

PHEMS

Public Health Educators in Medical Schools



FACULTY OF
PUBLIC HEALTH

Revised edition

Undergraduate Public
Health Curriculum for UK
Medical Schools **2019**:

**A consensus
statement**

“Prevention is better than cure”

DESIDERIUS ERASMUS ROTERODAMUS (1466-1536)

Adagia 1500-1536

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2014 edition: Puja Myles, Stefi Barna, Gillian Maudsley, Kirsteen Watson, and Stephen Gillam
on behalf of participants of the joint
*Public Health Educators in Medical Schools (PHEMS) / Faculty of Public Health (FPH) workshop on
the undergraduate public health curriculum in medical schools*
2 April 2013, King's College London, Guy's Campus

“It requires faith and courage to recognise the real human soul under the terrible mask of squalor and disease in these crowded masses of poverty, and to resist the temptation to regard them as ‘clinical material’. The attitude of the student and doctor to the sick poor is a real test of the true physician.”

ELIZABETH BLACKWELL (1821–1910)

The Influence of Women in the Profession of Medicine (1889)

“The physicians surely are the natural advocates of the poor and the social problem largely falls within their scope.”

RUDOLF CARL VIRCHOW (1821–1902)

The Aims of the Journal ‘Medical Reform’ (1848)

Foreword, 2019 edition

Medical curricula continue to evolve as the world in which each new generation of doctors practises changes. Some things we can anticipate: an ageing population, rising expectations among patients and the public, and climate change. Others such as the impact of artificial intelligence and genomics, emerging diseases, and changing societal attitudes are harder to predict. We must therefore ensure that today's medical students – tomorrow's doctors – have the skills needed to practise flexibly and sustainably over a long career in changing and complex environments.

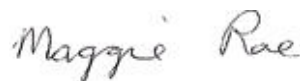
In 2009, the General Medical Council (GMC) published an updated version of *Tomorrow's Doctors*. Since then they have developed *Promoting excellence: standards for medical education and training* (2015) and revised *Outcomes for Graduates* (2018). The *Shape of Training* review in 2013 recognised the importance of developing a *Generic professional capabilities framework*, which the GMC has now published (2017) for postgraduate curricula. This includes a requirement for all doctors to have capabilities in health promotion and illness prevention. At the same time, the *NHS Long Term Plan* is putting greater emphasis on population health and prevention. This is therefore an ideal time to revisit the public health component of the curriculum in medical schools and update this guidance, which has been developed over the last couple of decades.

While medical schools continue to offer public health education according to local circumstances, the overall curriculum must ensure that students meet the *Outcomes for Graduates* (2018). This consensus statement remains an indicative guide to a core public health curriculum.

The Faculty of Public Health (FPH) welcomes this update to enable medical educators to continue developing excellent public health education. We must enthuse medical students to embed a population perspective in their everyday practice. This should ensure that tomorrow's doctors have the capability – through their *professional values and behaviours*, *professional skills*, and *professional knowledge* – to improve the health of the population and challenge inequalities.



David Chappel, FPH Academic Registrar



Maggie Rae, FPH President



Veena Rodrigues, PHEMS

Foreword, 2014 edition

TOMORROW'S doctors will practise in changing and complex environments. Emerging diseases, an ageing population, inequalities, rising expectations among patients and the public, and changing societal attitudes will impact on how medicine is practised in the 21st century. In addition, developments in science and technological advances, such as genomics and informatics, will also influence how today's medical students – tomorrow's doctors – practise medicine.

In 2009, the General Medical Council (GMC) published an updated version of *Tomorrow's Doctors*. The content covers the development of the knowledge, skills, and behaviour that students must demonstrate by the time that they graduate, under the headings 'scientist and scholar', 'practitioner', and 'professional'. The common thread that runs through the three sections is public health. Public health education varies a great deal between medical schools though. While each medical school can design its own curriculum to suit its own circumstances, the overall curriculum must allow students to meet the outcomes specified in *Tomorrow's Doctors*. This is to ensure that graduates have the necessary knowledge, skills, and behaviours to practise.

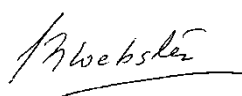
In order to facilitate public health education in medical schools in line with the outcomes prescribed in *Tomorrow's Doctors*, the Faculty of Public Health (FPH) organized a workshop in April 2013. The workshop brought together Public Health Educators in Medical Schools (PHEMS) in the UK to revisit and revise *Public Health Education for Medical Students - a Guide for Medical Schools* published in 2008. Follow-up workshops, discussions, and feedback from medical educators in the UK medical schools have resulted in this document.

This document is a comprehensive guide that outlines what the undergraduate public health curriculum needs to include. It identifies what a core public health curriculum should cover to support and enhance the development of undergraduate public health education. It also describes potential educational approaches and assessment methods for public health, and opportunities for introducing public health throughout the clinical curriculum. It will be an important and useful resource for anyone working in medical education, to enable them to design a public health curriculum that incorporates the GMC recommendations.

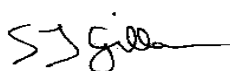
FPH is delighted with this valuable addition, which will enable medical educators to develop excellent education in public health and inspire medical students. A comprehensive public health component in medical education will ensure that tomorrow's doctors will be able to improve the health of the population as scholars and scientists, practitioners, and professionals.



John R. Ashton, FPH President



Premila Webster, FPH Academic Registrar



Stephen J. Gillam, PHEMS

1. Introduction

“The doctor’s role must be defined by what is in the best interest of patients and of the population served. [...] All doctors have a role in the maintenance and promotion of population health, through evidence based practice. Some will enhance the health of the population through taking on roles in health education or research, working in industry, service improvement and re-design, in public health and through health advocacy. Notwithstanding the primacy of the individual doctor:patient relationship, the doctor must appreciate the needs of the patient in the context of the wider health needs of the population.”
(Medical Schools Council 2013/14)¹

Learning about the sciences underpinning public health brings substantial benefits both to the practice of clinical medicine and to the health of the population. Doctors can practise medicine more effectively, despite clinical uncertainty and everchanging health challenges and environments, by applying critical analysis and critical thinking in their decision-making and critically appraising evidence. This involves learning core concepts well, using diagnostic tests efficiently, weighing up the benefits, risks, and costs of treatments, and understanding social determinants and the natural history of patients’ diseases, to help prevent disease and promote health in individual patients.

Doctors with a clear understanding of their role in the wider context of health and social care can influence the planning, organization, and sustainability of services. They can ensure that the development and delivery of health service interventions will benefit patients and contribute to the effective and fair allocation of resources. Understanding the wider determinants of health can enable doctors to work in partnership with local agencies and communities to advocate for interventions that will help to reduce health inequalities². Furthermore, extending from local to global contexts, a guiding principle should be to promote equity by ‘Better Health for All’, irrespective of national boundaries and underpinned by evidence³. Overall, doctors require “a proper understanding of [the] health of the public”, which is “a fundamental competency that [medical] students could expect to be examined on”^{4(p84)}.

The absence of public health practice from medical students’ workplace-based learning (in contrast with the representation of other specialties) can contribute to the perception of public health as wholly distinct from the clinical role of doctors⁵. Previous mapping of the public health curriculum across medical schools has revealed great variability in goals, content, delivery, and modes of assessment⁶, and it can be very challenging to overcome the ‘hidden curriculum’ of negative assumptions about the clinical relevance of a public health education⁷.

This 2019 version of the consensus statement provides an enhanced set of Public Health Educators in Medical Schools (PHEMS) core curriculum goals and clinically relevant indicative content, built on its predecessor^{8,9} and mapped to General Medical Council (GMC) *Outcomes for Graduates* (OfG 2018)¹⁰.

- ¹ Medical Schools Council (MSC). *The Consensus Statement. The Role of the Doctor: Past, Present and Future*. (Statement supported by: Chief Medical Officers of England, Scotland, Wales and N Ireland, Academy of Medical Royal Colleges, Association of UK University Hospitals, British Medical Association, Conference of Postgraduate Medical Deans in the UK, General Medical Council, King’s Fund, Medical Schools Council, NHS Employers and Postgraduate Medical Education and Training Board.) London: MSC, 2008, rev. 2013/14. Accessed October 2019: <https://www.medschools.ac.uk/media/1922/role-of-the-doctor-consensus-statement.pdf>
- ² Ali A, Wright N, Rae M [editors], on behalf of Health Inequalities Standing Group (RCGP). *Addressing Health Inequalities: A Guide for General Practitioners*. London: Royal College of General Practitioners, 2008. Accessed October 2019: <https://www.icgp.ie/go/library/catalogue/item?spId=1A7FD4AA-B0EA-4001-A5D4F313FB6FAC93>
- ³ Faculty of Public Health *Global Health Strategy 2015-19*. London: FPH, 2015. Accessed October 2019: <https://www.fph.org.uk/media/1748/fph-gh-strategy-v16-ra-4.pdf>
- ⁴ The Academy of Medical Sciences Working Group [chaired by Dame Professor Anne Johnson]. *Improving the health of the public by 2040. Optimising the research environment for a healthier, fairer future*. London: AMS, September 2016. Accessed October 2019: <https://acmedsci.ac.uk/policy/policy-projects/health-of-the-public-in-2040>
- ⁵ Public Health Educators in Medical Schools (PHEMS) / Faculty of Public Health (FPH) Joint Workshop on the Undergraduate Public Health Curriculum in Medical Schools. London: 2 April 2013.
- ⁶ Gillam S, Bagade A. Undergraduate public health education in UK medical schools: Struggling to deliver. *Medical Education* 2006; 40: 430-436.
- ⁷ Maudsley G. Medical students learning a population perspective: a review of the resistance and the experiences. In: Wylie A, Holt T [eds]. *Health promotion in medical education: from rhetoric to action*. London: Radcliffe Publishers, 2010: 23-35.
- ⁸ Myles P, Barna S, Maudsley G, Watson K, Gillam S, editors, on behalf of workshop participants. *Undergraduate Public Health Curriculum for UK Medical Schools: Consensus statement 2014*. From a joint Public Health Educators in Medical Schools (PHEMS) / Faculty of Public Health (FPH) workshop on the undergraduate public health curriculum in medical schools, 2 April 2013, King’s College London, Guy’s Campus. London: Faculty of Public Health, 2014: 15pp. Accessed October 2019: <https://www.fph.org.uk/media/1731/phems-booklet-press-quality.pdf>
- ⁹ Gillam S, Rodrigues V, Myles P. Public health education in UK medical schools – towards consensus. *Journal of Public Health* 2016; 38(3): 522–525. Accessed October 2019: <https://doi.org/10.1093/pubmed/fdv069>
- ¹⁰ General Medical Council. *Outcomes for graduates*. London: GMC, 2018: pp25. Accessed October 2019: <https://www.gmc-uk.org/education/standards-guidance-and-curricula/standards-and-outcomes/outcomes-for-graduates>

2. Developing the statement

The consensus statement fulfils the GMC *OfG* (2018) requirements, which superseded *Tomorrow's Doctors* (2009)¹¹. Foundation Year doctors must then build on these goals to achieve their key public health competencies¹². This curriculum also relates to the Faculty of Public Health (FPH) curriculum (2015)¹³ for those who enter public health specialty training. The original goals built on a joint workshop of the UK network of PHEMS and FPH (2013).

3. A core curriculum for public health

It is important that all doctors work towards evidence-based healthy policy and support people to live healthier lives¹⁴. *OfG* (2018) continues to require core public health knowledge, skills, and attitudes/values for everyday clinical practice. The learning outcomes most relevant to public health education fall within FPH's three domains of public health practice:

- *Health protection* - measures to control infectious disease risks and environmental hazards, including public health emergencies
- *Health improvement* - societal interventions (to promote health, including preventing disease) that are not primarily delivered through health services and relate to the social determinants of health
- *Health and care public health* - the organization and delivery of safe, high-quality, integrated services for prevention, treatment, and care.

Expanding to include the required skills and attitudes/values gives a useful framework of seven domains:

1. Health protection
2. Health improvement, determinants of health, & health communication
3. Organization of health services (Health & care public health)
4. Improving the quality of health services (Health & care public health)
5. Epidemiology - practising evidence-based medicine
6. Using health information
7. Adopting public health attitudes and values that embrace multiple and diverse perspectives

For each of these extended FPH domains there is a PHEMS core curriculum goal. Mapping the public health-related learning outcomes of *OfG* (2018) to these domains and goals helped to suggest relevant topics (indicative content) that might be used to build *specific* sessions, learning experiences, or learning materials (Table 1). The *OfG* outcomes responded to a need for doctors to provide integrated care for increasing numbers of patients in diverse settings for multiple physical and mental morbidities, while promoting health and continuing to learn about evidence-based care and population health trends. The three main *OfG* groups of outcomes (*Professional values & behaviours*; *Professional skills*; *Professional knowledge*) cut across the extended FPH domains 1-7, hence the comprehensive links between them in Table 1.

¹¹ General Medical Council (GMC). *Tomorrow's Doctors: Outcomes and Standards for Undergraduate Medical Education*. London: GMC, 2009. Accessed October 2019: <https://www.gmc-uk.org/education/standards-guidance-and-curricula/standards-and-outcomes/outcomes-for-graduates/previous-outcomes-and-guidance>

¹² UK Foundation Programme Office (UKFPO). *Foundation Programme (FP) Curriculum 2016*. London: UKFPO, 2016. Accessed October 2019: http://www.foundationprogramme.nhs.uk/sites/default/files/2018-07/FP_Curriculum_2016_V2%20%281%29_0.pdf

¹³ Faculty of Public Health (FPH). *Public Health Specialty Training Curriculum 2015*. London: FPH, 2015. Accessed October 2019: https://www.fph.org.uk/media/1882/ph-curriculum-2015_updated.pdf

¹⁴ Royal College of Physicians. RCP policy: public health [web-page]. Accessed October 2019: <https://www.rcplondon.ac.uk/projects/rcp-policy-public-health>

Table 1: Public Health Educators in Medical Schools (PHEMS) core curriculum goals mapped to Faculty of Public Health (FPH) extended domains and General Medical Council (GMC) Outcomes for Graduates (OfG) 2018 learning outcomes, with indicative content

FPH domain (extended) 2015 specialty key area (KA)	PHEMS core curriculum goal	GMC <i>Outcomes for Graduates</i> 2018 learning outcomes Key: Professional values & behaviours Professional skills Professional knowledge	Indicative content
PUBLIC HEALTH KNOWLEDGE			
<p>1. Health protection</p> <p><i>Specialty Training KA6:</i></p> <ul style="list-style-type: none"> Health protection 	<ul style="list-style-type: none"> To be able to protect the health of individual patients and populations against communicable disease and environmental hazards (a clinical and legal responsibility) 	<p>(4) Demonstrate knowledge of the principles of the legal framework in which medicine is practised in the jurisdiction in which they are practising, and have awareness of where further information on relevant legislation can be found</p> <p>(5d) Apply measures to prevent the spread of infection, and apply the principles of infection prevention and control</p> <p>(7g) Explain the application of health legislation that may result in the deprivation of liberty to protect the safety of individuals and society</p> <p>(14l) Propose a plan of management including prevention, treatment, management and discharge or continuing community care, according to established principles and best evidence, in collaboration with other health professionals if necessary</p> <p>(25f) Outline the principles underlying the development of health, health service policy, and clinical guidelines, including principles of health economics, equity, and sustainable healthcare</p> <p>(25h) Evaluate the role of ecological, environmental and occupational hazards in ill-health and discuss ways to mitigate their effects</p> <p>(25i) Apply the basic principles of communicable disease control in hospital and community settings, including disease surveillance</p>	<ol style="list-style-type: none"> What are the principles of infection prevention and control? (4, 5d, 7g, 25i) What are the best ways to prevent the spread of communicable diseases? (5d, 25i) What is individual risk? How can risks be prevented, ameliorated, controlled, and communicated? (7g, 25h, 25i) What are the causes and consequences of accidents? How can they be prevented? (25h) What should you do when you have a patient with a notifiable disease? (4, 5d, 7g, 14l, 25i) What should you do in an outbreak situation? (5d, 25i) How would you address environmental health concerns expressed by local communities or individual patients? (25f, 25h) What is the relationship between occupation and various health risks (e.g. occupational cancers, respiratory diseases, musculoskeletal disorders, and stress/depression/addiction)? (4, 25h) What is the association between environmental exposures and health inequalities? (25h) What is the impact of climate change on health and healthcare systems? (25f, 25h) What are the risks to your health during an elective placement and how would you mitigate these? (25h, 5d) How do health care systems affect environments? (25f)

FPH domain (extended) 2015 specialty key area (KA)	PHEMS core curriculum goal	GMC Outcomes for Graduates 2018 learning outcomes Key: Professional values & behaviours Professional skills Professional knowledge	Indicative content
2. Health improvement, determinants of health, policy, & health communication <i>Specialty Training KA3 & KA5:</i> <ul style="list-style-type: none"> • <i>Policy and strategy development and implementation &</i> • <i>Health improvement, determinants of health, and health communication</i> 	<ul style="list-style-type: none"> ▪ To be able to use key principles of population health and prevention in managing and preventing clinical conditions and reducing inequalities and their social determinants 	<p>(2j) Recognise the potential impact of their attitudes, values, beliefs, perceptions and personal biases (which may be unconscious) on individuals and groups and identify personal strategies to address this</p> <p>(7h) Recognise where addiction (to drugs, alcohol, smoking or other substances), poor nutrition, self-neglect, environmental exposure, or financial or social deprivation are contributing to ill health. And take action by seeking advice from colleagues and making appropriate referrals</p> <p>(14n) Recognise the potential consequences of over-diagnosis and over-treatment</p> <p>(22d) Select appropriate forms of management for common diseases, and ways of preventing common diseases, and explain their modes of action and their risks from first principles</p> <p>(23a & 24a) Describe and illustrate from examples the spectrum of normal human behaviour at an individual level Recognise how society influences and determines the behaviour of individuals and groups and apply this to the care of patients</p> <p>(23b & 24b & 24c) Integrate psychological concepts of health, illness and disease into patient care and apply theoretical frameworks of psychology to explain the varied responses of individuals, groups and societies to disease</p> <p>Review the sociological concepts of health, illness and disease and apply these to the care of patients</p> <p>Apply theoretical frameworks of sociology to explain the varied responses of individuals, groups and societies to disease</p> <p>(23c & 24d) Explain the relationship between psychological and medical conditions and how psychological factors impact on risk and treatment outcome</p> <p>Recognise sociological factors that contribute to illness, the course of the disease and the success of treatment and apply these to the care of patients – including issues relating to health inequalities and the social determinants of health, the links between occupation and health, and the effects of poverty and affluence</p> <p>(23d & 24e) Describe the impact of patients' behaviours on treatment and care and how these are influenced by psychological factors</p> <p>Explain the sociological aspects of behavioural change and treatment concordance and compliance, and apply these models to the care of patients as part of person-centred decision making</p> <p>(25a) Explain the concept of wellness or wellbeing as well as illness, and be able to help and empower people to achieve the best health possible, including promoting lifestyle changes such as smoking cessation, avoiding substance misuse and maintaining a healthy weight through physical activity and diet</p>	<ol style="list-style-type: none"> 1. What is the role of screening in the prevention of disease? (14n, 22d, 25g) 2. How would you explain screening tests and risk to individual patients and their families? (14n, 22d, 25g) 3. What influences behaviour in relation to health and wellbeing? (7h, 23a/24a, 23b/24b/24c, 23c/24d, 23d/24e, 25a, 25b, 25c, 25d) 4. What are the main approaches to health improvement, including health promotion, community development, prevention, and screening? (14n, 22d, 23b/24b, 23c/24d, 23d/24e, 25g, 25a, 25b, 25c, 25d, 25g, 25j) 5. What preventive interventions can involve you as a clinician? (7h, 22d, 25a, 25b, 25c, 25d, 25g) 6. What are the wider determinants of health, the effects of poverty and affluence, and the impact of health inequalities at a global, national, and local level? (7h, 23a/24a, 23b/24b/24c, 23c/24d, 25b, 25c, 25d, 25g, 25j, 25k) 7. What factors affect the patient's journey (including risk factors, seeking healthcare, treatment, rehabilitation)? (7h, 22d, 23a/24a, 23b/24b/24c, 23c/24d, 23d/24e, 25d, 25g, 25j) 8. How can doctors and clinical leaders best contribute to improving the health of the population? (25a, 25g, 25k) 9. What vulnerable groups have particular health needs? What are they, and how can they be addressed? (2j, 7h, 23a/24a, 23b/24b, 23c/24d, 23d/24e, 25b, 25c, 25d, 25j, 25k) 10. How can health equity best be promoted within a health care system? (2j, 24d)

FPH domain (extended) 2015 specialty key area (KA)	PHEMS core curriculum goal	GMC Outcomes for Graduates 2018 learning outcomes Key: Professional values & behaviours Professional skills Professional knowledge	Indicative content
		<p>(25b) Describe the health of a population using basic epidemiological techniques and measurements</p> <p>(25c) Evaluate the environmental, social, behavioural and cultural factors which influence health and disease in different populations</p> <p>(25d) Assess, by taking a history, the environmental, social, psychological, behavioural and cultural factors influencing a patient's presentation, and identify options to address these, including advocacy for those who are disempowered</p> <p>(25g) Apply the principles of primary, secondary and tertiary prevention of disease, including immunisation and screening</p> <p>(25j) Discuss the role and impact of nutrition to the health of individual patients and societies</p> <p>(25k) Evaluate the determinants of health and disease and variations in healthcare delivery and medical practice from a global perspective and explain the impact that global changes may have on local health and wellbeing</p>	
3. Organization of health services (Health & care public health) <i>Specialty Training KA3 & KA4:</i> <ul style="list-style-type: none"> • <i>Policy and strategy development and implementation &</i> • <i>Strategic leadership and collaborative working for health</i> 	To recognise and be able consider the framework within which healthcare is delivered in the UK and the effect on population health	<p>(5g) Apply the principles and methods of quality improvement to improve practice (for example, plan, do, study, act or action research), including seeking ways to continually improve the use and prioritisation of resources</p> <p>(9a) Demonstrate their contribution to effective interdisciplinary team working with doctors from all care settings and specialties, and with other health and social care professionals for the provision of safe and high-quality care</p> <p>(9c) Recognise and show respect for the roles and expertise of other health and social care professionals and doctors from all specialties and care settings in the context of working and learning as a multiprofessional team</p> <p>(14l) Propose a plan of management including prevention, treatment, management and discharge or continuing community care, according to established principles and best evidence, in collaboration with other health professionals if necessary</p> <p>(20a) Describe and illustrate from their own professional experience the range of settings in which patients receive care, including in the community, in patients' homes and in primary and secondary care provider settings</p> <p>(20b) Explain and illustrate from their own professional experience the importance of integrating patients' care across different settings to ensure person-centred care</p> <p>(20c) Describe emerging trends in settings where care is provided, for example the shift for more care to be delivered in the community rather than in secondary care settings</p>	<ol style="list-style-type: none"> 1. How does healthcare delivery in other parts of the world differ from the healthcare system in the UK? (20a, 20b, 20c, 20d, 21, 25f, 25k) 2. What is the planning (or commissioning) process? How effective is it in improving population health, reducing inequalities, prioritizing resources effectively and ethically? (5g, 21, 25f) 3. What principles and skills can you use to design healthcare provision to improve population health and reduce inequalities (including planning, 'commissioning', and health economics concepts)? (9a, 9c, 20a, 20b, 20c, 20d, 21, 25f, 25k) 4. In what way are international and national policies relevant to the health and wellbeing of your patients? (25f, 25k) 5. What are the links between global and local health? (25k) 6. How is healthcare planned, nationally, and locally, and what is the role of the clinician in this process? (9a, 20a, 20b, 20c, 20d, 21, 25f, 25k)

FPH domain (extended) 2015 specialty key area (KA)	PHEMS core curriculum goal	GMC Outcomes for Graduates 2018 learning outcomes Key: Professional values & behaviours Professional skills Professional knowledge	Indicative content
		<p>(20d) Describe the relationship between healthcare and social care and how they interact</p> <p>(21) Recognise that there are differences in healthcare systems across the four nations of the UK and know how to access information about the different systems, including the role of private medical services in the UK</p> <p>(22d) Select appropriate forms of management for common diseases, and ways of preventing common diseases, and explain their modes of action and their risks from first principles</p> <p>(25f) Outline the principles underlying the development of health, health service policy, and clinical guidelines, including principles of health economics, equity, and sustainable healthcare</p> <p>(25k) Evaluate the determinants of health and disease and variations in healthcare delivery and medical practice from a global perspective and explain the impact that global changes may have on local health and wellbeing</p>	<p>7. What are the financial and ethical issues involved in planning and prioritizing the use of resources? (5g, 20a, 21, 25f, 25k)</p> <p>8. How do we know what a population's health needs are? Who should be consulted? What does it tell you? What do you do with this information? (25f)</p> <p>9. You are a GP/local politician/patient. Which service/treatment/patient are you going to fund or support? Why? What informs your decision? (5g, 20a, 21, 25f)</p> <p>10. Why do we screen for breast/cervical/bowel cancer/abdominal aortic aneurysm (AAA)? What would you advise the Government/GPs/patients regarding particular national programmes? What are the cost implications? In what ways does screening affect health? (20a, 21, 25f)</p> <p>11. Why should health care be sustainable? (25f, 25k)</p> <p>12. Why should health and social care be integrated across settings? (9a, 9c, 14l, 20a, 20b, 20c, 20d, 21, 25f)</p> <p>13. How should individual clinical care incorporate evidence-based prevention? (14l, 22d, 25f)</p> <p>14. How should 'making every contact count' improve the public's health? (14l, 22d, 25f)</p>

FPH domain (extended) 2015 specialty key area (KA)	PHEMS core curriculum goal	GMC Outcomes for Graduates 2018 learning outcomes Key: Professional values & behaviours Professional skills Professional knowledge	Indicative content
4. Improving the quality of health services (Health & care public health) <i>Specialty Training KA7:</i> • <i>Health and care public health</i>	To be able to improve the clinical effectiveness and other aspects of the quality of health services by applying the principles and methods of evaluation, audit, research and development, and standard-setting	(2o) Raise and escalate concerns through informal communication with colleagues and through formal clinical governance and monitoring systems about: patient safety and quality of care [...] (5a) Place patients' needs and safety at the centre of the care process (5b) Promote and maintain health and safety in all care settings and escalate concerns to colleagues where appropriate, including when providing treatment and advice remotely (5e) Describe the principles of quality assurance, quality improvement, quality planning and quality control, and in which contexts these approaches should be used to maintain and improve quality and safety (5f) Describe basic human factors principles and practice at individual, team, organisational and system levels and recognise and respond to opportunities for improvement to manage or mitigate risks (5h) Describe the value of national surveys and audits for measuring the quality of care (9a) Demonstrate their contribution to effective interdisciplinary team working with doctors from all care settings and specialties, and with other health and social care professionals for the provision of safe and high-quality care (14i) Make clinical judgements and decisions with a patient, based on the available evidence, in collaboration with colleagues and as appropriate for their level of training and experience, and understand that this may include situations of uncertainty (25f) Outline the principles underlying the development of health, health service policy, and clinical guidelines, including principles of health economics, equity, and sustainable healthcare	1. What are the principles and methods of quality improvement, and how are these applied to the development of services? (2o, 5a, 5b, 5e, 5f, 5h, 9a, 25f) 2. Which organizational approaches and systems are most effective in patient safety, quality assurance, clinical governance, and risk management? (2o, 5a, 5b, 5e, 5f, 5h, 9a) 3. What can doctors learn from significant adverse events? What are the pros and cons of different ways of assessing quality (safety, effectiveness) in healthcare systems? (2o, 5a, 5b, 5e, 5f, 5h, 9a) 4. How might quality of health and social care be defined? (2o, 5e, 5h, 14i) 5. How should health and social care be evaluated? (2o, 5a, 5b, 5e, 5f, 5h, 9a, 25f)

FPH domain (extended) 2015 specialty key area (KA)	PHEMS core curriculum goal	GMC Outcomes for Graduates 2018 learning outcomes Key: Professional values & behaviours Professional skills Professional knowledge	Indicative content
PUBLIC HEALTH SKILLS			
5. Epidemiology - practising evidence-based medicine <i>Specialty Training KA2 & KA8:</i> <ul style="list-style-type: none"> • <i>Assessing the evidence of effectiveness of interventions, programmes and services intended to improve the health or wellbeing of individuals or populations &</i> • <i>Academic public health</i> 	<ul style="list-style-type: none"> ▪ To use epidemiology as the basic science underpinning public health and clinical medicine; ▪ to provide evidence to guide public health policy and clinical practice that protects, restores, and promotes health of individuals and populations; ▪ to think critically, challenge the status quo, evaluate and apply evidence, and synthesize evidence of different types 	<p>(2s) Access and analyse reliable sources of current clinical evidence and guidance and have established methods for making sure their practice is consistent with these</p> <p>(6f) Manage the uncertainty of diagnosis and treatment success or failure and communicate this openly and sensitively with patients, their relatives, carers or other advocates</p> <p>(11c) Acknowledge and discuss information patients have gathered about their conditions and symptoms, taking a collaborative approach</p> <p>(11d) Provide explanation, advice and support that matches patients' level of understanding and needs, making reasonable adjustments to facilitate patients' understanding if necessary</p> <p>(14i) Make clinical judgements and decisions with a patient, based on the available evidence, in collaboration with colleagues and as appropriate for their level of training and experience, and understand that this may include situations of uncertainty</p> <p>(14l) Propose a plan of management including prevention, treatment, management and discharge or continuing community care, according to established principles and best evidence, in collaboration with other health professionals if necessary</p> <p>(26a, 26b, 26c, 26d) ▪ Explain the role and hierarchy of evidence in clinical practice and decision making with patients ▪ Interpret and communicate research evidence in a meaningful way for patients to support them in making informed decisions about treatment and management ▪ Describe the role and value of qualitative and quantitative methodological approaches to scientific enquiry ▪ Interpret common statistical tests used in medical research publications</p> <p>(26e) Critically appraise a range of research information including study design, the results of relevant diagnostic, prognostic and treatment trials, and other qualitative and quantitative studies as reported in the medical and scientific literature</p> <p>(26f) Formulate simple relevant research questions in biomedical science, psychosocial science or population science, and design appropriate studies or experiments to address the questions</p> <p>(26g) Describe basic principles and ethical implications of research governance including recruitment into trials and research programmes</p> <p>(26h) Describe stratified risk</p> <p>(26j) Use evidence from large scale public health reviews and other sources of public health data to inform decisions about the care of individual patients.</p>	<ol style="list-style-type: none"> 1. What different types of knowledge are relevant to public health? What is good evidence? (2s, 26a, 26e) 2. What common epidemiological concepts and study designs are used for data handling and the critical appraisal of evidence? How should evidence be reviewed and synthesized? (2s, 26e, 26h, 26j) 3. When are quantitative, mixed, and qualitative research approaches appropriate? (2s, 26e) 4. How should you formulate an appropriate research question and use appropriate evidence to derive a balanced, evidence-based conclusion? (2s, 26f, 26a/26c/26d, 26e) 5. What are the barriers to evidence-based healthcare? (2s, 11c, 11d, 14i, 14l, 26a/26b/26c/26d, 26g) 6. How should you deal with uncertainty in evidence? (2s, 6f, 11c, 11d, 14i, 14l, 26a/26b/26c/26d, 26g, 26h) 7. What are the incidence and prevalence of various health-related states or events? (2s, 26a/26b/26d, 26f) 8. How can you best quantify the risk of disease (relative risk, odds ratio) and its outcome (prognosis, survival, mortality)? (6f, 26a/26b/26d, 26f, 26h) 9. How can you interpret and communicate risk appropriately, and how should epidemiological concepts and public health evidence-reviews inform your everyday clinical practice? (6f, 11c, 11d, 14i, 14l, 26e, 26a/26b/26d, 26g, 26h, 26j) 10. What are the common misconceptions in interpreting risk, and what is their impact on risk perception? (6f, 11c, 11d, 14i, 26e, 26a/26b/26d, 26g, 26h) 11. How can you show causal mechanisms for disease in populations (aetiology, prevention)? (26e) 12. What ethical issues are raised by different types of research and different ways of involving participants? Who should approve and consent to the research? (26g) 13. How should you use evidence-reviews? (2s, 26j)

FPH domain (extended) 2015 specialty key area (KA)	PHEMS core curriculum goal	GMC Outcomes for Graduates 2018 learning outcomes Key: Professional values & behaviours Professional skills Professional knowledge	Indicative content
6. Using health information <i>Specialty Training KA1:</i> <ul style="list-style-type: none"> Use of public health intelligence to survey and assess a population's health and wellbeing 	<ul style="list-style-type: none"> To use, analyse, and interpret health information to improve clinical practice 	(2s) Access and analyse reliable sources of current clinical evidence and guidance and have established methods for making sure their practice is consistent with these (19c) Explain their professional and legal responsibilities when accessing information sources in relation to patient care, health promotion, giving advice and information to patients, and research and education. (19d) Discuss the role of doctors in contributing to the collection and analysis of patient data at a population level to identify trends in wellbeing, disease and treatment, and to improve healthcare and healthcare system (19e) Apply the principles of health informatics to medical practice (25e) Apply epidemiological data to manage healthcare for the individual and the community and evaluate the clinical and cost effectiveness of interventions (26j) Use evidence from large scale public health reviews and other sources of public health data to inform decisions about the care of individual patients.	1. What are the various sources of epidemiological data, and how would you use these data to inform decisions relating to population and individual health? (2s, 19c, 19d, 19e, 25e, 26j) 2. What is the role of public health organizations (public health teams in local government; Public Health England) in the surveillance and assessment of the population's health and wellbeing? (19c, 19d) 3. Which data sources can be used to assess population health status and needs and how? What data governance issues are raised? (2s, 19c, 19d, 19e, 25e, 26j) 4. How would you use quantitative data handling (including statistical) skills in relation to population and individual health? (19e, 25e, 26j)
ATTITUDES & VALUES			
7. Adopting public health attitudes and values that embrace multiple and diverse perspectives <i>Specialty Training KA4 & KA9:</i> <ul style="list-style-type: none"> Strategic leadership and collaborative working for health & Professional personal and ethical development 	<ul style="list-style-type: none"> To adopt a 'population perspective' to critical analysis in everyday clinical practice and in considering health inequalities 	(1) Make the care of patients their first concern, applying their knowledge and skills in a competent, ethical and professional manner and taking responsibility for their own actions in complex and uncertain situations (2j) Recognise the potential impact of their attitudes, values, beliefs, perceptions and personal biases (which may be unconscious) on individuals and groups and identify personal strategies to address this (2m) Act appropriately, with an inclusive approach, towards patients and colleagues (2s) Access and analyse reliable sources of current clinical evidence and guidance and have established methods for making sure their practice is consistent with these (4) Demonstrate knowledge of the principles of the legal framework in which medicine is practised in the jurisdiction in which they are practising, and have awareness of where further information on relevant legislation can be found (6f) Manage the uncertainty of diagnosis and treatment success or failure and communicate this openly and sensitively with patients, their relatives, carers or other advocates	1. What are the legal, moral, and ethical responsibilities involved in protecting and promoting the health of individual patients, their dependants, and the public, including vulnerable groups? (1, 2j, 2m, 2s, 4, 6f, 7, 7a, 7g, 7h, 19b) 2. What is the role of clinicians in advocacy for public health at a global, national, and local level? (2j, 2m, 4, 6f, 7, 7a, 7g, 10b, 25k) 3. What are the ways in which you can advocate for your patients? (1, 2j, 4, 6f, 7, 7a, 7h, 9b, 10b) 4. What is the public health impact of drug prescribing? (2j, 2s, 6f) 5. What is a doctor's role in policy-making? (6f, 7, 7a, 9a, 10b) 6. What makes an effective public health advocate? (2j, 2m, 4, 6f, 7, 7a, 7h, 10b) 7. What are the ethical issues in public health and its research and their implications for practice? (1, 2j, 2m, 2s, 4, 6f, 7, 7a, 7g, 19b)

FPH domain (extended) 2015 specialty key area (KA)	PHEMS core curriculum goal	GMC <i>Outcomes for Graduates 2018</i> learning outcomes Key: Professional values & behaviours Professional skills Professional knowledge	Indicative content
		<p>(7) Must be able to recognise and identify factors that suggest patient vulnerability and take action in response: (7a) Identify signs and symptoms of abuse or neglect and be able to safeguard children, young people, adults and older people, using appropriate systems for sharing information, recording and raising concerns, obtaining advice, making referrals and taking action [...] (7g) Explain the application of health legislation that may result in the deprivation of liberty to protect the safety of individuals and society (7h) Recognise where addiction (to drugs, alcohol, smoking or other substances), poor nutrition, self-neglect, environmental exposure, or financial or social deprivation are contributing to ill health. And take action by seeking advice from colleagues and making appropriate referrals [...]</p> <p>(9a) Demonstrate their contribution to effective interdisciplinary team working with doctors from all care settings and specialties, and with other health and social care professionals for the provision of safe and high-quality care</p> <p>(9b) Work effectively with colleagues in ways that best serve the interests of patients. This includes: [...] ■questioning colleagues during handover where appropriate [...] ■applying flexibility, adaptability and a problem-solving approach to shared decision making with colleagues</p> <p>(10b) Communicate by spoken, written and electronic methods (including in medical records) clearly, sensitively and effectively with patients, their relatives, carers or other advocates, and colleagues from medical and other professions. This includes...: [...] §when discussing issues that may be sensitive for the patient, such as alcohol consumption, smoking, diet and weight management or sexual behaviour [...] §when advocating for patients' needs [...]</p> <p>(19b) Apply the requirements of confidentiality and data protection legislation and comply with local information governance and storage procedures when recording and coding patient information</p> <p>(25f) Outline the principles underlying the development of health, health service policy, and clinical guidelines, including principles of health economics, equity, and sustainable healthcare</p> <p>(25k) Evaluate the determinants of health and disease and variations in healthcare delivery and medical practice from a global perspective and explain the impact that global changes may have on local health and wellbeing</p>	<p>8. How can an interdisciplinary team contribute to safe and high-quality care (case-studies)? (2s, 9a, 9b, 10b, 25f, 25k)</p> <p>9. What can the doctor do about sustainable health care? (25f, 25k)</p> <p>10. What can the medical student or doctor do to contribute to collaborative trans-national action, underpinned by evidence, to promote equity and 'Better Health for All'? (9a, 9b, 10b, 25k)</p> <p>11. What is the duty of a doctor for 'planetary health'? (25f)</p>

4. Learning and assessment

Curriculum designs, management structures, and educational approaches will differ between medical schools, but each school should show coherence in how public health is learned and assessed (formatively and summatively). Assessments should reflect the importance of public health to holistic evidence-based clinical practice, mapped or blue-printed to public health domains, goals, or learning outcomes, as appropriate. Assessments that sample public health learning might be via written examinations, written or creative assignments, clinical placement portfolios, or clinical examinations such as objective structured clinical examinations (OSCEs).

The PHEMS learning goals and the suggested indicative curriculum content (Table 1) illustrate the relevance of public health to clinical practice and emphasize the role of doctors in protecting and improving the health of the population and reducing health inequalities. Embedding public health throughout the entire medical programme as a 'vertical strand', and integrating public health concepts into core learning in clinical practice, should help to promote a '**population perspective**' essential to the doctor's repertoire.

Where feasible, opportunities for experiential learning (such as placements with community groups, charities, and social care networks) can enable students to see how various social situations affect people's health. Simulating practical scenarios in the classroom can foster a sense of participation in public health activities. Opportunities should also be sought for students to interact with "*strong and active role models*"^{15(p8)} from various sectors.

5. Who is a public health educator?

Some public health departments will lack capacity for educational delivery by public health specialists at all levels of the curriculum. Public health education could involve a range of departments and disciplines focused on populations and community health (*for example, primary healthcare, occupational and environmental health, child health, clinical epidemiology, biostatistics, health services research, health promotion, health economics, behavioural sciences, demography, ethics, education, social policy, and sociology*). Working closely with colleagues from other clinical specialties and disciplinary backgrounds increases public health educator capacity within medical schools and should strengthen the clinical relevance of public health education, enhancing critical analysis and an integrated approach.

Non-public health facilitators of problem-based learning (PBL) groups (and other such student-centred learning approaches) may need support (educator development workshops or written guidance) in understanding how to prompt students towards considering public health aspects in scenarios. Irrespective of who is responsible for public health education, there should be clearly named public health specialist leadership within each medical school for curriculum and assessment, to ensure coherence and constructive alignment (between intended outcomes, what students learn, what is assessed, and how students perceive these).

FPH support through the PHEMs network is important for a constructive community of public health educators for medical students. The GMC's *Good Medical Practice*¹⁶ states that all doctors "*should be prepared to contribute to teaching and training doctors and students*" (para 39). Sharing public health expertise is an important role for public health consultants, which should promote a population perspective in the future medical workforce and inspire a new generation of medical doctors to enter specialty training.

¹⁵ RCP. *RCP Policy Statement: How Doctors Can Close the Gap: Tackling the Social Determinants of Health through Culture Change, Advocacy and Education*. [Synthesis of policy dialogues with: Royal College of General Practitioners, Royal College of Psychiatrists, Faculty of Public Health, National Heart Forum, and the NHS Sustainable Development Unit] London: Royal College of Physicians, 2010: pp14. Accessed October 2019: <https://www.rcplondon.ac.uk/news/doctors-can-promote-fairness-and-equality-health>

¹⁶ GMC (2013). *Good Medical Practice*. London: General Medical Council, 2013, updated April 2014. Accessed October 2019: <https://www.gmc-uk.org/ethical-guidance/ethical-guidance-for-doctors/good-medical-practice>

**Public Health Educators in Medical Schools (PHEMS) / Faculty of Public Health (FPH) joint workshop on undergraduate public health curriculum in medical schools
2 April 2013 King's College London, Guy's Campus**

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“...not everything that can be counted counts, and not
everything that counts can be counted”

WILLIAM BRUCE CAMERON
Informal Sociology (1963)



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