



National Guideline ☒

HSE AMRIC Guideline for Monitoring and Measurement for Antimicrobial Stewardship Programmes in Acute Hospitals

DOCUMENT GOVERNANCE

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DOCUMENT MANAGEMENT

Date effective from:	03/06/2025		
Date set for next review:	05/06/2028		
Current version no:	1	Archived version no:	0

Note: Original document is Version 0. First revision is Version 1. Second revision is Version 2, and so on. This information is valid only on the day of printing, for any updates please check

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VERSION CONTROL UPDATE

Version No.	Date reviewed	Comments
1	2025	HSE AMRIC Guideline for Monitoring and Measurement for Antimicrobial Stewardship Programmes in Acute Hospitals.
0	2017	Recommendations for Implementation of Key Performance Indicators for Antimicrobial Stewardship in Acute Hospitals in Ireland.

PUBLICATION INFORMATION

Topic:

AMS measures for monitoring local antimicrobial stewardship programmes in Irish acute hospitals.

National Group:

Antimicrobial Resistance and Infection Control (AMRIC)

Brief summary:

The establishment of a monitoring process based on AMS measures is fundamental to hospital antimicrobial stewardship (AMS) programmes to evaluate the effectiveness of AMS initiatives. These can be categorised into structure, process, outcome, and balancing measures. This guideline outlines eight recommended measures which focus on process and outcome measures for antimicrobial stewardship programmes in acute hospitals. It provides metadata for each measure and includes recommendations on methods for data collection.

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1.0 Planning

1.1. Overview

AMS measures for monitoring of AMS programmes are fundamental to an antimicrobial stewardship (AMS) programme to evaluate the effectiveness. Data can be quantitative (consumption reporting) or qualitative (audit of appropriateness of prescribing, e.g. point prevalence studies). These measures can encompass structural (are the right elements in place?), process (are our systems performing as planned?) outcome (what is the result?) and balancing (are the changes causing new problems?) measures. Structural measures are supported by the HSE AMRIC Governance Toolkit. AMS measures for monitoring should be agreed by the AMS oversight committee as part of the AMS programme strategy, detailed in the AMS annual action plan and reported in the AMS annual report for dissemination to local stakeholders. The choice and frequency of AMS measures will depend on the programme of work, local areas of focus and setting of the facility.

Some of the key principles of sustainable measurement are as follows:

- Seek usefulness, not perfection in the measurement
- Keep measurements simple
- Be clear about the definitions of the measures
- Measure small representative samples
- Try to build measurement into daily work practices.

At a national level, the HSE AMRIC Action Plan 2022-2025 sets out clear outcome measures in relation to AMS over the period 2022–2025 in Ireland. Targeted metrics are provided in the action plan for outcomes in the key areas of healthcare associated infection (HCAI), antimicrobial consumption (i.e. community consumption, acute hospital consumption) and surgical antibiotic prophylaxis (SAP) duration (SAP duration >24 hours <20%). The full suite of measures is set out in detail in the HSE AMRIC Action Plan 2022–2025.

1.2 Purpose

To support acute hospitals to implement local, hospital specific AMS measures for monitoring antimicrobial stewardship programmes focusing on process and outcome measures.

1.3 Scope

1.3.1 Target users

This guideline is intended for use by antimicrobial stewardship teams in hospitals. It replaces the “Recommendations for Implementation of Key Performance Indicators for Antimicrobial Stewardship in Acute Hospitals in Ireland” 2017.

1.3.2 Target population

All patients that are prescribed antimicrobials in acute Irish hospitals.

1.4 Objective(s)

The objective of this document is to provide a recommended suite of AMS measures for local acute hospital antimicrobial stewardship programmes to support a standard approach to monitoring AMS programmes across all acute hospitals. These measures are not designed for national reporting at this time (exception measure no.2 currently captured via the business information unit). We would encourage AMS teams to present these measures to their regional Healthcare Associated Infection (HCAI) meetings if agreeable locally.

1.5 Outcome(s)

- All acute hospitals AMS oversight committees to agree AMS measures for collection at local sites based on this document.
- All acute hospital AMS operational teams to agree a mechanism to collect AMS measures including who will collect the data, how it will be collected, where it will be stored and how it will be reported back to the AMS oversight committee and included in the AMS annual report.

1.6 Disclosure of interests

The members of the development group have nil conflicts of interest to declare.

1.7 Rationale

AMRIC antimicrobial stewardship guidance for all healthcare settings 2022 advocates for antimicrobial stewardship teams to measure the performance of antimicrobial stewardship programmes and to use the data for quality improvement (chapter 6).

1.8 Suggested citation

Health Service Executive (2025), HSE AMRIC Guideline for Monitoring and Measurement for Antimicrobial Stewardship Programmes in Acute Hospitals.

2.0 Methodology

2.1. List of key questions this National PPPG will answer

1. What are AMS measures and what are the different categorisations of AMS measures?
2. What AMS measures should be monitored by local antimicrobial stewardship programmes?
3. How should these AMS measures be collected?
4. How should the data be reported?

2.2. Describe and document the evidence searches

Research for this document included a review of International, European, American and Irish guidance on antimicrobial stewardship metrics. [Full list of references.](#)

3.0 Procedure

The implementation of the HSE AMRIC Governance toolkit will ensure AMS structural measures are established and it is intended that when feasible balancing measures will be developed in the future. This guideline focuses on a concise generic suite of process and outcome measures which should be deployed in acute hospitals to support monitoring of the impact of local AMS programmes.

These AMS measures are presented in 2 groups, with the recommendation that local collation and reporting of group 1 measures is established initially followed by group 2 measures as hospital resources allow.

The AMS measures should be used at hospital level to monitor AMS performance and quantify outcome of local AMS improvement initiatives. It is suggested that these measures should be referred to in the local hospital AMS annual plan in terms of baseline, projected performance and targets. The regular collection of associated data, monitoring of trends and quarterly reporting on these measures should be supported by the hospital AMS structures. It is not intended that the hospitals report nationally, as hospital comparisons would be subjective. This guideline aims to support a standard approach to local monitoring of AMS in acute hospitals in the HSE which allows each hospital to track improvement and trends year on year.

AMS measures 1, 2 and 4 are recommended in previous AMRIC publications (Table 1). Data to inform new AMS measures can be collected prospectively in the context of AMS rounds, AMS audits and quality improvement plans (QIPs). It is acknowledged that these data collection methods are a sample of patients at a point in time and may not represent the hospital population. This is a limitation of the data captured on AMS rounds, audits and during QIPs.

The recommended AMS measures are listed below, please note that this list is not exhaustive and local teams may collect data relating to other AMS measures as appropriate also.

3.1. Group 1 AMS measures for acute hospitals

AMS Measure	Target	Reporting Frequency	Reference
1. Percentage (%) reduction in overall quantity of antimicrobials dispensed in the acute hospital.	2% reduction	Annual	AMRIC Action Plan 2022-2025
2. Percentage (%) of prescriptions for reserve antimicrobials with infection specialist authorisation (either pre-or post-).	>90%	Quarterly	HSE AMRIC Reserve Antimicrobial Policy 2024
3. Delivery of AMS education sessions by AMS team or nominee (suggested priority audience should include NCHDs, pharmacists, nurse prescribers and nurses).	NA	Annually	New
4. Surgical antibiotic prophylaxis administered for duration >24 hours.	<20%	Quarterly	AMRIC Action Plan 2022-2025
5. Compliance of choice of agent with local policy or infection specialist.	>90%	Quarterly	New

Table 1 Group 1 AMS measures for acute hospitals

3.2. Group 2 AMS measures for acute hospitals

AMS Measure	Target	Reporting Frequency	Reference
6. Compliance of duration of antimicrobial prescriptions in accordance with local policy or infection specialist recommendation.	>90%	Quarterly	New
7. Percentage (%) of patients on IV therapy eligible for oral switch.	<10%	Quarterly	New
8. Percentage (%) of double/multiple anaerobic cover prescribed appropriately.	>95%	Quarterly	New

Table 2 Group 2 AMS measures for acute hospitals

3.3. Specific roles and responsibilities

AMRIC National Team	Develop & publish the guideline
AMRIC Acutes, Access & Integration	Develop & publish the guideline
Local AMS Lead	Oversee / lead implementation of AMS measures locally
Local AMS Oversight Committee	Agree local targeted AMS measures for implementation locally and inclusion in the annual plan and report
Local AMS Operational Team	Implement workflows to measure, collect and feedback agreed AMS measures locally.

Table 3 Roles and responsibilities for development and implementation of guideline

4.0 Consultation

4.1. Stakeholder involvement

The PPPG development group disseminated this document to an AMS pharmacist representative from each of the six HSE Integrated Health regions and the AMS advisory group for comment and feedback.

5.0 National implementation plan

5.1. Resource implications

The AMS staff in acute hospitals should be supported by the acute hospital management team to have appropriate protected time to implement workflows to agree, measure, collect, report and analyse AMS measures locally.

5.2. Describe the structure and governance of the national implementation team.

This guideline was developed by AMRIC Acutes Access and Integration and AMRIC national teams. It was reviewed by the AMS advisory group and approved by the National AMRIC clinical lead. Dissemination will be undertaken by the National AMRIC team to acute hospital AMS pharmacists, Regional Executive Officers (REOs), Irish Society of Clinical Microbiologists (ISCM) and the Irish

Disease Society of Ireland (IDSI). The implementation should be undertaken locally by the local acute hospital AMS Oversight committee.

5.3. *List tools and resources developed to support local implementation of the National PPPG.*

The AMRIC guidelines and resources are available at www.antibioticprescribing.ie to support this guideline including surgical antibiotic prophylaxis resources, an intravenous to oral switch toolkit, the AMRIC Reserve Antimicrobial policy and an AMS measure data collection tool.

5.4. *Expected date of full implementation*

All acute hospitals should have a set of AMS measures in line with national AMS measures for monitoring that should be set out in the annual AMS action plan and fed back in the annual AMS report. This guideline has been published in 2025 and should be fully implemented by January 2027.

6.0 Governance and approval

The HSE AMRIC Guideline for Monitoring and Measurement for Antimicrobial Stewardship Programmes in Acute Hospitals was commissioned by the HSE AMRIC Clinical Lead. The PPPG development group included the AMRIC acute services and AMRIC national team with consultation from the AMRIC AMS advisory group.

The AMRIC national team recommended the HSE AMRIC Guideline for Monitoring and Measurement for Antimicrobial Stewardship Programmes in Acute Hospitals to the AMRIC clinical lead for final sign off. This PPPG should be managed by the local AMS team at each site; these teams should be linked to the pharmacy/drugs and therapeutics committee or quality and safety committee within the hospital.

7.0 Communication and dissemination plan

It is the responsibility of the local AMS team to make all relevant clinical stakeholders at their site aware of the introduction of the local AMS measures that have been agreed by the AMS oversight committee. The rationale behind the categorisation should be made clear to all stakeholders and the measures should be fed back to stakeholders at quarterly AMS oversight committee meetings and made available to all staff in the AMS Annual Report.

8.0 Sustainability

8.1. Describe the plan for monitoring and audit

The AMS measures for local AMS programmes are to be agreed by local AMS oversight committees and form part of the local AMS annual plan. The AMS operational teams should collect data as part of local audits, quality improvement projects and AMS rounds. This data should ideally be collected prospectively and with a minimum of 10-15 patients per measure. The suggested reporting frequency for the majority of AMS measures is quarterly but if local sites have capacity to do more frequently, this may benefit more effective quality improvement projects. With regards to the target number of education sessions to be delivered annually, this should be decided locally and will be dependent on

AMS resources and local Oversight agreement. A HSE AMRIC AMS measure data collection tool to support collection and collation of this data is available. The data collected should be fed back to relevant clinical stakeholders prospectively or in as timely a manner as possible and inform local quality improvement plans in collaboration with local QPS teams, relevant clinical directorates and be included in the AMS annual plan.

9.0 Review / update

9.1. Review of national document

This document will be reviewed every 3 years, the next date of review will be June 2028, amendments to AMS measures may occur in light of emerging evidence.

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10.0 Glossary of terms

AMRIC	Antimicrobial Resistance and Infection Control
AMS	Antimicrobial Stewardship
CDC	Centres for Disease Control and Prevention
CPE	Carbapenemase-producing Enterobacterales
ECDC	European Centre for Disease Prevention and Control
HCAI	Healthcare Associated Infection
HPSC	Health Protection Surveillance Centre
HSE	Health Service Executive
IDSi	Infectious Diseases Society of Ireland
ISCM	Irish Society of Clinical Microbiologists
IV	Intravenous
NCHD	Non consultant hospital doctors
NCPS	National Clinical Programme in Surgery
PO	Oral
PPPG	Policy, Procedure, Protocol, Guideline
PPS	Point Prevalence Survey
REO	Regional Executive Officer
SAP	Surgical Antibiotic Prophylaxis
SSI	Surgical Site Infection

11.0 Appendices

Appendix 1: AMS measure Meta-data

No	Headings	Detail Supporting AMS measure
1	Title	Percentage (%) reduction in overall quantity of antimicrobials dispensed in the acute hospital
2	Rationale	The European Union in collaboration with the European Centre for Disease Prevention and Control (ECDC) have set an antimicrobial consumption target for Ireland to reduce consumption of antibiotics in humans, by 27% by 2030 compared with 2019 (baseline year).
3	Indicator Classification	Outcome
4	Target	2% reduction in annual amount antimicrobial dispensed
5	Calculation	Percentage (%) change on previous year HPSC total annual antimicrobial consumption report
6	Data Sources	HPSC
6b	Data Quality Issues	The raw data for the HPSC report is dependent on the AMS team being adequately resourced to provide pharmacy dispensing data to the HPSC.
7	Data collection frequency	Annually
8	International Comparison	The ESAC-net report 2023 provides antimicrobial consumption comparisons for 28 countries in the European Union.
9	Monitoring, reporting frequency and reporting period	Annually, Reporting: annually one month in arrears i.e. Year 1 Jan – Dec data reported in Feb Year 2.
10	Reporting Aggregation	Acute hospital
11	Reported in which reports	AMS Annual Report

No	Headings	Detail Supporting AMS measure
1	Title	Percentage (%) of prescriptions for reserve antimicrobials with infection specialist authorisation (either pre-or post-)
2	Rationale	In 2024 HSE AMRIC published a list of Reserve antimicrobials that should only be dispensed on the recommendation (pre- or post- prescription approval) of an infection specialist.
3	Indicator Classification	Process
4	Target	>90%
5	Calculation	$\% = \left(\frac{\text{Number of Reserve antimicrobials approved by an infection specialist}}{\text{Number of Reserve antimicrobials prescribed}} \right) \times 100$
6	Data Sources	Acute Hospital AMS records
6b	Data Quality Issues	Data completeness is dependent on adequate resourcing of the local AMS programme.
7	Data collection frequency	Quarterly
8	International Comparison	Not available
9	Monitoring, reporting frequency and reporting period	Quarterly Reporting quarterly, one month in arrears i.e. Q1 Jan-march data reported April
10	Reporting Aggregation	Acute hospital
11	Reported in which reports	AMS Annual Report

No	Headings	Detail Supporting AMS measure
1	Title	Delivery of AMS education sessions by AMS team or nominee (suggested priority audience should include NCHDs, pharmacists, nurse prescribers and nurses).
2	Rationale	Education and training are a key component of an AMS programme.
3	Indicator Classification	Process
4	Target	Local AMS Oversight committee to set annually
5	Calculation	AMS educations sessions organised and delivered. Smaller sites are encouraged to share sessions (remote presentation).
6	Data Sources	Acute Hospital AMS records
6b	Data Quality Issues	None identifiable
7	Data collection frequency	Annually
8	International Comparison	International references advise an annual programme of education to all stakeholders who prescribe, administer or monitor antibiotic therapy (see references).
9	Monitoring, reporting frequency and reporting period	Annually Reporting: annually one month in arrears i.e. Year 1 Jan –Dec data reported in Feb Year 2.
10	Reporting Aggregation	Acute hospital
11	Reported in which reports	AMS Annual Report

No	Headings	Detail Supporting AMS measure
1	Title	Surgical Antibiotic Prophylaxis administered for duration >24 hours
2	Rationale	Surgical antibiotic prophylaxis is a critical step in preventing surgical site infection. Extended duration of surgical antibiotic prophylaxis is not associated with further reduction in risk of surgical site infection (SSI).
3	Indicator Classification	Process
4	Target	<20%
5	Calculation	%= (Number of patients on SAP >24 hours/ Total number of patients on SAP) multiplied by 100/1
6	Data Sources	AMS operational team or local surgical teams
6b	Data Quality Issues	AMS rounds and local audits are a point prevalence survey and may not be representative of all patients prescribed SAP and are subject to adequate local AMS resources.
7	Data collection frequency	Quarterly
8	International Comparison	Point prevalence survey of healthcare-associated infections and antimicrobial use in European acute care hospitals 2022–2023 (Figure 57)
9	Monitoring, reporting frequency and reporting period	Quarterly Reporting quarterly, one month in arrears i.e. Q1 Jan-march data reported April
10	Reporting Aggregation	Acute hospital
11	Reported in which reports	AMS Annual Report and local surgical directorate reports as appropriate

No	Headings	Detail Supporting AMS measure
1	Title	Compliance of choice of agent with local policy
2	Rationale	Adherence to local antimicrobial guidelines by local prescribers is key to an effective antimicrobial stewardship programme.
3	Indicator Classification	Outcome
4	Target	>90%
5	Calculation	%= (Number of reviewed antimicrobial prescriptions where choice of agent is compliant with local policy/Total number of reviewed antimicrobial prescriptions) multiplied by 100/1
6	Data Sources	Acute Hospital AMS records
6b	Data Quality Issues	AMS rounds and local audits are a point prevalence survey and may not be representative of all patients prescribed antimicrobials and are subject to adequate local AMS resources.
7	Data collection frequency	Quarterly
8	International Comparison	Australian Commission on Safety and Quality in Health Care and the CDC (see references)
9	Monitoring, reporting frequency and reporting period	Quarterly Reporting quarterly, one month in arrears i.e. Q1 Jan-march data reported April
10	Reporting Aggregation	Acute hospital
11	Reported in which reports	AMS Annual Report

No	Headings	Detail Supporting AMS measure
1	Title	Compliance of duration of antimicrobial prescriptions in accordance with local policy or infection specialist recommendation.
2	Rationale	National PPS audits have demonstrated that duration of antimicrobial prescriptions is prolonged in Irish acute hospitals.
3	Indicator Classification	Outcome
4	Target	>90%
5	Calculation	%= (Number of reviewed antimicrobial prescriptions where duration of agent is compliant with local policy/Total number of reviewed antimicrobial prescriptions) multiplied by 100/1
6	Data Sources	AMS team records
6b	Data Quality Issues	AMS rounds and local audits are a point prevalence survey and may not be representative of all patients prescribed antimicrobials and are subject to adequate local AMS resources.
7	Data collection frequency	Quarterly
8	International Comparison	Australian Commission on Safety and Quality in Health Care and the CDC (see references).
9	Monitoring, reporting frequency and reporting period	Quarterly Reporting quarterly, one month in arrears i.e. Q1 Jan-march data reported April
10	Reporting Aggregation	Acute hospital
11	Reported in which reports	AMS Annual Report

No	Headings	Detail Supporting AMS measure
1	Title	Percentage (%) of patients on IV therapy eligible for oral switch.
2	Rationale	The rates of IV antimicrobials in acute Irish hospitals are consistently between 65-70%. HSE AMRIC Intravenous to oral toolkit available.
3	Indicator Classification	Outcome
4	Target	<10%
5	Calculation	%= (Number of reviewed IV antimicrobial prescriptions suitable for an oral switch/Total number of reviewed IV antimicrobial prescriptions) multiplied by 100/1
6	Data Sources	AMS team records
6b	Data Quality Issues	AMS rounds and local audits are a point prevalence survey and may not be representative of all patients prescribed antimicrobials and are subject to adequate local AMS resources.
7	Data collection frequency	Quarterly
8	International Comparison	Point prevalence survey of healthcare-associated infections and antimicrobial use in European acute care hospitals 2022–2023 (see references).
9	Monitoring, reporting frequency and reporting period	Quarterly Reporting quarterly, one month in arrears i.e. Q1 Jan-march data reported April
10	Reporting Aggregation	Acute hospital
11	Reported in which reports	AMS Annual Report

No	Headings	Detail Supporting AMS measure.
1	Title	Percentage (%) of double/multiple anaerobic antimicrobial prescriptions prescribed appropriately.
2	Rationale	Double/multiple anaerobic cover is rarely indicated unless under infection specialist advice.
3	Indicator Classification	Outcome
4	Target	>95%
5	Calculation	%=(Number of reviewed antimicrobial prescriptions with appropriate double/multiple anaerobic cover/Total number of reviewed antimicrobial prescriptions with double/multiple anaerobic cover) multiplied by 100/1.
6	Data Sources	AMS team records
6b	Data Quality Issues	AMS rounds and local audits are a point prevalence survey and may not be representative of all patients prescribed antimicrobials and are subject to adequate local AMS resources.
7	Data collection frequency	Quarterly
8	International Comparison	None available
9	Monitoring, reporting frequency and reporting period	Quarterly Reporting quarterly, one month in arrears i.e. Q1 Jan-march data reported April
10	Reporting Aggregation	Acute hospital
11	Reported in which reports	AMS Annual Report

Appendix 3: Membership of Development Group

Membership of Guideline Development Group	
Name	Role and position
Mary Kelly	Chief II, Antimicrobial Pharmacist, HSE Access and Integration
Therese Dalchan	Head of Service, AMRIC Acute Services, Office of Director of Access and Integration HSE
Marie Philbin	Chief I Antimicrobial Pharmacist, AMRIC
Ellen Martin	Senior Antimicrobial Pharmacist, AMRIC
Susan Crehan	Business Manager, AMRIC Acute Services, Office of Director of Access and Integration HSE

Appendix 4: Members of the AMRIC Advisory committee

Name	Role and position
Dr Eimear Brannigan	Clinical Lead, AMRIC (Chair)
Dr Paul Ryan	GP AMRIC
Dr Edel Doorley	GP AMRIC
Umut Gurpinar	Epidemiologist, HSE – HPSC
Lauren Webster	Senior Epidemiologist, AMRIC
Dr Sinead O'Donnell	Consultant Microbiologist, Beaumont Hospital
Dr Alida Fe Talento	Consultant Microbiologist, CHI, ISCM representative
Prof Garry Courtney	National Clinical Lead for Acute Medicine
Dr Siad Ali	SpR Microbiology, NCHD representative
Mala Shah	Community Operations Representative, Chief II Antimicrobial Pharmacist, HSE Access & Integration - Quality & Patient Safety
Josephine Galway	Director of Nursing, AMRIC
Dr Anne O'Neill	National Clinical Lead for Oral Health
Marie Philbin	Chief I Antimicrobial Pharmacist, AMRIC
Ellen Martin	Senior Antimicrobial Pharmacist, AMRIC
Dr Scott Walkin	ICGP AMRIC Lead
Dr David Hanlon	National Clinical Advisor and Group Lead for Primary Care
Mary Kelly	Chief II, Antimicrobial Pharmacist, HSE Access and Integration
Dr Rosa McNamara	National Clinical Lead for Emergency Medicine
Ruth Hoban	HSE West, Assistant Director of Nursing and Midwifery (Prescribing), ONMSD representative
Prof. John Murphy	National Clinical Lead for Paediatrics
Sarah Clarke	Medicines Management Programme representative
Lorna O'Keefe	Secretary to Office of Chair of Antimicrobial Susceptibility Testing Group
Fiona Leonard	Community pharmacist (nominee from community pharmacy contingency group)
Dr Margaret McGloughlin	GP representative with RCF perspective
Dr Geraldine Moloney	Consultant in Infectious Diseases & IDSI rep
Professor Breda Cushen	HSE Clinical Lead for Respiratory
Ita Quinn	Senior Pharmacist, AIDMP
Teresa Cunningham	Administration Support, Office of the Clinical Lead, AMRIC

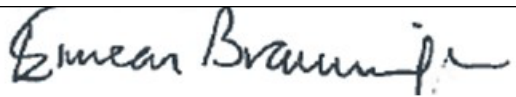
Rhona O'Neill	Chief II Pharmacist- HSE Access and Integration Drug Management Programme
Ciara Hughes	Programme Manager National Clinical Programme for Surgery (for National Clinical Lead for Surgery)
Prof Clare Rock	Deputy Clinical Lead, AMRIC
Stephen Murchan	Senior Epidemiologist, HSE-HPSC
Dr Eavan Muldoon	HSE Clinical Lead for Infectious Diseases and OPAT

Appendix 5: Membership of Approval Governance Group

Membership of Approval Governance Group	
Name	Role and position
Dr Eimear Brannigan	Clinical Lead, AMRIC
Mary Kelly	Chief II, Antimicrobial Pharmacist, HSE Access and Integration
Therese Dalchan	Head of Service, AMRIC Acute Services, Office of Director of Access and Integration HSE
Marie Philbin	Chief I Antimicrobial Pharmacist, AMRIC

Sign-off by Chair of Approval Governance Group

HSE AMRIC Guideline for Monitoring and Measurement for Antimicrobial Stewardship Programmes in Acute Hospitals was formally ratified and recorded in the minutes of the AMRIC Clinical Guideline Approvals Board on 26/05/2025.

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Signature: (e-signatures accepted)	
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