The national agenda for Healthcare Associated Infection, Antimicrobial Resistance and Infection Prevention and Control in Scotland: Structures, current priorities and programmes

Jacqui Reilly¹ and Abigail Mullings²

How was national policy and coordination for HAI and IPC established and currently run in Scotland?

The Scottish Government (SG) HAI Policy Unit was established in 2001 and Health Protection Scotland (HPS) was commissioned at this time to establish national surveillance of HAI and a national Infection Prevention and Control (IPC) programme. An SG HAI Task Force policy group had oversight of this work chaired by the Chief Medical Officer (CMO) and Chief Nursing Officer (CNO). In 2015, the SG Task Force was reconfigured to become the Scottish Antimicrobial Resistance and Healthcare Associated Infection (SARHAI) Strategy Group and encompasses all HAI, AMR and IPC activity. This Strategy Group is chaired by the CNO.

HPS is the lead national organisation for HAI, AMR and IPC in Scotland. It has been delivering this work for SG since 2001 and does so in partnership with other national organisations such as National Education Scotland (NES), Healthcare Improvement Scotland (HIS—inclusive of the Scottish Patient Safety Programme (SPSP) and the Scottish Antimicrobial Prescribing Group [SAPG]) and the Scottish Microbiology and Virology Network (SMVN). In implementing the strategy, HPS works with the NHS boards (which are regional constructs of hospitals and other healthcare provision) in Scotland. This involves working in collaboration, via working groups and operational support, with those responsible for implementation of policy and national guidance locally inclusive of: HAI Executive Leads, Infection Control Managers, Infection Prevention and Control Nurses and Doctors, Antimicrobial Stewardship Pharmacists and Infectious Diseases physicians, Health Protection Nurses and Consultants in Public Health Medicine.

What is the current strategy?

The context for healthcare delivery is changing and it is important that we ensure we continue to develop a risk-based and proportionate approach for tackling AMR and

HAI which incorporates all care settings. Future AMR and HAI strategies require to be aligned to changing patient and population demographics, and the impact on healthcare provision and care pathways. With this mind, the Scottish Government recently (October 2016) published its 5 Year Strategic Framework (SGHSCD, 2016). The Strategic Framework, commissioned by the SARHAI Strategy Group, maps out our national AMR and HAI work streams over the next five years to realise the 2021 vision of preventing avoidable HAI, stopping spread and containing AMR. This commitment is made for the safety of patients, the public and all healthcare staff to make our hospitals and communities safer. It is the expectation of the SG that NHS Boards map their local AMR and HAI Delivery Plans to the national strategy.

What are the current national programmes?

HPS coordinates the national HAI prevention programmes in Scotland. These health protection programmes are outcome-focused and based on HAI of high risk, incidence and/or cost in Scotland determined by surveillance intelligence. Our priorities also take account of the requirements of member states under EU council recommendations, guidance from European Centre for Disease Control (ECDC) and the World Health Organization (WHO), the most recent of which, for all countries to consider, is the guidance from WHO on core components for IPC at the national and facility level (Storr et al., 2017).

¹Health Protection Scotland and Professor of Infection Prevention at Glasgow Caledonian University, UK

²CNO Directorate, Scottish Government

Corresponding author:

Jacqui Reilly, Lead Consultant for HAI, AMR and IPC at Health Protection Scotland and Professor of Infection Prevention at Glasgow Caledonian University, UK.

Email: jacquelineireilly@nhs.net

Current programmes include: Reducing *S. aureus*; Reducing Gram-negative bacteria; Multi-Drug Resistant Organisms acute care admission screening; Reducing *C. difficile* infection; Preventing surgical site infection; managing the built environment for IPC (encompassing water, ventilation and decontamination); national IPC guidance and outbreak preparedness; and containing AMR. In addition, HPS delivers of the Scottish Governments SARHAI portfolio of around 25 projects a year. Projects currently underway include: extension of the National IPC manual (HPS, 2017) to include disease-specific guidance in addition to Standard Infection Control Precautions (SICPs) and Transmission Based Precautions (TBPs); development of a competency Framework for Respiratory Protective Equipment (RPE) and enhanced Patient Protective Equipment (PPE); piloting of a national urinary catheter passport to reduce catheter associated urinary tract infection; and a new website will be launched on animal health as part of our CARS work bringing together IPC (biosecurity) measures and good prescribing practice in veterinary and farming practice.

Some of the key outputs from Scotland in recent years have included: the MRSA screening pathfinder study which changed national policy from universal to clinical risk assessment based (Reilly et al., 2012b); the NES cleanliness champions programme which was a large-scale introduction to IPC for all healthcare staff, with an uptake of 15,000 healthcare workers to date (NES, 2017), antimicrobial prescribing indicators (Malcolm et al., 2013) and the Controlling Antimicrobial Resistance in Scotland (CARS) programme (Anderson, 2015) which is establishing a one health approach to our future AMR work.

What next?

HAI are a big continuing public health threat and the burden is twice that of 32 other communicable diseases (Cassini et al., 2016). There are at least 50,000 HAI each year in Scottish acute hospitals alone at a cost of £168 million (Reilly et al., 2012a). Wherever healthcare is delivered, whether in hospital, home, long-term care or hospice facility, there is a risk that an individual may acquire an infection related to the care received. We need to ensure there is an integrated AMR and HAI approach between acute and other health and social care settings. It is incumbent upon the healthcare organisation and its professional staff members to recognise the risk and to use IPC measures to reduce this risk.

What originally brought success in reducing HAI, such as those caused by CDI and SAB, might not continue. Further, MDR in gram-negative bacteria is a major threat to public health and patient safety (Wilson et al., 2016). With changes in healthcare delivery models and systems, technologies, human factors and the threats from AMR, there is a continued requirement for IPC development. Current

national AMR and HAI guidance and surveillance methodologies require to be reviewed to determine their appropriateness for all non-acute settings. The learning from our work to date in the acute NHS settings should be deployed, where possible, to assist this; however, there is a need to ensure the additional work required for these settings is encompassed in our forward plans.

The Scottish point prevalence survey of all HAI in acute and non-acute hospitals will be published in May 2017 and this is an opportunity to check we have the right actions in place given the current epidemiology, AM prescribing practice and IPC indicator results. Previous Scottish PPS results were used to inform evidence-based decision-making for national policy priorities in the past and found to be very valuable (Reilly et al., 2009).

The AMR threat will have implications for future of ways of working, surveillance, screening and guidance and needs to be considered in a broader public health context. Tackling AMR requires new ways of working for us going forward, and in Scotland, like many other countries, we have adopted a one health approach, which requires the collaborative effort of multiple disciplines; working locally, nationally and globally, to attain optimal health for people, animals and our environment.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

References

- Anderson E. (2015) Resisting resistance: antimicrobial resistance and what can we do about it. *Journal of the Royal Environmental Health Institute of Scotland* 13: 2.
- Cassini A, Plachouras D, Eckmanns T, Abu Sin M, Blank HP, Ducomble T, Haller S, Harder T, Klingenberg A, Sixtensson M, Velasco E, Weiss B, Kramarz P, Monnet DL, Kretzschmar ME and Suetens C. (2016) Burden of six healthcare-associated infections on European population health: estimating incidence-based disability-adjusted life years through a population prevalence-based modelling study. *PLoS Medicine* 13: e1002150.
- HPS. (2017) *National IPC manual NHS Scotland*. Available at: <http://www.nipcm.hps.scot.nhs.uk/> (accessed: 2 June 2017).
- Malcolm W, Nathwani D, Davey P, Cromwell T, Patton A, Reilly J, Cairns S and Bennie M. (2013) From intermittent antibiotic point prevalence surveys to quality improvement: experience in Scottish hospitals. *Antimicrobial Resistance and Infection Control*, 2: 3.
- NES. (2017) Cleanliness champions. Available at: <http://www.nes.scot.nhs.uk/education-and-training/by-theme-initiative/healthcare-associated-infections/educational-programmes/cleanliness-champions.aspx> (accessed: 2 June 2017).
- Reilly J, Stewart S, Allardice G, Cairns S, Ritchie L and Bruce J. (2009) Evidence-based infection control planning using national healthcare

- associated infection (HAI) prevalence data. *Infection Control and Hospital Epidemiology* 30: 187–189.
- Reilly J, Cairns S, Fleming S, Hewitt D, Lawder R, Robertson C, Malcolm W, Nathwani D and Williams C. (2012a) Results from the second Scottish national prevalence survey: the changing epidemiology of HAI in Scotland. *Journal of Hospital Infection* 82: 170–174.
- Reilly J, Stewart S, Christie P, Allardice GM, Stari T, Matheson A, Masterton R, Gould IM and Williams C. (2012b) Universal screening for MRSA in acute care: risk factors and outcome from a multicentre study. *Journal of Hospital Infection* 80: 31–35.
- SGHSCD. (2016) *AMRHAI 5 Year Strategic Framework (2016–2021)*. Available at: <http://www.gov.scot/Topics/Health/Services/Preventing-Healthcare-Infections/SARHAI5YrStrategicFramework> (accessed: 2 June 2017).
- Storr J, Twyman A, Zingg W, Damani N, Kilpatrick C, Reilly J, Price L, Egger M, Grayson ML, Kelley E, Allegranzi B and WHO Guidelines Development Group. (2017) Core components for effective IPC programmes: new WHO evidence based recommendations. *Antimicrobial Resistance and Infection Control* 6: 6.
- Wilson APR, Livermore DM, Otter JA, Warren RE, Jenks P, Enoch DA, Newsholme W, Oppenheim B, Leonard A, McNulty C, Tanner G, Bennett S, Cann M, Bostock J, Collins E, Peckitt S, Ritchie L, Fry C and Hawkey P. (2016) Prevention and control of multi-drug-resistant Gram-negative bacteria: recommendations from a Joint Working Party. *Journal of Hospital Infection* 92: S1–S44.