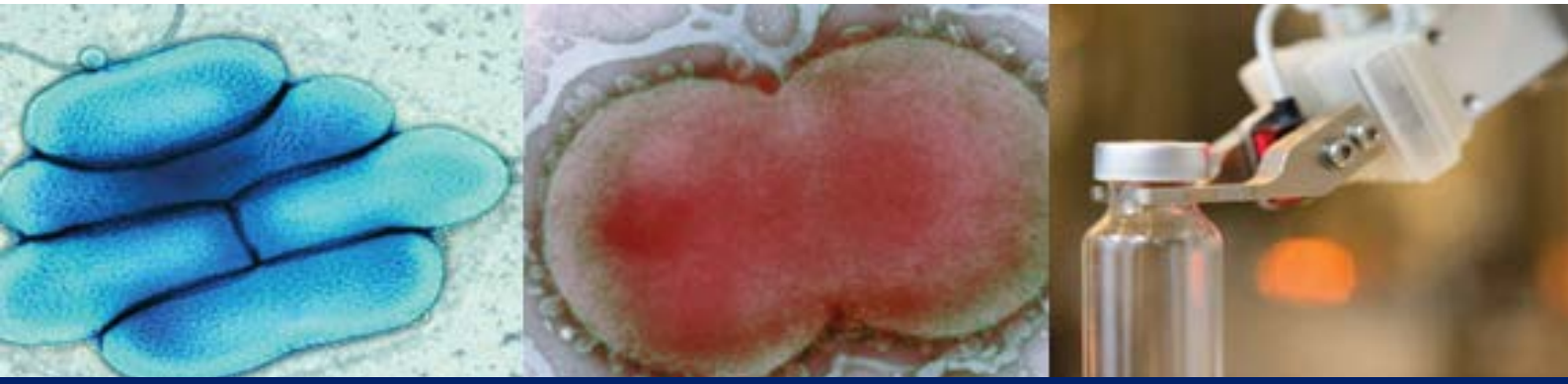


UK Standards for Microbiology Investigations

Five Year Strategy 2020-2025

Contents

UK Standards for Microbiology Investigations (UK SMIs) Mission Statement

UK SMIs are created, published and maintained as evidence based standards for microbiology investigations and for use by laboratories, clinicians, accreditation authorities and patients.

The documents are aimed at facilitating standards of laboratory investigations across the whole specimen pathway from the patient to the laboratory and reporting results to the clinician. As UK SMIs are due for renewal they will be replaced where appropriate with a syndromic, patient-focused approach and will provide standards to guide clinicians and laboratories in their diagnostic processes, choices of tests, and the interpretation of results.

Introduction

The 5-year strategy document was developed and approved before the inception of the UK Health Security Agency (UK HSA). With the new organisation's increased focus on the protection of the public's health, the importance of UK Standards for Microbiology Investigations (UK SMIs) has never been greater. We anticipate that this important resource will continue to be required to ensure that diagnostic NHS laboratories can continue to provide an accurate and reliable diagnostic service to an equal and high standard across the country.

UK Standards for Microbiology Investigation (UK SMI) is a comprehensive referenced collection of clinical microbiology[#] standards consisting of approximately 100 documents. UK SMIs have been developed since 1996 by working groups of experienced medical and scientific microbiologists from throughout the UK. It is not mandatory for clinical laboratories to follow UK SMIs, they are the *de facto* standard used by all laboratories, thereby ensuring that good practice is maintained across the country. UK SMIs are educational and encourage participating laboratories to retain an enquiring attitude. The documents are designed to help ensure that laboratories provide a clinical and public health microbiology service, thereby supporting the public health responsibilities of clinical diagnostic laboratories. The syndromic algorithms also guide primary care and hospitals to develop their diagnostic pathways, choice of tests and support demand management.

UK SMIs provide a high quality standard for the investigation of infections in diagnostic and public health microbiology laboratories and are widely accepted by microbiologists in the UK as an important resource supporting good practice in microbiology laboratories. Each document is based on evidence where available and existing good practice where evidence is not available. Documents undergo a wide consultation process to ensure good practice is reflected in the standards. Consequently, UK SMIs are deemed to be validated procedures by United Kingdom Accreditation Service (UKAS).

[#] Microbiology is used as a generic term to include the GMC-recognised speciality of medical microbiology which includes bacteriology, virology, mycology and parasitology.

UK SMIs are developed in equal partnership with professional societies on behalf of all microbiologists in the UK along with representatives from Patient and Public Involvement groups (PPI). PPI representation is drawn from Public Health England (PHE) or it's successor organisation Peoples Panel.

The published UK SMI document may be implemented by microbiology laboratories as published or they may be used as a template for local adaptation. Such flexibility offers savings in time and resources at the local level while assuring good governance. Where local protocols differ significantly from UK SMIs, laboratories should be able to justify the changes.

The UK SMIs will contribute, through standardisation, to a reduction in "postcode variation" in laboratory medicine specifically and healthcare generally. Although it will be difficult to derive robust data showing the health and financial consequences of such a reduction in variation, it is a given that any variation which is not based on local need is undesirable and a reduction in variation will be beneficial.

National strategy documents relevant to the UK SMI five-year strategy

The NHS Long Term Plan

Our 5 year Strategy conforms with the aims of the 'The NHS Long Term Plan' (7 January 2019).

Specifically, UK SMIs will have a supportive role in the following areas of the Plan:

1	The formation of Primary Care Networks to facilitate care for patients outside of the hospital and to prevent admissions to hospital (Ch 1)
2	The provision of Near-Patient Testing (NPT) (Ch 1)
3	The timely discharge of patients from hospital (Ch 1)
4	Avoidance of 'post-code lotteries' and other health inequalities (Ch 2)
5	Support for laboratory staff by saving time spent on laboratory documentation and improving standardisation (Ch 4)
6	Improvement in patient safety (Ch 5)
7	The introduction of Information Technology (IT) for patient empowerment, patient communications and for health service access to timely decision making (Ch 5)
8	Increasing the efficiency of health services and reducing costs (Ch 6)
9	Increasing standardisation and reducing variation (Ch 6)
10	The establishment of Pathology Networks (Chs 5 & 6)

11 The establishment of Integrated Care Systems (Ch 7)

https://www.longtermplan.nhs.uk/publication/nhs-long-term-plan/

NHS England Standard Contract 2019/20

The NHS England Standard Contract is for use when commissioning healthcare services (other than those commissioned under primary care contracts).

The NHS England Standard Contract sets out in section 21 **Antimicrobial Resistance and Healthcare Associated Infections** that the Provider must ensure that all laboratory services (whether provided directly or under a Sub-Contract) comply with the UK Standards for Microbiology Investigations.

https://www.england.nhs.uk/wp-content/uploads/2020/03/2-FL-SCs-100320.pdf

The UK's 20-year vision for antimicrobial resistance (2019)

The vision advocates optimal use of antimicrobials and good stewardship across all sectors. It includes access to safe and effective medicines that have been manufactured responsibly for all who need them; achieving and maintaining usage levels by sector as good as the best countries in the world where comparable data are available.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/773065/uk-20-year-vision-for-antimicrobial-resistance.pdf

Tackling antimicrobial resistance 2019–2024 The UK's five-year national action plan

The document sets out the UK's 2019–2024 national action plan which has been designed to ensure progress towards the 20-year vision on antimicrobial resistance (AMR), in which resistance is effectively contained and controlled. It focuses on three key ways of tackling AMR:

- reducing need for, and unintentional exposure to, antimicrobials
- optimising use of antimicrobials
- investing in innovation, supply and access.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/784894/UK_AMR_5_year_national_action_plan.pdf

PHE Infectious Diseases Strategy 2020 to 2025

The strategy is based around core functions, strategic priorities and enablers and supports a renewed focus across the organisation to maintain world-leading services and infectious disease control capability.

The strategic priorities to which UK SMIs can contribute are:

- (2) - Be a world leader in tackling Antimicrobial Resistance
- (4) Eliminate Hepatitis B and C, Tuberculosis and HIV and halt the rise in sexually transmitted infections in our population
- (5) Strengthen our response to major incidents and emergencies, including pandemic influenza
- (7) Embed Whole Genome Sequencing (WGS) in PHE labs and optimise the use of WGS-based information

https://www.gov.uk/government/publications/phe-infectious-diseases-strategy

PHE Remit Letter

Business planning at PHE begins with a remit letter from the Department of Health and Social Care (DHSC). From this an annual PHE business plan is formulated to focus on actions set out in the letter. This includes focusing on new priorities or areas of improvement on existing priorities. The objectives in the remit letter and business plan are underpinned by an (unpublished) agreed list of underpinning deliverables for which PHE will be held accountable by the DHSC.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/882570/PHE_Remit_Letter_from_Jo_Churchill_to_Duncan_Selbie.pdf

The 2020-2021 objectives relevant to UK SMIs are:

- Clinical diagnostic testing and genome sequencing to inform public health interventions
- Supporting and delivering evidence-based public health communications and guidance
- Developing and implementing wider public health programmes, including for sexual health and antimicrobial resistance
- Delivering evidence reviews commissioned by DHSC

Public Health Microbiology Strategy for Scotland

The strategy identifies six main Public Health Microbiology functions: monitoring and alert, technical expertise, clinical and scientific advice, workforce development, reference microbiology supported by collaboration and research.

UK SMI contribution to the strategy is listed under technical expertise.

https://www.hps.scot.nhs.uk/web-resources-container/public-health-microbiology-strategy-for-scotland/

National Strategy for Wales

The strategic plan lists a number of priorities, the priority for ‘Protecting the public from infection and environmental threats to health’. Public Health Wales continues to respond to changing threats including High Consequence Infections (e.g. MERS CoV), Chemical Biological Radiological and Nuclear (CBRN - e.g. nerve agents as in Salisbury), Anti-Microbial Resistance (AMR); Vaccine Preventable disease, and Healthcare Associated Infections (HCAI). UK SMIs contributes to the priority by supporting the All Wales managed microbiology service network that is ISO 15189 and ISO 17025 accredited.

The Strategic Plan for Wales 2019-2022 and Pathology Statement of intent 2019 are available from the following links:

https://www.wales.nhs.uk/sitesplus/documents/888/Our%20Strategic%20Plan%20%28IMTP%29%202019-2022%20V1.pdf

https://gov.wales/sites/default/files/inline-documents/2019-04/pathology-statement-of-intent.pdf

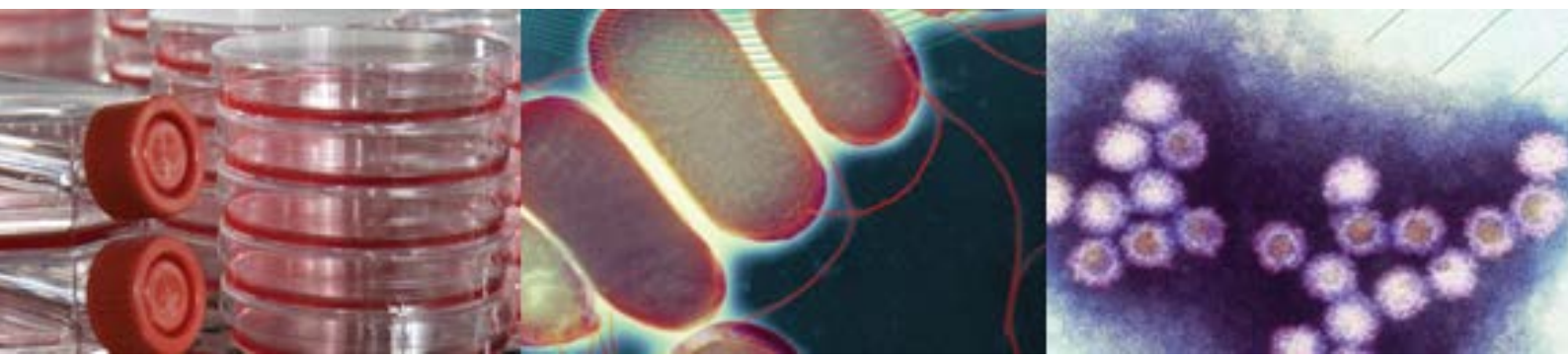
Long term plan for Northern Ireland

One of the aims of the Microbiology and Virology Specialty Forum of the Northern Ireland Pathology Network Board is to standardise procedures across all Trust laboratories in the Province. These will be based on the UK SMIs.

Hyperlinks in this section for National Strategy documents were last accessed on 06/01/2021. Archived copies of the national strategies are available on request by emailing standards@phe.gov.uk.

Patient & Public Involvement

UK SMIs have an effective lay representation on its committees, including the Steering Committee. As our repertoire evolves and expands towards encompassing the whole specimen pathway, such lay involvement will become more important as patient information at the front end (pre-analytical) and at the back end (post-analytical) of the pathway is produced.



UK SMI strategic vision

1. Continue to provide leadership in the standardisation of microbiology investigations including syndromic approaches to microbiology investigations to cover the whole specimen pathway
2. Include diagnostic stewardship and new rapid microbiology technologies where appropriate
3. Continue to improve the systematic review of the scientific evidence base and use in an optimal way to produce authoritative UK SMIs in a timely manner
4. Invest in innovation and technology to facilitate web content to allow interactive and rapid communication to users of the service
5. Engage with key stakeholders and interested parties to strengthen the UK SMIs making them authoritative, effective and efficient
6. Build a resilient service for the future that provides value for money through continuous quality improvement
7. Drive our strategic resource planning to ensure a resilient team that is skilled and trained to deliver authoritative UK SMIs
8. Continue to devise ways for gathering data which can be used to improve the UK SMI service
9. Continue to meet the accreditation and certification requirements to deliver an excellent service
10. Secure funding to implement the 5 year strategy plan

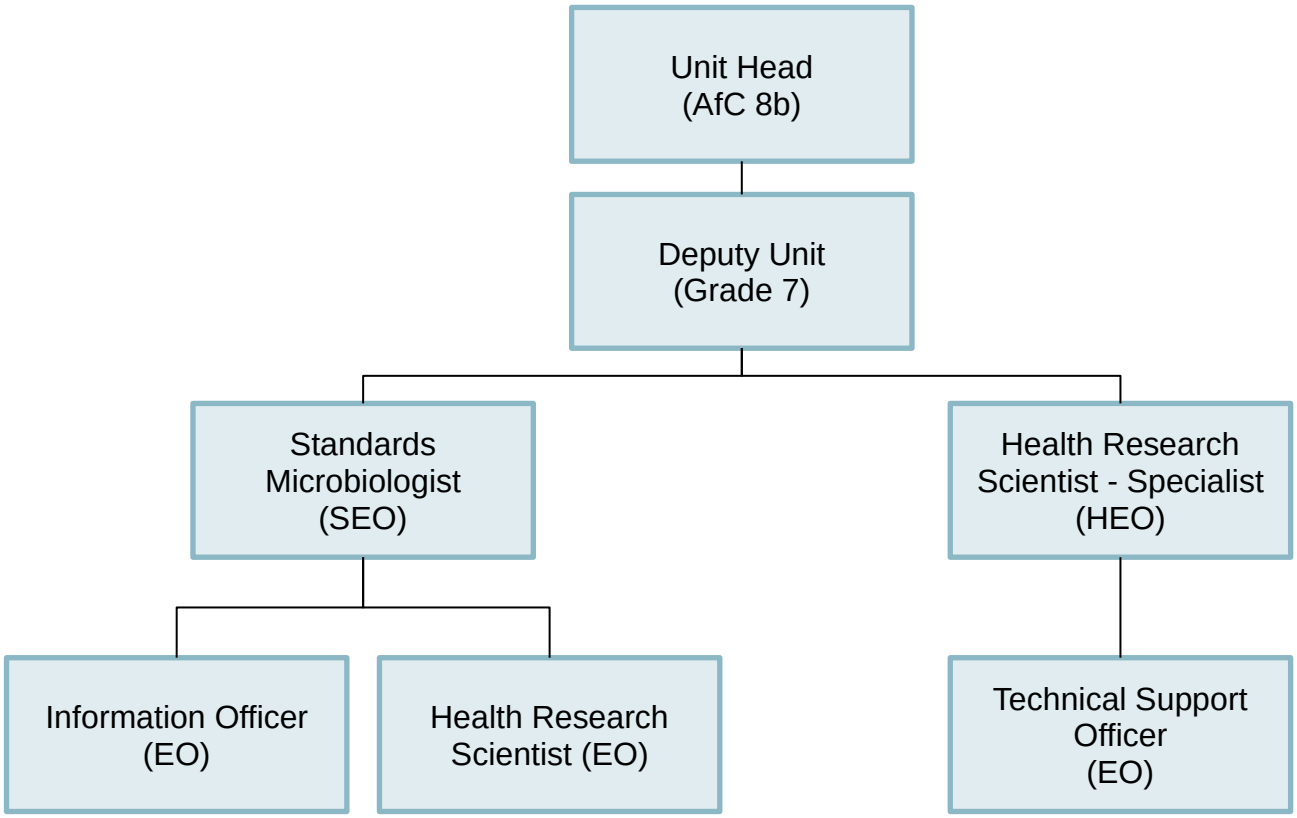
Business Objectives over the next 5 years mapped to the strategic vision

UK SMI Strategic Vision	UK SMI Business Objectives	Links to National Strategies
Continue to provide leadership in standardisation of microbiology investigations and to extend to standardisation of syndromic approach to microbiology investigations to cover the whole specimen pathway.	Schedule the programme of work to develop and publish a number of UK SMIs starting from the principle of syndromic approach for microbiology investigations	The NHS Long Term Plan Public Health England Strategies Public Health Microbiology Strategy for Scotland
Include diagnostic stewardship and new rapid microbiology technologies where appropriate	Schedule the programme of work to review UK SMIs to include diagnostic stewardship and new technologies working closely with relevant Partner Organisations and stakeholders Consider development of UK SMIs for Point of Care Testing (POCT)	NHS Standard Contract 2019/20 The UK's 20-year vision for antimicrobial resistance (2019) Tackling antimicrobial resistance 2019–2024 The UK's five-year national action plan Public Health England Strategies Public Health Microbiology Strategy for Scotland
Continue to improve the systematic review of the scientific evidence base and use in an optimal way to produce authoritative UK SMIs	Review the evidence grading process and implement the outcomes of the review. Establish ways to horizon scan new and emerging technologies so that UK SMIs are ahead of the curve	The NHS Long Term Plan Public Health England Strategies
Invest in innovation and technology to provide smart services and responsive web content to users/customers	Review the options to move or link the UK SMI repository to a user friendly interactive web platform. This will enable users to access the UK SMIs with ease and in a number of different formats Use videos to support users to implement UK SMIs Use social media for consultation and communication – use partner organisations social media platforms to send out notifications on behalf of UK SMIs	The NHS Long Term Plan Public Health England Strategies

Engage with key stakeholders and interested parties to strengthen the UK SMIs making them authoritative, effective and efficient	Work with United Kingdom Accreditation Service (UKAS) to establish UK SMIs as authoritative validated standards for microbiology laboratories to follow Strengthen working relationships with other parts of the National Infection Service at PHE, to deliver UK SMI priorities Work closely and collaborate with the commissioners of services and National bodies to deliver national priorities Explore ways in which other organisations, especially UK SMI Partner Organisations, interact with lay persons, learn from and, where possible, collaborate with them Widen links to Royal Colleges and specialist societies	The NHS Long Term Plan Public Health England Strategies
Build a resilient service for the future that provides value for money through continuous quality improvement.	Encompass all aspects of the specimen pathway including the governance structures and the standardisation of all specimen pathway related activities. These will include information, communication, problem solving, visual management, transportation, elimination of waste in processes, user and patient/public involvement	The NHS Long Term Plan Public Health England Strategies
Drive our strategic resource planning to ensure a resilient team that is skilled and trained to deliver authoritative UK SMIs	Review the Standards Unit staff structure to meet the scientific and administrative needs required to deliver microbiology standards over the 5 year strategy.	The NHS Long Term Plan Public Health England Strategies
Continue to devise ways to gather data which can be used to improve the service	Commission/design a comprehensive survey of UK SMI usage – build on the baseline data gathered by survey undertaken in 2017	The NHS Long Term Plan Public Health England Strategies
Continue to meet the accreditation and certification requirements to deliver an excellent service	Review and assess the future of accreditation by NICE Maintain NICE accreditation Maintain ISO 9001 certification	The NHS Long Term Plan Public Health England Strategies

Team structure

The Standards Unit currently comprise of seven staff with responsibility for different areas of work.



The Standards Unit includes 2 administrative staff and 5 scientific staff.

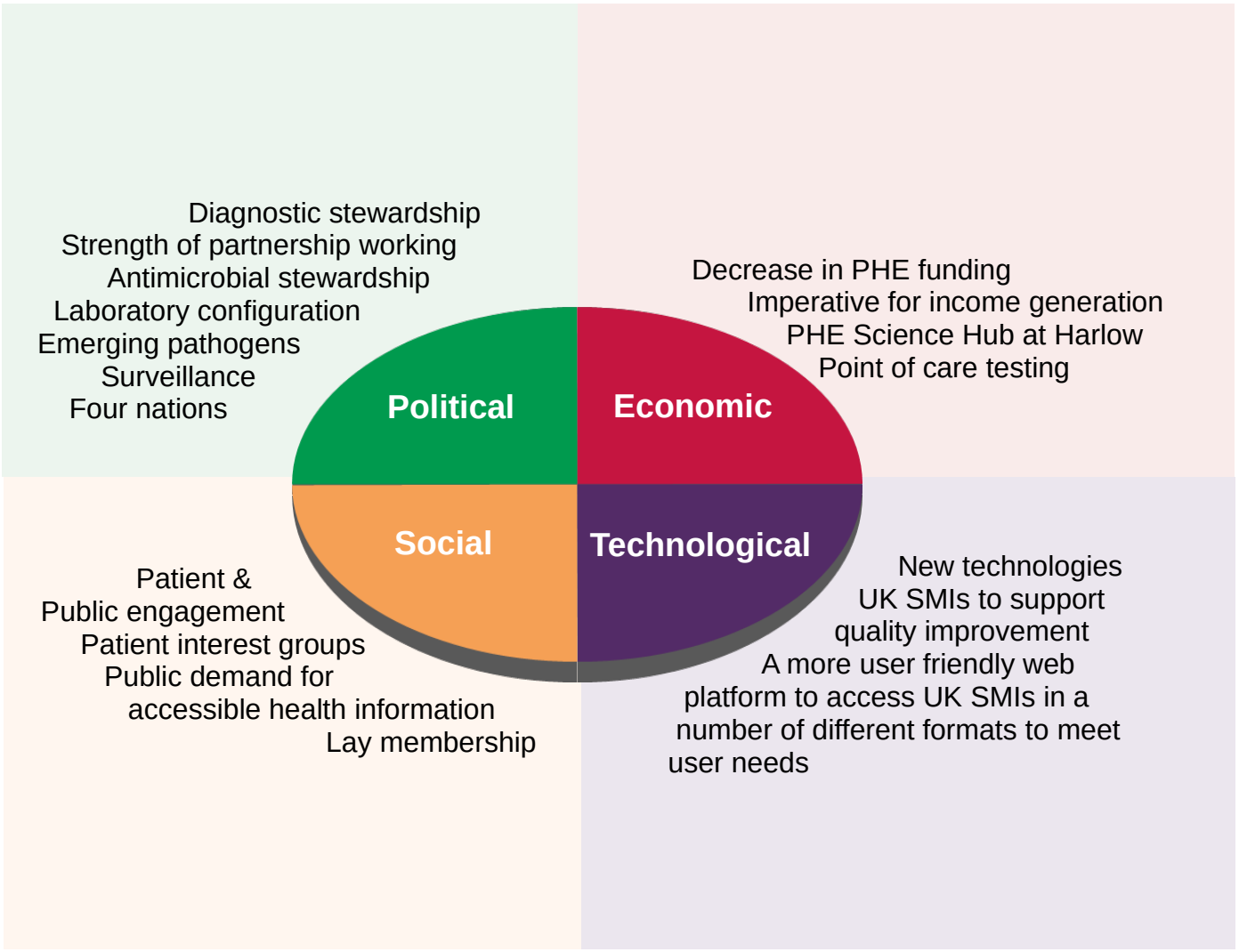
To realise the vision, a review of the current staffing structure is required to prepare for delivering a service for the next 5 years. To do this, additional scientifically qualified staff in bacteriology/virology are required. As there are currently on-going efficiency saving measures within the National Infection Service, there is a need to consider other staffing opportunities to gain additional skills in the team. Some of these opportunities include:

- Apprenticeships
- Secondments
- Use skills available within the wider Products and Services Management Unit
- Seek funding through NHSE and health departments of devolved administrations
- Prepare business cases for pump priming funds

Appendix: PEST and SWOT analysis

External factors

Several external factors impact on the Standards Unit work programme. The external factors can be summarised using the PEST analysis model (Political, Economic, Social and Technological environment.



Competitive forces

The following organisations have the potential to compete with UK SMI service:

- Clinical and Laboratory Standards Institute (formerly NCCLS)
- American Society of Microbiology (ASM)

SWOT analysis

Strengths

- Outstanding source of information for microbiology laboratories
- Long experience of standards development and well-worked out procedures
- National & international reputation and influence
- Oversight / custodianship by 23 Partner Organisations
- Good collaboration with expert laboratories within PHE and the NHS
- Development of a syndromic approach to the UK SMIs
- Useful to clinicians
- Support NHSE concept of reducing unjustified variation in performance
- Standardise benefits to public health (definitions) – an example outside microbiology is Prostate-specific antigen test (PSA) where there is a difference in availability of testing across the UK leading to inequalities in heathcare
- Meet external accreditation and certification requirements
- Experienced and knowledgeable staff

Weaknesses

- Small team that requires more scientific staff to produce more robust recommendations
- Workload threatens to become unmanageable
- Current restrictive GOV.UK web platform
- Limited engagement of users during the consultation process
- Lack of feedback from laboratories on implementation and use of UK SMIs
- Not making use of social media to raise awareness of the UK SMI service
- Difficulty with recommending specific molecular platforms
- Lack of direct evidence that UK SMIs make a difference to individual patient outcomes and public health

Opportunities

- Influence standards produced by other professional bodies
- New developments – syndromic approach
- Improved interactive web platform for access to UK SMIs
- Develop Key Performance Indicators eg for AMR – evidence that UK SMIs make a difference (mechanism for determining the value of UK SMIs)
- Measure impact / opportunity costs
- Impact of absence of UK SMIs (what would happen if UK SMIs did not exist)
- Improve efficiency through regular skype meetings
- Review gaps perceived by users
- UK SMI better placed to produce guidelines for microbiology laboratories than NICE
- Remote working to mitigate uncertainty of relocation plans and any future national lockdowns

Threats

- Time taken to replace staff
- Turnaround times for delivering new UK SMIs in the context of limited staffing
- Similar work undertaken by other bodies such as the American Society for Microbiology
- Technological developments and varieties in new testing platforms make it hard for UK SMIs to stay completely up to date in the context of limited staff