

Scottish Microbiology & Virology Network (SMVN)

Annual Report 2020 - 2021

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A key objective for the Scottish Microbiology and Virology Network (SMVN) has always been preparedness to respond to national emergencies, which we see realised in the response to the COVID-19 pandemic.

NB: Severe acute respiratory syndrome coronavirus 2 [SARS CoV-2] is the strain of coronavirus that causes coronavirus disease 19 [COVID-19].

The global pandemic is an unprecedented situation which has placed the SMVN community front and centre of the NHS Scotland response. The SMVN has met the enormous challenge of rapidly providing an NHS laboratory diagnostic service to deliver SARS CoV-2 testing, whilst also informing and driving testing strategy and policy.

The SMVN has demonstrated exceptional leadership in a number of key areas including procurement, equipment / test validation, innovation, staffing, quality management, point of care testing, strategy development and production of performance data reports for Scottish Government. The network has been responsive and flexible in a fluid and challenging situation. This has placed significant strain on staff throughout the Microbiology and Virology community therefore, the capacity to deliver the previously agreed workplan for 2020 / 21 has been severely impacted. It should be noted that the SMVN Scientific Manager, Dr Fiona MacKenzie, has moved from 0.5 FTE to 1.0 FTE to lead and deliver the pan-Scotland NHS diagnostic laboratory response to the pandemic.

A. Current position

Since February 2020, NHS Scotland's priority has been to react to and manage the COVID-19 pandemic with the SMVN placed at the forefront. Early in the pandemic the SMVN, in close collaboration with Scottish Government, Public Health Scotland, NSS National Procurement and the National Laboratories Programme has enabled delivery of SARS CoV-2 diagnostic testing in all Health Board areas across Scotland. Each Health Board operates more than one new testing platform and the platforms selected are specific to the unique needs of each Board and patient population. Current capacity across NHS Scotland diagnostic laboratories is approximately 72,000 PCR tests per week. The SMVN Scientific Manager, Clinical Lead, Operational Group Chair, Virology Specialty Advisor to the CMO and other SMVN members serve on a number of national SARS CoV-2 / COVID-19 groups.

The SMVN has demonstrated its effectiveness as a network, both in the provision of expert clinical advice to shape NHS Scotland's response and in its ability to mobilise to develop a national response. The reliable leadership and communications provided by the SMVN have been appreciated by all NHS Boards.

B. SARS CoV-2 Testing Technical Group

The SMVN SARS CoV-2 Testing Technical Group has become pivotal in the management of COVID-19. It is chaired by Dr Fiona MacKenzie and has continued to meet two to three times per week since March 2020. The group provides national coordination of efforts, national rollout of equipment, peer support, sharing intelligence and experiences, sharing reagents / assays / consumables, subject matter expertise, input / feedback / commentaries on national papers from other groups. It also has close contact with the Specialist Virology Centres, Public Health Scotland (PHS), NSS National Procurement, Scottish Government, UK Government and companies providing equipment and tests as well as collating management data and reports. The group is also used as a conduit for sharing information and communications from other national groups.

COVID-19 / SARS CoV-2 testing will continue to dominate SMVN activity as is highlighted in the attached workplan. This is especially so over the coming winter when priorities will be to extend respiratory testing beyond SARS CoV-2 to include a wider panel of respiratory pathogens (e.g. Influenza and RSV) in both the laboratory and via “near patient testing”.

C. SARS CoV-2 Testing Informatics

SMVN has been responsible for collating, analysing, visualising and presenting information on SARS CoV-2 testing within NHS laboratories since May 2020 and continues to do so. SMVN continues to provide performance metrics across NHS Scotland which has informed Scottish Government strategy.

D. SMVN Infection Prevention and Controls Doctors (IPCD) Group

The role of IPCDs in the COVID-19 pandemic has been crucial. This group has provided subject matter expert input into a number of national policy documents and guidelines. The need for an IPCD Specialty Advisor to the CMO has been raised.

The group also submitted a response to the high profile report on the investigation into the construction of the Queen Elizabeth University Hospital Campus, Glasgow, and the Royal Hospital for Children and Young People, and Department of Clinical Neurosciences, Edinburgh.

E. SMVN Mycobacterial (TB) Testing Group

The SMVN Business Case, leading to the national procurement of a “Once for Scotland” solution for Molecular Diagnostics for the Rapid Identification of TB was successfully executed.

Equipment secured via the agreement was due to be delivered from March 2020 onwards however, the process was halted due to the COVID-19 pandemic. The “TB GeneXperts” were purchased using Scottish Government funds for SARS CoV-2 testing as they had been secured for NHS Scotland and, at the time, it was impossible to place new GeneXpert orders for SARS CoV-2 testing. Smaller and remote / rural Boards with multidisciplinary laboratories, in particular, have acknowledged the significant contribution this has made to their ability to roll provide an essential local SARS CoV-2 testing service for their populations. This is a good example of the right test being delivered in the right place at the right time with the right impact.

F. Antimicrobial Resistance (AMR) Diagnostics Group

This SMVN Group has remained active despite the distractions of COVID-19. In particular, Dr Mairi Macleod has maintained engagement with bioMérieux in order for the NHS Scotland Vitek equipment to be updated to include the most recent EUCAST interpretive criteria and dosing guidelines. Via the chair, the group has also maintained close contact with the British Society for Antimicrobial Chemotherapy AST Steering Group and the Scottish Antimicrobial Prescribing Group.

G. Exceptions

Areas of the workplan that may not be completed in the current commissioning year are highlighted in the attached. This includes the progression of the NLP service reviews which are on hold in Microbiology and Virology.

It should be noted that, where it has not been possible to progress workplan items, a plan is in place to ensure objectives are picked up in the 2021 / 22 workplan.

H. Looking forward

SMVN is committed to delivering a workplan geared towards service modernisation in the post-pandemic landscape. This will include work with the DiSSG structures and the National Laboratories Programme

SMVN will also continue to lead the SARS CoV-2 Testing Technical Group, keep the clinical community informed and provide their expertise to the ongoing management of the pandemic as subject matter experts.

I. Five-year vision

Part of the 2021 workplan had been the development of a refreshed strategic vision for the next five years. However, given the rapidly changing landscape in response to COVID-19, this has been carried forward to the 2021 / 22 workplan which will allow SMVN members to consider use of new technologies, now in place due to COVID-19 and direct strategy going forward.

J. Workforce Planning

SMVN is committed to the development of a flexible and sustainable workforce and has been part of the laboratories-wide workforce planning initiative since inception. It has not been possible to participate in this past year, however the network have committed to providing workforce information on time for the 2020/21 data collection.

K. Continuous Improvement

The operational group will consider a return to benchmarking across microbiology and virology services in the second half of 2021 / 22.

L. Molecular Testing

The landscape across NHS Scotland has changed significantly due to equipment becoming available for SARS CoV-2 testing which could be used for a range of additional molecular tests. A new subgroup has been formed to provide strategic direction and guidance across Scotland, with representatives identified across all NHS Boards.

M. SMVN Fungal Infections Group

During the COVID-19 pandemic, higher than normal cases of fungal infections in ICU patients were observed. This new group has recently been established to assess the burden of fungal infections in Scotland and to standardise diagnostics and therapy of fungal infections.

N. SMVN Sexual Health Laboratory Group

A need has been identified to establish this group which will liaise closely with and include sexual health leads and PHS. It will address issue such as implantation of BASHH guidelines, roll out of new platforms for CT / NG testing as well as HIV testing.

O. Finance

Whilst planned meeting costs have not been incurred, SMVN plans to utilise budget to raise awareness of the network amongst its stakeholder communities.

SMVN WORKPLAN: 2020 - 2021

When defining network objectives please consider the Institute of Medicine's six dimensions of quality, which are central to NHS Scotland's approach to systems-based healthcare quality improvement:

1. **Person-centred:** providing care that is responsive to individual personal preferences, needs and values and assuring that patient values guide all clinical decisions;
2. **Safe:** avoiding injuries to patients from healthcare that is intended to help them;
3. **Effective:** providing services based on scientific knowledge;
4. **Efficient:** avoiding waste, including waste of equipment, supplies, ideas, and energy;
5. **Equitable:** providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location or socio-economic status; and
6. **Timely:** reducing waits and sometimes harmful delays for both those who receive care and those who give care.

Key

RAGB status	Description
RED (R)	The network is unlikely to achieve the objective by the agreed end date.
AMBER (A)	There is a risk that the network will not achieve the objective by the agreed end date but progress has been made.
GREEN (G)	The network is on track to achieve the objective by the agreed end date.
BLUE (B)	The network has been successful in achieving the network objective to plan.

Please note significant delay across the majority of the workplan, due to the network mobilisation to support the response to the COVID-19 global pandemic.

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Objective Number	Smart Objective	Planned start/ end dates	Detailed Plan Available / Owner	Description of progress towards meeting objective as at March 2021	Anticipated Outcome	RAGB status
1. Effective Network Structure and Governance [linked to Quality Dimensions 3,4,5,6]						
2020-01	SMVN will ensure an effective governance structure by developing a meeting calendar to support good planning in the year ahead, developing a service agreement for network beyond April 2021 and ensuring strategies are updated and refreshed.	April 2020 – March 2021	No Core Team	Meetings have taken place virtually when required.	SMVN is enabled to manage delivery of its workplan effectively	B
2020-02	Develop a refreshed five year vision for SMVN, from April 2021	Jan 2021 – March 2021	No Core Team	Carried forward to 2021/22 workplan		R
2020-03	Continue to refresh the 20/21 annual workplan to ensure it responds to strategic direction	Feb – Apr 2020	No Core team	Meeting took place with NLP. Workplan adjusted accordingly.	SMVN deliver a workplan	B
2020-04	SMVN will engage with the new, emerging strategic governance structure for diagnostic services in Scotland.	01/04/2020-31/03/2021	Yes SPM	SMVN were represented at the development session for the new structure	SMVN is able to contribute to and be guided by the strategic vision for diagnostic services in Scotland	B

2. Service Development and Delivery [linked to Quality Dimensions 1,2,3,4,5,6]

2020-05	Develop a Microbiology and Virology workforce to meet the challenges of the future as described in Realising Realistic Medicine and the Healthcare Science National Delivery Plan, through: Contribute to the realisation of the recommendations of the workforce planning report.	January 2018-June 2019	Yes SMVN Lead Clinician, SMVN Manager, SMVN PSO, SMVN Steering Group	Data returns slow due to pandemic and national group has not met.	Improved workforce intelligence. Support for the development of a long-term sustainable workforce profile.	R
2020-06	SMVN will lead work on the development of standardised SOPs supported by the National Laboratories Programme. Identify and develop core reporting structures / codes requiring standardisation.	September 2019 – December 2020	Yes Sandra Higgins	On hold due to pandemic. NLP standardisation meetings all cancelled.	Streamlined practices to enable the implementation of a distributed services model, including a common LIMS.	R
2020-07	Work with SHTG / HPS to progress evaluation of faecal PCR.	April 2020 – September 2020	No	SHTG Evidence Synthesis complete, full review underway and guidance will emerge. HPS also leading some complementary work so there is a need to define SMVN's role. Wider piece of work on molecular testing commissioned by DiSSG and underway. This will all be subsumed into newly developed work to progress molecular testing in the new landscape	If implemented, modernised practices and reduced hospital admissions.	B

2020-08	Support the delivery of NHS Scotland's response to COVID-19 through supporting communication and engagement with the Microbiology and Virology community.	April 2020 – August 2020	SMVN Manager	SMVN are significant contributors to this work with the SMVN SARS CoV-2 Technical Group being the SMVN Steering Group. Labs comms are channelled via SMVN.	SMVN community actively engaged in strategic planning of response. Strategic decision making enabled through accurate information on lab position.	B
2020-09	Lead a service review of Microbiology and Virology, supported by NLP	April 2020 – December 2020	Yes NLP	On hold due to pandemic.	Business case for new service model informed by SMVN conclusions.	R

3. Stakeholder Communication and Engagement [linked to Quality Dimensions 1,3,4,5,6]

2020-10	Continue to raise the awareness of SMVN and its work through:- Refreshed communications strategy Roadshows (approx 10 per year) Newsletters (minimum 2 per year) Informative and up to date website, including members area	April 2020 – March 2021	No Core Team	Graphic designer completed refresh on website. Website further updated to ensure there is a reliable source of SARS CoV-2 / COVID-19 information on the members only section.	Stakeholders are updated on the work of SMVN and have opportunity to provide input. SMVN's work is enriched from the input of a wider range of stakeholders.	B
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4. Education [linked to Quality Dimensions 1,2,3,4,5,6]

2020-11	Organise educational meetings Refresh education strategy in line with NLP needs and new NDP	April 2019 – March 2020	No Core team	Event planned for 11 th June cancelled. Community unlikely to have capacity for a virtual event. Several virtual meetings with companies / UK Gov have taken pace for SARS CoV-2 testing.	A strong and cohesive Microbiology and Virology workforce which is resilient, effective and sustainable that is capable of meeting challenges described in Realistic Medicine and the Healthcare Science National Delivery Plan.	R
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5. Audit and Continuous Quality Improvement [linked to Quality Dimensions 1,2,3,4,5,6]

2020-12	Work with the Information Management Service to develop a range of reports to provide accurate and useful information on 2019/20 activity and drive service improvement	April 2020 – March 2021	No Core Team/IMS/SMOG	All information required will be captured in one collection, to include demand optimisation, benchmarking, workforce and information required by subgroups. SMOG organising data workshop to progress this. Regular item on SMOG agenda to ensure QI plans progressed. This work has been delayed due to pandemic.	NHS Scotland will have a clearer picture of microbiology and virology activity and an agreed way forward to develop the data set further and use the information to target variation and improve quality.	R
2020-13	Provide SMVN support to the development of the national LIMS	April 2020 – March 2021	No Stephen McGlashan	SMVN are represented on the project board for this work and represented in scoring.	Specification for a national LIMS developed incorporating the needs of the Microbiology and Virology communities	B

6. Value [linked to Quality Dimensions 1,2,3,4,5,6]

2020-14	Work with National Procurement to finalise the procurement of TB molecular diagnostics equipment / consumables. Support national implementation. Evaluate this work and develop recommendations about other molecular technologies.	April 2020 – March 2021	No NSM	Testing equipment deployed to support COVID-19 testing. Need for future work to support TB testing plan implementation to be picked up in 21/22 workplan.	Best value achieved for NHS Scotland in unified procurement	B
2020-15	Explore the new 5 year AMR strategy including publication of AMR & AST testing guidance (where this falls outwith European guidance)	April 2020 – March 2021	No AMR Group	On hold due to pandemic	Unified approach to testing across NHS Scotland	R
2020-16	Publication of ESBL Guidelines	April 2020 – June 2020	No NSM	Delayed due to pandemic but group has continued to meet virtually.	Unified approach to testing across NHS Scotland	R

SMVN WORKPLAN: 2021 - 2022

When defining network objectives please consider the Institute of Medicine's six dimensions of quality, which are central to NHS Scotland's approach to systems-based healthcare quality improvement:

7. **Person-centred:** providing care that is responsive to individual personal preferences, needs and values and assuring that patient values guide all clinical decisions;
8. **Safe:** avoiding injuries to patients from healthcare that is intended to help them;
9. **Effective:** providing services based on scientific knowledge;
10. **Efficient:** avoiding waste, including waste of equipment, supplies, ideas, and energy;
11. **Equitable:** providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location or socio-economic status; and
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Objective Number	Smart Objective	Planned start/end dates	Detailed Plan Available / Owner	Description of progress towards meeting objective as at April 2021	Anticipated Outcome	RAGB status
1. Effective Network Structure and Governance <small>[linked to Quality Dimensions 3,4,5,6]</small>						
2021-01	SMVN will ensure an effective governance structure by developing a meeting calendar to support good planning in the year ahead, ensuring strategies are updated and refreshed.	April 2021 – March 2022	No Core Team	Meetings planned to take place virtually when required.	SMVN is enabled to manage delivery of its workplan effectively	G
2021-02	Develop a refreshed five year vision for SMVN	April 2021 – September 2021	No Core Team		A vision for optimising microbiology and virology services, informed by NHS Scotland's covid-19 response	G

2. Service Development and Delivery [linked to Quality Dimensions 1,2,3,4,5,6]						
2020-03	Support the delivery of NHS Scotland's response to Coronavirus	April 2021 – March 2022	No SMVN Manager	SMVN are significant contributors to this work with the SASR CoV-2 Testing Technical Group being the SMVN Steering Group. SMVN provide NHS Labs' turnaround data. Labs comms are channelled via SMVN.	SMVN community actively engaged in strategic planning of response. Strategic decision making enabled through accurate information on lab position.	G
2021-04	Develop a strategy for molecular testing in partnership with other disciplines, informed by covid legacy equipment	April 2021 – December 2021	No SMVN Manager	Types and locations of equipment have been collated	Molecular testing deployed in Scotland in a planned and strategic manner, informed by appropriate experts	G
2021-05	Develop a Microbiology and Virology workforce to meet the challenges of the future as described in Realising Realistic Medicine and the Healthcare Science National Delivery Plan, through: Contribute to the realisation of the recommendations of the workforce planning report.	September 2021 – March 2022	Yes SMVN Lead Clinician, SMVN Manager, SMVN PSO, SMVN Steering Group		Improved workforce intelligence. Support for the development of a long-term sustainable workforce profile.	G
2021-06	SMVN will lead work on the development of standardised SMIs, supported by the national laboratories programme.	September 2021 – March 2022	Yes Sandra Higgins		Streamlined practices to enable the implementation of a distributed services model, including a common LIMS.	G

	Identify and develop core reporting structures / codes requiring standardisation.					
2021-07	Work with SHTG/HPS to progress evaluation of faecal PCR.	April 2020 – September 2020	No SMVN Manager		If implemented, modernised practices and reduced hospital admissions.	G
2021-08	Lead a service review of microbiology and virology, supported by NLP	September 2021 – March 2022	Yes NLP		Business case for new service model informed by SMVN conclusions.	G
2021-09	Develop a strategy for Molecular Diagnostics in Scotland through the mapping of infrastructure and establishment of a Subgroup	May 2021	NSM		Strategic approach to use of newly deployed technology	G
2021-10	Develop a clear understanding of the scale and management of fungal infections in Scotland	May 2021	NSM		A clear understanding of the burden and management of fungal infections in Scotland	G

3. Stakeholder Communication and Engagement [linked to Quality Dimensions 1,3,4,5,6]						
2021-11	Continue to raise the awareness of SMVN and its work through:- Refreshed communications strategy Newsletters (minimum 2 per year) Informative and up to date website, including members area	April 2021 – March 2022	No Core Team		Stakeholders are updated on the work of SMVN and have opportunity to provide input. SMVN's work is enriched from the input of a wider range of stakeholders.	G
2021-12	Utilise the SMVN communications channels to provide a direct route for two-way communications on the COVID-19 response	April 2021 – March 2022	No SMVN Manager		SMVN community informed and engaged on COVID-19 strategy.	G

4. Education [linked to Quality Dimensions 1,2,3,4,5,6]						
2021-13	Refresh education strategy in line with NLP needs and post-COVID-19 landscape	September 2021 – March 2022	No Core team		A strong and cohesive Microbiology and Virology workforce which is resilient, effective and sustainable that is capable of meeting challenges described in Realistic Medicine and the Healthcare Science National Delivery Plan.	G

5. Audit and Continuous Quality Improvement <small>[linked to Quality Dimensions 1,2,3,4,5,6]</small>						
2021-14	Work with the Information Management Service to develop a range of reports to provide accurate and useful information and drive service improvement	September 2021 – March 2022	No Core Team/IMS/SMOG		NHS Scotland will have a clearer picture of microbiology and virology activity and an agreed way forward to develop the data set further and use the information to target variation and improve quality.	G
2021-15	Provide SMVN support to the development of the national LIMS	April 2021 – March 2022	No Stephen McGlashan		Specification for a national LIMS developed incorporating the needs of the microbiology and virology communities	G

6. Value <small>[linked to Quality Dimensions 1,2,3,4,5,6]</small>						
2021-16	<p>Work with National Procurement to finalise the procurement of TB molecular diagnostics equipment / consumables.</p> <p>Support national implementation.</p> <p>Evaluate this work and develop recommendations about other molecular technologies.</p>	April 2021 – March 2022	No NSM/PM		Best value achieved for NHS Scotland in unified procurement	G

2021-17	Explore the new 5 year AMR strategy including publication of AMR & AST testing guidance (where this falls outwith European guidance)	September 2021 – March 2022	No NSM/AMR Group		Unified approach to testing across NHS Scotland	G
2021-18	Publication of ESBL Guidelines	September 2021 – March 2022	No NSM		Unified approach to testing across NHS Scotland	G