



Public Health  
England

Protecting and improving the nation's health

# **PHE Infectious Diseases Strategy 2020-2025**

Addressing urgent threats in the 21st century

September 2019

## Foreword



**Sharon Peacock**  
Director, National  
Infection Service

This Infectious Diseases Strategy defines our mission and describes how we will deliver this during the next 5 years through a continued focus on our core functions, strategic priorities and enablers. This document summarises our purpose and objectives as a national asset, a global leader, and a strong partner to others, both locally and nationally. Our strategic priorities have been chosen for their potential to achieve tangible benefits to the health of people in England and beyond. They also build on our extensive expertise and capabilities, together with our local and national reach.



**Yvonne Doyle**  
Medical Director  
and Director for  
Health Protection

Our priorities include some of the major challenges of our times. We know that vaccine-preventable diseases are re-emerging worldwide, and we will maintain a relentless focus on optimising vaccine provision. We are all increasingly aware of the growing risk from antibiotic resistant infections, which are particularly problematic for people receiving hospital treatment. This will be met through a priority on their containment and control.



**Sue Ibbotson**  
Centre Director,  
West Midlands

Sexually transmitted infections were once a scourge for people everywhere. Worryingly, there has been an increase in the number of syphilis diagnoses and sexually transmitted infections in the last decade. We must tackle this trend, together with an ongoing commitment to eradicating HIV transmission in England.

The infectious diseases challenges of today are amplified by the extensive movement of people and climate change. These increase the chances that we will witness a global pandemic in the coming years, including pandemic influenza and novel viruses. We will increase our state of preparedness, as well as making best use of data

and surveillance information. This will be supported by strengthening our global health activities. As a global health partner, we are committed to the World Health Organisation (WHO) elimination targets for Tuberculosis (TB), Hepatitis B and C.

We are living through times of notable health inequalities, many of which are associated with increased risk from a range of different infectious diseases. Health inequalities feature in our thinking across the ten strategic priorities, as well as being at the centre of a specific priority on infections in under-served populations. We will also focus on specific infections in our growing elderly population and so contribute to wider efforts to promote healthy ageing.

PHE and its predecessor organisations, have a long track record of using cutting-edge technologies to improve our ability to detect and contain outbreaks and treat people with infectious diseases. This innovative way of working will continue with the further development of laboratory and point-of-care technologies, including pathogen whole genome sequencing for the management of TB and the detection and control of food-borne outbreaks.

Delivering our strategy will depend on partnership working within an effective health protection system and in close collaboration with our partners, including the NHS and Local Authorities. The effective delivery of this Strategy will reflect our ability to work with our partners for the benefit of our collective health.

strategic context 

## The strategic context

We have tackled some of the biggest infectious disease threats in humankind's history, including polio and smallpox. But the detection and control of infectious diseases is an on-going and evolving story. Recent threats have included viruses such as Ebola, Zika and Influenza, and we are witnessing rapid increases in the rate of drug resistance in numerous infectious pathogens. In our globalised world where physical interactions between people are faster and more common than ever before, such diseases can spread far and wide in a short space of time. Running parallel to these challenges is the development of new technologies that will bring marked enhancements to our detection and control capabilities. These include rapid communications and genome sequencing, which provide us with the tools to rapidly share information and advice, bringing greater accuracy to our investigations. As an organisation, we have also evolved how we operate and will continue to act in a flexible way to allow us to deliver our mission in the future. We will take account of system and organisational change over time to sustain the success of our collective work with partners, whilst noting that our combined success is only as good as the delivery of each partner or partner organisation. During the production of this strategy we have helped inform the NHS Long-Term Plan and will play our part in delivering the commitments given therein. Separately, we have informed and will assist in the further development of the proposals in the Green Paper 'Advancing our health: prevention in the 2020s'.

The factors below are 5 specific areas amongst many that will influence how PHE meets the ongoing challenge of infectious diseases.

### Globalisation and climate change

The continued movement of people and animals through international travel has the potential to increase the probability of the introduction of global infections like pandemic influenza, together with the speed and reach of further spread. This is exacerbated by the challenge of climate change, and in changes to the geographical distribution of animal species

### Workforce and skills

There will be continued challenge in securing talented individuals across all professional groupings, including areas of scientific endeavour, data sciences and software development. The successful implementation of this Strategy depends on PHE developing, supporting and retaining a skilled and resilient workforce

### Exploiting technological change

There are ongoing opportunities to harness and embed new technologies, to link and integrate our data, and improve our surveillance. Combined with the thorough exploitation of new technologies and our expertise, including whole genome sequencing, we predict further opportunities to deliver faster and more precise responses to control infectious diseases

### Social trends and communication

There is a growing demand to access information on health. New technologies and new approaches to communication such as social media bring new risks, as well as opportunities to engage with people and support our activities to control the spread of infectious diseases

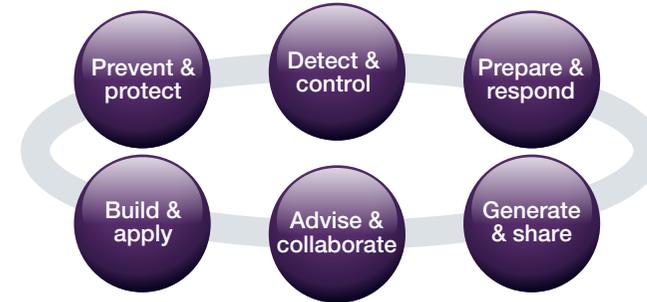
### Organisational change and fiscal challenges in health protection systems

The changing landscape of local health and care arrangements and the development of integrated place-based health and care systems represent opportunities and challenges which we must continue to seize and adapt to. The continuing search for value for money combined with fiscal pressures will challenge organisations and professionals on the core and new services that they can deliver

# The Infectious Diseases Strategy Framework for 2020-2025

## Core functions

The PHE Infectious Diseases Strategy is organised around six **core functions** that describe the breadth of PHE’s day-to-day work, and are the foundations required to achieve our organisational mission. These are not to be viewed in isolation, as each core function contributes to the success of the others. Collectively, these functions represent PHE’s core enduring offer through which our ten strategic priorities for 2020-25 will be delivered.



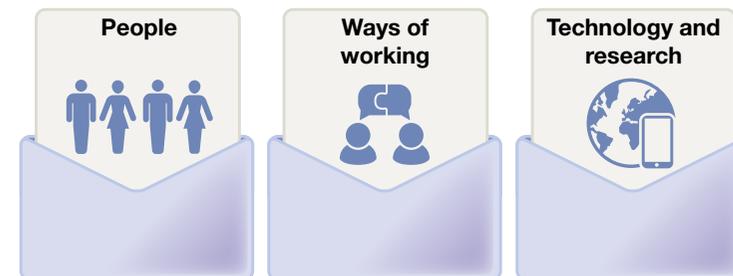
## Our strategic priorities

Our ten **strategic priorities** will focus effort across PHE and represent specific programmes that link with and contribute to work within our core functions. They have been selected based on advice from experts within and external to our organisation using the best available evidence of where we can deliver the biggest gains for our population by 2025.



## Our enablers

**Enablers** are the skills, capabilities and activities required to ensure the successful delivery of our core functions and strategic priorities. The six enablers that PHE will use to support this Strategy are described on page 20 within the three groups of ‘People’, ‘Ways of Working’ and ‘Technology and Research’.



## Our mission: to prevent, detect, respond to, and reduce the impact of infectious diseases in our population

### Core functions Our enduring core offer

Prevent & Protect against infectious diseases	Detect & Control infectious diseases	Prepare & Respond to infectious disease threats	Build & Apply evidence through research	Advise & Collaborate with our health protection system partners	Generate & Share evidence and advice
Protecting susceptible people in our population from acquiring infections	Use our networks, data and capabilities to recognise and manage cases, clusters, outbreaks and incidents of infectious disease	Proactively plan and respond to emerging infectious disease threats locally, nationally and globally	Through research, evaluation, translation and innovation we develop, drive and evaluate new approaches to detecting and responding to infectious diseases	Working with our partners to strengthen the ability of the health protection system to respond to infectious diseases	Use our core functions and strategic priorities to generate information on interventions that prevent and control infections and improve public health

### Strategic priorities Where we will focus our effort

<p><b>1</b> Optimise vaccine provision and reduce <b>vaccine preventable diseases</b> in England</p> <p><b>2</b> Be a world leader in tackling <b>Antimicrobial Resistance (AMR)</b></p>	<p><b>3</b> Capitalise on emerging technologies to enhance our <b>data and infectious disease surveillance</b> capability</p> <p><b>4</b> Eliminate <b>Hepatitis B and C, Tuberculosis and HIV</b> and halt the rise in <b>sexually transmitted infections</b> in our population</p>	<p><b>5</b> Strengthen our response to <b>major incidents</b> and emergencies, including pandemic influenza</p>	<p><b>6</b> Build evidence to address infectious diseases linked with <b>health inequalities</b></p> <p><b>7</b> Embed <b>Whole Genome Sequencing (WGS)</b> in PHE labs and optimise the use of WGS-based information</p>	<p><b>8</b> Integrate and strengthen England's <b>Health Protection System</b></p> <p><b>9</b> Strengthen our <b>Global Health</b> activities to protect health in the UK and globally</p>	<p><b>10</b> Define the <b>value generated</b> by delivering our Infectious Diseases Strategy</p>
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### Enablers Systems, capabilities and activities that will ensure the delivery of our strategy

Build, support and retain a skilled and resilient workforce

Build our knowledge of, and influence within the health protection and wider health system

Achieve Together as 'one PHE'

Achieve sustainable income and finances

Enhance our incident response, surveillance and laboratory infrastructure, and develop specialist and scientific computing capability

Create, share, use and manage our knowledge and evidence

# Background

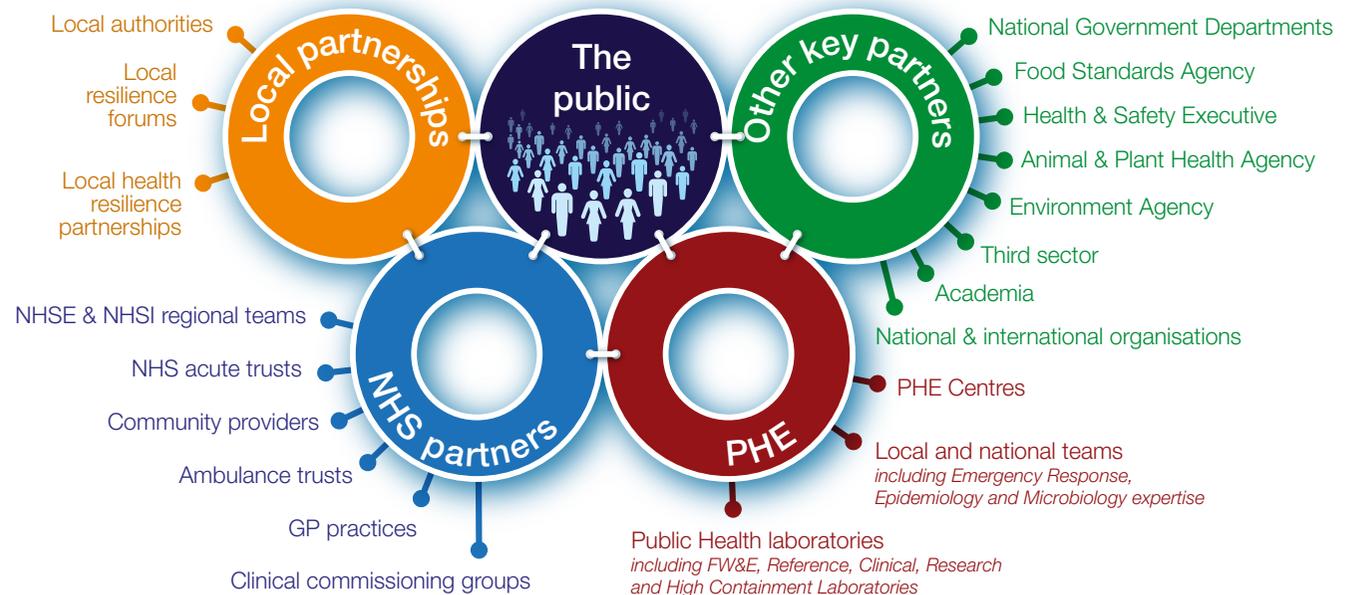
## Infectious disease roles and responsibilities

PHE is an executive agency of the Department of Health and Social Care (DHSC) which delivers public health services including surveillance, intelligence gathering, risk assessment, scientific and technical advice, specialist health protection and public health epidemiology and microbiology services. Alongside these daily responsibilities which include outbreak and infectious disease incident responses, PHE is also a Category 1 emergency responder, working with its partners under the terms of the Civil Contingencies Act 2004. In doing so we support the public, other emergency responders and government during emergencies where there is a threat to human health from communicable diseases or environmental hazards. PHE has its own Emergency Preparedness Resilience and Response resources working with partners locally and regionally, and at national level working with other agencies across government. In organisational terms, the PHE Centres and Regions, National Infection Service, and Health Protection and Medical Directorate integrate their efforts to deliver PHE's infectious disease related activities, working closely with our national and local partners in the wider health protection and health system.

## The Health Protection System and our role within it

PHE recognises that successful delivery of our infectious diseases mission is only possible through mutually beneficial partnerships within a robust and effective health protection system. At the local level, local authority Directors of Public Health provide leadership for the public health system working closely with NHS partners and PHE's Health Protection teams. Local Health Resilience Partnerships (LHRP), co-chaired by a Director of Public Health and NHS England and NHS Improvement (NHSE & NHSI), provide a strategic forum for organisations to facilitate health sector preparedness and planning for emergencies, working closely with Local Resilience Forums (LRF). On a day-to-day basis, health protection practice aims to prevent, assess and mitigate risks and threats to people's health. To deliver this combination of public health protection duties and services requires close partnership working between Directors of Public Health, the NHS, academia, national government and agencies, industry, and the public. PHE is committed to working with our partners to deliver expert advice, support and services, to enable the collective and organisational leadership and assurance of the national and local health protection systems.

### Health Protection System



# Development of the PHE Infectious Diseases Strategy

This is PHE's first Infectious Diseases Strategy, which will draw our work into a new strategic framework (see pages 4-5) and bring with it a renewed focus across the organisation to maintain world-leading services and infectious disease control capability within our changing world. We know that PHE has already achieved a great deal in relation to the prevention and control of infectious diseases. But this is an important moment in time to re-state our purpose and mission, our core functions and strategic priorities, and approaches to delivery and impact measurement. This strategy will drive PHE's planning, resource allocation, development and delivery between 2020 and 2025. It draws on learnings from our past experience and outlines a set of shared priority areas where PHE and its partners can make the greatest impact on the public's health. It will also improve our contribution to the joint working and outcomes we achieve at local and national levels with our partners, without which we would not succeed. It is owned across the organisation, and all PHE staff have a role to ensure that it is successfully delivered.

## The PHE Infectious Diseases Strategy 2020-25:

- integrates our organisational effort across PHE and sets out our unique role in the ongoing fight against infectious diseases
- establishes ten strategic priorities for PHE, where we will focus our effort and resources during 2020-2025
- directly supports delivery of the overarching PHE corporate strategy

## Evidence to inform strategy and outcomes

The development of our infectious diseases strategy has been informed by a supporting evidence review, which has included measures of disease incidence, disease burden, socio-economic impact, and the effectiveness of available control measures. We drew on a range of referenced sources including the published literature arising from PHE surveillance outputs or directly from our surveillance systems. Maintaining and updating this evidence will be essential to inform our ongoing delivery planning, to evidence the effect and outcomes we achieve as an organisation, and in joint working with our health protection partners.

more than  
**5** million

microbiology tests carried out by PHE labs each year



With our partners we are introducing the HPV vaccine for boys



We applied cutting edge WGS technology to investigate a national outbreak of Listeria



# Prevent and protect against infectious diseases

Protecting susceptible people in our population from acquiring infections

## Core function: Prevent & protect

PHE promotes with its partners, a healthier nation by focussing on prevention in areas that contribute significantly to increasing healthy life years and reducing the number of people who die prematurely from preventable diseases and causes. Prevention is embedded in this Infectious Diseases Strategy, and includes our leadership within the National Vaccination Programme, our work to prevent antimicrobial resistant infections, and local work with our health protection partners to develop and implement prevention programmes relevant to the needs of local communities.

Through **Strategic priority 1**, we will build on these successes by continuing to work with the Department of Health and Social Care (DHSC) and partners, to enhance England's successful National Vaccination Programme to prevent infections with the greatest impact on people's health.

PHE has an active programme of work to drive down the risk of infections caused by pathogens that have become resistant to clinically important antibiotics, supported by our work to raise awareness with the public about the risk of antibiotic resistance. Through **Strategic priority 2**, we will build on this world-leading contribution to further improve population and individual health outcomes, supporting the sustainability of the NHS by ensuring that prevention and early intervention are central to the agenda of national government, local government and health and care partners.



### Preventing infectious diseases - HPV for Boys

From September this year, boys in school year 8 will be offered the free Human Papillomavirus (HPV) vaccine for the first time. HPV is thought to be responsible for over 99% of cervical cancers, as well as 90% of anal cancers, about 70% of vaginal and vulvar cancers and more than 60% of penile cancers. Estimates suggest that the HPV vaccine programme will lead to the prevention of over 64,000 cervical cancers and nearly 50,000 non-cervical cancers by 2058. This would be 50 years after the introduction of the HPV vaccination programme, when people who were vaccinated as teenagers have reached the age groups that would typically be affected by HPV related cancers. This universal programme offers us the opportunity to make HPV-related diseases a thing of the past and build on the success of the girls' programme. Offering the vaccine to boys will not only protect them but will also prevent more cases of HPV-related cancers in girls and reduce the overall burden of these cancers in both men and women in the future.

### Strategic priority 1:



Optimise vaccine provision and reduce vaccine preventable diseases in England

- **why:** after clean water, vaccination is the most effective public health intervention in the world for saving lives and promoting good health
- **what:** we will prevent deaths and disease in our population by extending access to and improving uptake of existing vaccines; by implementing new and improved vaccines; and by predicting, detecting, and responding decisively to any changes in patterns of disease
- **how:** we will undertake analyses and present data to the Joint Committee on Vaccination and Immunisation (JCVI) on how best to modify the UK vaccination schedule to optimise control of infection whilst minimising programme costs. With the support of NHS commissioners and providers, we will coordinate the implementation of JCVI recommendations, and improve delivery of programmes to achieve 95% national coverage for key vaccines, and 50% coverage for the childhood flu vaccine
- **with:** NHS England and NHS Improvement, JCVI, Department of Health and Social Care, and NHS (commissioners and providers)

### Strategic priority 2:



Be a world leader in tackling Antimicrobial Resistance (AMR)

- **why:** without effective antibiotics even minor surgery and routine operations could become high-risk procedures, leading to prolonged illnesses and higher numbers of deaths. The number of antibiotic-resistant infections is predicted to increase over the next 20 years
- **what:** we will seek to contain, control and mitigate the risk of AMR-related infection by drawing on innovative mechanisms to preserve effective antimicrobials for our patients and our population
- **how:** we will work to better understand the impact of optimal antibiotic prescribing; deliver world-leading surveillance; develop and evaluate interventions to prevent infections, treat optimally and reduce onward transmission of resistant bacteria; and work to define and prevent AMR tipping points between rare events & endemic infections
- **with:** NHS England and NHS Improvement, NHS (commissioners and providers), Local Authorities, Department of Health and Social Care, Health Protection Research Units and academia

## Detect and control infectious diseases

Use our networks, data and capabilities to recognise and manage cases, clusters, outbreaks and incidents of infectious disease

### Core function: Detect and control

Early diagnosis and detection linked to interventions that control and treat infectious diseases reduce the spread of disease, the consequences of infection for the individual, and its impact on health services and the economy. Infectious disease surveillance generates information that shapes public health decisions, determines appropriate actions, and informs how we commission research. This includes passive surveillance to monitor for changes in the epidemiology of infectious diseases, and active surveillance to collect in-depth information to assess new and emerging problems, including through syndromic surveillance. We rely on laboratory expertise and data from NHS and PHE's microbiology laboratories, providers of clinical services, and other partners. PHE provides critical support through specialist microbiology laboratory testing, Food, Water and Environmental testing, and expert advice to support the NHS, local authorities, allied healthcare providers and other partners. Furthermore, we direct the deployment of teams, bringing together expertise to support investigations of large-scale incidents to ensure the most effective public health action. PHE plays an essential role in managing individual cases and outbreaks to reduce onward transmission and will continue with our local, national and international partners to control the spread of infectious diseases.

Through **Strategic priority 3**, we recognise the opportunities arising from emerging technologies and digital solutions that will enhance the use of our data and the effectiveness of our surveillance systems to detect and control infectious diseases. Through **Strategic priority 4**, we will focus on the surveillance and control of specific infectious diseases that are responsible for significant morbidity and mortality and that are the focus of global elimination initiatives.



### How a case of MERS-CoV in England was detected, traced and treated

Middle East Respiratory Syndrome Coronavirus (MERS-CoV) is a severe infectious respiratory disease. Imported cases of MERS-CoV are rare in England, but it is crucial that cases are rapidly identified, so that appropriate infection control and public health measures can be put in place to prevent further infections. In August 2018, clinicians identified a possible case of MERS-CoV in a person who had recently flown to the UK from the Middle East. The case was confirmed as positive for MERS-CoV by one of PHE's specialist regional laboratories within 24 hours. PHE advised on infection control measures and traced those people who had been in contact with the case, including their family, passengers who sat in close proximity on the plane, and healthcare workers who had been in contact with the patient. PHE co-ordinated health surveillance of these people, providing advice and ensuring anyone who developed symptoms was rapidly tested. This coordinated response involved over 100 people working across PHE, and no further cases were identified. We remain prepared for future imported cases and for other high consequence infectious diseases that need to be managed in a similar way.

### Strategic priority 3:



Capitalise on emerging technologies to enhance our data and infectious disease surveillance capability

- **why:** advances in technology provide opportunities to improve how we collect, process and use data. This could support rapid detection and control, together with a greater understanding of disease burden and longer-term changes in disease patterns
- **what:** we will build on the data and information that we hold, optimising its use and application. We will add value to our data by linking our data sources through new technologies, making it more accessible to partners and decision makers to inform public health action across the wider system
- **how:** we will review, integrate and enhance our surveillance activities by modernising and integrating our data and systems, capitalising on the opportunities arising from new and emerging technologies and techniques, and work with providers and commissioners to ensure that their needs are being met
- **with:** NHS (commissioners and providers), local authorities and NHS Digital

### Strategic priority 4:



Eliminate Hepatitis B and C, Tuberculosis and HIV and halt the rise in sexually transmitted infections in our population

- **why:** the UK has committed to meet the World Health Organisation elimination targets for Hepatitis C, Hepatitis B and Tuberculosis (TB) ahead of 2030, and is committed to eradicating HIV transmission in England by 2030. There has been an increase in the number of infectious syphilis diagnoses and Sexually Transmitted Infections (STIs) in England over the past decade
- **what:** we will enable work on the detection, surveillance and control of HIV, Hepatitis B, C, and TB and will focus on actions that reverse the trend in transmission of STIs and eradicate HIV transmission
- **how:** PHE will participate in the advisory group backing the Independent Commission to end HIV transmission in England by 2030; work with partners to provide surveillance data and facilitate test and treat strategies addressing hepatitis B and C; develop and deliver a collaborative 'TB Action Plan, 2020-2025'; continue to raise public awareness about the importance of using condoms; encourage regular STI screening; and provide our partners with data to help control the transmission of STIs and respond to outbreaks and incidents
- **with:** Department of Health and Social Care, NHS England and NHS Improvement, NHS (commissioners and providers), local authorities, local addiction services, prisons, voluntary groups, communities and patients

# Prepare and respond to infectious disease threats

Proactively plan and respond to emerging infectious disease threats locally, nationally and globally

## Core function: Prepare and respond

The 2017 National Risk Register for Civil Emergencies lists pandemic influenza and new and emerging infectious diseases Threats as two of the greatest threats which would have a serious effect on the security of the UK, and its people and the environment in which we live. PHE plays a key role in planning for and responding to large-scale infectious disease threats locally, nationally and globally. PHE is a Category 1 responder and is required under the terms of the Civil Contingencies Act 2004 to be at the core of the response to most emergencies. PHE also maintains plans detailing how it will support the country to respond to and recover from significant public health-related or business continuity incidents, and provides further support with threat-specific, and local emergency preparedness plans. Our PHE Centre teams work closely with Local Resilience Forums to develop and exercise these plans.

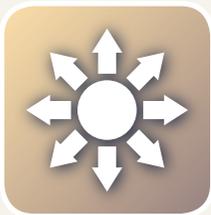
PHE's specialist and reference laboratories have a key role in providing advice and support to international agencies, including undertaking risk assessments for new and emerging microbiological threats. To do this, PHE is able to identify rare, novel, unusual and dangerous pathogens and undertake pathogen discovery in relation to unusual syndromic illness; respond to new agents and threats through the development of diagnostic and microbiological surveillance tools; and utilise cutting edge technologies which provide the most rapid and robust analytical information to inform public health interventions in the event of an emergency. The staff and infrastructure at our specialist and reference laboratories have the capability to respond to a rapid upsurge in activity as a result of outbreaks, epidemics or pandemics of infectious disease, and provide PHE with the resilience to sustain a long-term response to an emerging threat.

Through **Strategic priority 5**, we will strengthen our response to major incidents and emergencies, including to pandemic influenza.



### Exercise Cygnus: UK pandemic influenza exercise

In October 2016, PHE participated in a Tier 1 pandemic influenza exercise as part of the UK government national exercise programme, aiming to assess the preparedness and response to an influenza pandemic in the UK. This exercise was called Exercise Cygnus. PHE and NHS England together with health and social care partners participated in this three-day exercise. The exercise was set seven weeks into a severe pandemic outbreak and challenged PHE, the Department of Health and the NHS to review its response to an overwhelmed service with reduced staff availability. The exercise also aimed to explore the social care policy implications during a pandemic, the potential use of the third sector to support the response, and sought to identify issues raised around the impact of flu in the prison population. The subsequent report and lessons identified have been incorporated into PHE's Concept of Operations and National Incident Emergency Response Plan.

**Strategic priority 5:**

## Strengthen our response to major incidents and emergencies, including pandemic influenza

- **why:** our role is to provide public health expertise and leadership to support local and national incidents. Some of the most significant infectious diseases threats could burden our health services and society with high levels of illness and fatalities, compromising the day-to-day services that we all rely on. It remains essential to continue to prepare, adjust our plans with the emergence of new threats, and to continue to test and assure our response arrangements
- **what:** we will become better able to launch and sustain a whole organisation incident response making full use of all staff and capabilities, surging to new and pre-defined activity levels to address infectious disease threats. We will remain prepared to mitigate the spread of infectious diseases and reduce the levels of illness and fatalities that result from the most challenging outbreaks and pandemics
- **how:** PHE will review and agree planning assumptions with our partners; review and update our contingency plans; clarify the level of surge response required from within PHE; inform updates to the National Strategic Risk Assessment; and conduct audit and exercise activity with our partners so that collectively we can provide assurance to government and the public on the response that they can expect to the most significant of infectious disease challenges
- **with:** National and Local Category 1 Responders, especially our partners within Local Health Resilience Partnerships and Local Resilience Forums

Annually, we have responded to around

# 10,000

disease outbreaks and emergencies including measles, meningitis, Listeria and the first ever UK case of Monkeypox



## Pandemic Influenza

is the highest scoring risk on the National Risk Register of Civil Emergencies



Our pandemic stockpiles of antibiotics and antiviral medicines could reduce the number of deaths in England during a reasonable worst case scenario flu pandemic by

# 350,000

## Build and apply evidence through research

Through research, evaluation, translation and innovation we develop, drive and evaluate new approaches to detecting and responding to infectious diseases

### Core function: Build and apply

We aim to undertake research that can lead to interventions or policies that make a positive difference to public health. We have an established track record of evaluating and developing new technologies and methodologies to improve how we detect and contain outbreaks and treat people with infectious diseases. We take advantage of point-of-care tests to support our NHS partners in the care of patients and prevention of infectious disease spread, including influenza. We have unique facilities and expertise including important biological assets (including microbial culture collections, outbreak and incidence data and materials, and a Whole Genome Sequencing (WGS) capability), that facilitate successful partnerships with national and international Government agencies and academic collaborators. Our National Infection Service Research and Development Institute acts as a focus to strengthen and grow our research activities, promoting the visibility of PHE expertise and enhancing the UK's international reputation for world-leading public health science. We will grow our partnership with the 13 Health Protection Research Units of the National Institute for Health Research to ensure that these centres of excellence in multidisciplinary health protection research enable our mission and core functions, and support the delivery of our Strategic Priorities.

Through **Strategic priority 6**, we will turn our attention to the infectious diseases burden associated with health inequalities, building evidence through research to characterise specific areas and develop strategies to reduce their impact on health. Through **Strategic priority 7**, we will improve and consolidate our world-leading capabilities in WGS to detect and control infectious diseases, with an increased focus on providing effective information for public health action by our partners.



### England are world leaders in the use of whole genome sequencing to manage TB

In 2017, England introduced the routine use of whole genome sequencing (WGS) of *Mycobacterium tuberculosis* in the management of people with TB. This is the first use of WGS as a diagnostic solution for managing tuberculosis anywhere in the world and was developed in partnership between PHE and the University of Oxford. Where previously it could take up to a month to confirm treatment choices and to detect spread between cases, this can now be done in just days at PHE's Birmingham and London laboratories. WGS diagnosis ensures patients who have a strain of TB which is resistant to specific drugs receive the right medication from the start of their treatment. This means that treatment is more effective, thereby shortening the time that patients are infectious and reducing the opportunities for spread of drug-resistant TB, and the cost to the NHS.

**Strategic priority 6:**

Build evidence to address infectious diseases linked with health inequalities

- **why:** in England, some pathogens disproportionately affect groups already experiencing health inequalities, including the homeless
- **what:** we will build evidence to characterise and tackle specific areas and develop strategies to reduce their impact on health
- **how:** we will focus on diseases that are prevalent in under-served populations including tuberculosis, blood borne viruses and other infectious diseases in homeless and prison populations. We will draw on PHE's experience working on health inequalities with non-communicable diseases and continue to develop our capability in behavioural science techniques. We will also develop a workstream relating to healthy ageing, in which we consider the prevention and treatment of common infections
- **with:** NHS local, regional and national teams and local authorities

**Strategic priority 7:**

Embed WGS in PHE labs and optimise the use of WGS-based information

- **why:** Whole Genome Sequencing (WGS) is a transformative technology that can determine transmission of microbes in populations, detect and support the control of outbreaks, and provide improved information for the diagnosis and treatment of infectious diseases
- **what:** we will optimise the use of WGS to detect and control the spread of infectious diseases. We will improve the provision of relevant and easy-to-use information and advice for users, to support public health action
- **how:** we will develop integrated and comprehensive pathogen WGS solutions and use innovative analytical technologies to provide timely information for public health action and patient care. This is underpinned by PHE's laboratory capabilities at Colindale and Porton and other country-wide laboratory sites, and by support from our research partners
- **with:** academic institutions, other public health agencies, front-line public health delivery teams within PHE, the NHS and local authorities

## Advise and collaborate with our health protection system partners

Working with our partners to strengthen the ability of the health protection system to respond to infectious diseases

### Core function: Advise and collaborate

Maintaining a strong health protection system requires close working with multiple organisations and with the public. PHE provides advice and support to local systems by providing surveillance reports; case management of infectious diseases; coordination and leadership of outbreak responses; support to Directors of Public Health; provision of evidence-based guidance to inform planning and response arrangements; and teaching and training to develop the capability of the public health workforce. This role extends to our national health protection system partners, including the NHS, Department of Health and Social Care, Food Standards Agency, Local Government Association, Animal and Plant Health Agency, and the public health agencies across the UK. We also support Global Health activities, including work to strengthen our health security by capacity building in countries of strategic importance.

Through **Strategic priority 8**, we will integrate and strengthen the Health Protection System through a collaborative review of ways of working at local, regional and national levels and support and enable the delivery of objectives arising from our other Strategic Priorities. Through **Strategic priority 9**, we will strengthen our Global Health activities and support when published, the PHE Global Health Strategy 2020-25.



### 2018 Response to Monkeypox

Monkeypox is a rare viral zoonotic infection which is spread following close contact with an infected case. In September 2018, two cases of Monkeypox infection were diagnosed in England. The cases had recently travelled from Nigeria but were not otherwise linked. These cases were the first diagnosed outside Africa since 2003. PHE declared an enhanced response in accordance with the PHE National Incident and Emergency Response Plan and established and chaired the national multi-agency Incident Management Team. This included representation from across PHE, NHS Trusts, NHS England, Public Health Wales, Health Protection Scotland, Public Health Agency (Northern Ireland), and the Ministry of Defence. Strategic liaison and communication were maintained throughout with the Department of Health and Social Care, and the Office of the Chief Medical Officer. The local response was delivered by PHE, local authorities, and NHS commissioners and providers. This collaborative approach strengthened the public health risk assessment, investigation and implementation of control measures across community, healthcare and military contexts. Internal and multi-agency debriefs were undertaken to identify lessons, further develop ways of working and continuously improve the multi-agency response to public health incidents.

**Strategic priority 8:**

## Integrate and strengthen England's Health Protection System

- **why:** effective delivery of health protection services, including the priorities outlined in this Strategy, requires close partnership working
- **what:** PHE will work with partners to strengthen local systems, ensuring that as a whole system we are focusing our capability and capacity in the right place
- **how:** PHE will review our ways of working with partners at local, regional and national levels. We will support the local delivery of the priorities outlined in this Strategy, including vaccine programmes, sexual health initiatives, and work with communities experiencing health inequalities. We will roll-out quality standards and develop tools to support joint needs assessment that describe local-system needs in relation to infectious disease prevention and control. We will work with partners to support evidence-based primary prevention by embedding infection control activity into Integrated Care Systems
- **with:** Local authorities, NHS (commissioners and providers), NHS England and NHS Improvement, and the Department of Health and Social Care

**Strategic priority 9:**

## Strengthen our Global Health activities to protect health in the UK and globally

- **why:** the extensive movement of people and climate change increases the risk of the spread of infections, including new and emerging infection threats
- **what:** we will continue to strengthen our global health role by responding to outbreaks and international emergencies, and by collaborating internationally to strengthen infectious disease control
- **how:** PHE will support a programme of work to collaborate with international partners to develop capacity to detect and control infectious diseases globally; strengthen International Health Regulations in partner countries; maximise the opportunities arising from overseas development aid and commercial partnerships to develop capacity in surveillance, diagnosis and control of infectious diseases; and help tackle Antimicrobial Resistance globally. We will support the PHE Global Health Strategy 2020-25
- **with:** Department for International Development, Department of Health and Social Care, global and commercial partners

## Generate and share evidence and advice

Use our core functions and strategic priorities to generate information on interventions that prevent and control infections and improve public health

### Core function: Generate and share

Our first line of prevention from infectious diseases rests with members of the public. For example, good food hygiene, getting children vaccinated or practicing safe sex are examples of how the spread of infectious diseases can be controlled. PHE has a key role in providing information and advice to people so they can protect themselves, their families and communities. We will communicate in a clear and timely way to explain the latest infectious diseases science and our advice on how to prevent and control infections, using the most appropriate channels including social media and national/local news. Some infectious diseases raise issues of risk and personal responsibility, and we will provide information in a way that allows people to make choices based on the best available scientific evidence.

PHE also provides trusted guidance to Ministers and departments across government. This advice becomes particularly important in the event of a major incident or novel and emerging threats, where the interface between the government, specialists at PHE and local responders needs to be effective.

Our core functions and strategic priorities are the mechanisms through which we generate the evidence required to develop guidance and advice to the public and government. Through **Strategic priority 10**, we will assemble and share information generated from across the Infectious Diseases Strategy and describe the impact of our interventions and actions on infectious disease prevention and control. This will include measures of lives saved and wider improvements in the health of our population.



### Using social media to promote the Value of Vaccines

In 2019, PHE launched the Value of Vaccines social media campaign. This was informed by research, including work by the World Health Organization on how best to maintain trust in vaccination and address anti-vaccine groups and their messaging. This included making resources and information easily available to parents; using the NHS brand and healthcare professionals, who are trusted sources of information for parents on vaccination; and not directly engaging with anti-vaccine groups while carefully correcting myths. During European Immunisation Week PHE highlighted the crucial role of healthcare professionals as our 'vaccine heroes', creating animations and graphics about the positive impact of vaccines to support media outreach. PHE worked with the Royal College of General Practitioners to offer practical tips to GP practices on overcoming the barriers to vaccine uptake. The Value of Vaccines campaign has got off to a flying start and the momentum keeps building. PHE are becoming the voice on vaccines, appearing in almost three quarters of all vaccine related news in England in June 2019. PHE are taking every opportunity we can to promote vaccination including the launch of the HPV vaccine to boys, and are holding discussions with NHS Digital and Facebook about what we can do to tackle misinformation.

**Strategic priority 10:**

## Define the value generated by delivering our Infectious Diseases Strategy

- **why:** evidencing the impacts that we have with our partners on the spread of infectious diseases allows us to continue to learn and improve, target our work and resources for greatest impact, and retain trust for the work that we do, both with the public and with Government
- **what:** PHE will publish information that collates the evidence of the effect of our infectious disease related activities, bringing together the sum of our core functions and strategic priorities. Outcomes measured will include the prevention of death or illness, reduced burden on health services, and impacts on economic activity such as reduced costs or losses to the taxpayer and private enterprise
- **how:** PHE will build on the evidence review that was undertaken to support the choice of Strategic Priorities. This will be updated annually to provide a recognised and authoritative publication, using an agreed methodology to evaluate interventions
- **with:** our partners at national and local level across the health sector, academia, government, and the global research and public health community

**600**

peer reviewed publications on infectious diseases from PHE scientists in 2017

The childhood vaccination programme prevents the deaths of

**5,000**

children each year in England compared to the pre-vaccine era



the monthly average number of social media impressions for PHE's value of vaccines campaign is over

**900,000**

## Enablers

To sustain our core functions, deliver our strategic priorities, and have the greatest impact on the nation's health within our available resources, we will strengthen the capabilities of the organisation and take advantage of the opportunities that new knowledge and technologies bring. We will develop:

### People

Developing our people and our partnerships



#### Build, support and retain a skilled and resilient workforce

Identify and target skills gaps in our existing workforce. Retain specialist and technical expertise and ensure that our staff can diversify their skill sets by matrix working across PHE. Ensure effective succession planning.

#### Build our knowledge of, and influence within the health protection and wider health system

Use our role as a system leader to delineate issues impacting on local health system partners. Building on the 'What Good Looks Like' guiding principles and approach, using evidence and expertise to inform locally led interventions. Work to influence the agenda of national stakeholders including the NHS, Department of Health and Social Care and Health Education England.

### Ways of working

Improving how we work together as an organisation



#### Achieve together as 'one PHE'

Following on from co-production of the PHE Infectious Diseases Strategy, continue to build a culture of collaboration and co-production across PHE and with key partners. Improve our core functions, in advance of the move from our Porton and Colindale sites into a new public health campus at Harlow.

#### Achieve sustainable income and finances

Better understand our resource envelope including our spend on infectious diseases across PHE. Consider further opportunities to maximise our external income, drawing on our research and the use of our unique capabilities. Embed the culture of continuous improvement and efficiency across PHE.

### Technology and research

Investing in and taking advantage of new technologies and evidence



#### Enhance our incident response, surveillance and laboratory infrastructure, and develop specialist and scientific computing capability

Continue to renew and invest in the right infrastructure, including laboratory capabilities and the development of a new Case and Incident Management System, to complement our infectious disease diagnosis, surveillance, and research capabilities.

#### Create, share, use and manage our knowledge and evidence

Use our knowledge to develop new interventions to tackle infectious diseases. Actively share insights, data and intelligence across Directorates within PHE and with key partners. Take opportunities to manage these insights, including the needs of the end user. Share the outcomes of our actions and interventions.

# About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-leading science, research, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and a distinct delivery organisation with operational autonomy. We provide government, local government, the NHS, Parliament, industry and the public with evidence-based professional, scientific and delivery expertise and support.

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