Witness Name: Laura Imrie
Statement No.: M3/NHSNSS/04
Exhibits: L1/001 – LI/221
Dated: 14 February 2024

UK COVID-19 INQUIRY

WITNESS STATEMENT OF LAURA IMRIE, CLINICAL LEAD ANTIMICROBIAL RESISTANCE AND HEALTHCARE ASSOCIATED INFECTION (ARHAI) SCOTLAND

I, Laura Imrie, provide this statement as part of a suite of four statements in relation to a Rule 9 request issued to NHS National Services Scotland by Module 3 of the UK Covid Inquiry and will say as follows:-

1. I am the Clinical Lead for NHS Scotland Assure and Antimicrobial Resistance & Healthcare Associated Infection ("**ARHAI**") Scotland. I have held this position since 2018. My principal responsibilities consist of leading the development and implementation of appropriate ARHAI Scotland long-term business strategy and working with internal and external stakeholders to ensure ARHAI Scotland strategy delivers what is needed to reduce the burden of infection for the people of Scotland and links with the needs, priorities and policies of Scottish Government.

SUMMARY OF ARHAI SCOTLAND ANNUAL REPORTS PUBLISHED, 2021, 2022, 2023

2. A summary of the ARHAI Scotland Annual Reports for the years 2020, 2021 and 2022 are submitted with this statement. ARHAI Scotland published Annual Reports in 2021, 2022 and 2023. **M3/LI/001 - INQ000411029, M3/LI/002 - INQ000411030, M3/LI/003 - INQ000411031, M3/LI/004 - INQ000411032, M3/LI/005 - INQ000411033, M3/LI/006 - INQ000411034, M3/LI/007 - INQ000411035, M3/LI/008 - INQ000411036, M3/LI/009 - INQ000411037, M3/LI/010 - INQ000411038.**

3. A summary of the Annual Report published in 2021 is a follows:

- In 2020 ARHAI Scotland continued to review and develop guidance documents for the prevention and control of infection across all care settings, including those in response to COVID-19.

- The National Infection Prevention and Control Manual ("**NIPCM**") was further developed during 2020 and 2021 with the addition of an Infection Prevention and Control Manual for Older People and Adult Care Homes and COVID-19 Addenda for Acute Settings, Care Home Settings and Community Health and Care Settings.

- In response to COVID-19, ARHAI Scotland developed a new Outbreak Reporting Tool ("**ORT**") to collect and analyse COVID-19 cluster data and other Healthcare Infection Incident Assessment Tool ("**HIIAT**")

4. In relation to surveillance of Healthcare associated infection ("**HCAI**"):

- In 2020, there were 3,389 (2.6%) COVID-19 cases that were nosocomial (first positive COVID-19 sample taken on day 8 or more of a hospital in-patient stay). Rates of nosocomial infections throughout 2020 followed the waves of infection observed in the community.

- There has been a decrease in the annual incidence of Escherichia coli found in urine samples between 2019 and 2020.

- There has been an increase over the last four years in the annual incidence of healthcare associated Escherichia coli bacteraemias ("**ECB**"), whilst community has decreased.

- Annual incidence of Clostridioides difficile infection ("**CDI**") in healthcare has remained stable over the last 5 years, whilst community has decreased. The annual incidence of healthcare associated CDI increased between 2019 and 2020.

- Rates of annual incidence have remained stable over the last five years for Staphylococcus aureus bacteraemias ("**SAB**"). The annual incidence of healthcare associated SAB increased between 2019 and 2020.

- In 2020, 136 non COVID-19 healthcare outbreaks and incidents were reported, compared to 208 in the previous year.

5. The intelligence obtained from outbreaks, incidents, and surveillance systems is used to develop a knowledge base to better prevent, prepare for and control outbreaks; reduce nosocomial infections; and contain antimicrobial resistance ("**AMR**").

6. A summary of the Annual Report published in 2022 is as follows:

- During 2021 ARHAI Scotland continued to review and develop guidance documents for the prevention and control of infection across all care settings, including those in response to COVID-19.

- Development of a new chapter for the NIPCM commenced in 2021 which will cover infection prevention control ("**IPC**") in the built environment and decontamination. This Chapter will initially exist as a resource for evidence reviews and tools relating to IPC in the built environment including delivery of appropriate decontamination within health and care settings and risk mitigation for water-based pathogens.

- ARHAI Scotland provided IPC expertise to support the completion of eight major infrastructure project reviews. The reviews involve a multidisciplinary review of all evidence and documentation to ensure compliance with national guidance to reduce risk in the healthcare built environment.

- A Care Home IPC Manual was published in the NIPCM. The content of the Care Home Infection Prevention and Control Manual ("**CH IPCM**") is aligned to the evidence based NIPCM and is intended to be used by all those involved in care provision for all older people and adult care homes registered with the Care Inspectorate in Scotland.

- NHS Education for Scotland ("**NHS NES**") and ARHAI Scotland worked collaboratively to:

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  - facilitate the translation of evidence-based IPC guidance into robust educational outputs for health and social care staff across Scotland.

  - identify, develop and deliver learning and development opportunities for the specialist healthcare built environment workforce.

7. In relation to surveillance of HCAI:

- The annual incidence of healthcare associated Clostridioides difficile infection (CDI) and Staphylococcus aureus bacteraemias (SAB) have remained stable between

2020 and 2021, whereas the rate of healthcare associated Escherichia coli bacteraemias (ECB) decreased.

- The annual incidence of community associated CDI, SAB and ECB remained stable between 2020 and 2021.

- In 2021, there were 3,746 COVID-19 cases that were nosocomial (first positive COVID-19 sample taken on day eight or more of a hospital in-patient stay). Rates of nosocomial infections throughout 2020/21 followed the waves of infection observed in the community.

- In 2021, 118 non COVID-19 healthcare outbreaks and incidents were reported, compared to 136 in the previous year.

- Comprehensive data on antibiotic use and resistance to antibiotics in humans and animals was published in November 2022 in the annual Scottish One Health Antimicrobial Use and Antimicrobial Resistance ("**SONAAR**") report.

8. A summary of the Annual Report published in 2023 is as follows:

- ARHAI Scotland continued to adapt and respond to the next phase of the COVID-19 pandemic which included a relaunch of the National Infection Prevention and Control Manual, transitioning back to Standard Infection Control Precautions and Transmission Based Precautions.

- Chapter 4 of the NIPCM covering infection prevention and control (IPC) in the built environment and decontamination was launched. This Chapter is a repository for evidence reviews and tools to support reducing infection risk the built environment. A systematic literature review focusing on risk prevention and control of waterborne infection was commenced and will inform future guidance.

- The Care Home Infection Prevention and Control Manual (CH IPCM) was refreshed and republished and the content remains aligned with the evidence based NIPCM.

- NHS Education for Scotland (NES) and ARHAI Scotland worked collaboratively to:

    - facilitate the translation of evidence-based IPC guidance into robust educational resources including support to the relaunch of and transition

back to the NIPCM, development of key winter messages and delivery of a series of supporting webinars.

- o develop and deliver learning and development opportunities for the specialist healthcare built environment workforce.

9. During 2022, work began to revise the format of the Healthcare Infection Incident Assessment Tool. This work will continue in collaboration with key stakeholders throughout 2023.

10. ARHAI Scotland provided IPC support as part of the NHS Scotland Assure Assurance service. Fifteen Key Stage Assurance Reviews ("**KSARs**") were completed in 2022, enabling progression of design and construction of the healthcare built environment estate across NHSScotland.

11. In relation to surveillance of HCAI:

- The annual incidence of healthcare associated Clostridioides difficile infection (CDI) and Escherichia coli bacteraemia (ECB) have decreased between 2021 and 2022, whereas the rate of healthcare associated Staphylococcus aureus bacteraemia (SAB) remained stable.
- The annual incidence of hospital acquired CDI decreased between 2021 and 2022, whereas ECB and SAB remained stable between 2021 and 2022.
- The annual incidence of community associated CDI, SAB and ECB remained stable between 2021 and 2022.
- In 2022, 155 healthcare incidents and outbreaks were reported (excluding COVID-19 clusters and norovirus outbreaks).
- ARHAI Scotland will continue to develop epidemiological information on trends in antibiotic use and resistance. Data on antibiotic use and resistance to antibiotics in humans and animals was published in November 2023 in the annual Scottish One Health Antimicrobial Use and Antimicrobial Resistance (SONAAR) report.

ARHAI SCOTLAND

12. ARHAI Scotland is a clinical service providing national expertise for infection, prevention and control ("**IPC**"), antimicrobial resistance ("**AMR**") and healthcare associated infection ("**HAI**") for Scotland. ARHAI Scotland, along with Health Facilities Scotland ("**HFS**"), is part of NHSScotland Assure, which is a Directorate within NHS National Services Scotland ("**NSS**").

13. Our overall mission is to improve the health and wellbeing of the population by reducing the burden of infection and antimicrobial resistance within Scottish care settings. We do this by establishing a robust evidence base for practice and building mechanisms for monitoring key priority areas, connecting with the wider health and social care and public health systems and collaborating with key delivery partners including NHS Boards, care providers and other national bodies as commissioned by the Scottish Government.

14. We coordinate the national programmes for IPC and AMR and support local NHS Boards, other national bodies and stakeholders in the implementation and delivery of these key priority programmes to reduce the overall burden of infection and antimicrobial resistance within care settings in line with nationally agreed priorities.

15. We provide expert intelligence, support, advice, evidence-based guidance, clinical assurance and clinical leadership to local and national government, health and care professionals, the general public and other national bodies with the aim of protecting the people of Scotland from the burden of infection and antimicrobial resistance.

16. As the national organisation responsible for IPC and AMR, we liaise with other UK nations and international counterparts in the delivery and development of these national priority programmes.

17. The work of ARHAI Scotland is underpinned by delivering a wide range of functions, working with stakeholders across health and care and beyond to fulfil these functions:

- surveillance and monitoring of infections and antimicrobial resistance to assess their impact on health;
- clinical assurance to reduce risk in the built healthcare environment;
- co-ordination of national infection prevention and control and antimicrobial programmes;
- expert IPC/AMR advice and horizon scanning;

- effective preparation and response to HAI outbreaks and incidents;
- supporting the ongoing development of a confident, knowledgeable and competent IPC workforce in collaboration with NHS Education for Scotland ("**NES**");
- enabling good professional practice;
- research and innovation to provide evidence for action; and
- develop and maintain national evidence-based IPC guidance for Scotland.

18. ARHAI Scotland have not historically had a role in providing dedicated outbreak support or guidance outwith secondary care. As the COVID-19 pandemic progressed, almost all ARHAI programmed activity ceased, and all resource was diverted to the emergency pandemic response. During the pandemic ARHAI Scotland were required to provide advice and support to areas of work beyond the health and care sector. Examples include but are not limited to education settings, general prison settings (residential), social work, unpaid carers, retail, aviation, offshore oil rigs, justice system and the general public. In addition, significant resource was required to support the health and social care sector during outbreaks, development and implementation of guidance and creation of new surveillance systems for monitoring hospital onset and clusters of COVID-19. The new surveillance systems also included the development of an electronic outbreak reporting template which required ARHAI resource to support implementation across NHS Scotland.

GUIDANCE METHODOLOGY

19. ARHAI Scotland IPC guidance is published in the NIPCM. In the period from March 2020 until June 2022, the established methodology for producing the IPC guidance within the NIPCM was described in version 3.0 of the 'National Infection Prevention and Control Manual: Methodology' **M3/LI/011 – INQ000411088**. The current version (at time of writing) of the NIPCM development methodology can be found within the published NIPCM **M3/LI/012 – INQ000410951**.

20. ARHAI Scotland IPC guidance is evidence-based, which means a systematic literature review is undertaken to inform the development of evidence-based recommendations for practice.

21. Recommendations from the literature review are translated into practice statements in the NIPCM. Guidance within the NIPCM undergoes scheduled updates informed by the emerging evidence. Stakeholder engagement is carried out throughout the process.

22. Prior to the COVID-19 pandemic, the process of producing and/or updating IPC guidance in the NIPCM from start to finish took a minimum of 6 months. This, coupled with the availability of robust published evidence on this emerging pathogen prevented the established methodology being applied to the development of COVID-19 guidance which was required at speed and required constant updates according to the situation as it was emerging. Guidance production during the pandemic was undertaken at a much faster pace compared to Business As Usual (BAU) and timelines varied depending on the content of the guidance or associated update and the source of the content which may have required review of literature, and/or engagement with subject matter experts and/or analysis of Scottish Government Directors Letters. The development of the first COVID-19 addendum for acute settings took approximately 7 weeks.

23. Much of the COVID-19 guidance developed could be formulated using existing IPC principles already outlined in the NIPCM. The NIPCM does not routinely provide organism specific guidance. In developing COVID-19 specific guidance, much of the evidence base used to inform chapters 1 and 2 of the NIPCM were used including hand hygiene, respiratory and cough etiquette, safe management of care equipment and the environment, safe management of linen, safe management of blood and body fluids and safe disposal of waste.

24. Chapter 1 of the NIPCM details Standard Infection Prevention and Control Precautions (SICPs). SICPs apply to all staff, in all care settings, at all times, for all patients whether infection is known to be present or not. This chapter was published in 2012 and SICPs were reinforced throughout the COVID-19 pandemic **M3/LI/013 – INQ000413472.**

25. Chapter 2 of the NIPCM details Transmission Based Precautions (TBPs) **M3/LI/014 – INQ000413473**. TBPs are additional precautions used by staff when caring for patients or individuals with a known or suspected infection or colonisation. TBPs are based on:

- suspected or known infectious agent,
- transmission route of the infectious agent,
- the care setting and procedures to be undertaken and

- severity of illness caused.

26. ARHAI Scotland generated a monthly rapid review specific to COVID-19. Although this was not commissioned for the purpose of guidance development, it helped inform decision making. The rapid review first published on 19th March 2020 **M3/LI/015 - INQ000413471** examined the evidence base pertaining to IPC measures required for the prevention and management of COVID-19 in health and care settings. The main objectives of the review were to understand transmission routes of COVID-19 and PPE requirements. The contents list included the following:

- Epidemiology
    - Transmission routes
    - Nosocomial transmission
- Personal Protective Equipment
    - Evidence for mask type
    - Face masks for source control
    - Face masks for protection
    - UK PPE guidance
    - Areas for further research

27. The Covid-19 IPC guidance was informed by multiple intelligence including national and international epidemiological data, the Scottish Covid-19 Nosocomial Review Group ("**CNRG**"), policy decisions from Scottish and UK government, and stakeholder engagement. The epidemiologic data used include:

- The National Hospital Onset COVID Surveillance system which ARHAI Scotland developed at pace during 2020. This system monitored nosocomial COVID-19 infections (based on those presenting 8 days or more after admission to hospital). These publicly available reports included data for validated probable and definite hospital onset COVID-19 cases in Scotland from week ending 01 March 2020 to

week ending 05 February 2023. Definitions for this system were agreed at a UK level and similar reports from the other UK countries were also reviewed.

- NHS Boards in Scotland also reported COVID clusters within hospital settings through COVID cluster reporting system.

- ARHAI members were members of PHS National Incident Management meetings and reviewed PHS data sources where context of nosocomial infection was included. ARHAI do not have access to all the PHS data or reports and further information relating to PHS data should be directed to PHS.

- ARHAI had several representatives as members of the CNRG. Through this group international intelligence from available literature and presentations by international colleagues invited to attend meetings.

28. A timeline running from December 2019 until December 2021 **M3/LI/016 - INQ000413554** contains key dates split between Evidence and Guidance, Epidemiology and Intelligence and Education. Additionally, the following table contains details of where policy influenced changes to IPC COVID-19 guidance.

Policy decisions / changes to content

29. Scottish COVID-19 IPC Addendum for Acute Healthcare Settings (version 1.0 published 26 October 2020)

Date	Version	Change made	Reason for change
20 November 2020	V1.3	Addition of section on car sharing	Reference to Scottish Government Car Sharing Guidance but this no longer on the Scottish Government website
		Addition of section on visiting	'The Scottish Government have produced guidance to support the safe reintroduction of visitors into hospital settings and NHS boards should familiarise themselves with the content to ensure patient, staff and visitor safety'
9 December 2020	V1.4	New section on PPE for vaccinations	In response to COVID Vaccination CMO letter on 5 December 2020 **M3/LI/017 - INQ000480771** https://www.sehd.scot.nhs.uk/cmo/CMO(2020)33.pdf

Date	Version	Change made	Reason for change
17 December 2020	V1.5	New section on Whole Genome Sequencing (WGS)	Public Health Scotland **M3/LI/018 - INQ000413475** https://hpspubsrepo.blob.core.windows.net/hps-website/nss/3136/documents/1_sars-cov-2-user-manual.pdf
		New section on COVID-19 testing	SIGN Guidance for Reducing the risk of postoperative mortality due to COVID-19 in patients undergoing elective surgery **M3/LI/019 - INQ000365738** and RCPHC National guidance for the restoration and recovery of elective surgery in children. **M3/LI/020 - INQ000413476**
23 December 2020	V1.6	Inclusion of Scottish Government link to asymptomatic staff testing information	DL (2020) 32; 9 December 2020 Publication of interim guidance on expansion of twice weekly testing for patient facing healthcare workers https://www.sehd.scot.nhs.uk/dl/DL(2020)32.pdf **M3/LI/021 - INQ000413478**
22 January 2021	V1.7	New section for the discontinuation of infection control precautions and discharging COVID-19 patients from hospital	DL (2021)06; 22 January 2021 Promoting partnership – support for care homes and delayed discharge winter 2021. https://www.sehd.scot.nhs.uk/dl/DL(2021)06.pdf **M3/LI/022 - INQ000413477**
30 August 2021	V2.6	Update to physical distancing	'Having considered recommendations made by the COVID-19 Nosocomial Review Group (CNRG), the various Scottish IPC COVID-19 addenda on physical distancing in Health and Social Care have been reviewed and updated by NSS NHS Antimicrobial Resistance Hospital Associated Infection (ARHAI) and Public Health Scotland.' https://www.sehd.scot.nhs.uk/dl/DL(2021)28.pdf **M3/LI/023 - INQ000413479**

30. Winter (21/22) Respiratory Infections in Health and Care settings IPC Addendum (Version 1.0 Published 29 November 2021)

Date	Version	Change made	Reason for change
1 April 2022	V1.6	Changes to patient testing requirements including Hospital Testing Table Inclusion of the wider use of Rapid Diagnostic Testing (including POCT) or LFD testing Changes to management of contacts including inclusion of 28 day contact exemption Changes to respiratory screening questions Changes to testing requirement pre AGP on the non respiratory pathway Withdrawal of car sharing guidance Removal of physical distancing guidance Please note: the above changes within version 1.6 are not applicable in care homes, prisons and social community and residential care settings at the time of version update; Extant guidance remains in place for these settings.	DL (2022) 07; 31 March 2022. De-escalation of COVID-19 infection prevention and control (IPC) measures in health and social care settings to alleviate system pressure. https://www.sehd.scot.nhs.uk/dl/DL(2022)07.pdf **M3/LI/024 - INQ000413480**

31. Any changes or version updates to COVID-19 guidance were approved by Scottish Government and/or CNRG and although limited, consultation with stakeholders was sought.

32. The UKIPC Cell was co-ordinated by NHS England and was attended by the devolved nations; NHSE/I, Public Health Wales and Public Health Agency (Northern Ireland). There was also IPC representation from UKHSA (formally PHE), Department for Health and Social Care ("**DHSC**") and the Ambulance service. The UKIPC cell met weekly, or more frequently where required, and therefore engagement by ARHAI Scotland with the member organisations was significant.

33. The UK Four Nations Healthcare Associated Infection ("**HCAI**") and Antimicrobial Resistance ("**AMR**") Surveillance Group was an extant group prior to the pandemic with representation from England and the three devolved administrations.

34. ARHAI Scotland also collaborated with Public Health Scotland ("**PHS**") and Scottish Government to develop key pieces of guidance, data reports, laboratory and testing issues and communications. Below are examples of key COVID-19 guidance documents developed by the Scottish Government and PHS to which support was provided:

- Guidance on the extended use of facemasks in hospitals and care homes Scottish Government COVID-19: interim guidance on the wider use of face masks and face coverings in health and social care (scot.nhs.uk) **M3/LI/025 - INQ000413482.**

- Social Community and residential care settings – PHS COVID-19 - information and guidance for social, community and residential care settings - version 2.8 - COVID-19 - information and guidance for social, community, and residential care settings - Publications - Public Health Scotland **M3/LI/026 - INQ000413494, M3/LI/027 - INQ000413495, M3/LI/028 - INQ000413496, M3/LI/029 - INQ000413497, M3/LI/030 - INQ000413498, M3/LI/031 - INQ000413499, M3/LI/032 - INQ000413500, M3/LI/033 - INQ000413501, M3/LI/034 - INQ000413502, M3/LI/035 - INQ000413503, M3/LI/036 - INQ000413504, M3/LI/037 - INQ000413505, M3/LI/038 - INQ000413506, M3/LI/039 - INQ000413507, M3/LI/040 - INQ000413508, M3/LI/041 - INQ000413509, M3/LI/042 - INQ000413510, M3/LI/043 - INQ000413511, M3/LI/044 - INQ000413512, M3/LI/045 - INQ000413513, M3/LI/046 - INQ000413514, M3/LI/047 - INQ000413515, M3/LI/048 - INQ000413516, M3/LI/049 - INQ000413517, M3/LI/050 - INQ000413518, M3/LI/051 - INQ000413519, M3/LI/052 - INQ000413520, M3/LI/053 - INQ000413521, M3/LI/054 - INQ000413522, M3/LI/055 - INQ000413523, M3/LI/056 - INQ000413524, M3/LI/057 - INQ000413525, M3/LI/058 - INQ000413526,**

M3/LI/059 - INQ000413527, M3/LI/060 - INQ000413528, M3/LI/061 - INQ000413529, M3/LI/062 - INQ000413530, M3/LI/063 - INQ000413531, M3/LI/064 - INQ000413532, M3/LI/065 - INQ000413533, M3/LI/066 - INQ000413534, M3/LI/067 - INQ000413535, M3/LI/068 - INQ000413536, M3/LI/069 - INQ000413537, M3/LI/070 - INQ000413538, M3/LI/071 - INQ000413539, M3/LI/072 - INQ000413540, M3/LI/073 - INQ000413541, M3/LI/074 - INQ000413542, M3/LI/075 - INQ000413543, M3/LI/076 - INQ000413544, M3/LI/077 - INQ000413545, M3/LI/078 - INQ000413546, M3/LI/079 - INQ000413547, M3/LI/080 - INQ000413548, M3/LI/081 - INQ000413549, M3/LI/082 - INQ000413550, M3/LI/083 - INQ000413551, M3/LI/084 - INQ000413552, M3/LI/085 - INQ000413553.

- Hospital visiting – Scottish Government: Hospital visiting: guidance for health boards - gov.scot (www.gov.scot) **M3/LI/086 - INQ000413485, M3/LI/087 - INQ000413486, M3/LI/088 - INQ000413487, M3/LI/089 - INQ000413488, M3/LI/090 - INQ000413489, M3/LI/091 - INQ000413490, M3/LI/092 - INQ000413491, M3/LI/093 - INQ000413492.**

- Car sharing guidance – Scottish Government New measures to drive down infection rate - gov.scot (www.gov.scot) **M3/LI/094 - INQ000369719.**

35. As part of Scottish Government Chief Nursing Officer COVID Nosocomial Review Group (CNRG), ARHAI Scotland sought advice from other agencies e.g. Health and Safety Executive and Occupational Health Services. The communications with these organisations helped inform guidance content rather than produce collaborative output. ARHAI were members of CNRG and offered findings from evidence relating to IPC matters and a view based on the context of Scottish epidemiology. Decision making was the responsibility of CNRG as a whole. **M3/LI/095 - INQ000413481.**

36. Collaboration with the member organisations of the UKIPC Cell is documented in the groups Terms of Reference **M3/LI/096 - INQ000413483** and included:

- Advising on and supporting development of COVID-19 IPC guidance published on gov.uk by DHSC and disseminated as appropriate by the members. ARHAI were members of the UK IPC cell and shared any evidence relevant to IPC, views on IPC matters in the context of Scottish epidemiology and lessons learned and feedback

from Scottish stakeholders. ARHAI also offered feedback on draft guidance prior to publication. Decision making was typically by consensus however the governance route for adoption of any agreed guidance in Scotland was via CNRG.

- Provision of advice and support in relation to the UK COVID-19 IPC guidance including those received from stakeholders across the UK.

- Receiving and reviewing recommendations/outputs from the SAGE and SAGE subgroups, the 4 nations nosocomial working groups and other expert groups e.g. New and Emerging Respiratory Threats Advisory Group ("**NERVTAG**") and Independent AGP panel and making recommendations for inclusion in operational UK COVID-19 IPC guidance, as appropriate.

- Reviewing both national and international guidance and published literature and considering reviews of evidence undertaken by other organisations, for example SAGE, PHE, NERVTAG, ARHAI, NHS England, NHS Improvement to assess whether the learning and scientific evidence base that can be used to inform improvements in IPC practice; specifically, the prevention of transmission and management of COVID-19 in health and care settings.

- Assessing and agreeing the content of any supporting resources/tools to assist with the implementation of the UK COVID-19 guidance to support implementation across the NHS, NHS commissioned services and other health/ care service providers. Agreement on content was typically by consensus amongst UK IPC cell members. Tools included: the sample triage tool and posters /tables detailing PPE requirements in pathways.**M3/LI/097 - INQ000413484.**

- Provision of advice on IPC measures in relation to COVID-19 to specialist associations e.g., British Association of Perinatal Medicine (BAPM), Renal Association, when requested to support operational guidance to assist with implementation of UK COVID-19 IPC guidance is received. The UKIPC Cell do not hold responsibility for the publication/overall content or updates made to external guidance documents, however the cell can endorse the IPC content following consensus agreement by the UKIPC Cell. The UK IPC guidance was not intended to be speciality or setting specific. It was necessary for local boards, trusts, care settings and specialist associations to apply the generic guidance to each setting.

This led to enquiries which sought clarity on aspects of local operationalisation. ARHAI Scotland had no direct engagement with specialist associations such as BAPM or the Renal Association. This was undertaken by the chair of the UK IPC cell who would approach the wider members where further discussion was required.

37. The extant UK Four Nations Healthcare Associated Infection HCAI and AMR Surveillance Group was set up to discuss methods of surveillance for HCAI and AMR and has a focus on mutual collaboration and sharing of the experiences of national surveillance centres. The purpose of the group is to focus on areas of potential alignment. During the pandemic, nosocomial COVID-19 was a standing item and COVID-19 focused meetings were held. The group developed the UK-wide case definitions for nosocomial/hospital onset COVID-19 and shared experiences in development of surveillance systems for monitoring hospital onset COVID-19.

38. As identified, ARHAI Scotland were members of the PHS COVID-19 Cell Leads and PHS COVID-19 Guidance cell. As members of the PHS Cell Leads, ARHAI Scotland provided support on matters such as:

- Advice relating to general IPC measures within and outwith healthcare.
- Responses to SG policy units where content included IPC.
- Provision of daily nosocomial COVID-19 data.
- Feedback on lessons learned extracted from nosocomial outbreak data.
- Local Incident Management Team ("**IMT**") non healthcare setting support when invited by PHS.

39. ARHAI Scotland were also members of a number of groups led by PHS which focussed on laboratory issues, testing and the development of the whole genome sequencing for SARS-CoV-2.

40. As members of the PHS Guidance Cell, ARHAI Scotland provided:

- IPC content for the PHS COVID-19 guidance. ARHAI Scotland were members of the guidance cell and contributed to the development of guidance. Decisions relating to the content of the guidance were not taken at the guidance cell.

- The guidance cell met daily (Monday to Friday) and communicated throughout the day to ensure timely production of guidance documents. Frequency of meetings were reduced towards the latter stages of the pandemic.

- Input to development of tools and resources to support guidance. ARHAI would review tools such as posters or checklists for accuracy of IPC content including any omissions and would ensure alignment with ARHAI Scotland COVID-19 IPC guidance documents and the NIPCM. Examples of this are assessing staff contacts in health and care settings and key messages in the workplace posters.

- Responses to enquiries relating to the guidance from external stakeholders, organisations, members of the public and Scottish Government. Typically, enquiries would seek to understand the content of the IPC guidance, the evidence used to inform the guidance and how it should be applied in specific settings. All responses aimed to answer these queries as best as possible noting that guidance produced was largely generic and not specific to settings ad situations.

41. ARHAI Scotland worked closely with Scottish Government to provide:

- Guidance support: Scottish Government produced a suite of COVID-19 guidance some of which contained IPC content ARHAI Scotland would review to ensure alignment with UK IPC guidance, NIPCM COVID-19 addenda and outputs from the COVID-19 Chief Nursing Officer CNRG.

- Receiving, analysing and communicating NHS Board COVID-19 Data and Intelligence; daily COVID-19 nosocomial data was collated and reported including lessons learned.

- Input to stakeholder communications relating to pandemic matters.

- Help to support responses to enquiries, complaints and FOI requests.

42. During the pandemic ARHAI Scotland supported guidance development when requested by other organisations such as PHS and Scottish Government and where IPC content was required. ARHAI Scotland held no responsibility for the methodology used for development of guidance externally however IPC content provided by ARHAI Scotland reflected our own COVID-19 guidance or guidance within the NIPCM. The ARHAI Scotland IPC evidence base

is specific to healthcare. Advice and guidance content for PHS non healthcare settings guidance would be discussed with PHS to produce advice best suited to the setting/context.

43. ARHAI Scotland published all IPC content within the COVID-19 addenda of which there were 3:

- Acute **M3/LI/098 - INQ000410952**, **M3/LI/099 - INQ000410953, M3/LI/100 - INQ000410954, M3/LI/101 - INQ000410955, M3/LI/102 - INQ000410956, M3/LI/103 - INQ000410957, M3/LI/104 - INQ000322610, M3/LI/105 - INQ000410959, M3/LI/106 - INQ000410960, M3/LI/107 - INQ000410961, M3/LI/108 - INQ000410962, M3/LI/109 - INQ000410963, M3/LI/110 - INQ000410964, M3/LI/111 - INQ000410965, M3/LI/112 - INQ000410966, M3/LI/113 - INQ000410967, M3/LI/114 - INQ000410968, M3/LI/115 - INQ000410969.**

- Community **M3/LI/116 – INQ000410970**, **M3/LI/116 - INQ000410970, M3/LI/117 - INQ000410971, M3/LI/118 - INQ000410972, M3/LI/119 - INQ000410973, M3/LI/120 - INQ000410974, M3/LI/121 - INQ000410975, M3/LI/122 - INQ000410976, M3/LI/123 - INQ000410977.**

- Care home **M3/LI/124 – INQ000410978**, **M3/LI/125 - INQ000410979, M3/LI/126 - INQ000410980, M3/LI/127 - INQ000410981, M3/LI/128 - INQ000410982, M3/LI/129 - INQ000410983**

44. The Winter Respiratory Infection IPC Addendum **M3/LI/130 - INQ000410984, M3/LI/131 - INQ000410985, M3/LI/132 - INQ000410986, M3/LI/133 - INQ000410987, M3/LI/134 - INQ000410988, M3/LI/135 - INQ000410989, M3/LI/136 - INQ000410990, M3/LI/137 - INQ000410991, M3/LI/138 - INQ000410992, M3/LI/139 - INQ000410993** replaced the COVID-19 addenda on 29 November 2021. This was then later superseded by COVID-19 appendices within the NIPCM:

- Appendix 21 - COVID-19 Pandemic controls for Acute Settings including Scottish Ambulance Service **M3/LI/140 - INQ000410994, M3/LI/141 - INQ000410995, M3/LI/142 - INQ000410996, M3/LI/143 - INQ000410997, M3/LI/144 - INQ000410998, M3/LI/145 - INQ000410999, M3/LI/146 - INQ000411000, M3/LI/147 - INQ000411001, M3/LI/148 - INQ000411002, M3/LI/149 - INQ000411003**

- Appendix 22 - Community Infection Prevention and Control COVID-19 Pandemic **M3/LI/150 - INQ000411004, M3/LI/151 - INQ000411005, M3/LI/152 - INQ000411006, M3/LI/153 - INQ000411007, M3/LI/154 - INQ000411009**

- Appendix 21 - COVID-19 Pandemic controls for health and care settings **M3/LI/155 - INQ000411010, M3/LI/156 - INQ000411011, M3/LI/157 - INQ000411012**

45. Hospital Testing Tables **M3/LI/158 - INQ000411013, M3/LI/159 - INQ000411014, M3/LI/160 - INQ000411015, M3/LI/161 - INQ000411016, M3/LI/162 - INQ000411017, M3/LI/163 - INQ000411018, M3/LI/164 - INQ000411019, M3/LI/165 - INQ000411020, M3/LI/166 - INQ000349067, M3/LI/167 - INQ000411022, M3/LI/168 - INQ000411023, M3/LI/169 - INQ000411024, M3/LI/170 - INQ000411025, M3/LI/171 - INQ000411026, M3/LI/172 - INQ000411027, M3/LI/173 - INQ000411028**

46. Dissemination of IPC Guidance took place via several routes and was determined by the addendum to which the update/change had been made.

47. For the Acute COVID-19 addendum ARHAI Scotland held a weekly COVID-19 support group meeting which was well attended. The first ICM Incident support meeting was on 28th January 2020. The last meeting was held on 22nd November 2022. Meetings were held weekly, with occasional ad hoc meetings where urgent discussion was required. Members included:

- Board Infection Prevention and Control Managers and/or a deputy

- Board IPC senior nurses

- Representatives from NHS NES

- Representatives from the Scottish Government HCAI and AMR Policy Unit

- Health Protection Nurses ("**HPNs**")

48. Guidance updates were communicated at every COVID-19 support group meeting in full including the rationale for the update. This meeting allowed members to highlight where re-wording or clarity was required on any aspect of the guidance. ARHAI Scotland had the ability to make quick updates and additions to provide the clarity or information required by stakeholders. An email communication would be issued to the full group the same day of any

update or changes being made. Version control was published within each addendum to ensure clarity regarding content updated and dates of upload.

49. An update to the 'local news' section of the NIPCM was added for each update. ARHAI Scotland attended the PHS guidance cell meeting daily where all updates and changes were reported. Wherever possible, notice of changes would be provided to allow PHS owned guidance to be reviewed for alignment.

50. ARHAI Scotland attended the PHS daily cell leads meetings where updates or changes to guidance were communicated to members.

51. The Chief Nursing Officer CNRG met regularly and proposed updates or changes to guidance were discussed with members.

52. For the Care home and community addenda updates were predominantly disseminated to Health and Social Care ("**HSC**") via the Scottish Government led Care Homes Clinical and Professional Advisory Group ("**CPAG**") with onwards cascade to relevant stakeholders via members of the Group. Verbal updates were also provided to CPAG frequently as ARHAI Scotland were members.

53. As ARHAI Scotland do not have a formal Scottish Government mandate for HSC and therefore do not hold a national HSC contacts database for these settings, the Care Inspectorate (who were also members of CPAG) supported IPC guidance dissemination via their processes for information dissemination including publishing updates (with relevant hyperlinks) on their national website.

54. IPC Guidance was also disseminated via the Scottish Government led national groups including the Pandemic Response in Adult Social Care Group ("**PRASCG**"); the National Clinical Guidance for Nursing and AHP Community Health Staff; Justice Clinical and Professional Advisory Group and the National IPC Subgroup. Verbal updates were provided to these groups as ARHAI Scotland were members.

55. ARHAI Scotland supported the delivery of a series of IPC Care Home national webinars. These webinars were coordinated by the Scottish Government Healthcare Associated Infection Policy Unit and delivered in conjunction with the Care Inspectorate.

56. The following is the list of national groups, professional networks, national stakeholder organisations and local stakeholders who ARHAI Scotland disseminated IPC guidance to and who thereafter cascaded this information across the HSC sector:

The Scottish Government led National Pandemic Groups:

- The Scottish Government led Care Homes Clinical and Professional Advisory Group (CPAG)
- The Scottish Government led Pandemic Response in Adult Social Care Group (PRASCG)
- The Scottish Government led National Clinical Guidance for Nursing and AHP Community Health Staff during COVID-19 Pandemic
- The Scottish Government led Justice Clinical and Professional Advisory Group (CPAG)
- The Scottish Government led IPC Subgroup

National Partner Organisations:

- The Care Inspectorate
- The Scottish Social Services Council
- NHS NES

NHS Board Professional Networks:

- Weekly NHS Board Infection Control Managers Meetings
- NHS Board Health Protection Nurses Network (also invited to attend the above weekly meetings)
- The Scottish Hospice Network
- The National Prison Network
- NHS Board Consultant in Public Health Network

HOSPITAL ONSET COVID 19 REPORTS

57. A key function of ARHAI Scotland is to undertake surveillance of healthcare associated infections of importance. In response to the increasing number of COVID-19 cases in hospital and the risk of transmission, planning for a COVID-19 Hospital Onset ("**HO**") surveillance system commenced in conjunction with the existing UK Four Nations Surveillance Group.

58. A system for monitoring COVID-19 is critical to tracking hospital transmission and informed development of IPC measures during the pandemic.

59. On 15 May 2020 the UK 4 Nations Surveillance Group reached agreement on case definitions for HO reporting. This followed approval from NHS England and SAGE Hospital Working Group.

60. The dataset includes patients who tested positive for SARS-CoV-2 during an inpatient stay in hospital. The cases were categorised as community onset, non-HO, indeterminate hospital onset, probable hospital onset, definite HO. The cases include patients with and without symptoms of COVID-19. Probable and definite HO cases are considered to be nosocomial cases.

61. Development of data linkage and data validation methods was completed by early June 2020. On the 9 June 2020 the Cabinet Secretary announced that HO data would be published imminently.

62. Implementation of the HO system validation process commenced on 16 June 2020.

63. The First weekly report was published on 1 July 2020 for the period 1 March 2020 to 7 June 2020. **M3/LI/174 - INQ000411039**

64. Publication Metadata of the weekly reports provides details of the methodology; data sources; concepts and case definitions; accuracy, and completeness and comparability. The final publication metadata can be found on page 13 of **M3/LI/175 - INQ000411040**.

65. Due to the cessation of almost all population testing for SARS-CoV-2 at the end of April 2022, the inclusion of community onset cases in this report was discontinued in May 2022.

66. Following the pausing of almost all routine asymptomatic testing in hospitals at the end of September 2022, the inclusion of non-HO and indeterminate HO cases (cases where first specimen of COVID-19 episode taken on days one to seven of an inpatient stay) was discontinued.

67. There were some recurring issues and themes. Based on the data, the cases of HO COVID-19, across all 4 categories, increased and decreased in line with the increasing and decreasing trends in the wider community. This highlighted that community transmission and transmission in hospitals are inextricably linked. There was variation in the incidence of HO COVID-19 across health boards. NHS Boards with high level of community transmission often had higher levels of transmission in hospital.

68. During the pandemic, the incidence of nosocomial COVID-19 was impacted by multiple complex factors across both the healthcare system and wider community. This resulted in variation in the incidence at NHS Board level and over time. These factors include availability of testing; national testing policies; implementation of the COVID-19 vaccine; changes to IPC guidance; community prevalence; public health measures in the wider population; healthcare delivery and activity; and the inpatient population. Furthermore, there is wide variation in the geography of Scotland where the population live in settlements ranging from those classified as very remote rural areas to large urban areas. Population density is an important contributory factor for transmission of SARS-CoV-2 in the community with resultant introduction to healthcare settings.

69. Healthcare delivery and the inpatient population significantly changed throughout the pandemic and the impact of this likely varied by NHS Board. These further confounding factors resulted in challenges in the interpretation of variation in the incidence of nosocomial COVID-19, both over time and between NHS Boards. Data relating to ethnicity and inequality were not accessed/available to consider the impact of these factors in the incidence of nosocomial COVID-19, although any relationship would also be confounded by all of the other complex factors noted previously.

PPE

70. There were no concerns noted by ARHAI Scotland as at 1 March 2020 relating to the adequacy of PPE. ARHAI Scotland hold no remit or responsibility for setting or monitoring these standards. Reference to the standards and requirements to meet these have been

included and considered in ARHAI Scotland PPE literature reviews including those published pre pandemic.

EQUALITIES

71. An Equality Impact Assessment is completed by the National Policy, guidance and Evidence programme which holds responsibility for the publication of the National Infection Prevention and Control Manual (NIPCM) **M3/LI/176- INQ000411041, M3/LI/177 - INQ000411042, M3/LI/178 - INQ000411043, M3/LI/179 - INQ000411044.**

72. Over the course of the pandemic stakeholders identified the use of enhanced of masks as a barrier for communication within some patient cohorts. ARHAI Scotland worked with National Procurement and private industry in developing a clear mask to overcome some of these barriers.

73. ARHAI were involved as a member of the National Clinical Advisory Panel (CAP). On the 26 June 2020 the transparent mask requirement was noted on the agenda and discussed for possible use in NHS Scotland. ARHAI provided the minimum specification of PPE and PPE guidance, 4 transparent masks were reviewed as part of this work:

- Breatheasy was not deemed medical grade.
- Clear Mask not Fluid Resistant Surgical Mask (FRSM).
- Breathe Easy Type IIR – couldn't get CE marking approved.
- Alpha Solway – successful approval in Scotland and by the UK review panel.

Barriers to development

- No medical grade transparent masks were available on the market.
- There was no standard available for manufacturers to develop a mask of this type to.
- There did not appear to be a priority for major manufacturers as FRSM and FFP3 supply was the priority. Therefore, many developers were not experienced in PPE manufacturing.

- User acceptability – difficulty for any product to go through rigorous testing due to the clinical need for the product during the pandemic.

- Availability of all stakeholders especially clinical staff who would be needed to participate in the development of a transparent mask and testing or possible pilot studies due to clinical pressures during the pandemic.

ARHAI'S Role

74. ARHAI supported this work by:

- Providing a minimum specification for PPE to the Scottish National PPE CAP group in the absence of a national standard for transparent masks (until published 1 April 2021).

- Provided IPC guidance in line with the National Infection Prevention and Control manual (NIPCM) for PPE groups involved in the development of the masks.

- Regular attendance at all Scottish and UK PPE groups to ensure IPC risks are identified and that any prototypes met the agreed standards (as defined by Scottish Clinical PPE Oversight group in advance of published standard).

- Regular engagement with NHS NSS National Procurement (NP) colleagues regarding potential products and initial review of products in advance of presentation at national PPE groups.

- Development of guidance for boards prioritisation of users for the transparent masks when available. It was accepted that initial supplies of masks would be limited and that boards should prioritise patient groups and staff members who would benefit most from the use of a transparent mask.

- Drafting of communications for announcement of the new standard and for final approval of product for use across NHS Scotland.

- Promotion of transparent masks available for health and social care settings. This was carried out using e-mail notification across health and social care sectors.

- Development of a poster promoting the collaborative work of the PPE groups within Scotland and the UK and the benefits of a transparent mask.

Governance

- The Alpha Solway mask was presented to the UK PPE Decision Making Group via NP 28 May 2021.
- Approval was given by the UK PPE Decision Making Group against standard (but not for release) on 23 November 2021.
- Approval was given by Scottish Government for use in Scotland on 25 November 2021.

75. The UK PPE Decision Making Group provided approval of Alpha Solway transparent mask for use on 1 December 2021.

LESSONS LEARNED AND RECOMMENDATIONS

ARHAI Weekly COVID-19 Lessons learned Report

76. Data relating to outbreaks and incidents was extracted from the Incident and Outbreak Reporting tool on a weekly basis with the intention of identifying key themes and factors which may have contributed to the development of these. This allowed us to take local intelligence and share it across NHS Scotland helping local IPCTs better understand where they may wish to focus their controls and improvement plans. In addition, this local intelligence also helped to inform national policy development. Key themes included but were not limited to; communication and staff awareness, testing and screening compliance, patient placement, PPE and physical distancing compliance.

77. These were issued weekly to all NHS Boards, SGHAI/AMRPU and ARHAI staff groups. Content was discussed at the weekly support group meetings **M3/LI/180 - INQ000411045, M3/LI/181 - INQ000411046, M3/LI/182 - INQ000411047, M3/LI/183 - INQ000411048, M3/LI/184 - INQ000411049, M3/LI/185 - INQ000411050, M3/LI/186 - INQ000411051, M3/LI/187 - INQ000411052, M3/LI/188 - INQ000411053, M3/LI/189 - INQ000323727, M3/LI/190 - INQ000411055, M3/LI/191 - INQ000411056, M3/LI/192 - INQ000411057, M3/LI/193 - INQ000411058, M3/LI/194 - INQ000323743, M3/LI/195 - INQ000411060, M3/LI/196 - INQ000411061, M3/LI/197 - INQ000411062, M3/LI/198 - INQ000411063,**

M3/LI/199 - INQ000411064, M3/LI/200 - INQ000411065, M3/LI/201 - INQ000411066, M3/LI/202 - INQ000411067, M3/LI/203 - INQ000411068, M3/LI/204 - INQ000411069, M3/LI/205 - INQ000411070, M3/LI/206 - INQ000411071, M3/LI/207 - INQ000411072, M3/LI/208 - INQ000411073, M3/LI/209 - INQ000411074, M3/LI/210 - INQ000411075, M3/LI/211 - INQ000411076, M3/LI/212 - INQ000411077, M3/LI/213 - INQ000411078, M3/LI/214 - INQ000323842, M3/LI/215 - INQ000411080, M3/LI/216 - INQ000411082, M3/LI/217 - INQ000411083, M3/LI/218 - INQ000411084, M3/LI/219 - INQ000411085.

Enhanced lessons learned debrief sessions with COVID-19 Support Group members and any local board IPCN representative

78. The purpose of these enhanced lessons learned sessions was to share experiences and findings from outbreaks and the overall COVID-19 pandemic response to promote shared learning and help inform guidance developed by ARHAI. Participants were encouraged to offer informed and insightful personal accounts of challenges faced and methods for reduction in nosocomial transmission within their local boards an action plan was generated and shared with all attendees **M3/LI/220 - INQ000411087**. At time of writing, all actions allocated to ARHAI Scotland have been completed.

Scottish COVID-19 ICM/ICD support group – Debrief session

79. The COVID-19 ICM/ICD support group was established at the outset of the pandemic and at pace. Meetings were held weekly and attendance was very good. The purpose of the debrief session, held 26 July 2022 was to understand what worked well and what improvements could be made for any future national support group meetings. The debrief session considered the following: the terms of reference for the group (were they appropriate, reviewed frequently enough), was the membership appropriate, was decision making clear and was record keeping and information sharing appropriate. The outputs from this work will be used to inform future pandemic planning work as well as to support the establishment of a routine support group meeting requested by members of this group **M3/LI/221 - INQ000411086**.

STATEMENT OF TRUTH

I believe that the facts stated in this witness statement are true. I understand that proceedings may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief of its truth.

Personal Data

Signed: _____ _____

Dated: _____14/02/2024_____