and Risk Team Leader |
| Emma Hearn | Associate Quality Improvement Advisor |
| Dr Sharon Irvine | Consultant in Medicine and Infection |
| Dr Edward James | Consultant Microbiologist |
| Dr Iain Keith | Consultant Physician |
| Frances Kerr | SAPG Project Lead |
| Alison MacDonald | Area Antimicrobial Pharmacist |
| Jo McEwen | Advanced Nurse Practitioner, Antimicrobial Stewardship |
| Dr Calum McGregor | Consultant Acute Physician |
| Dr Jayne McLaren | Consultant in Emergency Medicine |
| Catriona McLennan | Clinical Support Nurse |
| Dr Gregor McNeill | Consultant Intensive Care Medicine |
| Rhona Morrison | QI Facilitator, Patient Safety |
| Laura Neil | Lead AHP/ Interim Head of Clinical Governance & Quality Improvement |
| Prof. Kevin Rooney | Consultant in Anaesthesia and Intensive Care Medicine |
| Dr Gavin Simpson | Consultant Intensive Care / Anaesthetics |
| Moira Sinclair | Clinical Nurse Manager |
| Mark Smith | Advanced Nurse Practitioner Lead / Practice Development Nurse |
| Sue Vest | Risk Coordinator / Improvement Advisor |
| Dr Sarah Whitehead | Consultant Microbiologist and Infection Control Doctor |

# Contact

You can get in touch to provide feedback or share your plans for using the Sepsis Driver Diagram and change package by:

Email: [his.acutecare@nhs.scot](mailto:his.acutecare@nhs.scot)

X, formerly known as Twitter: [SPSP Acute Adult X profile](https://twitter.com/SPSP_AcuteAdult) [ihub X profile](https://twitter.com/ihubscot)

#spsp247 #spspDetPat

If this accessible version of our driver diagram does not fulfil your needs, please get in touch with us via email at [his.acutecare@nhs.scot](mailto:his.acutecare@nhs.scot)

[To find out more, visit the ihub website](https://www.ihub.scot)

# END

Published March 2024

You can read and download this document from our website.   
We are happy to consider requests for other languages or formats.   
Please contact our Equality and Diversity Advisor on 0141 225 6999   
or email his.contactpublicinvolvement@nhs.scot

Improvement Hub  
Healthcare Improvement Scotland

|  |  |
| --- | --- |
| Edinburgh Office Gyle Square 1 South Gyle Crescent Edinburgh EH12 9EB  0131 623 4300 | Glasgow Office Delta House 50 West Nile Street Glasgow G1 2NP  0141 225 6999 |

www.ihub.scot