



Public Health  
England

Protecting and improving the nation's health

# International public health development and emergency response: capability statement

## About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. It does this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. PHE is an operationally autonomous executive agency of the Department of Health.

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## Statement scope

This document outlines our capabilities to support low and middle income countries strengthen their public health capacity and respond to outbreaks and emergencies. It also describes activities of relevance to higher income countries where we may assist on issues of global health security.

We also undertake commercial and consultancy activities in relation to public health systems but these are considered separate and beyond the scope of this document.

This document aims to capture key areas of work and does not intend to provide a full summary of all national and international capabilities.



PHE on the ground, analysing samples in Guinea



Fighting Ebola in Sierra Leone

## Introduction

Public Health England is the national public health agency for England bringing together world class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We employ 5,600 staff, host eight World Health Organization Collaborating Centres and work closely alongside a number of partners to protect the public's health both nationally and internationally. This is possible because of a wide range of capabilities ranging from microbiology expertise and field epidemiology to programme development, emergency response and strategic planning (see Table 1 – Our skills at a glance).

Our centre work as part of local health systems contributes to local and national priorities and enlists others to improve health and reduce inequalities. This experience of working at local, regional and central levels is essential to strengthening the health system as a whole and fundamental to how we approach our global programmes.

A map giving examples of some key international activities can be found on p22/23.



## Table 1 - our skills at a glance

### We have expertise and experience in:

Antimicrobial resistance
Behavioural and population responses to major incidents
Biosafety and biosecurity
Bioterrorism – response, diagnosis and mitigation
Communicable disease prevention and outbreak management
Communications and marketing
Disaster risk reduction
Emergency response
Environmental hazards and severe weather events
Epidemiology
Field co-ordination
Immunisation (including vaccine development)
Mass gatherings
Medical counter measures development
Microbiology and laboratory services
Modelling and bioinformatics
New and emerging infections
Non-communicable diseases
Outbreak Response and Management (UK & deployed)
Policy development and evaluation
Programme monitoring and evaluation
Protection from chemical and environmental hazards
Public health capacity building
Radiation protection (ionising and non-ionising radiations)
Research
Screening
Statistics and modelling
Surveillance systems
Training and exercises

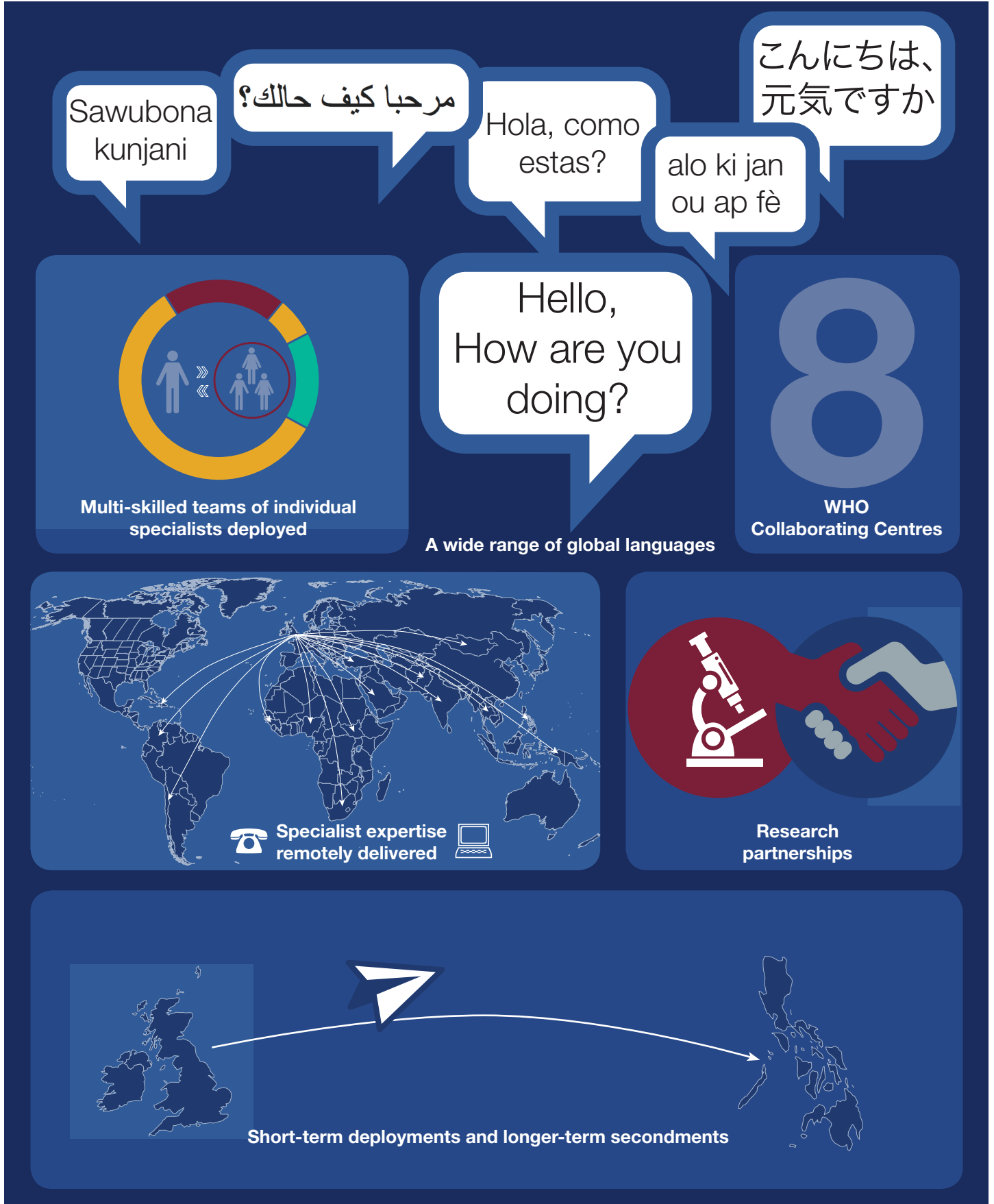
## Capacity to deliver

PHE can draw on the specialist skills, knowledge and expertise of 5,600 staff many of whom have global health experience. With the expansion of our international programmes, our growing approach to global health and increased targeted training opportunities there is an ever-increasing pool to draw from. Our staff have a broad range of language skills and can deploy as a multi skilled team to cover complex situations or as individuals with specialist skills.

Our international work is managed through short and longer term secondments, rapid deployments, delivery of technical advice, international visits, training and development placements, workshops and research partnerships. In many cases ongoing long-term collaboration, including distance mentoring combined with targeted visits has proved very effective.

Requests for international partnership working are considered on a case by case basis alongside the criteria set out in our Global Health Strategy. Funding for international programmes comes from a number of national and international bodies.







## Global health remit

We provide national and international leadership and scientific advice to reduce harm from infectious disease and environmental hazards. We ensure that there are effective surveillance arrangements in place nationally and locally to identify threats and for preparing, planning and responding to health protection concerns and emergencies. We also play a key role in the UK's contribution to the global health security agenda, particularly around antimicrobial resistance

This document is closely aligned with our [Global Health Strategy: 2014 to 2019](#), which sets out five aims: improving global health security; responding to outbreaks and incidents of international concern as well as humanitarian disasters; building public health capacity globally; strengthening international aspects of non-communicable diseases; and strengthening UK partnerships for global health activity.

## Improving global health security

Our health protection and security work encompasses a wide range of activities and includes adoption of the One Health approach<sup>1</sup> to disease prevention and control. Areas of work are interrelated and include:



- **antimicrobial resistance:** alongside the UK Department of Health, we mobilised significant support for antimicrobial resistance (AMR) including a side-session at the 2013 World Health Assembly which led to the adoption of a resolution at the 2014 World Health Assembly. We are leading on the development of a Commonwealth laboratory twinning initiative which twins high-income Commonwealth countries with low and middle-income Commonwealth countries to assess and improve capacity and capability to monitor and help address AMR. The first twinning workshop was held for the Caribbean region in collaboration with the Caribbean Public Health Association in December 2014. Our national Reference Unit (AMRHAU) is a WHO collaborating centre and contributes actively to training initiatives relating to AMR



- **microbiology and laboratory services:** we have a network of public health microbiology laboratories capable of providing services with 24 hour availability on routine to rare and imported pathogens. A sero epidemiology bank and the culture collections are also important resources. Electronic reporting of laboratory-confirmed infection contributes to the surveillance of infectious diseases. This is a valuable resource for global work and makes a key contribution to the Global Outbreak Alert and Response Network (GOARN) functions for microbiology

Infectious disease research, developing new and advanced test protocols and diagnostics for detection of infections, pathology modernisation and workforce training and development is also conducted. We are a recognised training site for the European Programme for Public Health Microbiology Training (EUPHEM) in liaison with the European Centre for Disease Prevention and Control (ECDC)

We have extensive skills in high containment microbiology and conduct translational research on new, emerging and re-emerging diseases, and the development and evaluation of novel interventions to combat these global health threats. Staff with these rare high containment technical skills have been successfully deployed in response to Ebola Virus Disease (EVD) outbreaks

1. One Health Global Network (2015) The One Health approach aims ‘to improve health and well-being through the prevention of risks and the mitigation of effects of crises that originate at the interface between humans, animals and their various environments’. (Accessed 10.06.2015)

We have a dedicated training group (NADP Training) which specialise in running courses in high containment microbiology for our scientists and on a commercial basis for UK and overseas scientists. This group have provided scientific pre-deployment training to over 350 scientists deployed to the laboratories in Sierra Leone

## Case study 1 – PHE response to West Africa Ebola Virus Disease outbreak (2014)

PHE was closely involved throughout the EVD outbreak in West Africa supporting the UK Department for International Development (DFID) and WHO activity and building strong organisational links with the Sierra Leone Ministry of Health and Sanitation.

With funding from DIFD PHE deployed three EVD diagnostic laboratories to Sierra Leone in Kerrytown, Makeni and Port Loko and by July 2015 tested more than 23,000 samples for EVD. PHE managed the resourcing of the laboratories with equipment, consumables, methods, technical support, and provided specialist training to more than 350 volunteer laboratory workers from across the UK who ran the laboratories.

PHE has also supported the European mobile laboratory deployments in Guinea and Liberia with 26 deployments of PHE Porton staff to run the laboratories between March 2014 and June 2015.

Epidemiologists provided expert advice to the Sierra Leone Ministry of Health and Sanitation on managing the outbreak. Many of these PHE experts worked closely alongside partner organisations including Save the Children (UK) International Medical Corps, Aspen and GOAL.



PHE laboratory in Port Loko



European mobile laboratory in Guinea



- **epidemiology:** we collect, analyse, interpret and disseminate public health information and intelligence at both national and international levels to identify health threats, establish trends and assess risks. PHE runs a two-year Field Epidemiology Training Programme to train staff to rapidly design and execute appropriate and timely epidemiology studies in international contexts that are often complex and difficult to control. We also participate in the training of public health consultants, microbiologists and fellows in the European Programme for Intervention Epidemiology Training (EPIET)



- **immunisation:** we are capable of assisting in the introduction of new vaccine programmes, supporting improvements in existing vaccination programmes and contributing to the provision of vaccination programmes during humanitarian crises



- **new and emerging infections:** the Emerging Infections and Zoonoses team at PHE Colindale covers a range of activities including horizon scanning for emerging and international infectious disease threats and assessment of potential threats identified on behalf of the cross-government Human Animal Infections and Risk Surveillance Group (HAIRS). The team has an established history of working internationally with human and animal health colleagues on the One Health approach. At PHE Porton, with over 15 years of international experience, the Virology and Pathogenesis group has developed strong global partnerships and has a history of international support and deployment. PHE Porton also hosts the Rare and Imported Pathogens department which provides diagnostic and clinical services to the UK and overseas and operates the national imported fever service



- **chemical, radiation and environmental hazards:** we contribute extensive scientific and technical expertise to many international advisory bodies for radiation and chemical protection standards, emergency response and training. We lead on the development of co-ordinated response to serious cross border chemical health threats for the EU. We also have expertise in climate change and health research and a history of developing national plans and guidance to prepare for, respond to and recover from extreme weather events such as heatwaves, cold and flooding



- **biosafety and biosecurity:** we have world-renowned expertise in these two related but distinct areas:
  - biosafety concerns preventing unintentional exposure to pathogens and toxins, or their accidental release
  - biosecurity covers methods used to protect, control and account for such biological materials

Bioterrorism is the deliberate release of viruses, bacteria, or other agents used to cause illness or death. It requires a specific form of emergency preparedness in which we have extensive experience

- **mass gatherings:** we have a legacy of passing on our expertise from London 2012 on public health planning and delivery for mass gatherings. This expertise has been used to develop planning resources, including toolkits and updated key considerations for mass gatherings to be developed. Activities include, working with host countries and organisations when planning mass gatherings including ensuring a legacy post event. Planning for mass gatherings includes a wide range of skills including extreme events, emergency planning and the behavioural and population response to major incidents
- **disaster risk reduction:** we work with a number of partners (including WHO and the UN Office for Disaster Risk Reduction) to provide evidence-based guidance, improve co-ordination of research and innovation, and support capacity development in a range of settings. This aims to strengthen public health systems through improving prevention, response and recovery at local, national, regional and global levels



## Case study 2 – developing the Sendai framework for action (2015)

The Sendai framework on disaster risk reduction 2015 to 2030 was adopted by representatives from 187 UN Member States in March 2015. It is the first of the post-2015 UN development agendas. Key issues where we can add value include: building resilience of national health systems, developing the capacity of health workers, strengthening the implementation of the WHO International Health Regulations (2005), addressing life threatening and chronic diseases and establishing a mechanism of case registry.

Our representatives (including the vice-chair of the UNISDR Scientific and Technical Advisory Group) are currently involved in addressing the global implementation of the framework.



UN World Conference on Disaster Risk Reduction



Adopting the Sendai framework

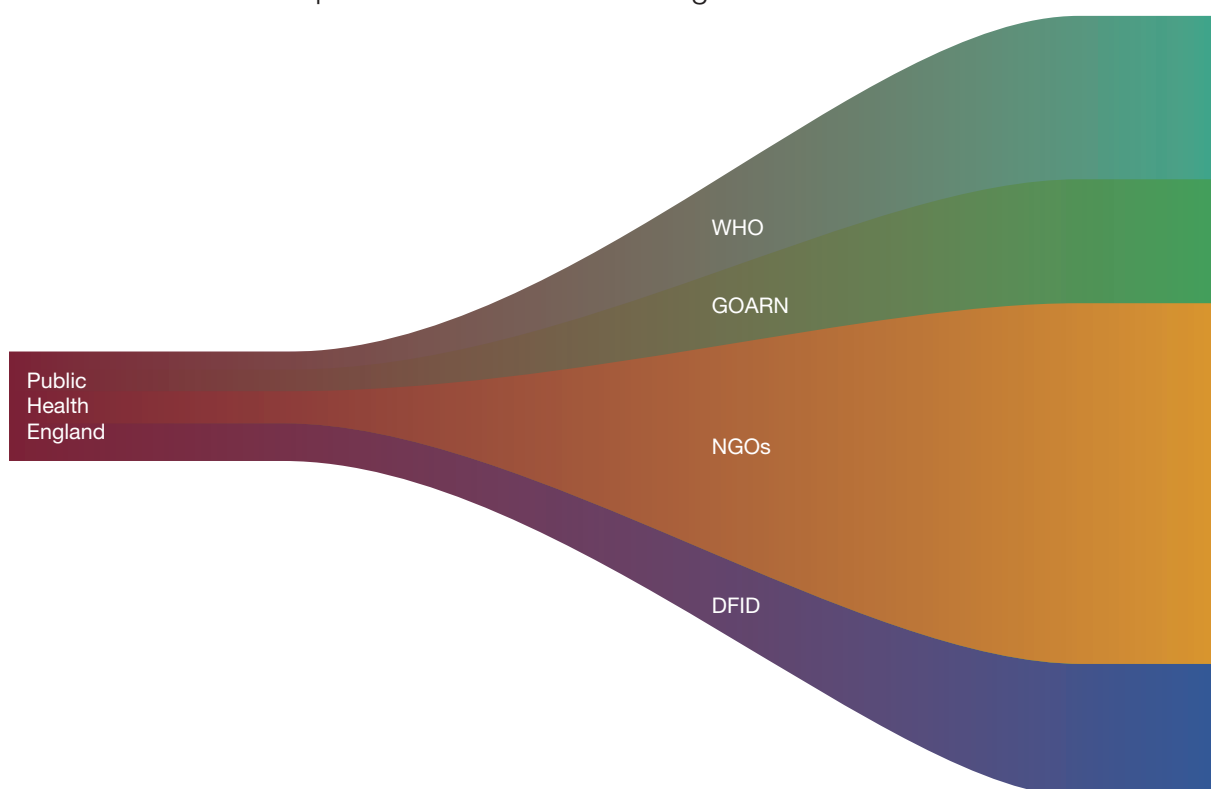
## Responding to outbreaks and incidents

We receive requests for international outbreak and emergency response assistance and where appropriate to do so can respond independently, alongside host governments (bilaterally) and also:

- alongside or in partnership with the Department for International Development (DFID) (UK)
- through WHO and the Global Outbreak Alert and Response Network (GOARN)
- with non government organisations (NGOs) including through UK Med<sup>2</sup>

Across PHE there is significant experience and expertise available to respond to a range of disasters with actual or potential public health impacts. Specialist areas of expertise include: disease outbreaks, mass gatherings, natural hazards, bioterrorism, chemical and radiation incidents, field coordination and the behavioural and population responses to major events.

During a public health emergency PHE works closely alongside local, national and international groups and collaborates with established in-country health clusters as required. The organisation is also a partner of the Global Health Cluster, which works to minimise the health impacts of humanitarian emergencies.



We support the strengthening of local systems and ownership from the outset, thus helping achieve sustainable outcomes through fostering local leadership and responsibility. Our staff deployed to outbreaks and emergencies benefit from being involved and increase their capacity to help prepare the UK for potential public health threats.

### Case study 3 - PHE response to Typhoon Haiyan (Yolanda) (2013)

We mobilised a mixture of short-term senior epidemiologists and infectious disease surveillance and control experts in the immediate aftermath of Typhoon Haiyan (Yolanda). They worked closely with the Health Cluster and led the WHO response team, developed infectious disease outbreak control plans (eg Dengue control in disaster areas), identified health facilities, and rehabilitation priorities, and developed a wide range of public health development strategies.

Given the scale of the disaster we were asked for further support in team leadership, logistics and public health recovery and rehabilitation planning. This included deployment of a senior PHE consultant for three months. This support was acknowledged by WHO and the Philippines Department of Health as a significant contribution to helping effectively coordinate and support the disaster response over six months.



Emergency response to Typhoon Haiyan, The Philippines



Emergency response to Typhoon Haiyan, The Philippines

## **Building public health capacity**

We build capacity through partnership working, supplemented where appropriate by varied training activities.

We deliver policy advice, surveillance system development, technical and laboratory expertise and the development of national vaccine policies and programmes. Work is undertaken with countries to build national public health systems and support the creation of National Public Health Institutes. Specific areas of work for PHE include supporting implementation of the WHO International Health Regulations (2005), building health protection capacity and exchanging information, advice and expertise. The organisation also has key skills in the multi-faceted aspects of public health communication including social marketing and health promotion campaigns.



## Case study 4 - health system strengthening in South Africa (2011 onwards)

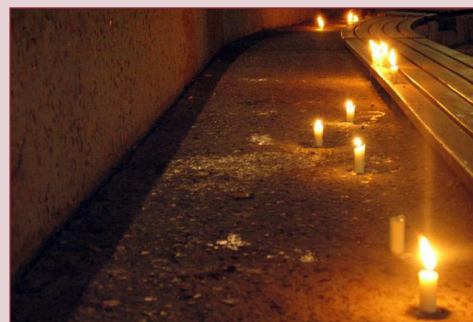
We have collaborated with the South African National Institute for Communicable Diseases (NICD) since 2011, exchanging personnel, resources, and expertise across both institutions to build health protection capacity, strengthen implementation of the International Health and exchange of relevant information and advice. This has involved a number of short and long term secondments and exchanges.

Outcomes have included an important national survey of TB drug resistance, strengthened TB and HIV surveillance activities. A detailed technical understanding of the TB surveillance systems in both countries has been shared and GIS incorporated within the South African system. We have provided training and algorithms on probabilistic matching of notification and laboratory data, and supported the development of analysis plans for the South Africa TB strain typing and drug resistance survey.

Our staff seconded to NICD benefitted from exposure and participation in the response to infectious disease threats that are no longer common in the UK, increasing their capacity to prepared UK for risks that could emerge from an increasingly interconnected world.



Candle lighting on World AIDS day in Cape Town, South Africa



1 candle = 10,000 people with HIV/AIDS

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## Health and wellbeing

Strategic areas of focus for health and wellbeing include promoting healthier lifestyles, reducing health inequalities, delivering chronic disease prevention programmes and developing the science and evidence to inform and improve policy. The organisation is currently developing a proactive strategy for supporting international efforts to address non-communicable diseases. Specific areas of expertise include work on screening, health checks, smoking cessation, prison health, cancer registries and mental health work.

PHE is committed to sharing the evidence of the most efficient, cost-effective, feasible and scalable interventions to promote health and wellbeing and to prevent disease. Individual behaviour change is supported through our award-winning health marketing programmes.

### Case study 5 – international screening programme development



Visit to a clinic for patients with sickle cell disease in Katsina, Northern Nigeria

We have an international reputation for gold standards with respect to vaccination and screening programmes. The NHS sickle cell screening programme is currently being used as a model for the development of a similar programme in Nigeria which is the result of extensive collaboration between the UK National Screening Committee and colleagues from the US and Nigeria.



Visit to a clinic for patients with sickle cell disease in Katsina, Northern Nigeria

Nigeria has the largest population of people with sickle cell disease in the world and screening can support early identification and prompt treatment for babies who may be vulnerable to serious infections and other complications.

PHE's skills in promoting health and wellbeing at a global level and using communications as part of public health work include managing risk situations, mass public health campaigns, health promotion and professional mobilisation.

Data is at the heart of our ability to monitor the impact of public health programmes. The treatment outcomes profile is England's outcomes monitoring system for substance misuse treatment. This system has received international attention and is now being used by a number of countries.

we support research across all domains of public health, collate and analyse data and provide knowledge and intelligence to inform public health programmes and interventions. We make world leading expertise available to low and middle income countries on a range of diseases and risk factors and our international cancer registration work is an asset to many across the world.

## Case study 6 – global burden of disease programme (2010)

The global burden of disease 2010 (GBD) programme has increased our understanding of trends in diseases, injuries and risks at global, regional and national levels. The programme has also enabled regions and countries to compare the health of their populations.

We are building a network of academics across the UK to support and guide the GBD programme. We are currently collaborating with colleagues at the University of Washington Institute for Health Metrics and Evaluation on analysis of the effect of deprivation on the burden of disease at subnational level. This will be the first time that this sort of analysis has been undertaken. Other countries (eg China, Mexico, and Brazil) are keen to follow this approach.



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## Strengthening partnerships

We have developed strong collaborations with a number of national and international partners and are considered an active member of the global health community. Key to our global health work is the relationship with multinational partners, bilateral partners, NGOs, UK government departments and agencies, UK devolved administrations, UN agencies and universities in the UK and around the world. Our eight WHO Collaborating Centres are listed below.

### Table 2 - PHE/WHO Collaborating Centres

WHO Collaborating Centre for:

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Virus Reference and Research (Special Pathogens)

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Mass Gatherings and Global Health Security

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Laboratory and Diagnostic Support

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Public Health Management of Chemical Incidents

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Reference and Research on Diphtheria and Streptococcal Infections

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Reference and Research on Antimicrobial Resistance and Healthcare Associated Infections

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Haemophilus Influenzae

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Promoting Health and Prisons

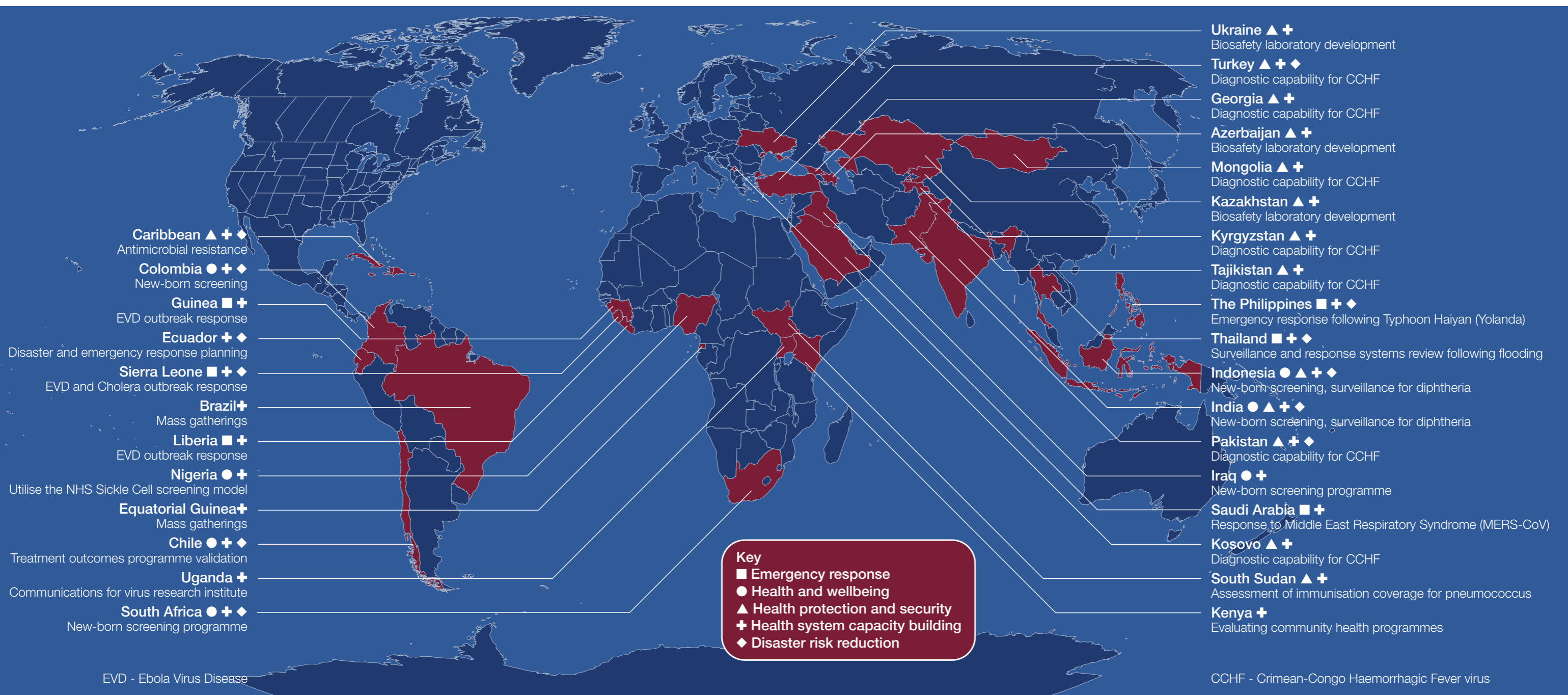
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## Looking forward

We will continue to innovate, explore new ways of working and broaden our existing collaborations and partnerships. Successful relationships have already been built with many different funders and we will continue to ensure our programmes provide value for money while maintaining the highest standards of quality and effectiveness. To date this has been achieved through a prudent use of limited available resources determined on a case by case basis and a pragmatic approach to project development and risk management.

In order to fully realise our potential, build on our past and current successes and ensure sustainability, we will actively look for new sources of funding and assess the feasibility of setting up a PHE global health foundation.

## Examples of who PHE has worked with



This map illustrates a sample of partnership activities and is not intended to outline all PHE global programmes.

## Acronyms and abbreviations

<b>Acronym/abbreviation</b>	<b>Meaning</b>
AMR	Antimicrobial resistance
AMRHAI	Antimicrobial resistance and healthcare associated infections Reference Unit
CARPHA	Caribbean Public Health Association
CCHF	Crimean-Congo haemorrhagic fever virus
CRCE	Centre for Radiation, Chemicals and Environmental Hazards (PHE)
DFID	Department for International Development (UK)
DH	Department of Health (UK)
DRR	Disaster risk reduction
ECDC	European Centre for Disease Prevention and Control
EDV	Ebola disease virus
EU	European Union
EUPHEM	European Programme for Public Health Microbiology Training
FETP	Field Epidemiology Training Programme
GBD	Global burden of disease programme
GIS	Geographic information systems
GOARN	Global Outbreak Alert and Response Network
HAIRS	Human Animal Infections and Risk Surveillance Group
HIV	Human immunodeficiency virus
MERS-CoV	Middle East respiratory syndrome
NCD	Non-communicable disease
NGO	Non-governmental organisations
NHS	National Health Service
NICD	National Institute for Communicable Diseases (South Africa)
PHE	Public Health England
TB	Tuberculosis
TOP	Treatment outcomes profile
UNISDR	The United Nations Office for Disaster Risk Reduction
US	United States of America
WHA	World Health Assembly
WHO	World Health Organization