Royal College of Physicians

NHS
Health Education England

Flexible portfolio training

Clinical informatics pathway

Clinical informatics pathway

This is made up of six capabilities, each of which is underpinned by descriptors, and followed by illustrative professional activities that might be used to evidence the outcome descriptors.*

The pathway describes a structured framework of activities a trainee might sample and undertake developing a range of experiences and is not intended to be exhaustive in its implementation.

The six capabilities are:

1. Information governance and security
2. System use and clinician safety
3. Digital communication assessor
4. Information and knowledge management
5. Patient empowerment
6. Emerging technologies

Outcome 1: Information governance and security	
Capability descriptors	1 Be aware of updated and clinically relevant governance procedures relating to the increase in digital technologies, eg grey areas such as use of personal mobile devices to communicate patient information
	2 Practical cybersecurity knowledge, eg identifying email phishing scams and the implications of security breaches
Illustrative professional activities to evidence the capability descriptors	• Attend a trust information governance board meeting • Write and present a policy around procuring new clinical systems • Audit orphan or bespoke systems that exist within services to ensure compliance with GDPR • Write a business case or complete a project around single sign-on to improve log-on times and security in key areas such as the ED
GPC domains 1, 2, 3, 6, 8, 9	

*The curriculum has been developed in collaboration with a working group based at the Health Informatics Unit at the Royal College of Physicians

Outcome 2: System use and clinician safety	
Capability descriptors	1 Knowledge of the logistics of hardware in practice so that this can be built into clinical practice, eg battery life and how to adapt infection control requirements to hardware
	2 Ability to critically appraise new technologies and have an awareness of the effects of 'good' and 'bad' system design, eg error traps and workaround
	3 Identify the purposes for which electronic care records are used, and the structuring and standards needed to enable these uses, including coding and classification systems
Illustrative professional activities to evidence the capability descriptors	• Use electronic health records in routine clinical practice with an emphasis on e-prescribing • Appraise hardware, eg handheld devices • Develop analyses/reports from data held in electronic health records, eg audits of patient care for personal or department use • Participate in a clinical safety review of a clinical system or app
GPC domains 1, 2, 3, 4, 5, 6, 9	

Outcome 3: Digital communication assessor	
Capability descriptors	1A Transfer and retrieval of digital patient data including elements of shared care, data protection and security 1B Knowledge of remote data management and hardware use (to ensure safe remote working, eg from home)
	2 Understanding the risks: • Under communication – assuming information can be found by others • Over communication – alert fatigue / excessive inbox notifications
Illustrative professional activities to evidence the capability descriptors	• Survey clinicians to understand messaging use (such as WhatsApp) • Write a business case or lead a project to find an acceptable alternative • Write a bring-your-own devices policy to support clinicians connecting own devices to trust systems • Investigate DNA rates and implement text reminders or other interactive solution • Implement advice and guidance solution (GP advice from hospital specialists) • Redesign of referral system or discharge letters
GPC domains 1, 2, 3, 5, 6, 7, 8, 9	

Outcome 4: Information and knowledge management	
Capability descriptors	1A Understand the properties of different media 1B Decision support – finding and recording sources of information digitally
	2 Secondary use of data: • Nuances of digital data recording, eg use of terminologies and nomenclatures for high-quality data capture • Accessing and using digitally recorded data for research and audit • Data analysis
Illustrative professional activities to evidence the capability descriptors	• If trust has an EPR, lead on digitising or improving a treatment pathway • Map out current state, define problems, design and implement solutions • Prioritise EPR developments based on clinical importance • Design a new intelligence dashboard, eg for service performance and patient flow
GPC domains 1, 2, 3, 4, 5, 6, 8, 9	

Outcome 5: Patient empowerment	
Capability descriptors	1 Be able to empower patients to seek out and appraise informatics resources allowing them to independently manage their health. (Teaching patients and endorsing informatics resources is not sufficient and implies a more paternalistic approach to enforcing patient uptake of informatics resources)
	2 Be aware of how patients utilise informatics resources and how this may be impacting their health, eg social media. Ensure that patient choice and involvement is not overlooked with increasing digitisation
Illustrative professional activities to evidence the capability descriptors	• Survey patients' acceptability of apps, wearables and telemedicine • Create information leaflets or consent forms • Create patient information video, website or education session to improve digital literacy
GPC domains 1, 2, 3, 4, 5, 6, 7, 8, 9	

Outcome 6: Emerging technologies	
Capability descriptors	1 Be aware that technology evolves rapidly, requiring frequent updating to remain contemporaneous
	2 Be aware of future directions of healthcare technology to encourage forward thinking and integration of these into routine practice
Illustrative professional activities to evidence the capability descriptors	• Implement video consultation in an outpatient service • Work with app developers to roll out telemedicine use to improve community care for a chronic condition • Create method for horizon scanning
GPC domains 1, 2, 3, 4, 5, 6, 8, 9	

Abbreviations

DNA = did not attend; ED = emergency department; EPR = electronic patient record; GDPR = general data protection regulation; GP = general practitioner; GPC = generic professional capabilities.

References

Abou-Nader L and Banerjee A (unpublished data) 2017.

Mantas J, Ammenwerth E, Demiris G *et al*. Recommendations of the International Medical Informatics Association (IMIA) on education in biomedical and health informatics: first revision. *Methods Inf Med* 2010;49(2):105–20.