“During my career as a public health doctor I’ve come to realise that most people have no idea what I and my public health colleagues do. Surprisingly, not many doctors know either!”

Dr Kathrin Thomas
Consultant in Public Health Medicine

“Public health training is exciting and diverse. As a speciality it can take you to unexpected places!”

Dr Stella Botchw ay
Speciality Registrar in Public Health Medicine

INTRODUCTION

Public health is populations and...
SUMMARY

The role of public health doctors is to bring an expertise into making this happen: to define and describe populations and the inequalities in their health, to assess their needs, to provide the evidence for what to do, and to facilitate and support those who are doing it, from the refuse collector to the First Minister.

Health is about improving the health of and groups rather than individuals.
WHAT IS PUBLIC HEALTH?

“I had always thought of Public Health as rather dry - you made it sound fascinating!”
General Practitioner

Everyone has opinions about public health, without recognising that they are indeed about public health. We all have ideas about what kind of society we want, and how to get there – this is the fundamental starting point of public health. Public health has been defined in many ways, but one of the most used definitions is:

“The science and art of preventing disease, prolonging life and promoting health through the organised efforts of society.”
(Sir Donald Acheson)

Public health is about every member of society doing their bit to contribute to the health and well being of the population.
Modern public health is often concerned with addressing determinants of health across a population. There is recognition that our health is affected by many factors including where we live, genetics, our income, our educational status and our social relationships – these are known as “social determinants of health.” Since the 1980s, the growing field of population health has broadened the focus of public health from individual behaviours and risk factors to population-level issues such as inequality, poverty, and education.
A social gradient in health runs through society, with those that are poorest generally suffering the worst health. However even those in the middle classes will generally have worse health outcomes than those of a higher social stratum. The new public health seeks to address these health inequalities by advocating for population-based policies that improve health in an equitable manner.

Because public health takes a population rather than an individual approach to health, ethical justification for intervening is often qualitatively different. Where health care decisions are ordinarily focussed on delivering benefit to identifiable individuals and are regulated by consent, public health seeks to distribute benefits maximally across population groups, drawing on utilitarian justifications.

Successful public health interventions retain considerable scope to make significant and highly cost-effective gains in overall population health outcomes. When we are effective, we have the potential to improve the lives of thousands of people.
WHAT DO DOCTORS BRING TO PUBLIC HEALTH?

Doctors have a unique contribution to make to public health work. Many public health doctors have worked in other clinical specialties before coming to public health. Our extensive experience of taking responsibility, making difficult decisions, and dealing with many different kinds of people makes us a valuable resource. Strong skills in numeracy, scientific reasoning, critical thinking and evidence-based practice provide an excellent basis for developing further specialist public health competencies.

Doctors are often able to “oscillate” easily between the individual and the population view: we have an understanding of individual health and disease (genetics, physiology, individual resilience) and can connect this knowledge to the community and population level. We diagnose the sickness that affects populations and suggest treatments that are likely to improve the prognosis.

Thomas Dyke (1816-1900) was born in Merthyr Tydfil and was appointed one of the UK’s first Medical Officers of Health in 1865 and held this post until 1897.

The improvements in water supply, sewerage, sanitation, inspection, and housing, most of them under his guidance, meant that by the end of the century Merthyr’s death rate was less than the average for other industrial centres and the death rate from infantile diarrhoea for most of 1865-1900 was the lowest of any town in the United Kingdom.
WHO ELSE WORKS IN PUBLIC HEALTH?

Public health is everyone’s business, but some people have it in their job description. A vast number of people have public health roles: in the NHS, Local Authorities, voluntary and private sectors.

All doctors should have some basic public health competencies, as defined in the Public Health Skills and Careers Framework:

Core areas

1. Surveillance and assessment of the population’s health and well being
2. Assessing the evidence of effectiveness of interventions, programmes and services to improve populations health and wellbeing
3. Policy and strategy development and implementation for population health and wellbeing
4. Leadership and collaborative working for population health and wellbeing

1 The Public Health Skills and Career Framework Multidisciplinary/multi-agency/multi-professional April 2008
http://www.sph.nhs.uk/sph-files/PHSkills-CareerFramework_Launchdoc_April08.pdf
People who have developed their competencies to a high level across all areas are the specialist public health workforce. Modern public health practice requires multidisciplinary teams of professionals which include physicians, epidemiologists, biostatisticians, public health nurses, medical microbiologists, environmental health officers, dental hygienists, dietitians and nutritionists, health inspectors, veterinarians, public health engineers, public health lawyers, sociologists, community development workers, communications officers, and many others!

NHS Public Health Consultants can be doctors, or they can come from other backgrounds. It is the only medical specialty where people with equivalent experience can be appointed as consultants, albeit on a managerial contract with similar terms and conditions. There is a lot of benefit to be obtained by working alongside non-medical colleagues in the same job, although as a consequence, the proportion of doctors in the public health specialist workforce is decreasing. Unfortunately, there has been little expansion in the public health consultant workforce as a whole in the UK, unlike every other medical specialty.

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PUBLIC HEALTH IS NOT JUST HEALTH PROMOTION OR HEALTH PROTECTION

“You do outbreaks and stop people smoking”

Public health doctors do far more than our colleagues know about. Our work affects many aspects of the NHS and beyond. For example, we might: carry out needs assessments that change health care service delivery; set up vaccination programs to be delivered by colleagues in primary care; advise Ministers on policy that leads to legislation; or produce brief intervention training programs for all health care staff to support behaviour change.  

Directors of Public Health have long been the person in the decision making bodies whose first concern is to be an advocate for the population, above financial or corporate duties. They produce an annual report which sums up the needs of their population and the key health issues, with their recommendations for action.

2 Thomas Dyke info http://www.mtht.co.uk/HeritagePlaquesPeople.html
SO, WHAT IS IN THE JOB DESCRIPTION?

Being at the table
One of the most fundamental things that public health doctors do is to be at key decision-making tables. We are the advocates for the population, not for any staff group, specialty or service area. Often, we are the only clinicians in a group that is making decisions that affect the public and patients, as well as health professionals. We have to give impartial, independent and evidence based advice; and in doing so it is imperative to have a strong sense of social justice. It is important to want to do something about inequities in health and well being. This is often best achieved at the policy and community level, and some of the most effective public health work is done in this way.

Health Intelligence
When we make decisions in life, we like to have as much information as possible and preferably information that is of a high quality and is easy to understand. For decisions affecting public health, this is even more important. What is our defined population like? How many people, what gender, where do they live, how do they live, how unequal are they in life or well being or wealth? What makes them die and what makes them unwell? What makes communities resilient and healthy or what makes them vulnerable and sick? What health services do they need and what do they currently have?

For this, we need to be epidemiologists, statisticians and health analysts. All these are professions in their own right, but as public health doctors we need to have all these skills to a level where we can bring them into the real world and make them useful to others. In addition to producing quality research of our own, we are often the translators of the research of others. This leads to being advocates for change based on health intelligence.
Health Protection
This is a core area of work for many public health doctors. In Wales, we have 5 health protection teams, each led by a Consultant in Communicable Disease Control (CCDC) with an overall Lead CCDC for Wales. The team includes nurses and other public health professionals. These teams respond to any immediate health threats to their local population: for example, disease outbreaks, environmental hazards, man-made disasters such as large fires or concerns about pollution. They also plan ahead for major health threats, such as influenza epidemics or nuclear accidents. This function also includes the Vaccine preventable diseases program and the
Communicable Disease Surveillance Centre. Many GPs will be familiar with their local team after liaising with them for advice about infectious diseases and vaccination.

This is challenging, intellectually stimulating and exciting work. Doctors and their colleagues who keep this system going have probably saved many lives. We often forget that the most cost effective interventions for saving lives, especially the lives of children, is a comprehensive vaccination program, combined with surveillance and control of infectious disease outbreaks. We take this for granted at our peril in our rich and technologically advanced country.

However, none of us can point to the individual child who did not die from measles or the student who was not disabled by Meningitis C.
Improving Services
Health care services range from prevention through diagnoses, treatment and care. Although less than 50% of improvements in life expectancy are due to health care services, we know that they can make a large difference if they are effective, equitable, and humane. The key to doing this is keeping everyone focussed on the same outcomes of health gain for the population and the individuals within it. We contribute by putting health intelligence and evidence into the health planning process. Supporting plans to meet identified needs requires assessing the needs of defined populations, identifying best practice and measuring gaps in local provision. The work is often messy, prolonged, and political. It involves engaging with many people such as the public, patients, health professionals, managers and politicians.

This hard work is worth it, because, as a result, we have an NHS that is one of the most cost effective health care systems in the world.

Health Improvement
The focus of health improvement is to improve length and quality of life through the prevention of physical and mental health conditions, the reduction of risk factors in the individual and in populations, and the promotion of healthy behaviours. Examples of common health improvement measures are the promotion of hand washing and breastfeeding in all settings, providing training for frontline health workers in brief interventions for alcohol and tobacco, and tobacco control legislation.
One example is the dramatic response of infant mortality to improvement in social conditions. Although poverty and deprivation affected a significant section of the Welsh population during the inter-war years, for those in work living standards were improving. New houses were built, electricity and gas supplies installed, and kitchens and bathrooms with hot and cold running water made life much easier. Death rates continued to decline and infant mortality overall showed a significant improvement:

Twentieth century public health
There were vast improvements in public health over the twentieth century.

During the early years of the twentieth century a number of new approaches to public health were adopted, targeting the health of expectant mothers, infants and children.

Tuberculosis was a major health problem in Wales. Statistics from 1910, showed that seven of the 15 worst affected counties in England and Wales were in Wales, and that the five counties suffering the highest death rates were all Welsh.

The price of coal fell during the years following the First World War and the coal owners responded by making cuts in wages. This caused extreme deprivation and the health of miners and their families suffered. The slump in demand for coal was to continue to have serious effects on the lives and the health of the population.
An analysis of premature coronary heart disease deaths avoided in the UK shows that the proportion attributable to prevention measures is greater than treatment interventions, with the reduction in smoking alone accounting for 41%.

Source: Dr Christopher Birt, University of Liverpool
Explaining the fall in coronary heart disease deaths in England and Wales 1981-2000

- **Risk factors worse**
  - Obesity (increase): +3.5%
  - Diabetes (increase): +4.8%
  - Physical activity (less): +4.4%

- **Risk factors better**
  - Smoking: -41%
  - Cholesterol: -9%
  - Population BP fall: -9%
  - Deprivation: -3%
  - Other factors: -8%

- **Treatments**
  - AMI treatments: -8%
  - Secondary prevention: -11%
  - Heart failure: -12%
  - Angina: CABG & PTCA: -4%
  - Angina: Asprin etc: -5%
  - Hypertension therapies: -3%

**68,230 fewer deaths in 2000**
Screening

The UK National Screening Committee definition of screening is:

“.. a process of identifying apparently healthy people who may be at increased risk of a disease or condition. They can then be offered information, further tests and appropriate treatment to reduce their risk and/or any complications arising from the disease or condition.”

In Wales, most screening programs are organised under the single umbrella of Public Health Wales, which includes all antenatal and newborn screening, breast, cervical and bowel screening. Many parts of these programs are delivered by other organisations and health workers, under Public Health leadership, program organisation and quality control. This results in some of the most effective, efficient and safe screening programs in the UK.

PUBLIC HEALTH IN WALES IS GOING A DIFFERENT ROUTE

Wales has increasingly taken a different route to the rest of the UK in public policy and health policy since devolution in 1999. There is an ideological commitment to collectivism and population health approaches, rather than individual choice and commissioning/privatisation of services. In Wales, the largest proportion of the specialist public health workforce is employed by the NHS, in one national body, Public Health Wales NHS Trust, but which also has many local and national teams.
Aneurin Bevan, from South Wales, was the son of a coal miner. After attending the Marxist Central Labour College in London, he returned home and served on the hospital committee of the Tredegar Medical Aid Society. He learned to appreciate the value of collective action and comprehensive protection in the case of ill health. He also knew the true cost of occupational disease, as his own father died from pneumoconiosis.

At the end of the Second World War Aneurin Bevan was appointed Minister of Health and in 1946. He introduced legislation that led to the founding of the National Health Service in 1948.

He was adamant that this had to be a universal service based on rights of citizenship, funded through central government taxation. This ensured that there was a national health care system in the U.K.

What is Public Health Wales?
The majority of the public health specialist workforce was gathered into one organisation (the National Public Health Service, NPHS) in 2003. After major NHS reorganisation in 2009, this was increased by merging the Wales Centre for Health, Screening Services and several other bodies to become Public Health Wales (PHW) NHS Trust in 2009. At the same time, the seven new Health Boards were established, which merged Local Health Boards and hospital trusts. Each of these Health Boards employs an Executive Director of Public Health, who is accountable to the Health Board Chief Executive. They have a local Public Health Team, which however remains employed by the national Public Health Wales.
Many doctors have developed their public health skills and knowledge in order to do their day job better. If you are interested doing this, here are a few resources to get you started:

**Web resources**

**www.healthknowledge.org.uk**
This online learning resource is for anyone working in health, social care and well-being across the NHS, local authorities, the voluntary, and the private sector. It contains a broad range of learning materials for personal use or for teaching purposes in order to help people expand their public health knowledge.

**www.publichealthwales.wales.nhs.uk**
Public Health Wales employs the majority of public health professionals in Wales and also has a remit to develop public health skills among the wider workforce. It has information on current public health issues in Wales.
The Faculty of Public Health is the standard setting body for more than 3,000 professionals working in public health. The website has many resources and information about events.

www.phorcast.org.uk
PHORCaST is a new UK-wide website for those working within public health, those wishing to enter public health and those responsible for public health education, development and training. Its aim is to promote public health careers, provide careers advice and aid retention and recruitment.

Masters in Public Health
These are offered as full time or part time, or distance-learning. Some institutions offer a diploma, which is a taught course without a dissertation. They are quite variable in their intensity and their emphasis on different areas of public health, so explore all options before you sign up.
APPENDIX

PUBLIC HEALTH MEDICINE SPECIALITY TRAINING

The UK has one of the most comprehensive and highly respected Public Health Specialty Training Programs.

Speciality training in public health leads to a Certificate of Completion of Training and entry to the GMC Specialist Register. The training is regulated by the General Medical Council and the UK Public Health Register.

Doctors need to have achieved foundation competencies to be eligible for entry, but many doctors enter the training scheme further into their training.

Source: Faculty of Public Health.
This run-through training normally lasts for 5 years, (although people who have previously obtained a Master’s in Public Health may be able to complete it in four years.)

There is also an alternative route to GMC registration for medical and non-medical specialists who can demonstrate equivalent competencies by submitting a portfolio of their past work to the Voluntary Register.

In Wales, the training scheme involves rotation through several placements including health protection, health intelligence, health care services, health promotion and communications. All trainees are also able to apply for placements with the national public health treasures. These are specialist placements across the country and include national and international organisations such as the Department for International Development, Health Protection Agency and the World Health Organisation.
Public health is about improving the health of populations and groups rather than individuals.