



HSE Antimicrobial Resistance
Infection Control (AMRIC)

action plan 2022-2025



RESIST

Acknowledgement

All contributors and stakeholders are acknowledged in the preparation of this HSE 2022-2025 AMRIC Action Plan, we are grateful for their input, support and role in continuing to advance Ireland's One Health response to Antimicrobial Resistance (iNAP2).

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Achoimre Feidhmiúcháin

Aithníodh an fhrithsheasmhacht in aghaidh ábhair fhrithmhiocróbaigh mar cheann de na bagairtí is mó in aghaidh sláinte dhaonna agus ainmhithe le deich mbliana anuas. Le bláin anuas, léiríodh go soiléir na himpleachtaí a bhain le hionfhabhtú nach bhfuil cóir Leighis éifeachtach againn le déileáil leis ar shláinte an chine daonna le teacht na paindéime domhanda, COVID-19. Tá frithmhiocróbaigh ríthábhachtach maidir le cleachtas an Leighis chomhaimseartha agus cuireann siad idirghabhálacha agus cóireálacha Leighis sofaisticiúla ar fáil, lena n-áirítear an cheimiteiripe agus trasphlandú orgán.

D'fhoilsigh Éire an chéad *Phlean Náisiúnta um Fhrithsheasmhacht in aghaidh Ábhair Fhrithmhiocróbaigh (AMR) 2017 - 2020*, iNAP1 mar a thugtar air, i mí Dheireadh Fómhair 2017. Tháinig sé seo i ndiaidh Phlean Domhanda um AMR (2015) de chuid na hEagraíochta Sláinte Domhanda (WHO) agus *Phlean Gníomhaíochta Eorpach um AMR (2017)*. Chuir an t-imeacht seo tú le sraith imeachtaí comhoibríocha Aon Sláinte Amháin ("One-Health"). Léirigh an comhfhoilsiu idir an Roinn Sláinte agus an Roinn Talmhaíochta, Bia agus Mara gur bunaíodh an pleán ar chur chuige sláinte "aon sláinte amháin". D'aithin an cur chuige "aon sláinte amháin" seo i dtaoibh na frithsheasamhachta in aghaidh ábhair fhrithmhiocróbaigh go bhfuil daoine, ainmhithe, plandaí agus an timpeallacht ina maireann siad nastha le chéile agus idirspleách, i dtaca leis an dúshlán seo, agus le dúshlán sláinte eile. Tá tábhacht ar leith ag baint le cursaí timpeallachta maidir le smacht a choinneáil ar AMR, agus dá bhrí sin, bhí ról lárnoch ag an nGníomhaireacht um Chaomhnú Comhshaoil chomh maith.

Inniu, 18 Samhain 2021, ar an Lá Feasachta Eorpach maidir le hÚsáid Antaibheatheach, tá an dara *Plean Náisiúnta Aon Sláinte um Fhrithsheasmhacht in aghaidh Ábhair Fhrithmhiocróbaigh 2021 - 2025* á fhoilsíú ag Éire, agus tabharfar iNAP2 air. Cuireann an Plean Gníomhaíochta Náisiúnta seo freagra comheagraithe trasearnála maidir leis an bhfrithsheasmhacht in aghaidh ábhair fhrithmhiocróbaigh ar fáil, a bhfuil tionchar laethúla aige ar an tsúl a gcuirfinimid cóir Leighis ar ionfhabhtuithe in Éirinn. Mar atá i gcás iNAP1, an aidhm atá ag iNAP2 ná a chinntíú go mbeidh fáil ar chóir Leighis éifeachtach fhrithmhiocróbach le haghaidh daonra na ndaoine agus na n-ainmhithe, a fhad is féidir.

Leagadh béim níos mó in iNAP2 ar na gnéithe timpeallachta agus ar chosc agus ar shrianadh ionfhabhtuithe. Forbraíodh iNAP2 agus rannpháirtíocht lárnoch ag geallsealbhóiri ann, lena n-áirítear rannpháirtíocht le FSS.

Le linn na tréimhse 2017-2021, tá FSS tar éis a bheith ag obair go dlúth i gcomhar leis an Roinn Sláinte chun dul i ngleic leis an Móréigeandáil Sláinte Phoiblí a bhain le Enterobacteriales a tháirgeann carbaípeineiméis (CPE). Cuireadh CPE le liosta reachtúil na ngalar infhógartha i mí na Nollag 2018. Áirítear feabhsuithe maidir le CPE i measc éachtaí tábhachtacha an chomhoibrithe sin. Nuair a seoladh iNAP1, bhí méadú tapa ag teacht ar líon na ndaoine a raibh CPE tagtha orthu le déanaí in Éirinn le himeacht na mblianta. Ón mbliain 2021, tá comharthaí ann go bhfuil cás CPE tar éis socrú.

Chun go ndéanfaí aistriú saoráideach a sholáthar d'earnáil na sláinte ó iNAP1 go iNAP2, is fiú athbhreithniú a dhéanamh ar an analís a rinneadh ar Phlean Feidhmithe AMRIC 2019-2020 de chuid FSS. D'fhorbair FSS Plean Feidhmithe AMRIC 2019-2020 chun dul i ngleic leis na cúig phríomhchuspóir straitéiseach ag iNAP1. Ba é Grúpa Maoirseachta AMRIC FSS a rialaigh an pleán seo agus an Príomhoifigeach Cliniciúl a bhí mar chathaoirleach air. Bhí Foireann Cur Chun Feidhme AMRIC freagrach as an bpleán a chur i bhfeidhm, trí scileanna cliniciúla agus oibríochta a thabhairt le chéile.

In ainneoin gur leanadh ar aghaidh le hobair áirithe ar fhrithsheasmhacht in aghaidh ábhair fhrithmhiocróbaigh i gcaitheamh na paindéime, cuireadh moill ar roinnt tionscadal/ seirbhísí mar gheall ar an bhfreagairt ar an bpáindéim. Bhí tionchar aige seo ar chumas FSS dul chun cinn a dhéanamh ó thaobh na hoibre de ar an bhfrithsheasmhacht in aghaidh ábhair fhrithmhiocróbaigh. Bhí páirtithe tábhachtacha de chuid na foirne AMRIC, foireann an Láirionaid Faire um Chosaínt Sláinte (HPSC), Ranna Réigiúnacha Sláinte Poiblí agus Géaroibríochtaí agus Oibríochtaí Comhphobail ina measc, dírithe ar an bhfreagairt ar an bpáindéim.

Tá foireann AMRIC agus a páirtithe laistigh de FSS tar éis iarracht a dhéanamh na tionscadail AMRIC, a cuireadh ar athló mar gheall ar fhreagra COVID-19, a thosú arís a luaithe agus ab fhéidir. Mar thoradh air sin, in ainneoin thionchar na paindéime agus an chibirionsaithe, bhain FSS éachtaí suntasacha amach agus rinne dul chun cinn le linn timthriall iNAP1. Cuireann an obair seo leis an obair a rinne coiste náisiúnta SARI, HPSC, larcheannasaithe Cliniciúla, chomh maith le daoine aonair, cumainn ghairmiúla agus comhlachtaí iarchéime cheana, a théann i ngleic le AMR agus le srianadh ionfhabhtuithe (IPC) in Éirinn. Tá saineolas ildisciplíneach níos láidre anois ann

ar leibhéal náisiúnta. Tá ról níos lárnáí anois ag fairne IPC agus AMR i soláthar seirbhísí d'othair agus dá muintir sna hospidéil agus sa chomhphobal. Tá feasacht agus tuiscint níos doimhne anois ag oibrithe leighis agus ag an bpobal ar shaincheisteanna a bhaineann le AMR agus le IPC.

Leagtar raon gníomhaíochtaí de chuid FSS amach i bPlean Gníomhaíochta AMRIC FSS 2022-2025 i dtaca leis na cúig sprioc staitéiseach atá sonraithe i iNAP2.

- Sprioc Straitéiseach 1: Feasacht agus Eolas ar AMR a fheabhsú
- Sprioc Straitéiseach 2: Faireachas ar fhrithsheasmhacht in aghaidh antaibheathach agus ar úsáid antaibheathach a fheabhsú
- Sprioc Straitéiseach 3: Scáipeadh ionfhabhtuithe agus galar a laghdú
- Sprioc Straitéiseach 4: Barr feabhas a chur ar úsáid antaibheathach i dtaca le sláinte daoine agus ainmhithe
- Sprioc Straitéiseach 5: Taighde agus infheistíocht inbhuanaithe i gcóir leighis nua, in uirlisí diagnóiseacha, i vacsainí agus in idirghabhálacha eile a spreagadh

Tá gníomhaíochtaí FFS ag na spriocanna straitéiseacha seo ar fad a bhfuil cuspóirí ar leith le baint amach acu. Le linn na tréimhse 2022-2025, leagfaidh siad na gnéithe seo a leanas rompu mar spriocanna maidir leis an bhfrithsheasmhacht in aghaidh ábhair fhrithmhiocróbaigh agus srianadh ionfhabhtuithe:

- Feabhas ar thorthaí othar
- Feabhas ar shábhálteacht othar
- Oideachas agus oiliúint fairne
- Feabhas ar shábhálteacht fairne
- Feasacht agus tuiscint níos doimhne

Chomh maith leis an obair a dhéanfar le feabhas a chur ar rialachas, ar struchtúir agus ar phróisis (mar atá mionsonraithe sa phlean gníomhaíochta seo), tá éagsúlacht ann idir an pleán seo agus an pleán a tháinig roimhe sa mhéid is go gcuirtear spriocanna torthaí dúshlánacha san áireamh an uair seo (chomh maith le cláir ar fheabhsú cáilíochta) le baint amach faoi 2025. Léiríonn sé seo uaillmhian FSS i dtaca le iNAP2. Tá dlúthbhaint ag cuid de na bearta seo a leanas i dtaca le torthaí * leis an méid a pléadh thus agus le príomhtháscairí feidhmíochta (KPIs) i bPlean Seirbhise Náisiúnta FSS.

Ionfhabhtuithe bainteach leis an gCúram Sláinte (HCAI)

- Ionhabhtú *Clostridium difficile* a bhfuil baint aige leis an ospidéal*: In 2022, tá sprioc leagtha amach mar KPI ag FSS níos lú ná 2.0 cás d'ionfhabhtú *Clostridium difficile* a bhfuil baint aige leis an ospidéal a bheith acu in aghaidh gach 10,000 lá a chaitear san ospidéal. Beidh sé mar aidhm ag FSS an sprioc sin a íslíú 0.1 in aghaidh na bliana chun 1.7 cás in aghaidh gach 10,000 lá a chaitear san ospidéal a bhaint amach faoi 2025
- Ionhabhtú sruth fola *S. aureus* tolgtha san ospidéal*: In 2022, tá sprioc leagtha amach mar KPI ag FSS 0.8 cás d'ionfhabhú sruth fola *S. aureus* tolgtha san ospidéal a bheith acu in aghaidh gach 10,000 lá a chaitear san ospidéal. Beidh sé mar aidhm ag FSS an sprioc sin a íslíú 0.05 in aghaidh na bliana chun sprioc 0.65 cás in aghaidh gach 10,000 lá a chaitear san ospidéal a bhaint amach faoi 2025

Tomhaltas Frithmhiocróbaigh

- omhaltas Antaibheathach sa Chomhphobal*: In 2022, tá KPI ag FSS <22 dáileog sonrach laethúil (DDD) a dháileadh amach in aghaidh gach 1,000 den daonra i dtaca le tomhaltas antaibheathach sa chomhphobal. Déanfaidh FSS an sprioc sin a íslíú 2% in aghaidh na bliana chun laghdú 8% a bhaint amach faoi 2025, rud arb ionann é agus laghdú 0.5 DDD in aghaidh na bliana chun sprioc 20.5 DDD a bhaint amach faoi 2025
- Tomhaltas Antaibheathach san Ospidéal*: In 2019, 78.1 dáileog sonrach laethúil (DDD) / 100 lá a chaitear san ospidéal (BDU) a bhí mar mheánráta tomhaltais antaibheathach in ospidéil. Beidh sé mar aidhm ag FSS an ráta sin a laghdú 2% (1.5 DSL/100 LL) in aghaidh na bliana chun laghdú 8% de 6.0 DDD/100 BDU a bhaint amach faoi 2025
- Ráiteas staide maidir le comhlíonadh um fhad prófiolacsais antaibheathaigh mháinliachta: In 2020, léirigh an staidéar bliantúil poncleeitheadúlachta ar fhrithmhiocróbaigh gur mhair 28% d'oidis le haghaidh prófiolacsais antaibheathaigh mháinliachta níos faide ná 24 uair an chloig. Beidh sé mar aidhm ag FSS an céatadán sin a íslíú 2% in aghaidh na bliana chun laghdú 8% a bhaint amach faoi 2025
- Antaibheathaigh a ordú ó Dhochtúir Teaghlaigh: Faoi dheireadh na bliana 2021 Q1, (sonrái ón 12 mhí is déanaí) airíodh 34% de na hantaibheathaigh a tugadh amach ag dochtúir teaghlaigh agus ar ióc an tSeirbhís Aisíocaíochta um Chúram Príomhúil (PCRS) astu, mar antaibheathaigh "dhearga". Oibreoidh FSS i gcomhar le dochtúirí teaghlaigh chun céatadán na n-antaibheathach dearg a íslíú arís, faoi 8% go 26%, faoi 2025. Oibreoidh FSS i gcomhar le dochtúirí teaghlaigh chun laghdú 8% ar líon iomlán na n-oideas antaibheathach a bhaint amach faoi 2025.

Feasacht

- **Feasacht agus tuiscint níos doimhne i measc an phobail:** Déantar measúnacht ar shláinte agus ar fholláine phobal na hÉireann i Suirbhé Náisiúnta Bliantúil Éire Sláintiúil. Cuirtear bonnlíne sonraí ar fáil sna torthaí ar shláinte na tíre. Tá ós cionn 7,500 duine tar éis páirt a ghlacadh i ngach babhta den suirbhé go dtí seo. An aidhm atá ag an bplean seo ná feasacht a choimeád agus tuiscint níos doimhne ar AMR a spreagadh i measc an phobail. Tugadh an méid seo a leanas le fios sa suirbhé deireanach:
 - » D'aontaigh 90% de dhaoine go mbeadh an baol ann nach n-oibreodh antaibheathaigh amach anseo má thógtar go rómhinic iad nó nuair nach mbíonn gá leo.
 - » Tuigeann 95% de dhaoine gur cheart cursa antaibheathach a chríochnú
 - » Bíonn muinín ag 90% de dhaoine as comhairle a ndochtúra sa chás go mbíonn antaibheathach ag teastáil
 - » Bhí antaibheathach nár ordaíodh tógtha ag 1% d'agallaithe le 12 mhí anuas

Tá ról lárnach ag geallsealbhóirí i dtaca le soláthar na ngníomhaíochtaí agus na dtionscadal a leagtar amach sa phlean seo agus bhí ról lárnach acu i bhforbairt an phlean. Sonraítear in Aguisín 6 an mhodheolaíocht chun forbartha i dtaca le Plean Gníomhaíochta AMRIC FSS 2022-2025. Tugtar aitheantas do gheallsealbhóirí agus dóibh siúd ar fad a chuir leis an ullmhúchán a bhain le Plean Gníomhaíochta AMRIC FSS 2022-2025. Táimid buioch díobh as a gcuid ionchuir, a gcuid tacaíochta agus as an ról leanúnach atá acu sa dul chun cinn a rinneadh i dtaca le freagra Aon Sláinte Amháin na hÉireann maidir leis an bhFrithsheasmhacht in aghaidh Ábhair Fhrithmhiocróbaigh (iNAP2). Leagtar an rannpháirtíocht le príomhgheallsealbhóirí amach in Aguisín 7.

Is iad croífoireann AMRIC a dhéanann athbhreithniú agus monatóireacht ar chur i bhfeidhm na dtionscadal agus na ngníomhaíochtaí trí phróiseas aontaithe i bhfoirm Clár Bainistíochta Oifige AMRIC ar bhonn míosúil. Cuirtear tuairisc ráithiúil ar fáil d'fhoireann cur chun feidhme AMRIC agus don ghrúpa Maoirseachta chun iad a choimeád ar an eolas. Sonraítear na cásanna áirithe ar gá bearta nó gníomhaíochtaí ceartaitheacha a aontú iontu sna tuairisci seo chun go mbainfi garspriocanna ar leith amach agus chun go ndéanfaí torthaí a sholáthar.

Tá fóram ráithiúil freagrachta RS / AMRIC á reáchtáil faoi láthair, agus glactar leis an tuairisciú ar dhul chun cinn mar ghnáthchleachtas. Tagann an Coiste Comhairleach Idir-Rannach Náisiúnta um Fhrithsheasmhacht in aghaidh Ábhair Fhrithmhiocróbaigh (AMR) le chéile ar bhonn leathbhliantúil agus cuirtear an t-eolas is déanaí maidir le dul chun cinn AMRIC FSS ar fáil.



Executive Summary

Antimicrobial resistance (AMR) has been recognised as one of the greatest potential threats to human and animal health over the last decade. In the last year, the implications of an infection for which we do not have effective treatment on human health have been clearly seen with the COVID-19 global pandemic. Antimicrobials are key to the practice of modern medicine and enable sophisticated medical interventions and treatments, including chemotherapy and organ transplants.

Following on from the World Health Organization (WHO) *Global Action Plan on AMR* (2015) and the European Action Plan on AMR (2017), Ireland published its first *National Action Plan on Antimicrobial Resistance 2017 – 2020*, known as iNAP1, in October 2017. This marked the first in a number of collaborative One Health events. The joint publication between the DoH and DAFM reflected that the plan was based on a “One Health” approach. The “One Health” approach to antimicrobial resistance recognised that with respect to this challenge, as with other health challenges, people, animals, plants and their environment are connected and interdependent. Due to the role of the environment in the control of AMR the EPA has also been a key partner.

On November 18th 2021, on European Antibiotic Awareness Day Ireland published its second *One Health National Action Plan on Antimicrobial Resistance 2021 – 2025*, to be known as iNAP2. This National Action Plan provides for a co-ordinated cross-sectoral response to antimicrobial resistance, which has impacts every day on how we prevent and treat infection in Ireland. As with iNAP1, the aim of iNAP2 is to ensure, for as long as possible, the availability of effective antimicrobial treatment options for both human and animal populations.

There is also increased emphasis in iNAP2 on the environmental aspects and on infection prevention and control. iNAP2 was developed with extensive stakeholder engagement including engagements with the HSE.

In the period 2017-2021, the HSE has worked closely with the Department of Health to respond to the Carbapenemase Producing Enterobacteriales (CPE) Public Health Emergency. CPE was added to the statutory list of notifiable diseases in December 2018. A key achievement of that joint working relates to CPE improvements. When iNAP1 was launched, the number of people newly detected with CPE in Ireland was increasing rapidly year on year. As of 2021, the indications are that the situation with respect to CPE has stabilised.

To provide a seamless health sector transition from iNAP1 to iNAP2, it is helpful to review the situational analysis of the HSE 2019-2021 AMRIC Implementation Plan. The HSE developed a HSE 2019-2021 AMRIC Implementation Plan to respond to each of the five key strategic objectives of iNAP1. The governance of this plan was overseen by the HSE AMRIC Oversight Group chaired by the Chief Clinical Officer. The AMRIC Implementation Team combining clinical and operational skills was responsible for implementation of the plan. Although work on antimicrobial resistance continued throughout the pandemic, many projects/service improvements were delayed due to the pandemic response. This impacted on the capacity of the HSE to progress work on antimicrobial resistance because members of teams, including members of the AMRIC team, the Health Protection Surveillance Centre (HPSC) team, Regional Departments of Public Health and Acute and Community Operations, were focused on the pandemic response.

As soon as it was possible to do so, the AMRIC team and partners within the HSE worked to recommence AMRIC projects paused due to the COVID-19 response. As a result, notwithstanding the impact of the pandemic and the cyberattack, the HSE has made significant achievements and progress during the cycle of iNAP1. This work builds on the previous work of the SARI national committee, HPSC, previous Clinical Leads, as well as individuals, professional societies and postgraduate bodies who have worked to address AMR and IPC in Ireland. There is now stronger specialist multi-disciplinary expertise at national level. Acute Hospital and Community IPC and AMS teams play a greater role in the way services are delivered for patients and their families. There is improved awareness and understanding of the issues of AMR and IPC both among healthcare workers and the public.

The HSE 2022-2025 AMRIC Action Plan sets out a range of HSE actions aligned to the five strategic objectives of iNAP2:

- Strategic Objective 1: Improving awareness and knowledge of AMR
- Strategic Objective 2: Enhancing surveillance of antibiotic resistance and antibiotic use
- Strategic Objective 3: Reducing infection and disease spread
- Strategic Objective 4: Optimise the use of antibiotics in human and animal health
- Strategic Objective 5: Promote research and sustainable investment in new medicines, diagnostic tools, vaccines and other interventions

All of these strategic objectives have specific HSE actions with associated deliverables, that over the period 2022-2025 will work towards the following in relation to antimicrobial resistance and infection control:

- Improved patient outcomes
- Improved patient safety
- Staff education and training
- Improved staff safety
- Awareness and deeper understanding

In addition to continuing work to enhance governance, structures and processes (detailed in this action plan), this plan is distinguished from its predecessor by including challenging outcome targets (in addition to quality improvement programmes) for achievement by 2025. This reflects the HSE's ambition with respect to iNAP2. Some of the following outcome measures (marked with an asterisk * below) are linked to the above and to key performance indicators (KPIs) in the HSE National Service Plan.

HCAs

- Hospital acquired *Clostridium difficile* Infection*: For 2022, the HSE has as a KPI, a target of less than 2.0 cases of hospital associated *Clostridium difficile* infection per 10,000 bed days used. The HSE will work to reduce that target by 0.1 per year to reach 1.7 per 10,000 bed days by 2025
- Hospital acquired *S. aureus* blood stream infection*: For 2022, the HSE has a KPI, a target of 0.8 cases of hospital acquired *S. aureus* blood stream infection per 10,000 bed days used. The HSE will work to reduce that target by 0.05 per year to reach a target of 0.65 per 10,000 bed days by 2025

Antimicrobial consumption

- Community consumption of antibiotics*: For 2022, the HSE has as a KPI for community consumption of antibiotics of <22 defined daily doses (DDDs) per 1,000 population. The HSE will work to reduce that target by 2% each year to achieve an 8% reduction by 2025 equating to approximately a 0.5 annual reduction to achieve a target of 20.5 by 2025
- Acute Hospital consumption of antibiotics*: In 2019, the median rate of hospital antibiotic consumption was 78.1 DDD/100 bed days. The HSE will work to reduce that rate by 2% (1.5 DDD/100 BD) each year to achieve a 8% reduction of 6.0 DDD/100 bed days by 2025
- Compliance with surgical antibiotic prophylaxis duration position statement: In 2020, the annual antimicrobial point prevalence study demonstrated that 28% of surgical antibiotic prophylaxis prescriptions extended beyond 24 hours. The HSE will work to reduce that percentage by 2% each year to achieve a 8% decrease by 2025
- General Practice prescription of antibiotics: By the end of 2021 Q1 34% (previous 12 months data) of antibiotics prescribed in General Practice and paid for by the Primary Care Reimbursement Service (PCRS) were "red" antibiotics. The HSE will work with General Practitioners to achieve a further reduction of 8% to 26% "red" antibiotics by 2025. The HSE will work with General Practitioners to achieve a reduction in the total number of antibiotic prescriptions prescribed in General Practice and paid for by the Primary Care Reimbursement Service (PCRS) of 8% by 2025

Awareness

- Awareness and deeper understanding among the public: The annual national Healthy Ireland Survey assesses the health and wellbeing of the population of Ireland. The results provide a baseline of data on the health of the nation. To date over 7,500 people have partaken in each wave of the survey. Maintaining awareness and deepening the understanding among the public of AMR is an objective of this plan. The last survey indicated that:
 - » 90% of people agreed that if taken too often or when they are not needed antibiotics might not work in the future

- » 95% know that a course of antibiotics should always be completed
- » 90% trust their GPs advice as to whether an antibiotic is needed
- » 1% of interviewees had taken an un-prescribed antibiotic in the previous 12 months

Stakeholders are integral to the delivery of the actions and projects set out in this plan and were an integral part of the development of this plan. Appendix 6 sets out the methodology used to develop the HSE 2022-2025 AMRIC Action Plan. All contributors and stakeholders who contributed to the preparation of this HSE 2022-2025 AMRIC Action Plan are acknowledged. We are grateful for their input, support and role in continuing to advance Ireland's One Health response to Antimicrobial Resistance (iNAP2). Engagements with key stakeholders are set out in Appendix 7.

The AMRIC core team reviews and monitors the implementation of projects and actions through an agreed AMRIC Programme Management Office (PMO) process on a monthly basis. A quarterly portfolio report is provided to the AMRIC implementation team and Oversight group in line with the HSE accountability framework. These reports and discussions inform where corrective measures or actions need to be agreed in order to achieve milestones and deliver projects.

A DoH / AMRIC quarterly accountability forum is in place where progress reporting is a standing agenda item. The National Interdepartmental Antimicrobial Resistance (AMR) Consultative Committee meets bi-annually and updates on HSE AMRIC progress are provided.



Foreword from Chief Clinical Officer

As the Chief Clinical Officer for the HSE, I welcome the publication of this HSE Antimicrobial Resistance and Infection Control 2022-2025 Action Plan. We have worked closely with the Department of Health in developing this plan. The development of the plan in partnership with the Department of Health and the Department of Agriculture, Food and the Marine reflects the importance of an inter-sectoral; “One-Health” approach to antimicrobial resistance. This HSE plan, which complements iNAP2, sets out how we in the HSE will play our part in delivering on the commitments of iNAP2.



Over the past 20 months dealing with the COVID-19 pandemic we have seen the importance of a whole of society response to the treatment of infection. Antimicrobial resistance is more a slow burn issue than COVID-19 but the long-term consequences for health and healthcare will be profound unless we act now. The two pillars of the response are: (a) improving how we use antibiotics and (b) improving infection prevention and control. If we prevent infection, we need less antibiotics. If we only use antibiotics when we need them and use the right antibiotic for the case in hand, then we put less pressure on bacteria to become more antibiotic resistant.

This is the 2nd plan the HSE has put in place in relation to antibiotic resistance as we also delivered a range of measures as our contribution to the first national action plan (iNAP1).

This second HSE plan on Antimicrobial Resistance and Infection Control 2022-2025 Action Plan builds on learning and actions from the previous plan and from the capacity built during the previous plan with the support of the Department of Health.

This is an ambitious plan. The HSE commitment is reflected in our defining what we plan to deliver on each action and in the setting of specific targets for improvement in antibiotic use and healthcare associated infection.

We will work to deliver:

- Improved patient outcomes
- Improved patient safety
- Staff education and training
- Improved staff safety
- Awareness and deeper understanding of antimicrobial resistance

I am proud of the commitment shown by colleagues in healthcare services over the past couple of years in minimising the risk of infection for the people they care for, for themselves and for their colleagues. The foundation for the control of infection has been the care and attention to detail of the “hands on” carers with support from local and national antimicrobial stewardship and infection prevention and control teams. I would like to give special mention to infection prevention and control teams across the country for their extraordinary contribution throughout the pandemic. Their work across the whole spectrum of healthcare helped prevent many more cases of COVID-19 amongst the most vulnerable of people, keeping patients and colleagues safe and protecting services.

It is, unfortunately, too early to say when the pandemic will be behind us as there are many uncertainties as to how the virus will behave, even with the protection the vaccination programme gives us. I am, however, confident that we can apply the learning and capacity building from the pandemic and from iNAP1 in the next few years to make meaningful inroads into antimicrobial resistance.

Mar focal scoir, ba mhaith liom buiochas a ghabháil leis an fhoireann AMRIC as ucht a saothar agus as a dhíograis. Deirtear go ‘molann an obair an fear’, agus más fíor, tá muid uilig faoi chomaoin ag an fhoireann AMRIC.

*Dr. Colm Henry,
Chief Clinical Officer*

Clinical Lead Overview

Antibiotics have made a huge difference to the lives of millions of people since they became widely available in the middle of the last century. We mostly take it for granted there will always be an antibiotic there for us when we need one. We may need them when we have a bacterial infection and we depend upon them to help us through major surgery or chemotherapy.



Over the last 20 to 30 years we have seen many of those antibiotics become less effective or useless for treatment of some bacterial infections. This is because of antimicrobial resistance. This pushes us to use different antibiotics that may be more toxic and more difficult to use. They may cause more disturbance to our normal bacteria that we depend on to stay healthy. For a long time, many people expected we would always be able to stay one-step ahead of changes in bacteria. We know now that we cannot depend on that. The bacteria adapt too quickly and new classes of antibiotics that are as safe and effective as the penicillins have proved very hard to find.

Treatment of bacterial infection, even common bacterial infections like cystitis and pneumonia has already become harder to do, safely and effectively.

We need to stop that situation getting worse and then see if we can gradually roll back the tide. We have a very good scientific understanding of why this is happening. We know what we need to do to make it better. We need to use less antibiotics in every sector and use them better when we need to use them.

We need to stop antibiotic resistant bacteria and antibiotic resistance genes spreading from person to person, animal to animal and back and over between people and animals. We need to stop widespread dissemination of antibiotic resistant bacteria through environmental pollution with human and animal faeces.

iNAP2 and this HSE plan is about rising to the challenge of translating knowledge and understanding into change. We need to measure that change against ambitious targets. We know that we can succeed. We have begun to see success in Ireland, in some of the progress made during iNAP1 and the other initiatives before that. We know too, from the experience of countries that are further along with this transition than we are. This plan reflects the HSE's commitment to working with and supporting everyone who works in healthcare or uses healthcare services to deliver that change. This is how we make sure that the benefits of antibiotics are there for us, for our children and our grandchildren both now and in the future.

*Prof. Martin Cormican,
Clinical Lead, AMRIC*

Strategic Context

Antimicrobial resistance (AMR)¹² has been recognised as one of the greatest potential threats to human and animal health over the last decade. In the last year, the implications of an infection for which we do not have effective treatment on human health have been clearly seen with the COVID-19 global pandemic. Antimicrobials are key to the practice of modern medicine and enable sophisticated medical interventions and treatments, including chemotherapy and organ transplants.

Following on from the World Health Organization (WHO) Global Action Plan on AMR (2015) and the European Action Plan on AMR (2017), Ireland published its first National Action Plan on Antimicrobial Resistance 2017 – 2020, known as iNAP1, in October 2017. This marked the first in a number of collaborative One Health events. The joint publication between the DoH and DAFM reflected that the plan was based on a “One Health” approach. The “One Health” approach to antimicrobial resistance recognised that with respect to this challenge, as with other health challenges, people, animals, plants and their environment are connected and interdependent. Due to the role of the environment in the control of AMR the EPA has also been a key partner.

Today, November 18th 2021, on European Antibiotic Awareness Day, Ireland is now publishing its second One Health National Action Plan on Antimicrobial Resistance 2021 – 2025, to be known as iNAP2. This National Action Plan provides for a coordinated cross-sectoral response to antimicrobial resistance, which has impacts every day on how we treat infection in Ireland. As with iNAP1, the aim of iNAP2 is to ensure, for as long as possible, the availability of effective antimicrobial treatment options for both human and animal populations.

There is also increased emphasis in iNAP2 on the environmental aspects and on infection prevention and control. iNAP2 was developed with extensive stakeholder engagement including engagements within the HSE.

Arising from engagements with the DoH on the development of iNAP2, the HSE is also launching its response to iNAP2 reflecting the HSE commitment and ambition to build on the achievements of iNAP1. These plans have been developed to ensure our key focus is on working with people to effect change. For the healthcare sector, this includes healthcare workers, patients and service users, their families and the public in general.

Carbapenemase Producing Enterobacterales (CPE) Public Health Emergency

In the period 2017-2021, the HSE has worked closely with the Department of Health to respond to the Carbapenemase Producing Enterobacterales (CPE) Public Health Emergency. CPE was added to the statutory list of notifiable diseases in December 2018. A key achievement of that joint working relates to CPE improvements. When iNAP1 was launched, the number of people newly detected with CPE in Ireland was increasing rapidly year on year. As of 2021, the indications are that the situation with respect to CPE has stabilised.

The CPE National Response Team/Implementation Team was established in 2018. This structure was established to respond to the CPE Public Health Emergency. In December 2018, the former HCAI Task Force was stood down and the CPE National Response Team/Implementation Team was superseded by AMRIC Oversight and AMRIC Implementation Teams. This updated governance structure was tasked with the wider remit of antimicrobial resistance and infection control. This structure was enhanced with further membership to support the COVID-19 response in April 2020.

1. Appendix 1 sets out the glossary
2. Appendix 2 sets out key concepts and definitions

HSE 2019-2021 AMRIC Implementation Plan

To provide a seamless health sector transition from iNAP1 to iNAP2, it is helpful to review the situational analysis of the HSE 2019-2021 AMRIC Implementation Plan. The HSE developed a HSE 2019-2021 AMRIC Implementation Plan to respond to each of the five key strategic objectives of iNAP1. The governance of this plan was overseen by the HSE AMRIC Oversight Group chaired by the Chief Clinical Officer. The AMRIC Implementation Team combining clinical and operational skills was responsible for implementation of the plan.

2020 and 2021 have been unprecedented years. The declaration of COVID-19 as a public health emergency by the World Health Organisation (WHO) meant that, similar to all other health services the work of the AMRIC team was refocused to support the COVID-19 IPC response. The AMRIC team supported services to respond and put measures in place to address the infection control requirements of COVID-19. In January 2021 the AMRIC team supported the roll out of the COVID-19 vaccination programme. A key achievement of HSE 2019-2021 AMRIC Implementation Plan was that structures, processes and capacity that were developed in response to iNAP1 key objectives, to reduce the spread of infection and disease, proved their value in the HSE's ability to respond to the COVID-19 pandemic. In addition, the cyberattack in May 2021 added further complexity and challenges to the work of the AMRIC team as team members also supported the response to that situation.

Although work on antimicrobial resistance continued throughout the pandemic, many projects/service improvements were delayed due to the pandemic response. This impacted on the capacity of the HSE to progress work on antimicrobial resistance. In addition, key partners of the AMRIC team including the Health Protection Surveillance Centre (HPSC) team, Regional Departments of Public Health and Acute and Community Operations were also focused on the pandemic response.

As soon as it was possible to do so, the AMRIC team and partners within the HSE have worked to recommence AMRIC projects paused due to the COVID -19 response.

As a result, notwithstanding the impact of the pandemic and the cyberattack, the HSE has made significant achievements and progress during the cycle of iNAP1. This work builds on the previous work of the SARI national committee, HPSC, previous Clinical Leads, as well as individuals, professional societies and postgraduate bodies who have worked to address AMR and IPC in Ireland. There is now stronger specialist multi-disciplinary expertise at national level. Acute and Community IPC and AMS teams are becoming part of the way services are delivered for patients and their families. There is improved awareness and understanding of the issues of AMR and IPC both in healthcare workers and the public.

The value of evidence-based practice and clinical guidance for AMS and IPC has been further established with a vast suite of resources now available publicly. Research and evidence synthesis informed new developments and expanded knowledge available for prioritisation and decision-making. Education and training have been reinforced as a key focus to ensure all healthcare workers integrate best practice into their delivery of day-to-day care.

The HSE's commitment to deliver its plan in response to iNAP1 is reflected in the delivery of 92% of actions/projects in the HSE Implementation Plan by end of quarter 3 of 2021. This was achieved despite the pressures created in contributing to the overall HSE response to COVID-19, the COVID-19 vaccination programme and the cyberattack.

Highlights of HSE 2019-2021 AMRIC Implementation Plan

The HSE 2019-2021 AMRIC Implementation Plan has significant achievements across a number of areas. Appendix 3 provides a high-level review of these areas. Highlights are set out below:

HSE 2019-2021 AMRIC Implementation Plan

HSE 2019-2021 AMRIC IMPLEMENTATION PLAN

CPE

CPE surveillance testing
more than **25,000** tests per month Acute hospital services WTE **37** Acute services allocated after CPE NPHEI established

Resourcing

Development Funding 2018-2021 =

€28.55M

Funding for **300** WTE across Acute Hospital and Community Services

Education and Training

97,000 participants on eLearning **55** AMRIC educational webinars **11** eLearning Modules



Communications Campaigns

- ✓ RESIST
- ✓ Undertheweather.ie
- ✓ European Antibiotic Awareness
- ✓ Hand Hygiene Week
- ✓ International Prevention Control Week
- ✓ Winter Campaign

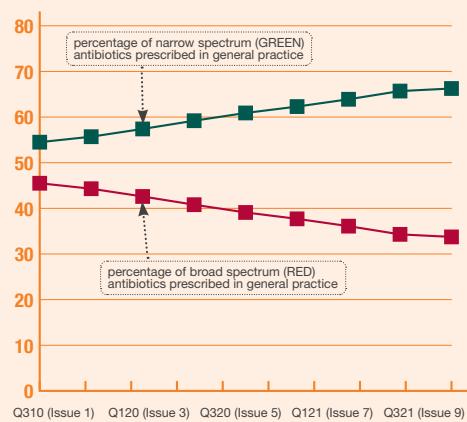


AMS/IPC Projects

- ✓ Community and Acute IPC teams
- ✓ Infrastructural Developments **€5M**
- ✓ National *C.difficile* reference laboratory
- ✓ Support for additional equipment HSE microbiology reference laboratories
- ✓ Surgical site surveillance
- ✓ IVI Line teams
- ✓ Surgical prophylaxis
- ✓ Upgraded HPSC ICT Infrastructure
- ✓ HSE Older Persons LTCF's Antibiotic Prescribing Audit
- ✓ Antibioticprescribing.ie **400K+** website visits



GP Green/Red Antibiotic Prescribing



HSE 2022-2025 AMRIC Action Plan

Arising from engagements with the DoH on the development of iNAP2, the HSE is also launching its response to iNAP2 reflecting the HSE commitment and ambition to build on the achievements of iNAP1. This plan has been developed to ensure our key focus is on patients and service users, healthcare workers, and the public in general.

Integrated Approach

Since 2018, an integrated approach has been used to support capacity building and new developments for AMRIC at all levels. This applies to both the implementation of the actions under HSE AMRIC Implementation Plan 2019-2021 and the response required to both the CPE and COVID-19 public health emergencies.

The development of AMRIC structures and services are designed and expanded in a consistent and integrated way to work across and between acute and community services. iNAP2 and the HSE 2022-2025 AMRIC Action Plan builds on this approach. This connects multi-disciplinary teams with other relevant community and acute services e.g. Community Response Teams to improve services.

iNAP2 and the HSE 2022-2025 AMRIC Action Plan were developed to align with:

- HSE Corporate Plan 2021-2024
- Sláintecare – A ten-year plan to achieve universal healthcare in Ireland, 2018
- Learning from the CPE and COVID-19 Public Health Emergencies, 2020
- Resilience and Recovery 2020-2021: Plan for Living with COVID-19, 2020
- Department of Health - Statement of Strategy 2021 – 2023
- Programme for Government: Our Shared Future also includes One Health Strategy, of which AMR is a component
- National Development Plan 2021-2030
- COVID-19 Nursing Home Expert Panel Report, 2020
- HSE Patient Safety Strategy 2019 – 2024
- Report of the European Commission / European Centre for Disease Prevention and Control One Health Country Monitoring Visit on AMR to Ireland, 2020
- WHO Global Patient Safety Action Plan 2021–2030: Towards eliminating avoidable, harm in health care
- Healthy Ireland: A Framework for Improved Health and Wellbeing 2013-2025
- National Risk Assessment, 2019

Strategic objectives

The HSE 2022-2025 AMRIC Action Plan sets out a range of HSE actions aligned to the five strategic objectives of iNAP2:

- Strategic Objective 1: Improving awareness and knowledge of AMR
- Strategic Objective 2: Enhancing surveillance of antibiotic resistance and antibiotic use
- Strategic Objective 3: Reducing infection and disease spread
- Strategic Objective 4: Optimise the use of antibiotics in human and animal health
- Strategic Objective 5: Promote research and sustainable investment in new medicines, diagnostic tools, vaccines and other interventions

Outcomes and Measures

Outcomes

All of these strategic objectives have specific HSE actions with associated deliverables, that over the period 2022-2025 will work towards the following in relation to antimicrobial resistance and infection control:

- Improved patient outcomes
- Improved patient safety
- Staff education and training
- Improved staff safety
- Awareness and deeper understanding

Measures³

In addition to continuing work to enhance governance, structures and processes (detailed in this action plan), this plan is distinguished from its predecessor by including challenging outcome targets (in addition to quality improvement programmes) for achievement by 2025. This reflects the HSE's ambition with respect to iNAP2. Some of the following outcome measures (marked with an asterisk * below) are linked to the above and key performance indicators (KPIs) in the HSE National Service Plan⁴.

Change in AMR and IPC practice on a national scale is challenging, it must be supported by robust annual planning, aligned to longer-term measures. Multiannual planning supports a demonstrable shift by applying incremental measurable improvements to targeted metrics annually over the lifetime of a plan. This plan sets clear targets in relation to AMR and IPC over the period 2022-2025.

HCAIs

- Hospital associated *Clostridium difficile* Infection*: For 2022, the HSE has as a KPI, a target of less than 2.0 cases of hospital associated *Clostridium difficile* infection per 10,000 bed days used. The HSE will work to reduce that target by 0.1 per year to reach 1.7 per 10,000 bed days used by 2025
- Hospital acquired *S. aureus* blood stream infection*: For 2022, the HSE has a KPI, a target of 0.8 cases of hospital acquired *S. aureus* blood stream infection per 10,000 bed days used. The HSE will work to reduce that target by 0.05 per year to reach a target of 0.65 per 10,000 bed days used by 2025

Antimicrobial consumption⁵

- Community consumption of antibiotics*: For 2022, the HSE has as a KPI for community consumption of antibiotics of <22 defined daily doses (DDD) per 1,000 population. The HSE will work to reduce that target by 2% each year to achieve an 8% reduction by 2025 equating to approximately a 0.5 annual reduction in DDDs to achieve a target of 20.5 DDD by 2025
- Acute hospital consumption of antibiotics*: In 2019, the median rate of hospital antibiotic consumption was 78.1 DDD/100 bed days. The HSE will work to reduce that rate by 2% (1.5 DDD/100 BD) each year to achieve a 8% reduction of 6.0 DDD/100 BD by 2025
- Compliance with surgical antibiotic prophylaxis duration position statement: In 2020, the annual antimicrobial point prevalence study demonstrated that 28% of surgical antibiotic prophylaxis prescriptions extended beyond 24 hours. The HSE will work to reduce that percentage by 2% each year to achieve a 8% decrease by 2025
- General Practice prescription of antibiotics: By the end of 2021 Q1 34% (previous 12 months data) of antibiotics prescribed in General Practice and paid for by the Primary Care Reimbursement Service (PCRS) were "red" antibiotics. The HSE will work with General Practitioners to achieve a further reduction of 8% to 26% "red" antibiotics by 2025. The HSE will work with General Practitioners to achieve a reduction in the total number of antibiotic prescriptions prescribed in General Practice and paid for by the Primary Care Reimbursement Service (PCRS) of 8% by 2025

Awareness

- Awareness and deeper understanding among the public: The annual national Healthy Ireland Survey assesses the health and wellbeing of the population of Ireland. The results provide a baseline of data on the health of the nation. To date over 7,500 people have partaken in each wave of the survey. Maintaining awareness and deepening the understanding among the public of AMR is an objective of this plan. The last survey indicated that:
 - » 90% of people agreed that if taken too often or when they are not needed antibiotics might not work in the future
 - » 95% know that a course of antibiotics should always be completed
 - » 90% trust their GPs advice as to whether an antibiotic is needed
 - » 1% of interviewees had taken an un-prescribed antibiotic in the previous 12 months

3. Appendix 4 sets out these measures in tabular format

4. Appendix 5 sets out the AMRIC KPIs in the NSP 2021

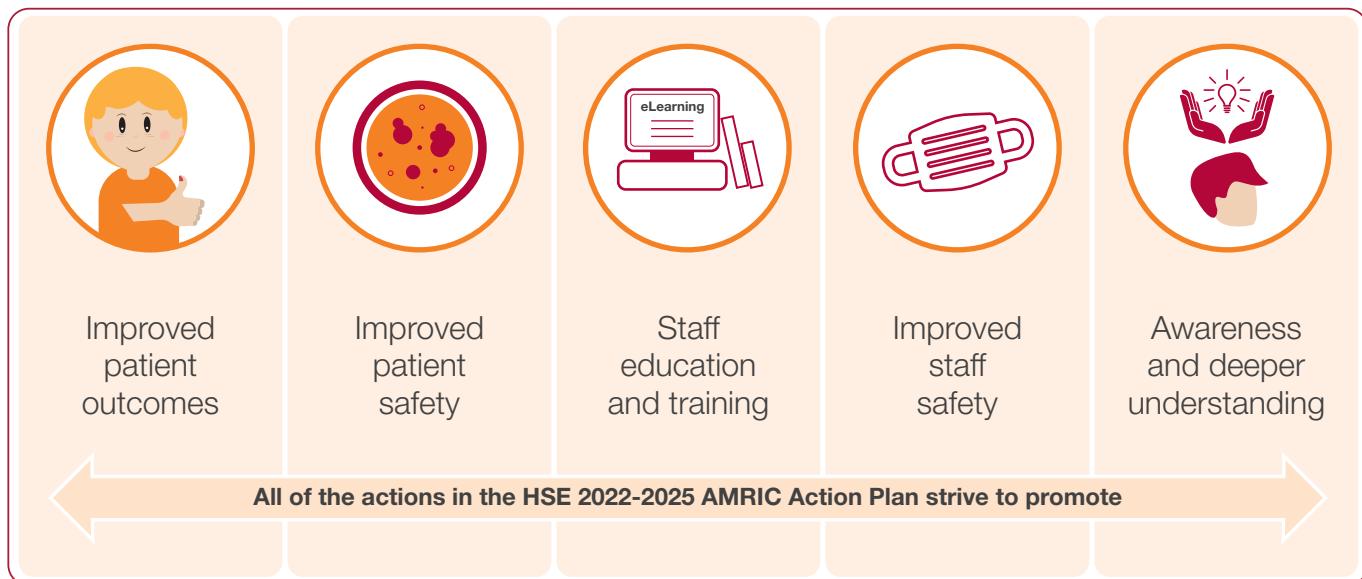
5. Note: From a gap analysis of the current data collection methods for antibiotic consumption data in acute and community settings it has been identified that not all antibiotic use in these settings is captured in the current rates, this is a limitation of this dataset. Going forward improvements in data capture may result in increases in the reported figures; this will be identified where applicable. Efforts will be made to report figures using the current rate and the new rate or by updating the historical data accordingly. The commitment will remain to achieve the relevant annual percentage reduction in rates/targets.

Stakeholders

Stakeholders are integral to the delivery of the actions and projects set out in this plan and were an integral part of the development of the plan. Appendix 6 sets out the methodology to development of HSE 2022-2025 AMRIC Action Plan. All contributors and stakeholders are acknowledged in the preparation of this HSE 2022-2025 AMRIC Action Plan. We are grateful for their input, support and role in continuing to advance Ireland's One Health response to Antimicrobial Resistance (iNAP2). Engagements with key stakeholders are set out in Appendix 7.

Actions, Deliverables and Timeframes

All of the actions below strive to promote the following in relation to antimicrobial resistance and infection control:



The following section set out each of the iNAP2 Strategic Objectives/Interventions/Actions, which are relevant to the HSE. Each table is set out as follows:

iNAP2 Ref.	this aligns with iNAP2 Strategic Interventions/Actions numbers
iNAP2 Activity	this sets out the iNAP2 Strategic Interventions/Actions
HSE Lead(s) and Stakeholders	this sets out the HSE lead(s) and stakeholders responsible and involved in the planning, implementation and review of the HSE action
HSE Actions	this sets out the HSE action in response to the iNAP2 activity
Timeline	this sets out the timeline to achieve the HSE action
Deliverable	this sets out the deliverable, aligned to the HSE action

Strategic Objective 1: Improving awareness and knowledge of AMR.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
1-01	<p>Further, develop and evolve communications activities to support AMR, AMS and IPC key messages, targeted to the audience. This may include:</p> <ul style="list-style-type: none"> *Develop and implement additional innovative approaches to engage the public with AMR, AMS, and IPC issues with a particular focus on people using the health and social care system and considering cultural norms. *Continued roll out of the RESIST communications programme and the ongoing public and professional information campaigns around AMR, AMS and IPC. *Working with relevant organisations to increase awareness of inappropriate antibiotic use to students and younger audiences. *Develop AMR, AMS and IPC awareness campaign targeting community and residential services. *Continuing and expanding the current communications campaigns to raise awareness about prudent use of antibiotics with key public and professional audiences. *Continuing to use behaviour change approaches and concepts to address antibiotic prescribing habits. *Promoting year round public awareness campaigns. 	<p>AMRIC team; HSE Communications</p>	<p>Develop an AMRIC communications plan for 2022 – 2025. Publish quarterly RESIST newsletters to provide AMS/IPC updates and news to professional audiences. Implement an AMRIC grant scheme to support local HSE AMRIC awareness initiatives.</p> <p>Develop, implement and evaluate a communications education programme for undergraduate students.</p> <p>Develop and deliver AMRIC Awareness campaigns using the RESIST brand.</p> <p>Supporting behaviour change programmes through communications – e.g. the Red/Green programme, care of peripheral venous catheters.</p> <p>Develop a new staff AMS/IPC online communications resource to support health care professionals.</p>	2022-2025	<p>Annual AMRIC communications plan. RESIST newsletter published x 4 annually.</p> <p>Local AMRIC projects funded annually.</p> <p>Pilot and evaluate communications education programme. AMRIC awareness campaigns in the Community and hospitals not yet reached.</p> <p>Communications programme targeted to prescribers and public audiences.</p> <p>Deliver annual awareness programmes including: European Antibiotic Awareness Day, International Infection Prevention Week and Hand Hygiene annual awareness week.</p> <p>Enhance the IPC section of the HSE website.</p>

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
1-01	<p>*Continuing to promote and participate in European Antibiotic Awareness and World Antimicrobial Awareness Week.</p> <p>*Promote hand and respiratory hygiene as a cornerstone of good IPC practice in society.</p>				
1-02	<p>Continue to carry out regular surveys to assess knowledge, belief and attitudes of the public (for example, Healthy Ireland Survey), as well as healthcare professionals, about antibiotics, antibiotic use and AMR and IPC. Also, seek to assess impact of awareness campaigns. (R)⁶</p>	AMRIC team; HSE Communications	Support the DoH in the design of surveys and use of results to inform future campaigns. Use findings from the surveys to inform development of guidance, training materials and communications.	2022-2025	More targeted content and messages that meets the needs of users.
1-04	<p>Undertake work to capture patients' and staff stories relating to their experience of AMR and IPC.</p>	AMRIC team; HSE Communications	Engage with HSE National lead on "Your Voice Matters" and other key stakeholders such as National Patient Forum and Independent Patient Safety Council and National Safety Office to capture relevant patient experiences.	2022-2025	
1-08	<p>Develop and promote HSE expert staff as spokespersons and advocates on antimicrobial resistance and infection control.</p>	AMRIC team; HSE Communications	Implement a media-training programme for AMRIC teams and champions. Promote the availability of AMRIC expertise to act as spokespersons on IPC and AMS matters. Provide materials and training for HSE spokespersons who are not AMRIC specialists to encourage them to speak to AMR issues.	2022-2025	AMR related messages in print, broadcast and social media. Indicators of engagement of public and healthcare workers engagement with AMR related media content e.g. No. of impressions. AMR related messages delivered by senior HSE spokesperson outside of the AMRIC team.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
1-09	Implement agreement with all Higher Education Institutions that they confirm that all students on clinical placement have completed foundation course on AMR, IPC and AMS before their first clinical placement.	AMRIC team <u>Stakeholders</u> Undergraduate Training Programmes; Postgraduate Training Programmes; ONMSD; National Health and Social Care Professions Office; NDTTP	Develop AMRIC related content for those who organise undergraduate and postgraduate training programmes, such as eLearning courses and face-to-face educational lectures where appropriate. Engage with all undergraduate and postgraduate Health and Social Care training programmes, to encourage incorporation of AMRIC training and education materials in their programmes.	2022-2025 2022	AMRIC related content. % of programmes which have this included.
1-10			AMRIC team; Community Operations <u>Stakeholders</u> Postgraduate Training Programmes; Professional Bodies; ONMSD; National Health and Social Care Professions Office; NDTTP	Work with the relevant professional bodies to explore and implement the most effective strategies to maximise engagement of prescribers and other healthcare staff with continuous professional development and education on AMRIC objectives. Collaborate with IOP to establish an AMS special interest forum for all pharmacists.	2022-2025
				Number of participants participating in AMRIC related learning activities.	Special Interest forum established.
				Provide and promote antimicrobial guidelines and stewardship via digital platforms and build on existing networks.	Digitally enabled user friendly guidance.
				Deliver or collaborate in delivery of professional development training days/workshops including online learning events.	Virtual professional AMRIC development events.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
1-11	Roll out the inclusion of key information on AMR, IPC and AMS in all induction material for all incoming staff and be built into HSE supported continuing education and training. (R)	AMRIC team	Develop and promote an overarching eLearning module for IPC and AMS that promotes key IPC and AMS messages, advocate for this to be included as a required part of staff induction, in collaboration with HR. (R) Provide continuing education and training and further develop AMRIC eLearning courses.	2022-2025	AMRIC eLearning module(s) included as part of HSE induction. AMRIC Webinars, videos and eLearning modules.
1-12	Develop and implement the Core Competency Framework for healthcare staff for AMR and IPC.	AMRIC team; Acute Operations; Community Operations Stakeholders ONMSD; HR; DoH; HEI; Postgraduate Training Bodies; National Health and Social Care Professions Office; NDTP	Publish Core Competency Framework for IPC practitioners. Support roll out and implementation of Core Competency Framework for IPC practitioners. (R) Develop educational materials such as webinars, online workshops to facilitate implementation through acute and community operations to support implementation of the Core Competency Framework for IPC practitioners. (R) Evaluate Core Competency Framework for IPC practitioners.	2022-2023	Nationally agreed guide for IPC practitioners and training bodies regarding core competencies for IPC practitioners. Core competency framework for IPC practitioners referred in recruitment of IPC practitioners. Core Competency framework eLearning module. Digitally enabled user friendly guidance. Data driven improvements to core competency framework.
1-15			AMRIC team Stakeholders Undergraduate Training Programmes; Postgraduate Training Programmes; Professional Bodies; ONMSD; National Health and Social Care Professions Office; NDTP	2022-2025	Raise awareness of appropriate AMS through education. Greater awareness of role of nurses and midwives in influencing better prescribing. Body of materials suitable for use in postgraduate training programmes.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
1-16	Continue to support the HSE Antimicrobial Stewardship Group, ensuring expert input in relation to AMR work.	AMRIC Stakeholders HSE Clinical Leads; Professional organisations; HSE Antimicrobial Stewardship Advisory Group	HSE Antimicrobial Stewardship Advisory Group to meet regularly to seek expert advice from group to relevant AMRIC AMS work.	2022-2025	Regular meetings of HSE AMS advisory group.
Strategic Objective 2: Enhancing surveillance of antibiotic resistance and antibiotic use.					
INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
2-01	Establish a national system for continuous and enhanced monitoring of HCAs in intensive care units.	Acute Operations; AMRIC team; HPSC; Public Health	Develop a national system for surveillance, review and feedback of Ventilator Associated Pneumonia (VAP) in Intensive Care Units. (R) Monitor <i>S. aureus</i> blood stream infection presenting in ICU. Monitor <i>C. difficile</i> infection presenting in ICU.	2023-2025	National dataset (and baseline) on Ventilator Associated Pneumonia and a feedback process to support quality improvement projects.
2-02	Establish a national system for continuous monitoring of HCAs in surgical site infections.	AMRIC team; HPSC; Public Health; NOCA; Acute Operations Stakeholders Community Operations; ICGP	Advance the AMRIC work programme on Surgical Site Infection Surveillance, in conjunction with NOCA and HPSC. (R) Implement the position statement on duration of Surgical Site Prophylaxis.	2022-2025	National dataset (and baseline) on Surgical Site Infections and a feedback process to support quality improvement projects (Prosthetic hip surgery related infection and Caesarean Section). Compliance with Surgical Site Prophylaxis position statement.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
2-03	Establish a national system for monitoring of common community-acquired infections to include UTI in collaboration with GPs.	AMRIC team; HPSC; Public Health Stakeholders Community Operations; ICGP	Develop a national system for monitoring, review and feedback of levels of antibiotic resistance in the community in common infection e.g. UTI. (R) Pilot of community HCAI dataset in line with IPC Surveillance software implementation.	2023-2025	A national process to capture and report representative data on antimicrobial resistance in <i>E. coli</i> / associated with community UTI. Process for automated non-patient identifying data collection (subject to data sharing and communication).
2-04	Scope and extend provision of antibiotic prescribing data at prescriber and services levels across settings to provide direct prescriber feedback, inform behavioural change and support extension of best practice projects, such as GP preferred antibiotics prescribing.	AMRIC team; HPSC; Acute Operations Stakeholders Undergraduate Training Courses; Postgraduate Training Courses; PCRS	Support appropriate prescribing of antibiotics in all settings (acute and community) by providing tools to inform best practice e.g. Red/Green reports to support incremental quality improvement. Develop prescribing of antibiotic reporting tools for acute hospitals (Red/Amber/Green). (R)	2022-2025	Demonstrable shift from Red to Green in preferred antibiotics in community.
2-05	Improve surveillance, collection, analysis, timely reporting and feedback of antimicrobial consumption data across key settings, broadly built around the WHO AWaRe classification. For example, this may include but is not limited to general practice, long-term residential care facilities and dental services.	HPSC; AMRIC team; Community Operations Stakeholders PCRS	Improve the collection, reporting, analysis and feedback to prescribers of AMS consumption data in collaboration with stakeholders to inform quality improvements e.g. dental services, community inpatient facilities.	2022-2025	Enhanced surveillance dataset.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
2-06	Develop and improve annual national and European prevalence studies of antimicrobial prescribing in acute hospitals and long-term residential care facilities.	HPSC; AMRIC team Stakeholders ECDC; WHO; DoH	<p>Explore addition of further private hospitals to HCAI and antimicrobial consumption reporting.</p> <p>Increase frequency of antimicrobial consumption reporting, analysis, collation and format of feedback.</p> <p>Support the timely publication and submission of Irish HCAI data to European studies/point prevalence studies. (R)</p>	2022-2025	<p>Enhanced datasets and Irish submission to European prevalence studies.</p> <p>Key surveillance reports available (one quarter in arrears); HPSC Annual Report on national surveillance systems (EARS-NET; EU CDI surveillance network (ESCDI); ESAC-NET).</p> <p>HPSC enhanced surveillance of <i>C. difficile</i> (quarterly). HPSC enhanced surveillance of <i>S. aureus</i> BSI Infection.</p> <p>ECDC European surveillance of antimicrobial consumption (ESAC-NET) community and acute reports.</p> <p>HPSC hand hygiene compliance audit in acute hospitals.</p> <p>HPSC alcohol based hand rub (ABHR) consumption.</p> <p>HALT-net PPS point prevalence survey in European acute care hospitals 2022.</p> <p>HALT PPS 2023.</p> <p>Acute hospitals HAI and Prescribing PPS 2022.</p> <p>Annual acute hospital antimicrobial prescribing PPS.</p> <p>PPS in Antimicrobial Use in HSE Older Persons Residential Care Facilities.</p>
2-07	Support participation in and contribute to development of the WHO Global Antimicrobial Resistance Surveillance System (GLASS).	HPSC; AMRIC team Stakeholders DoH	<p>Enhance participation in the WHO GLASS surveillance system by providing Irish data for antimicrobial consumption surveillance and antimicrobial resistance data e.g. surveillance of community acquired UTI.</p>	2022-2025	Irish submission to WHO Global Antimicrobial Resistance Surveillance System (GLASS).

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
2-08	Develop sustainability and governance for continuation and further development of the One Health Surveillance Reporting system to include multi-disciplinary professional and clinical/admin support.	AMRIC team; HPSC Stakeholders DAFM; DoE; DoH; One Health Surveillance Group	Participate on the One Health Surveillance Reporting Group and provide human health data for publication.	2022-2025	Health data and support for the delivery of the One Health Surveillance Annual Report.
2-09	Develop and publish the One Health Surveillance data report for 2017/2018/2019.	AMRIC team; HPSC Stakeholders DAFM; DoE; DoH; One Health Surveillance Group	Provide quality assured human health data for publication in the One Health Surveillance Report. (R)	2022-2025	Health data and support for the delivery of the One Health Surveillance Annual Report.
2-10	Develop and report the UN Sustainable Development Goal indicator (3.d.2), as it relates to human health.	AMRIC team; HPSC; DoH	Provide data on percentage of bloodstream infections due to selected antimicrobial resistant organisms to support early warning, risk reduction and management of national and global health risks (Sustainable Development Goals).	2022-2025	Submission of Irish Data for Sustainable Development Goals indicator (3.d.2).
2-11	Develop and implement systems and processes to provide more timely collation, frequency and reporting of key antimicrobial routine resistance data from microbiology laboratories including both public and private laboratories built on the existing EARS-Net process. (R)	HPSC; AMRIC team; Acute Operations; Community Operations	Develop processes to support improved timeliness of reporting on antimicrobial routine resistance data (8 pathogens, EARS-Net) from microbiology laboratories. (R)	2022-2025	Submission of Irish data for (8 pathogens, EARS-Net). Key surveillance reports available (one quarter in arrears).
2-12	Enhance rapid laboratory diagnostic capacity to support AMR and IPC stewardship, which may enhance patient flow. (R)	Acute Operations; Pathology Programme Stakeholders AMRIC team	Enhance capacity in clinical diagnostic laboratories to improve access to quality assured rapid access and fast turnaround diagnostics in community and hospital settings. (R)	2022-2025	Rapid diagnostics results for key pathogens for meningitis and encephalitis available 24/7 to all acute hospitals with Emergency Departments.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
2-13	Develop an integrated and comprehensive microbiology human health reference laboratory service that encompasses services for key antimicrobial resistance issues, including periodic structured national surveillance studies of antimicrobial resistance in key organisms. (R)	AMRIC team; Acute Operations; Community Operations; Pathology Programme; HPSC; Public Health Microbiology and Virology Laboratory Services	Publish National Review of Public Health Microbiology and Virology Laboratory Services Report. Implement recommendations of the Review of Public Health Microbiology and Virology Laboratory Services. (R)	2022 2022-2025	Integrated governance structure and business processes for Public Health Microbiology and Virology Laboratory Services.
2-14	Contribute to the development and implementation of medical laboratory systems and eHealth systems to ensure they support AMR and IPC surveillance.	AMRIC team; OoCIO; Pathology Programme; HPSC; Acute Operations; Community Operations	Provide AMRIC support to the development of medical laboratory systems.	2022-2025 2022-2024	IPC data requirements incorporated into systems and software developments. Integrated Infection Prevention Control system implemented across acute and community settings.
2-15	Develop a collaborative framework within which the HSE can work with private healthcare providers on surveillance.	Acute Operations; AMRIC team Stakeholders HPSC	Establish a group to deliver a collaborative framework that addresses both acute and community healthcare providers.	2022-2025	Collaborative framework for working on AMRIC related issues.
2-22	Develop a scoping document investigating potential to increase environmental surveillance for AMR residues from point source risks (Hospitals, WWTPs, Septic Tanks, Knackeries, intensive agriculture, biopharma discharges, etc.).	AMRIC team; Acute Operations	Provide specialist AMRIC input to scoping document on environmental surveillance of AMR residues.	2024	Input into scoping document on environmental surveillance of AMR residues.

Strategic Objective 3: Reducing infection and disease spread.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
3-01	Develop and implement the HSE 2022-2025 AMRIC Action Plan, cognisant of the learnings from COVID-19.	AMRIC team Stakeholders DoH	Disseminate and implement on a phased basis the HSE 2022-2025 AMRIC Action Plan in collaboration with all <u>stakeholders</u> . Monitor and review HSE 2022-2025 AMRIC Action Plan in line with governance and accountability requirements.	2022-2025	HSE 2022-2025 AMRIC Action Plan.
3-02	Implement the HSE Community IPC Strategy in line with the integrated approach to AMR and IPC and cognisant of the related recommendations in the Nursing Home Expert Panel Report on COVID-19 (2020).	Community Operations Stakeholders DoH; AMRIC team, other healthcare service providers	Implement the HSE community IPC strategy. (R)	2022-2025	Objectives of the “HSE Community IPC Strategy” delivered.
3-03	Promote best practice in IPC as homecare services develop, including guidance, education and advice.	Community Operations; AMRIC team; Acute Operations	Include IPC as an integral part of the planning and delivery of home care services. Develop and review AMRIC guidance to support safe delivery of services provided in a person's home, in collaboration with key stakeholders e.g. personal care services, OPAT, CIT, home care packages, home dialysis and community radiology service.	2022-2025	IPC requirements defined as a core element of home care services. Appropriate guidance and training materials for IPC for home care delivery.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
3-04	Enhance collaboration and promote community of practice across all health and social care services.	AMRIC team; Community Operations Stakeholders <u>Undergraduate Training Programmes;</u> Postgraduate Training Programmes; ONMSD; National Health and Social Care Professions Office; NDTP; QI	<p>Provide content of IPC link practitioner programme to private nursing home providers. (R)</p> <p>Expand hand hygiene train the trainer programme to General Practice. (R)</p> <p>Develop a community IPC/AMS network at CHO/Area level. (R)</p> <p>Provide access to dedicated IPC/AMS expertise for multidisciplinary GP Practice teams. (R)</p> <p>Establish a defined AMRIC fund to support local events, convened by local communities of practice.</p>	2022-2025	<p>eLearning programme for all providers.</p> <p>Improved access to hand hygiene training in General Practice.</p> <p>Pathway that GP Practice teams can use to access advice and support.</p> <p>Improved IPC support in general practice.</p> <p>AMRIC fund to support local events.</p>
3-05	Promote best practice in governance models and arrangements across AMR and IPC for all health and social care services.	AMRIC Oversight; AMRIC team; Acute Operations; Community Operations	<p>Undertake an annual review of governance structures and processes to support the work of AMRIC across national and operational structures within the HSE.</p> <p>Ensure updated AMRIC governance structures and processes are reflected in HSE acute and community settings, this will be supported by updated AMRIC guidance.</p> <p>Make available HSE governance models and arrangements for information to non HSE health and social care providers.</p>	2022-2025	<p>Sustained robust national HSE AMRIC governance structures.</p> <p>Stronger and more consistent HSE AMR and IPC regional governance structures based on Regional Health Areas.</p> <p>Support to non HSE providers in adopting or adapting models and arrangements aligned to those of the HSE.</p>
3-06	Enhance governance arrangements across AMRIC for HSE-funded services.	Acute Operations; Community Operations; Finance	<p>Incorporate the requirement for adherence to AMRIC guidance into national SLA templates and agreements.</p>	2022-2025	<p>Standardisation and consistency of AMRIC practice.</p> <p>SLAs in place incorporating IPC and AMR principles.</p>

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
3-07	Ensure IPC best practice requirements are embedded in refurbishment projects of older facilities and equipment, including IPC consideration of minimising transmission risk.	AMRIC team; Acute Operations; Community Operations; Capital and Estates	<p>Develop and publish regular updates to AMRIC guidance "Infection Control Guiding Principles for buildings Acute Hospitals and Community Settings" and support implementation.</p> <p>Provide specialist IPC advice on major/minor/refurbishment capital projects.</p> <p>Contribute expert IPC advice to national HSE Capital and Estates as required in particular at the design phase.</p> <p>Expand AMRIC guidance to include an IPC checklist for post completion pre commission review of new major/minor/refurbishment building projects.</p> <p>Establish community minor capital allocation to address IPC transmission issues and improve patient safety. (R)</p> <p>Approve and monitor acute and community AMRIC minor capital allocations on an annual basis to address IPC risk issues.</p>	2022-2025	<p>Mitigating of infrastructural HCAI transmission risks.</p> <p>Published checklist for pre commission review.</p> <p>Defined annual budget to support priority AMRIC minor capital projects.</p>
3-08	Ensure IPC best practice requirements are embedded in new major building projects, including IPC consideration of minimising transmission risk.				
3-09	Ensure IPC best practice requirements are embedded in refurbishment projects under minor capital, including IPC consideration of minimising transmission risk.				
3-10	Include IPC considerations as part of the prioritisation process for investment in capital projects.	AMRIC team; Acute Operations; Community Operations; Capital and Estates Stakeholders DoH	<p>Engage with Capital and Estates to advocate for the prioritisation of major and minor capital. Projects that identify and address IPC high-risk issues. (R)</p> <p>Prioritise AMRIC community and acute minor capital funds to mitigate IPC patient safety risks.</p>	2022-2025	<p>Process to identify highest IPC risk in infrastructure to support the capital application process.</p> <p>Annual Acute and Community minor capital plan.</p>

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
3-11	Encourage participation in professional networks related to AMR and IPC, formally and informally, specialist and generalist for healthcare professionals.	AMRIC team; Public Health Stakeholders Professional organisations	Build and support professional networks, which address AMRIC issues and provide opportunities for shared learning and support.	2022-2025	IPCN forum, Surveillance Scientist forum, Specialist in Public Health Medicine forum, Pharmacist forum etc.
3-12	Review and evaluate current and potential other approaches to reduce infections associated with Peripheral and Central Venous Catheter Related Infection, including the development and implementation of guidance on prevention of infection. (R)	AMRIC team; Acute Operations; Community Operations Stakeholders ONMSD	<p>Provide expert clinical advice and support for the implementation of the procedure for prevention of Peripheral and Central Venous Catheter Related Infections.</p> <p>Review and evaluate the procedure for prevention of Peripheral and Central Venous Catheter Related Infections and associated eLearning course.</p>	2022-2025 2023	<p>Guidance documents and supporting materials.</p> <p>Reduction in the incidence of hospital acquired <i>S. aureus</i> blood stream infection.</p> <p>IV line care team forum.</p>

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
3-13	Improve practice on incident reviews of key healthcare associated infections and reporting in line with best practice in incident management.	Acute Operations; Community Operations Stakeholders NIMS	Tailoring of HSE serious incident review processes to monitor, review and feedback on HCAl serious incidents to inform quality improvement programmes. (R) Work to define user-friendly process and practice to support IPC incident reviews for community settings. Engage with NIMS to standardise reporting of HCAl serious incidents.	2023-2025	User friendly serious incident processes specifically suited for HCAlS and implementation of these process. User-friendly IPC review process for community settings. Improved NIMS dataset for HCAl providing greater visibility of risk and harm.
3-14	Continue the monitoring programme of IPC inspections in acute and community healthcare settings, designated centres for older persons, and persons with a disability.	AMRIC team; Acute Operations; Community Operations Stakeholders HIQA	Review the findings of HIQA reports and provide targeted support to address identified non-compliances. Target site visits to support acute and community services that have identified high-risk IPC/AMS issues.	2022-2025	Improved compliance with National standards for prevention and control of healthcare associated infections in acute and community services. Concise reports on visits. Robust guidance, education and training materials informed by feedback.
3-17	Continue to promote vaccination as a means of preventing and limiting infection in line with the National Guidelines from the National Immunisation Advisory Committee.	National Immunisation Office Stakeholders NIAC; ICGP; Public Health; AMRIC team; Community Operations; Acute Operations	Plan and deliver National Immunisation Programmes.	2022-2025	High vaccine uptake and reduced incidence of vaccine preventable disease.

Strategic Objective 4: Optimise the use of antibiotics in human and animal health.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
4-01	Progress implementation of electronic prescribing throughout the healthcare systems, in order to support antimicrobial stewardship and audit. (R)	OoCIO Stakeholders PCRS; Acute Pharmacy; Acute Operations; Community Operations AMRIC team	Ensure that AMS requirements are built into electronic prescribing systems design. (R)	2022-2025	AMS data requirements incorporated into ePrescribing systems and software developments.
4-02	Develop and enhance www.antibioticprescribing.ie as a national platform to support prescribing for community services and acute hospitals. Update platform to enhance usability and promote best practice in antimicrobial prescribing. (R)	AMRIC team; ICGP; Acute Operations; Community Operations	Enhance www.antibioticprescribing.ie in collaboration with other stakeholders to support better navigation and access to best practice in antimicrobial prescribing. (R)	2022-2025	Digitally enabled user friendly guidance.
4-03	Continue multi-agency participation in the HSE Antimicrobial Guideline Review.	AMRIC team Stakeholders PCRS; Clinical Programmes	Update guidance on www.antibioticprescribing.ie and develop new guidance as required for acute and community services.	2022-2025	Antimicrobial prescribing guidance.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
4-04	Provide induction training on antimicrobial prescribing for all new prescribers and develop a process for assessment of completion.	AMRIC team; Acute Operations; Community Operations Stakeholders HR	<p>Develop an induction standard, training on antimicrobial stewardship that is provided as part of staff induction training.</p> <p>Evaluate staff induction standard on Antimicrobial Stewardship to ensure it meets the training needs.</p>	2022 2023	<p>Appropriate induction training for prescribers.</p> <p>Induction training and assessment of completion.</p>
4-05	Provide access to support for individual prescribers to audit their prescribing in community and acute hospital settings; which may include tools and education. (R)	AMRIC team; PCRS; Acute Pharmacy; Acute Operations; Community Operations; ICGP Stakeholders ONMSD	<p>Develop audit tools and educational materials to support appropriate antibiotic prescribing.</p> <p>Implement digital platforms to support audit, which is user friendly, and generates data for improvement. (R)</p> <p>Design software adaptations to enable extraction from GP software systems of pre-defined reports in collaboration with approved GP software providers to provide real time prescribing data and expand HMR in community pharmacy. (R)</p> <p>Enhance engagements between CHO antimicrobial pharmacists and community prescribers to support improved antibiotic prescribing including the shift from red to green antibiotic prescribing.</p> <p>Engage with CHO IPC/AMS committees to provide GP/AMRIC expertise.</p>	2022 2023 2023-2025	<p>Antibiotic prescribing audit tools and materials.</p> <p>Digitally enabled user friendly audit tools.</p> <p>Upgraded GP software to provide individual prescriber data.</p> <p>AMIS engagement, shared learning and support at local level.</p> <p>AMRIC GP specialist input to CHO IPC/AMS committees.</p>

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
4-06	Conduct Pilot Project on Point of Care Testing to support appropriate prescribing and use of antimicrobials based on the HIQA HTA (2019).	AMRIC team; Community Operations; Community Strategy Stakeholders DoH; ICGP	Provide expert input into the design and delivery of Point of Care Testing/near patient testing Pilot based on HIQA HTA (2019). Support evaluation and dissemination of pilot findings to stakeholder groups.	2023-2025	Report on the role of CRP testing in guiding antimicrobial use in General Practice. Appropriate antibiotic prescribing.
4-07	Develop mechanism, which enhances communication with AMRIC around potential and confirmed shortages of antimicrobial medicines, including early alerts, and develop guidance in relation to the management of shortages for prescribers.	AMRIC team Stakeholders HPRA; Medicines Management Programme	Provide specialist input about appropriate management of shortages in collaboration with the HPRA. Enhance communication processes on shortages to GP/community and acute services and provide alternative prescribing options to achieve best patient outcomes.	2022-2025	Improved management of antimicrobial medicines shortages.
4-08	Develop a mechanism for ensuring supply of critical antimicrobials to patients at highest clinical need.	Medicines Management Programme Stakeholders AMRIC team	Promote the importance of equity of access to antibiotics at all levels of the health system. Develop a national process to allocate critical antimicrobials in short supply to patients at highest clinical need.	2022-2025	Improved management of critical antimicrobials for high risk patients.
4-09	Highlight the strategic vulnerability of antimicrobials when production is restricted to few / one manufacturer, and subject to potential shocks on the global supply chain.	DoH Stakeholders Medicines Management Programme; Drugs Policy Unit; AMRIC team	Escalate risks of vulnerable antimicrobial supply chains through the HSE Risk Management Framework. Engage with key stakeholders to highlight vulnerabilities and propose potential solutions e.g. incentivised mechanisms.	2022-2025	Greater awareness of vulnerability of antimicrobial supply and improved contingency processes for management of supply challenges.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
4-11	Expand the GP out of hours prescribing projects and support AMS.	AMRIC team Stakeholders ICGP	Plan the expansion of the GP OOH prescribing pilot project to expand the GP OOH service in all areas on a phased basis. (R)	2022-2025	Appropriate antibiotic prescribing in OOH settings.
4-12	Build capacity in an integrated way, in line with agreed model, to ensure AMRIC Multi-Disciplinary Teams across all settings in line with overarching integrated AMRIC governance.	AMRIC team; Acute Operations; Community Operations	Review HSE resource model for AMRIC staff. Complete a gap analysis to inform estimates/funding submissions. (R) Identify gaps and build into estimates process in line with AMRIC integrated governance arrangements. (R)	2022-2025 2022-2025 2022-2025	Clear and up to date definition of staffing requirements for AMRIC services. Submissions for funding based on the staffing requirements and gap analysis
4-13	Conduct Mid Term Review of the Workforce Plan, in line with the strategic workforce objectives and policy approach in place at the time of the review.	AMRIC team; Acute Operations; Community Operations	Review integrated HSE staff resource models across all IPC/AMS teams and undertake an interim review of existing staffing resources as proposed by the AMRIC staff resource model. (R)	2023	Updated AMRIC staffing model. National and regional capacity for AMRIC services optimised for the funding secured.
4-14	Engage with the wider healthcare team (for example, management, clinical pharmacy, laboratory and cleaning facilities) to ensure IPC and AMS are an integral part of the delivery of all services.	AMRIC team; Acute Operations; Community Operations	Promote AMRIC guidance and best practice with those involved in the management and delivery of services to ensure improved patient outcomes. Develop and provide specialist technical and clinical advice to support AMRIC key messages with targeted audiences.	2022-2025	Services with a greater understanding of and commitment to IPC, AMS and AMR.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
4-15	Expand the role and governance of the AMRIC Teams, including the interface across acute and community services and with specialties such as Public Health, HPSC, Facilities Management, Hygiene Services and others for surveillance, prevention and control of infectious disease. (R)	AMRIC team; Acute Operations; Community Operations Stakeholders Public Health	Review and expand the role and remit of IPC and AMS across acute and community services to include specialities that play a key role in relation to IPC and AMS response. (R)	2022-2025	Stronger and more consistent governance structures within the HSE governance and accountability framework.
4-16	Develop models to support recruitment and retention of skilled IPC and AMS staff across the multidisciplinary team and geographical distribution.	AMRIC team; HR Stakeholders Acute Operations; Community Operations; HR	Develop educational programmes to support IPC/AMS programme and service delivery. Promote the use of Performance Achievement framework to support staff development in line with organisational goals. Promote IPC and AMS practitioners in their roles with mentorship and coaching programmes. (R)	2022-2025	IPC/AMS educational programmes. Application of the performance achievement framework to support IPC/AMS staff.
4-17	Promote IPC, AMS and AMR as specialist areas to newly qualified healthcare professionals.	AMRIC team; HR	Promote the specialist areas of IPC and AMS with newly qualified healthcare professionals by hosting online virtual information events. (R) Develop a framework for IPC AMS shadowing programme. (R) Develop link practitioner programme in acute services. (R)	2022-2025 2024-2025 2024-2025	Recruitment of IPC and AMS specialists. IPC and AMS shadowing programme. Improved training and development in acute services.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
4-21	Contribute to the development and implementation of medical laboratory systems and eHealth systems to ensure they support AMRIC stewardship.	HPSC, AMRIC team; OoCIO; Pathology Programme; Acute Operations; Community Operations	Provide specialist surveillance and AMRIC advice to the design and planning of medical laboratory systems and other eHealth systems to ensure new systems capture and report on key IPC, AMS and AMR data sets to ensure better patient outcomes. Plan and implement phased roll out of National Clinical Surveillance Infection Control System in acute and community operations. (R)	2022-2025 2022-2024	IPC data requirements incorporated into systems and software developments. Integrated Infection Prevention Control system implemented across acute and community settings.
					Strategic Objective 5: Promote research and sustainable investment in new medicines, diagnostic tools, vaccines and other interventions.
INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
5-01	Facilitate, where appropriate, research in new medicines, diagnostic tools, vaccines and other interventions; across acute, general practice, dental and community care settings.	AMRIC team Stakeholders HRB; Undergraduate Training Programmes; Postgraduate Training Programmes; QQI; HIQA	Collaborate with research partners to support and facilitate research projects on the development of supports and tools to mitigate IPC and AMR risks and share learning. Incorporate sustainable principles into AMRIC activities including planning and decision making for procurement of IPC and AMR supplies.	2022-2025	HSE support for research partners. Contribute to HSE's Sustainability Strategy for Health.
5-03	Explore opportunities, directly and in collaboration with other funders and stakeholders, to advance research in AMR and infection control.	DoH; HRB; HSE	Facilitate research projects on the development of supports and tools to mitigate IPC and AMR risks and share learning.	2022-2025	HSE support for research partners to develop and implement research proposals in AMR and infection control.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
5-05	Review the evidence base for behavioural change initiatives to promote optimal antimicrobial prescribing and reduce antimicrobial consumption.	AMRIC team; HSE Communications	Support evidence based reviews on behavioural change to determine shifts in antibiotic prescribing and consumption, in collaboration with research agencies.	2022-2025	HSE support for evidence based reviews on behavioural change.
5-07	Develop a tool to collect a core data set and collection / survey methodology for the collection of costs attributable to AMR at a point in time, to initially consider public healthcare perspective.	AMRIC team; Acute Operations; Community Operations; Finance Stakeholders HIQA	Support HIQA by providing AMRIC specialist advice and expertise on the collection of operational costs attributable to AMR.	2022-2024	HSE support development and pilot of easy to use data collection tool.
5-10	Assess the role of healthcare infrastructure in potential environmental transmission of multi-drug resistant infection (for example, via infection reservoirs), including consideration of clinically and cost-effective management options.	AMRIC team; Acute Operations; Community Operations; Capital and Estates	Support the DoH to commission research/systematic review to determine the role and burden of environmental issues including healthcare infrastructure with transmission of HCAs.	2022-2025	HSE support for systematic review on the role of healthcare infrastructure in potential environmental transmission.
5-11	Develop capacity and capability to support AMR and IPC workforce planning in line with international best evidence; in particular the development and implementation of professional competency frameworks.	AMRIC team; HR; Acute Operations; Community Operations; Nursing Team Stakeholders HSelAnd	Engage with Environmental Protection Agency on environmental impact of any potential solutions that may affect the wider public e.g. water/drainage systems.	2022-2025	HSE to develop a programme of academic research on role of healthcare environment and management options.
					Workforce planning and models.
					Succession-planning.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
5-12	Promote a culture of continuous monitoring, audit methodologies and other mechanisms to support AMR and IPC and inform continuous quality improvement.	AMRIC team; Acute Operations; Community Operations	Develop quality improvement projects/programmes to address IPC, AMR and AMS risks.	2022-2025	A quality improvement project focusing on reducing the incidence of hospital associated <i>C. difficile</i> .
5-13	Develop capacity and capability, including supporting structures, to support AMR, IPC and AMS clinical practice guidance development, update, review and implementation in a timely way informed by international and national evidence, best practice and learning from the public health emergencies.	AMRIC team <u>Stakeholders</u> HPSC	Enhance AMRIC guidance development capacity to ensure timely response for operational AMRIC guidance. (R) Develop capacity within HPSC to ensure faster reporting of surveillance data. (R)	2022-2025	Suite of up to date and robust AMRIC guidance documents in accessible formats. More rapid reporting of surveillance data.
5-14	Submit the Clinical Guideline on Infection Prevention and Control to the National Clinical Effectiveness Committee for quality assurance and consideration for progression as a National Clinical Guideline.	AMRIC team <u>Stakeholders</u> DoH – NCEC; HRB CICER	Finalise NCEC - Clinical Guideline on Infection Prevention and Control for Ireland. Support DoH with publication of NCEC Clinical Guideline on Infection Prevention and Control for Ireland. Develop AMRIC Guidance in line with recommendations from NCEC Clinical Guideline on Infection Prevention and Control.	2022-2025	NCEC - Clinical Guideline on Infection Prevention and Control for Ireland submitted to NCEC. Robust AMRIC guidance.
5-15	Continue to support the response to the COVID-19 Public Health Emergency through evidence synthesis and COVID-19 publications, which support the work of National Public Health Emergency Team (NPDET) COVID-19.	HIQA; HSE	Support HIQA on the development of evidence synthesis and COVID-19 publications to support COVID response.	2022-2025	HSE participation and contribution to HIQA Expert Advisory Groups.

INAP Ref.	INAP2 Activity	HSE Lead(s) and Stakeholders	HSE Actions	Timeline	Deliverable
5-16	Ensure AMR and IPC indicators are captured and aligned to the Health Systems Performance Assessment Framework as it continues to develop.	AMRIC team; Acute Operations; Community Operations	Complete an analysis of how current AMRIC indicators are aligned to the Health Systems Performance Assessment Framework.	2022-2025	Suite of agreed AMRIC KPI's aligned to health systems performance assessment framework.



Implementation

Overview

The phased implementation of this action plan will be one of the AMRIC commitments included in the HSE 2022 Service plan. The AMRIC governance process is key to delivering on the commitments.

The AMRIC Oversight group has governance responsibility for the planning, development and implementation of projects and actions set out in this plan. A critical enabler of this governance process is the role of the CCO as Chair, and of the National Directors for Acute and Community Operations (or their representatives) as members of the AMRIC Oversight Group⁷.

The AMRIC implementation team and/ National AMRIC team are accountable to the AMRIC Oversight Group for the planning, development, implementation and monitoring of the projects and actions set out in this plan. The AMRIC implementation team includes Assistant National Directors for Acute and Community Operations (or their representatives) who lead on translating projects and actions to frontline service delivery. The integration between the clinical skills of the core AMRIC team and the operational skills of Acute and Community Operations is a key success factor in the ways of working for the AMRIC governance process.

AMRIC implementation team and AMRIC core team will link with other key stakeholders within the HSE and across sectors who have an interest in or are required to deliver on the projects and actions.

Monitoring and review:

The AMRIC core team reviews and monitors the implementation of projects and actions through an agreed AMRIC PMO process on a monthly basis. A quarterly portfolio report is provided to the AMRIC implementation team and Oversight group in line with the HSE accountability framework. These reports and discussions inform where corrective measures or actions need to be agreed in order to achieve actions and projects.

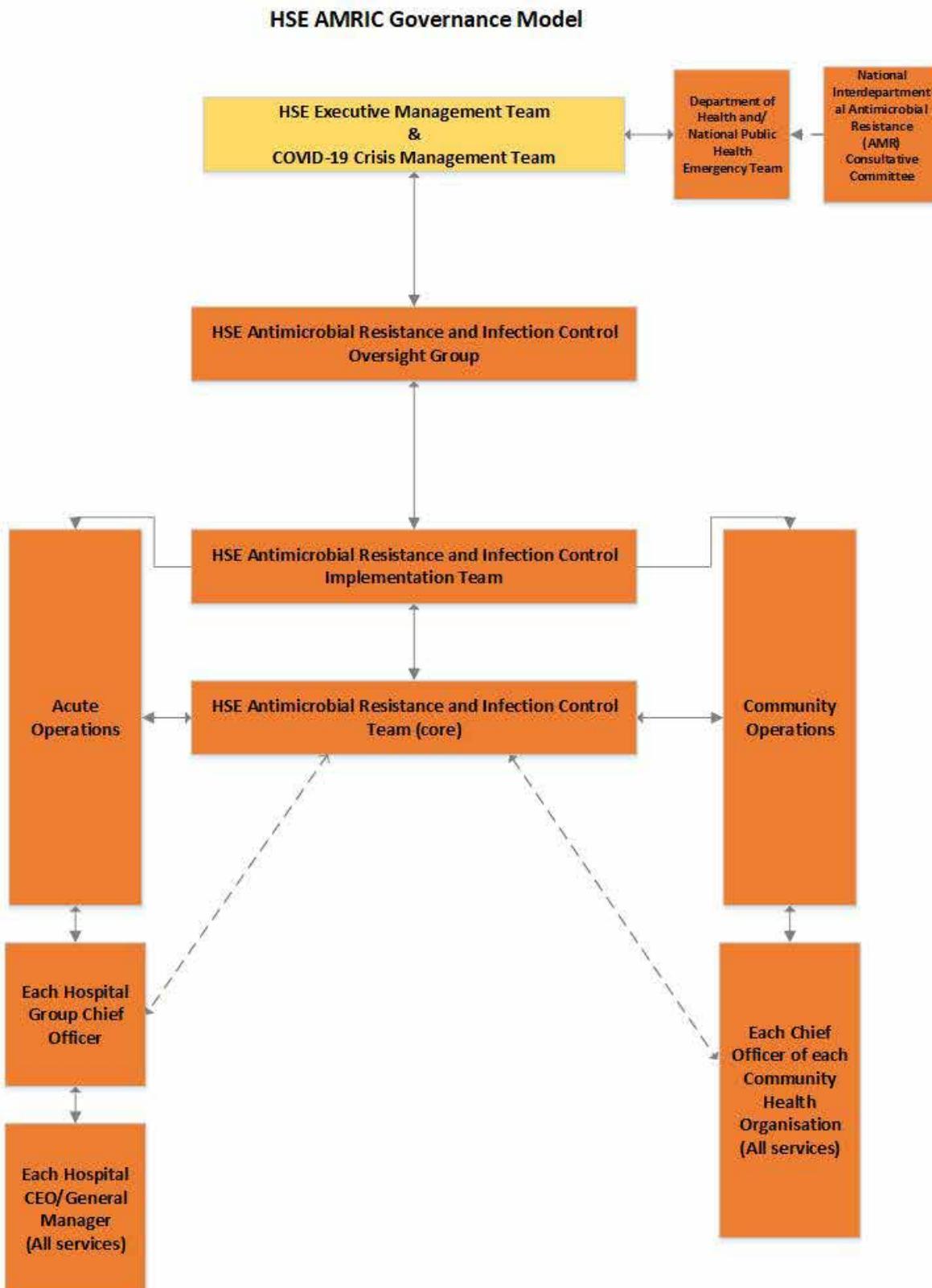
A DoH / AMRIC quarterly accountability forum is in place where progress reporting is a standing agenda item. The National Interdepartmental Antimicrobial Resistance (AMR) Consultative Committee meets bi-annually and updates on HSE AMRIC progress are provided.



7. Appendix 8 sets out membership of AMRIC Oversight, AMRIC Implementation and AMRIC Core Teams

Governance

The AMRIC model of governance acknowledges the role of the HSE centre reform programme. It also supports appropriate decision makers (planning, clinical and operations) to participate in the development of policy/guidance/protocols, the planning of service improvement initiatives (setting strategic objectives, actions, targets etc.) and implementation of those initiatives. Responsibility for AMRIC lies with the service line, however, the AMRIC Oversight Group and Implementation Team governance structures provide a mechanism for leadership, support, planning and monitoring etc. This approach ensures there is strategic and operational alignment of planning/commissioning and operational teams within the organisation in relation to the planning and implementation of actions related to AMRIC initiatives and other related issues of AMS and IPC concern.



AMRIC Oversight Group⁸

The role of the AMRIC Oversight Group includes:

- HSE's overarching governance structure for Antimicrobial Resistance and Infection Control.
- This group is chaired by the Chief Clinical Officer. This is in keeping with the defined role as Chief Clinical Officer as leading on patient safety and recognising AMRIC as a critical patient safety issue.
- This forms part of the Chief Clinical Officers broader remit for quality and patient safety.

AMRIC Implementation Team

The role of the AMRIC Implementation Team includes:

- Within the context of the Accountability Framework, the AMRIC Implementation Team will work through the National Director Acute Hospital Operations and National Director Community Operations supported by the HCAI/AMR Oversight Group.
- The AMRIC Implementation Team has authority to initiate engagements directly with Hospital Group Chief Executive Officers, Hospital Managers and Clinical Directors in the Acute Hospital Sector and with Chief Officers and facilities managers in Community Services. This includes the authority to initiate site visits by agreement with the relevant regional/local management. The Clinical Lead and Team may identify concerns and propose solutions but these are made within the context of the Accountability Framework.

AMRIC Team (Core Team)

The role of the AMRIC core team:

- The work of the HSE Antimicrobial Resistance and Infection Control Core Team relates to the planning, development and implementation of service development projects with acute and community operations and key stakeholders.
- The team is responsible for the collation of surveillance data and reports relating to AMRIC activities and using this data to inform improvements to practice.

DoH and AMRIC Accountability Forum

Quarterly meetings between DoH and HSE AMRIC team began in mid-2019. Prior to this date, work had focused on the Public Health Emergency on CPE and was reported through the NPHET on CPE. The focus of discussions is on the progression of AMRIC supports implemented in a prioritised manner through multi-disciplinary and integrated teams and in line with the HSE governance arrangement and the actions in iNAP1 and now, iNAP2.

National Interdepartmental Antimicrobial Resistance (AMR) Consultative Committee

Members of the AMRIC team participate on the National Interdepartmental AMR Consultative Committee. This was established in 2014 and is co-chaired by the Chief Medical Officer, DoH and the Chief Veterinary Officer, DAFM. The AMR committee aims to meet at least twice annually. The establishment of the National Interdepartmental AMR Consultative Committee meets Ireland's requirements to have an intersectoral co-ordinating mechanism for addressing AMR at European and Global level.

8. Membership of AMRIC oversight, AMRIC Implementation and AMRIC Core Team are set out in Appendix 8

Risks and Opportunities

Risks

- **Service Demand**

The increasing demands for AMR and IPC related services, which are often beyond funded levels.

- **Staffing, recruitment and retention**

Recruiting and retaining skilled and motivated staff is central to addressing antimicrobial resistance and infection prevention and control. The recruitment and retention of highly skilled and qualified IPC/AMS practitioner's remains a risk at all levels across service.

- **Integrated digital information systems**

The limitations of digital information systems are a significant challenge, as are further deficits in ICT to enable communication, co-ordination on AMR and IPC care. Limitations in accessing core data to support analysis is also a challenge.

- **Emerging MDRO's**

COVID-19 has had a significant impact on our lives, our economy and the way we deliver health care services.

- **Capital investment/healthcare environment deficits transmission**

The scale of capital investment required to address compliance with IPC guidance is acknowledged, however access to capital investment remains a significant challenge. It is also important to note that infrastructure and equipment resources are key factors in the transmission of HCAs. The capacity to address critical historical infrastructure deficits remains a risk and continues to be a key consideration in the planning and prioritisation of minor/major capital funding.

- **Healthcare occupancy and capacity**

Related to the infrastructure deficits and other factors in how services are organised, very high occupancy in acute hospital services and high levels of demand in all service areas in Community Operations are an important risks to delivery of stated objectives.

Opportunities

- **Awareness and understanding of AMR, AMS and IPC**

The COVID-19 pandemic has increased the awareness and understanding of AMR, AMS and IPC. It is hoped that this will have a demonstrable effect on behavioural change in this area.

- **Organisational governance structure**

The robust HSE governance structure established under remit of the Chief Clinical Officer. This is supported by an AMRIC Oversight Group, chaired by the Chief Clinical Officer and an AMRIC Implementation Team, chaired by the AMRIC Clinical Lead.

The established accountability forum between the DoH (NPSO) and AMRIC. These structures support the AMRIC team, HSE Leads and stakeholders to deliver the HSE 2022-2025 AMRIC Action Plan and achieve the strategic objectives.

- **AMR and IPC acute and community teams**

There is a cohort of highly motivated and expert IPC and AMS practitioners working to integrate and support front line services. Service improvements, service developments and patient safety initiatives are delivered locally by these healthcare workers.

- **Skilled and committed frontline healthcare workers**

The HSE has a skilled and committed cadre of healthcare workers who provide the direct care to patients and services users. Their skill and commitment is the foundation to any successful AMR and IPC programme.

- **Patient involvement**

We have increasingly knowledgeable and involved patients, service users, their families and members of the public who help to drive service improvement. Their experiences supports and informs patient centred AMRIC guidance.

- **Emerging technologies**

New technologies, including information and communications technologies, may create opportunities to improve infection prevention and control and antimicrobial prescribing e.g. rapid diagnosis of infection and characterisation of the infecting organism.

Appendices

Appendix 1 Glossary

ABHR – Alcohol based hand rub
AHDMP – Acute Hospitals Drug Management Programme
AM – Antimicrobial
AMR – Antimicrobial Resistance
AMRIC – Antimicrobial Resistance and Infection Control
AMS – Antimicrobial Stewardship
BD – Bed Days
BSI – Bloodstream Infection
C. difficile – *Clostridioides difficile*
CCO – Chief Clinical Officer
CHO – Community Healthcare Organisation
CICER – Collaboration in Ireland for Clinical Effectiveness Review
CIT – Community Intervention Team
CNS – Clinical Nurse Specialist
COVID 19 – SARS – CoV-2 virus
CPE – Carbapenemase Producing Enterobacterales
CRP – C- Reactive Protein
DAFM – Department of Agriculture, Food and the Marine
DDD – Defined Daily Dose
DoH – Department of Health
E. coli – *Escherichia coli*
EARS-NET – European Antimicrobial Resistance Surveillance Network
ECDC – European Centre Disease Prevention and Control
ED – Emergency Department
EMT – Executive Management Team
EPA – Environmental Protection Agency
ESAC-Net – European Surveillance of Antimicrobial Consumption Network
EU – Europe
EUCDI – Europe *Clostridioides difficile* Surveillance
GLASS – Global Antimicrobial Resistance and Use Surveillance System
GP – General Practitioner
HALT - Healthcare -associated infections in long-term care facilities project
HCAIs – Healthcare Associated Infections
HEIs – Higher Education Institutes
HIQA – Health Information Quality Authority
HIV – Human Immunodeficiency Virus
HMR – Health Market Research
HPRA – Health Products Regulatory Authority
HPSC – Health Promotion Surveillance Centre
HR – Human Resource
HRB – Health Research Board
HSE – Health Service Executive
HTA – Health Technology Assessment

ICGP – Irish College of General Practitioners
ICT – Information and Communication Technology
ICU – Intensive Care Unit
ID – Infectious Diseases
IDSI – Infection Disease Society Ireland
IIOP – Irish Institute of Pharmacy
iNAP – Ireland's National Action Plan
IPC – Infection Prevention and Control
IPCN – Infection Protection Control Network
ISCM – Irish Society Clinical Microbiologists
IV – Intravenous
IVI – Intravenous Venous Infusion
KPIs – Key Performance Indicators
LTCF's – Long Term Care Facilities
MDRO's – Multi Drug Resistant Organisms
NALA – National Adult Literacy Agency
NCEC – National Clinical Effectiveness Committee
NCPE – National Centre for Pharmacoconomics
NDTP – National Doctors Training Programme
NHQRS – National Healthcare Quality Reporting System
NHSCPO – National Health & Social Care Office
NIAC – National Immunisation Advisory Committee
NIMS – National Incident Management System
No. – Number
NOCA – National Office of Clinical Audit
NPGET – National Public Health Emergency Team
NPSO – National Patient Safety Office
NSP – National Service Plan
ONMSD – Office of Nursing and Midwifery Services Director
OoCIO – Office of Chief Information Officer
OOH – Out of Hours
OPAT – Outpatient Antimicrobial Therapy
PCRS – Primary Care Reimbursement Service
PMO – Programme Management Office
PPS – Point Prevalence Survey
PVC – Peripheral Venous Catheter
QQI – Quality and Qualifications Ireland
(R) – Resource
Ref – Reference
S.aureus – *Staphylococcus aureus*
SAP – Surgical Antibiotic Prophylaxis
SARI – Strategy for Control of Antimicrobial Resistance in Ireland
SDG – Sustainable Development Goal.
SLA's – Service Level Agreement's
UTI – Urinary Tract Infection
VAP – Ventilated Associated Pneumonia
WHO – World Health Organisation
WWTP – Waste Water Treatment Plants

* Note: Professional Body e.g. ICGP - Irish College of General Practitioner, NMBI – Nursing and Midwifery Board of Ireland

Appendix 2 Key concepts and definitions

What is ‘One Health’?

The ‘One Health’ concept promotes a “whole of society” approach, which recognises that the health of people is connected to the health of animals and the environment. The goal of the ‘One Health’ concept is to encourage multidisciplinary collaborative efforts across different sectors such as health, agriculture and the environment to achieve the best health outcomes for people and animals.

What are healthcare associated infections (HCAIs)?

A healthcare-associated infection (HCAI) is an infection that is acquired after contact with the healthcare services. This is most frequently after treatment in a hospital, but can also happen after treatment in outpatient clinics, nursing homes and other healthcare settings. Healthcare-associated infections that are picked up in hospital are also known as “hospital-acquired infections”.

The five most common HCAIs are:

- Surgical site infection
- Pneumonia
- Urinary tract infection
- Bloodstream infection
- Gastroenteritis

What is infection prevention and control (IPC)?

Infection Prevention and Control (IPC) is a collection of practices, resources and specialist support that together help to prevent infections and minimise their impact when they do occur. IPC practices are of critical importance in protecting the function of healthcare services and mitigating the impact on vulnerable populations. IPC has been a feature of modern healthcare delivery for some time and has been successful in reducing and controlling HCAIs. This includes the five common HCAIs listed above including infections caused by antimicrobial resistant organisms such as methicillin-resistant *Staphylococcus aureus* (MRSA), and Carbapenemase Producing Enterobacterales (CPE). IPC and AMS are also effective in controlling *C. difficile* infection. The foundation of IPC is the skill, care and commitment of the individual healthcare workers who provide hands on care supported by clear governance, appropriate facilities, and specialist IPC support. IPC works within the context of the overall Public Health response to the control of infection. In the context of pandemic infection, this interrelationship is particularly important.

What is antimicrobial resistance (AMR)?

Antimicrobials are medicines used to treat infections or disease, and are essential in both human and animal health. Antimicrobial resistance occurs when an antimicrobial that was previously effective, becomes less effective or is no longer effective to treat an infection or disease caused by a microorganism.

The development of resistance is a natural phenomenon that will inevitably occur when antimicrobials are used to treat disease. The problem, at present, is that the sheer volume of antimicrobials being used globally in humans, animals and in other situations is leading to significant increases in the rate of development of resistance with the result that common infections are more difficult to treat and microorganisms that are resistant to many antimicrobials, so called ‘superbugs’, are now common in many countries.

What is the difference between antibiotic and antimicrobial resistance?

In technical terms, antibiotics are a particular category of antimicrobial agent. In practice, the term antibiotic is often used to refer to all antimicrobial agents active against bacteria. The term antimicrobial also encompasses agents active against other microbes including parasites such as those that cause malaria, viruses (such as HIV) and fungi (such as *Candida spp* and *Aspergillus spp*). Whilst the term antimicrobial resistance is used throughout this document, the main focus is on antimicrobial resistance in bacteria.

What is antimicrobial stewardship (AMS)?

Antimicrobial Stewardship (AMS) is a systematic approach to optimising antimicrobial therapy, through a variety of structures and interventions. Antimicrobial Stewardship includes not only limiting inappropriate use but also optimising antimicrobial selection, dosing, route, and duration of therapy to maximise clinical care, while limiting the unintended consequences, such as the emergence of resistance, adverse drug events, and cost.

Appendix 3 HSE 2019-2021 AMRIC Implementation Plan

CPE

- CPE surveillance testing programme established and is now in steady state (approx. 25,000 screens per month)
- Acute services allocated 37 WTE to roll out CPE surveillance testing programme
- Enhanced surveillance, screening, monitoring and management of CPE is now integrated into the day-to-day operations of the health service
- Delivered and managed the CPE Contact Communication Project
- Learnings from the response to the CPE Public Health Emergency have been key in the COVID-19 response, development, and prioritisation of the actions under iNAP

AMRIC resourcing

- Investment by the Department of Health has allowed recruitment of additional staff for both acute and community services, this built IPC / AMS capacity across HSE community Services through the establishment of multidisciplinary infection prevention and control teams. Expanded the national team to provide leadership, direction and support. The multi-disciplinary team required for AMRIC teams include microbiologists, infectious diseases physicians, IPC nurses, antimicrobial pharmacists and surveillance scientists. Given the specialist nature of the posts recruitment and retention of staff is a key challenge
- The following significant investment provision has been made (approximate figures) 2018-2022:
 - » €17.15m allocation for prioritised new developments
 - » €11.40m allocation for COVID-19 new developments

Strategic Objective 1 - Improve awareness and knowledge of antimicrobial resistance: through information campaigns, education, intelligence and data:

- Enhanced communications and dedicated campaigns – Established and rolled out RESIST campaign. RESIST is the Health Service Executive (HSE) communications initiative that incorporates antimicrobial resistance (AMR) and hand hygiene communications programmes aimed at health and social care workers. The language of RESIST is built around separate groups of people forming a movement to resist an oppressive enemy - Superbugs. So fight, resist, join, help, are words we use, as they are simple, direct and energising. They make it clear to healthcare staff the action we want them to take. RESIST is used as a way to talk to staff about their role in improving hand hygiene, about how we use antibiotics, and how we care for the health and social care environment and keep it clean
- Developed and delivered AMRIC social media campaigns incorporating the above
- Designed, implemented and evaluated annual IPC awareness campaigns for:
 - » Undertheweather
 - » European Antibiotic Awareness
 - » Hand Hygiene Week
 - » International Infection Prevention Control Week
 - » Winter Campaign
- Provided 12 patient facing information and leaflets, some in different languages



- Developed HSE web section and went live with www.hse.ie/infectioncontrol (updated every month). Ensured AMRIC information is user friendly, easily accessible and complies with NALA standard (plain English)
- Designed and issued quarterly newsletter outlining key development and information sources for AMR and infection prevention control
- Develop, pilot and evaluate the Acute Operations Hand Hygiene Trainer the Trainer Programme
- 55 AMRIC educational webinars delivered
- 11 eLearning modules published (see Appendix 9)
- 97,000 eLearning modules completed
- CNS Education Programme rolled out
- IPC Link Practitioner Programme rolled out
- Progressed Core Competency Framework for IPC Practitioners
- Established networks for the various disciplines working in the area of IPC and AMS

Strategic Objective 2 - Enhance surveillance of antibiotic resistance and antibiotic use: through surveillance systems that facilitate greater standardisation of data collection, data linkage and sharing of real time information:

- Enhanced processes developed for surveillance of infections e.g. the Health Protection Surveillance Centre developed monthly reports relating to CPE and enhanced reference laboratory services. Provided real-time surveillance of CPE data at national, hospital group and hospital level through the CPE Reference Laboratory. Developed a process for rapid whole genome sequencing to track spread of CPE and certain other antibiotic resistant organisms
- Provided Irish data and input to the following:
 - » National Healthcare Quality Reporting System (NHQRS)
 - » EU/ECDC reports/surveillance reports e.g. EU-wide HALT PPS Surveys of antibiotic use and infection in Long Term Care Facilities (LTCF), second ECDC point prevalence survey (PPS) of hospital-acquired infections and antimicrobial use in European acute care hospitals
 - » European antimicrobial resistance surveillance network (EARS-Net) reporting
 - » Global antimicrobial resistance and use surveillance system (GLASS) including sustainable development goal (SDG) AMR indicator reporting
- Engaged with National Outpatient Antimicrobial Therapy Programme to explore data sharing protocol on antimicrobial use with the Health Protection Surveillance Centre.
- Collaborated with eHealth initiatives to guide the development of capacity for AMR and IPC activities
- Developed HSE KPIs for infection prevention and control and antimicrobial stewardship – established monthly and quarterly KPIs and performance reporting processes in line with HSE accountability framework
- Upgraded equipment in HSE Microbiology Reference Laboratories

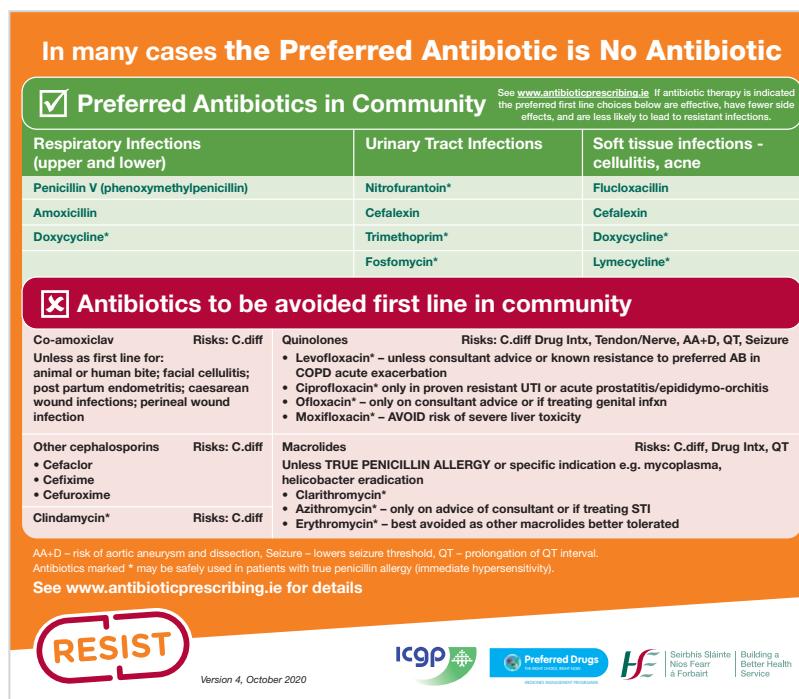
Strategic Objective 3 - Reduce the spread of infection and disease: through infection and disease prevention and control measures, including national guidelines and standards in relation to hygiene and biosecurity practices:

- AMRIC governance structures established at national and operational levels
- DoH and HSE AMRIC Accountability Forum established
- HSE IPC Advisory Committee has been established
- Established HCAI risk on HSE corporate risk register
- Provided access to AMRIC guidance (IPC and AMS), specialist advice, support, education and training for front line healthcare workers in order to facilitate implementation of national IPC standards and guidelines
 - » Over 300 CPE and AMRIC guidance materials published
- HSE Community IPC strategy published
- Provided 29 site visits and site visit reports
- Provided for minor capital improvements
- Provided education and training for community dental and orthodontic service including equipment upgrades
- National reference laboratory for *C. difficile* is under establishment and due to commence reporting by end of Q4 2021
- Planning for the national clinical surveillance infection control system commenced
- Developed IV Line Care Teams in two level 4 hospitals
- Provided Surgical Site Clinical Nurse Specialists supports
- Implemented the national hand hygiene train the trainer programme to standardise local mandatory hand hygiene education for all healthcare workers

Strategic Objective 4 - Optimise the use of antibiotics in human and animal health: through development and implementation of antimicrobial stewardship programmes, promotion of prudent prescribing practices and access to rapid diagnostics:

- Continuously updated guidelines on www.antibioticprescribing.ie to encourage appropriate prescribing of antimicrobials
- Developed guidance on preferred antibiotics in community (Red/Green GP antibiotic prescribing reports)
- Piloted and evaluated the HSE GP out of hours antibiotic prescribing project in Cork.
- Provided capability in relation to antibiotic and medicines management including addressing antibiotic shortages for HCAs and AMS
- HSE antimicrobial stewardship advisory group and HSE antimicrobial consumption subcommittee established
- Collaboration with education partners, for example, AMS Insight, delivery of regular webinars, publication of feature articles, creation of one-minute videos to share antimicrobial stewardship updates and key messages
- Collaboration with HPRA, NCPE, PCRS, AHDMP to provide expert opinion and advice in relation to antimicrobial management and stewardship
- Audit of antimicrobial prescribing in HSE Older Persons facilities and implementation of quality improvement plans based on key recommendations, for example, position statement on urinary dipsticks, eLearning module on urinary management, guidance on de-prescribing of UTI prophylaxis
- Developed position statement on surgical antibiotic prophylaxis duration accompanied by a suite of resources to assist quality improvement in this area; audit tool, presentation, patient information leaflet and an eLearning module on all aspects of surgical antibiotic prophylaxis
- Publication in a peer-reviewed journal of the antimicrobial stewardship challenges and innovative initiatives in the acute hospital setting during the COVID-19 pandemic
- Publication in a peer-reviewed, European Journal of General Practice on improving the quality of antibiotic prescribing through an educational intervention delivered through the out-of-hours general practice service in Ireland (winner of 2020 most valued article award)
- Planning for AMRIC audit tools commenced

Visual of mouse-mat issued for the HSE AMRIC green red antibiotic prescribing quality improvement initiative.



Strategic Objective 5 - Promote research and sustainable investment in new medicines, diagnostic tool, vaccines and other interventions: through measuring evaluable costs of HCAI/AMR, identifying research opportunities and working with key stakeholders to develop alternative disease treatment tools:

- Contributed to research projects e.g.
 - » A health technology assessment on point of care testing to guide antimicrobial prescribing in the community, published by HIQA in May 2019
 - » A study on the economic burden on HCAs/AMR, published by HRB-CICER in July 2021
 - » Initial impact of a national programme to contain the spread of carbapenemase-producing enterobacteriales in Ireland, published in Journal of Hospital Infection, March 2021

Appendix 4 Measures

	Target 2021	2021 Projected Out-Turn	Target 2022	Target 2023	Target 2024	Target 2025
Hospital acquired <i>Clostridium difficile</i> Infection: Rate of new cases of hospital associated <i>C. difficile</i> infection	<2 /10,000 bed days used	2.0	<2 /10,000 bed days used	<1.9 /10,000 bed days used	<1.8 /10,000 bed days used	<1.7 /10,000 bed days used
Hospital acquired <i>S. aureus</i> blood stream infection: Rate of new cases of hospital acquired <i>Staphylococcus aureus</i> bloodstream infection	<0.8 /10,000 bed days used	0.9	<0.8 /10,000 bed days used	<0.75 /10,000 bed days used	<0.7 /10,000 bed days used	<0.65 /10,000 bed days used
Community consumption of antibiotics : Consumption of antibiotics in community settings (defined daily doses per 1,000 population) per day based on wholesaler to community pharmacy sales – not prescription level data	<22		<22	<21.5 (2%)	<21.0 (4%)	20.5 (6%)
Acute consumption of antibiotics: Consumption of antibiotics in acute settings (defined daily doses per 100 bed days used) per day	78.1 DDD/100 bed days used (2019)		76.6 DDD/100 bed days used (2%)	75.1 DDD/100 bed days used (4%)	73.6 DDD/100 bed days used (6%)	72.1 DDD/100 bed days used (8%)
Compliance with surgical antibiotic prophylaxis duration position statement (as per the annual antimicrobial point prevalence study)	28% of surgical antibiotic prophylaxis prescriptions extended beyond 24 hours		26%	24%	22%	20%
General Practice prescription of antibiotics: General Practice antibiotics prescribed (and paid for by PCRS) were “red antibiotics”	34% “Red”		32% “Red”	30% “Red”	28% “Red”	26% “Red”
General Practice prescription of antibiotics: Consumption rate of antibiotics in general practice (paid for by PCRS)	Baseline in 2022 (issue 10 GP reports)		2% reduction on previous year			

Appendix 5 National Service Plan

The table below sets out the AMRIC key performance indicators (KPIs) in the HSE National Service Plan.

2021 AMRIC NSP Balance Score Card – KPIs

Key Performance Indicators	Reporting Period	NSP target 2021
Healthcare Associated Infections: Medication Management:		
Consumption of antibiotics in community settings (defined daily doses per 1,000 population) per day based on wholesaler to community pharmacy sales – not prescription level data	Q	<22
Healthcare Associated Infections (HCAI)		
Rate of new cases of hospital acquired. <i>Staphylococcus aureus</i> bloodstream infection	M	<0.8/10,000 bed days used
Rate of new cases of hospital associated <i>C. difficile</i> infection	M	<2/10,000 bed days used
No. of new cases of CPE	M	N/A
% of acute hospitals implementing the requirements for screening of patients with CPE guidelines	Q	100%
% of acute hospitals implementing the national policy on restricted anti-microbial agents	Q	100%
COVID-19		
Acute		
Rate of new hospital acquired COVID-19 cases in hospital inpatients	Q	New metric for 2021

Appendix 6 Methodology to development of HSE 2022-2025 AMRIC Action Plan

The methodology for the development and agreement of HSE 2022-2025 AMRIC Action Plan was as follows:

- A review of the status of all actions in the 2019-2021 AMRIC Implementation Plan was conducted (end of Q3 2021). This included identification of actions complete, on schedule or in exception reporting
- A desk top review was undertaken to identify key policy documents and reports for consideration and inclusion
- HSE AMRIC team members provided input to the draft actions
- Stakeholder consultations were conducted and 20 stakeholders were invited to review draft actions aligned to strategic objectives. This engagement took place in October 2021. Feedback from these consultations informed the final actions
- The AMRIC Oversight Group agreed the HSE 2022-2025 AMRIC Action Plan in early November 2021
- HSE EMT were informed of final draft in November 2021
- The document was finalised in advance of the publication and launched, along with iNAP2 in November 2021

To be compliant with COVID-19 restrictions and measures, stakeholder consultation and meetings were conducted remotely (see Appendix 7).

iNAP2 Workshops

The HSE AMRIC team attended 3 multidisciplinary DoH workshops on 23rd April/4th May/10th May 2021.

These included wide representation from across the AMRIC functions, including input from the Acute Services and Community Services AMRIC Implementation Leads.

Appendix 7 Stakeholders

The following key stakeholders were consulted to seek their input into relevant HSE actions in advance of publication.

Ref.	Stakeholder
1	Acute Operations
2	CCO
3	Communications
4	Community Operations
5	DoH
6	DoH – NCEC
7	Capital and Estates
8	HPSC
9	ICGP
10	IIOP
11	Infectious diseases
12	Microbiology
13	One Health Surveillance Group
14	ONMSD
15	Pathology Programme
16	Public Health
17	AMRIC Core Team
18	AMRIC Implementation Team
19	AMRIC Oversight
20	HSE EMT

Appendix 8 Membership of AMRIC Governance Groups

AMRIC Oversight Group - The membership is set out below:

- Dr. Colm Henry, Chief Clinical Officer (chair)
- Prof. Martin Cormican, Clinical Lead, AMRIC
- Dr. Lorraine Doherty, National Director, Health Protection
- Dr. Kevin Kelleher, Assistant National Director, Public Health
- Liam Woods, National Director, Acute Operations
- Yvonne O'Neill, National Director, Community Operations
- Dr. Siobhan Ni Bhriain, Lead Integrated Care, Office of Chief Clinical Officer
- Shirley Keane, Programme Manager, AMRIC
- Josephine Galway, Director of Nursing, AMRIC

AMRIC Implementation Team - The membership is set out below:

- Prof. Martin Cormican, Clinical Lead AMRIC (chair)
- Dr. Eimear Brannigan, Deputy Clinical Lead AMRIC
- Shirley Keane, Programme Manager, AMRIC
- Dr. Anne Sheahan, Public Health Specialist, AMRIC
- Marie Philbin, Chief Antimicrobial Pharmacist, AMRIC
- Surveillance Scientist (vacant), AMRIC
- Audrey Lambourn, Communications Lead, AMRIC
- Josephine Galway, Director of Nursing, AMRIC
- Donna McNena, Administrative Support, AMRIC
- Dr. Nuala O'Connor, GP Lead AMRIC (nomination from Irish College of General Practitioners)
- Margaret Brennan, Assistant National Director, Quality and Patient Safety, Acute Operations
- Therese Dalchan, General Manager, Antimicrobial Resistance and Infection Control Acute Operations
- JP Nolan, Head of Quality and Patient Safety, Community Operations
- Aileen O'Brien, General Manager, Antimicrobial Resistance and Infection Control Community Operations

AMRIC Team (Core Team) - The membership is set out below:

- Prof. Martin Cormican, Clinical Lead AMRIC (chair)
- Dr. Eimear Brannigan, Deputy Clinical Lead AMRIC
- Shirley Keane, Programme Manager, AMRIC
- Dr. Anne Sheahan, Public Health Specialist, AMRIC
- Marie Philbin, Chief Antimicrobial Pharmacist, AMRIC
- Ellen Martin, Antimicrobial Pharmacist, AMRIC
- Surveillance Scientist (vacant), AMRIC
- Audrey Lambourn, Communications Lead, AMRIC
- Josephine Galway, Director of Nursing, AMRIC
- Mary McKenna, Assistant Director of Nursing, AMRIC
- Eimear O'Donovan, Assistant Director of Nursing, AMRIC
- Donna McNena, Administrative Support, AMRIC
- Dr. Nuala O'Connor, GP Lead AMRIC (nomination from Irish College of General Practitioners)
- Dr. Edel Doorley, GP Lead AMRIC
- Dr. Paul Ryan, GP Lead AMRIC
- Deirdre Mullins, Project Manager, AMRIC
- Margaret Culliton, Project Manager, AMRIC

Appendix 9 eLearning courses published

Date Published	Course Name
December 2020	<ol style="list-style-type: none">1. AMRIC Introduction to Infection Prevention and Control and Antimicrobial Resistance2. AMRIC Aseptic Technique3. AMRIC Basics of Infection Prevention and Control4. AMRIC Hand Hygiene5. AMRIC Personal Protective Equipment6. AMRIC Respiratory Hygiene and Cough Etiquette7. AMRIC Standard and Transmission – Based Precautions8. AMRIC Surgical Antibiotic Prophylaxis
September 2021	<ol style="list-style-type: none">9. AMRIC prevention and management of Urinary Tract Infection10. AMRIC Antimicrobial Stewardship in Practice11. AMRIC Prevention Of Peripheral and Central Venous Cather Related Infections

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