



Framework for HSE AMRIC National Programme for Surgical Site Infection Prevention

V 2.0 21.09.2026

Version	Date	Changes from previous version	Drafted by
2.0	21.09.2026	Review of framework Update to governance arrangements to support HSE AMRIC programme for SSI prevention Restructured to include expansion of SSI surveillance to other surgeries Removal of hip fracture specific SSI surveillance protocol Inclusion of link to guidance for SSI data collection in hip fractures	HSE AMRIC
1.3	07.02.2024	Framework for HSE National Programme for Surgical Site Infection Surveillance - Pilot through the Irish Hip Fracture Database (IHFD)	HSE AMRIC and AMRIC Acute operations

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Introduction

Surgical site infection (SSI) is defined as an infection that occurs within 30 days after the operation, or 90 days post operatively if a prosthesis is inserted, and involves the skin and subcutaneous tissue, the deep soft tissue (for example, fascia, muscle) of the incision (deep incisional) and/ or any part of the anatomy (for example, organs and spaces) opened or manipulated during an operation (organ/space)¹.

Surgical site infections (SSIs) are among the most common healthcare associated infections (HCAIs). SSIs are associated with longer length of hospital stays for affected patients, additional surgical procedures or treatment in intensive care units, and greater rates of morbidity and mortality¹.

It is estimated that SSIs affect over 500,000 people per year in Europe and costs €19 billion^{2,6}. The European Centre for Disease Prevention and Control (ECDC) 2023 Irish point prevalence survey (PPS)⁵ of all HCAIs showed SSIs accounted for 13.6% of all HCAIs recorded in 65 hospitals (50 public and 15 private hospitals included).

The national antimicrobial resistance and infection control team (AMRIC) developed the HSE National Programme for Surgical Site Infection Surveillance in line with Ireland's National Action Plan 2 on antimicrobial resistance (INAP 2)³, and HSE AMRICs action plan 2022-2025⁷. This programme commenced in 2022 on a phased programme of work with 1 pilot project focused on surgical site infection surveillance on hip fracture surgery in collaboration with the National Office of Clinical Audit (NOCA) and the Irish Hip Fracture Database (IHFD) and was formalised in 2022. Planning to expand the programme to C-Section surgery was undertaken in line with governance of the HSE AMRIC action plan 2022-2025⁷. The national expansion of this programme is supported by the HSE AMRIC action plan 2026-2030⁸ and is aligned to iNAP3 2026-2030⁴.

The framework supporting the HSE National Programme for Surgical Site Infection Surveillance detailed SSI surveillance on hip fracture surgery. This framework document has been reviewed and updated to include the HSE AMRIC programme for SSI prevention, the expansion of the national programme to surveillance and SSI prevention in other surgeries and the supporting governance arrangements.

Scope

This framework should be considered by each health region, public acute hospitals, elective surgical hubs and sites delivering surgical services, private hospitals and healthcare staff with responsibility for surgical patients including but not limited to senior hospital management, risk management and quality and patient safety, appropriate clinical and relevant surgical, anaesthetic and nursing teams, theatre staff, surveillance scientists, SSI nursing, infection prevention and control (IPC) and antimicrobial stewardship pharmacists.

Surgery specific SSI protocols have not been included in this document. Further information on guidance for SSI data collection in hip fractures can be found in the IHFD handbook for audit coordinators. Requests for access to this handbook is via email link [here](#).

Governance

The HSE AMRIC programme for SSI prevention will expand to additional surgeries, such as those included in the ECDC SSI protocol ¹ ([Appendix 1](#)). The programme governance structure has been aligned to support this expansion, as laid out in figure 1.

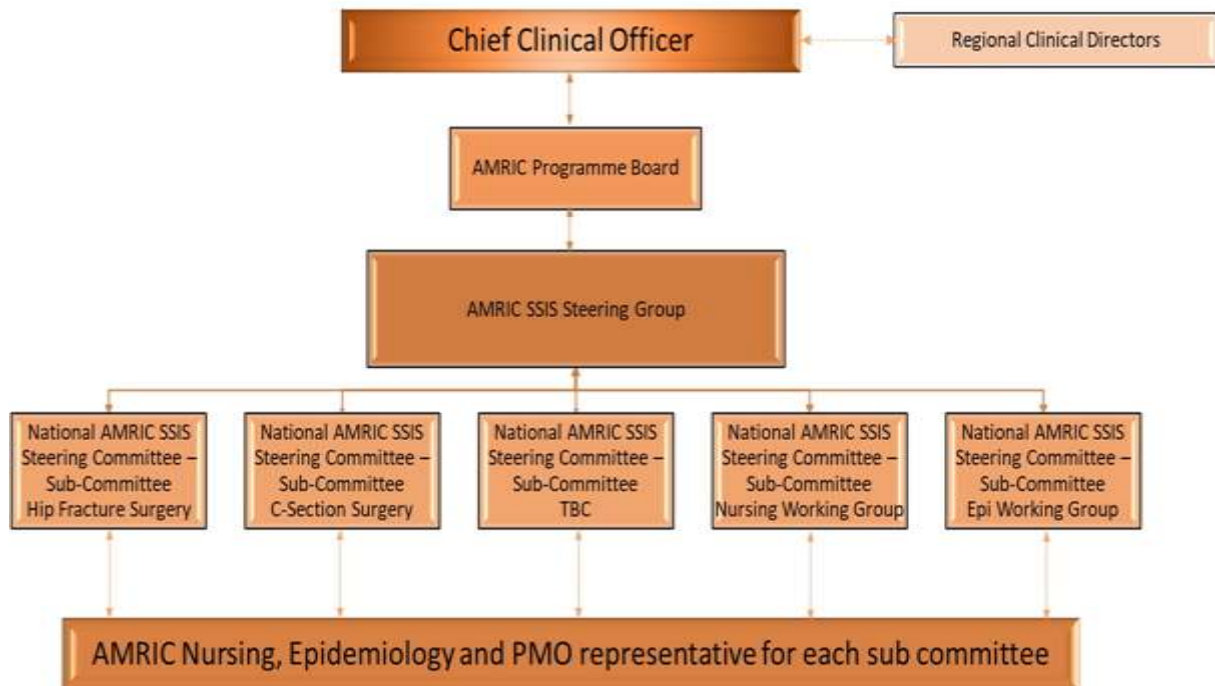


Figure 1 HSE AMRIC Programme for SSI Prevention governance arrangements

National SSI Prevention Steering Group Committee

Governance of the project is under the office of the Chief Clinical Officer (CCO). The HSE AMRIC SSI prevention steering group will be the overarching governance group for this programme, co-chaired by the AMRIC Clinical Lead and a surgical leader, the steering group will report, through the co-chairs, to the AMRIC Programme Board and from there to the CCO.

The AMRIC SSI prevention steering group will govern and oversee the implementation of the agreed SSI prevention programme for surgery specific areas of focus by way of AMRIC SSI prevention (surgery specific) sub-committees. Regional key stakeholder representation on this steering group includes regional executive officer (REO) or designate, and at sub-committee level through membership from regional SSI nursing leads/regional nursing nominations (REO nominated) and the regional SSI CNM 2 nurses.

The programme deliverables at a regional and national level are detailed in the HSE AMRIC Action Plan 2026-2030 ⁸(outlined in figure 2) and will be included as part of the objectives of the steering committee.

Strategic objective 2: enhance surveillance of antibiotic resistance and antibiotic use	
Regional actions	National coordination and supports
Support regional/local quality improvement SSI projects supported by appropriate governance.	Develop national system for collection of SSI surveillance data.
Monitor and report incidence of SSIs in line with national SSI surveillance programme.	Expand SSI surveillance programme in line with highest risk.
Implement the position statement on duration of surgical antibiotic prophylaxis (SAP).	Reporting risk-adjusted SSI rates to support SSI surveillance programme.
Deliver quality improvement programmes to reduce SSIs.	Evaluate the SSI surveillance programme.
	Support quality improvement programmes to reduce SSIs.

Figure 2: Extract from HSE AMRIC Action plan 2026- 2030 ⁹ (Strategic Objective 2)

Surgery specific sub committees

Surgery specific sub-committees, for example the hip fracture sub-committee or the C-section sub-committee, will oversee the planning, agreement, implementation, monitoring and review of an agreed (surgery specific) SSI prevention project aligned to the SSI prevention steering group programme plan. Surgery specific sub-committees will be responsible for the reporting of the surgery specific SSI data from relevant participating HSE acute hospitals quarterly (or in a time frame deemed appropriate and agreed by the steering group) and from private hospitals who wish to participate. Additional surgery specific sub-committees will be established in line with agreed programme expansion. The surgery specific sub-committees will be co-chaired by the AMRIC deputy clinical lead and surgery (specific) lead/expert.

Working groups

Working groups (nursing and epidemiologists) will support the agreed SSI prevention programme, work with regional SSI nurses and epidemiologists involved in SSI prevention and surveillance and will support the work of the surgery specific sub-committees for example the hip fracture sub-committee or the C-section sub-committee. These working groups will be chaired by the AMRIC Director of Nursing and AMRIC Senior epidemiologist.

Guidance

To support the national programme for surgical site infection prevention, guidance providing [key recommendations to prevent SSI](#) has been published.

A joint [position statement on surgical antibiotic prophylaxis duration](#) was developed by the Antimicrobial Resistance and Infection Control Team (AMRIC), the HSE Antimicrobial Stewardship Advisory Group & the National Clinical Programme for Surgery (NCPS), and a suite of resources including an [eLearning module](#) to support the implementation of this position statement.

The sub-committee working groups will develop further resources and guidance as deemed necessary by the steering committee.

Surveillance

Case Definition of SSIs

Standardised SSI case definitions across sites and time periods are essential for accurate comparison of data across sites. Consistent surveillance data and methodology reduces variation, allows for benchmarking, and ensures data quality to inform infection prevention initiatives.

SSI definitions are based on factors such as site of infection (superficial, deep, organ/space), and type of incision, time (days) to developing an infection, the presence of purulent discharge coming from the wound, signs or symptoms of infection, physician diagnosis in a specific surveillance population, and/or specimen microbiological results. The case definitions used for SSI surveillance will be categorised into superficial incisional, deep incisional, organ/space and as closely aligned to the ECDC protocol ¹ as possible. However, when necessary, there may be additional adaptations from the HSE Prevention of Surgical Site Infections guidance ², the Centre for Disease Control National Healthcare Safety Network (CDC-NHSN) SSI protocols ¹⁰ and the National Services Scotland SSI surveillance protocol ⁹ to facilitate guidance for orthopaedic procedures, amongst other expert sources.

SSI risk index

Other measures that may be incorporated include the SSI risk index which was developed by the CDC-NHSN ^{1,10}. It uses a combination of three major risk factors to assign patients into risk categories:

1. American Society of Anaesthesiologists (ASA) pre-operative assessment score of 3, 4 or 5
2. Classification of surgical wound class as contaminated (class 3) or dirty/infection (class 4)
3. Duration of operation.

The wound contamination class, ASA physical status classification and duration of operation definitions will be aligned to the definitions of ECDC¹.

Structure and process indicators

Other structure and process indicators that are/will be collected and may be analysed further include perioperative antibiotic prophylaxis indicators, preoperative skin preparation indicators and other prevention indicators such as the patients normothermia and blood glucose levels.

SSI Indicators for EU level reporting and surgical site infection characteristics

For each procedure the SSI occurrence may be measured and reported as:

SSI incidence, expressed as a percentage of SSIs per 100 operations

Incidence density of in-hospital SSIs expressed per 1,000 post operative patient days

The SSI incidence may be used to monitor infection occurrence and for tracking of infection for specific procedures, hospitals, or pathogens particularly when the SSI rate is stratified by the risk index (see stratification section below). Where sufficient data is available, incidence density may be calculated. The Incidence density involves only cases of SSI detected during inpatient stay and accounts for the differences in post-operative length of hospital stays. It may provide a more reliable basis for comparisons between hospitals.

Data limitations

There are several limitations to the interpretation and comparison of SSI incidence measures and risk stratified data for the purposes of comparing patient populations. Patient populations may differ in demographics, for example age, sex, socioeconomic status, disease severity. Differences in follow up time, small sample sizes, residual confounding would affect the validity and comparability of data.

While crude SSI rate provides a simple and standardised reporting metric, for more meaningful comparisons of data to be made e.g. to account for different surgeons, institutions, data over-time, requires consideration of differences in patient case mix and other risk factors. Risk adjustment may be considered to facilitate more appropriate comparisons.

Risk stratification models also have limitations. Important predictors of SSIs may be omitted from the model and the variables included may not fully account for differences between patient populations. Models may be overfitted to the dataset on which they were developed, and they may perform well for a particular population but lack generalisability to the wider population.

Because SSIs may occur infrequently, especially in low-volume procedures or centres, the number of events can be too small for reliable analysis. This leads to statistical limitations, making meaningful comparison (benchmarking) difficult and sometimes requiring aggregation of data over time or across institutions.

Stratifications

SSIs can be stratified by subgroups (for example procedure type, surgery indication, patient characteristics) and by CDC-NHSN risk index. Where applicable, 95% confidence intervals will be calculated to support interpretation of the estimates. The CDC-NHSN risk index can also be used to calculate a risk ratio and compare the risk between the groups.

Stratifying patients by risk of developing an SSI can improve surveillance programs allowing

for identification of high-risk patients and performance targeted surveillance. Risk adjustments for SSI allows for better comparisons of data across sites, procedures, surgeons, and so forth.

Data Management and Information Governance

Reporting

Standardised SSI data from each respective site will be collected at local level and shared with the relevant bodies for collation, for example the AMRIC National team. The data will undergo data processing steps and be reformatted as necessary to generate national reports and for submission as relevant to the ECDC data portal to align with international standards.

Data Quality

To ensure high-quality data collection several aspects of data quality must be considered. The percentage of data completeness of all variables in the data dictionary is one important aspect to data quality (for example for patient, procedure, hospital data variables). Having a sufficient dataset and an appropriate sample size is central to being able to perform statistical analysis on that data. Reporting standardised data definitions following standardised protocols allows for improved comparisons, predictions and trends to be made within and between sites which promotes more uniform reporting.

Data accuracy must be included to ensure the values in the data dictionary reflect the underlying clinical information. Staff training, auditing and further validation checks would support the data reliability.

Limitations

The ECDC SSI methodology prioritises standardised approaches. Consequently, surveillance metrics focus on the occurrence of at least one SSI per procedure rather than capturing multiple infectious events following the same operation. This should be considered when interpreting surveillance data, particularly when assessing overall clinical burden.

Although we are using a standardised approach there may be some variances with other approaches. While alternative approaches to SSI measurement may capture cumulative or patient-level burden, the use of a standardised, procedure-based methodology enables meaningful comparison across hospitals and countries.

Glossary of Terms

AMRIC	Antimicrobial Resistance and Infection Control
AMS	Antimicrobial Stewardship
ASA	American Society of Anaesthesiologists
CCO	Chief Clinical Officer
CDC	Centre for Disease Control
CDC-NHSN	Centre for Disease Control National Healthcare Safety Network
CNM	Clinical Nurse Manager
ECDC	European Centre for Disease Control
HCAI	Healthcare Associated Infections
HSE	Health Service Executive
IHFD	Irish Hip Fracture Database
IPC	Infection Prevention and Control
iNAP	Ireland's National Action Plan
NCPS	National Clinical Programme for Surgery
NOCA	National Office for Clinical Audit
PPS	Point Prevalence Survey
REO	Regional Executive Officer
SSI	Surgical Site Infection
WHO	World Health Organisation

Appendices

Appendix 1 ECDC SSI types of surgeries

Selected type of surgical procedures for surveillance with high-level description

NHSN	High-level description
category	
COLO	Colon surgery Incision, resection or anastomosis of the large bowel; includes large-to-small and small-to-large bowel anastomosis Laparoscopic excision of large intestine Enterotomy Intestinal anastomosis
REC	Rectum surgery
CHOL	Cholecystectomy
	Removal of gallbladder, includes procedures performed using the laparoscope
HPRO	Arthroplasty of hip
KPRO	Arthroplasty of knee
LAM	Laminectomy Exploration or decompression of spinal cord through excision or incision into vertebral structures
CSEC	Caesarean section
CARD	Cardiac surgery
CABG	Coronary artery bypass, unspecified
CBGB	Coronary artery bypass grafting with both chest and donor site incisions Chest procedure to perform direct revascularisation of the heart; includes obtaining suitable vein from donor site for grafting
CBGC	Coronary artery bypass grafting with chest incision only Chest procedure to perform direct vascularisation of the heart using, for example, the internal mammary artery

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