

## **Resource Pack AI & Medical Technology Curriculum Chapter**

### **Glossary of Useful Terms**

(Discussion around these terms could be a useful way to begin a session on Medical Technology and Artificial Intelligence – it is worth noting that most of the below definitions have been taken from the “International Business Machines Corporation” (IBM) and that some definitions are regularly debated and are ever evolving – another point for discussion!)

*Artificial Intelligence: An AI system is a machine based system that, for explicit or implicit objectives, infers, from the input it received, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. Different AI systems vary in their levels of autonomy and adaptiveness after deployment.(1)*

*Black Box Artificial Intelligence: A black box AI is an AI system whose internal workings are a mystery to its users. Users can see the system’s inputs and outputs, but they can’t see what happens within the AI tool to produce those outputs.(2)*

*Digital Inclusion: equitable, meaningful and safe access to use, lead and design of digital technologies, services and associated opportunities for everyone, everywhere(3)*

*Telemedicine: the use of electronic information and communications technologies to provide and support health care when distance separates the participants.(4)*

*AI Bias: the occurrence of bias results due to human biases that skew the original training data or AI algorithm – leading to distorted outputs and potentially harmful outcomes(5)*

*Machine Learning Algorithm: the procedure and mathematical logic through which a “machine”—an artificial intelligence (AI) system—learns to identify patterns in training data and apply that pattern recognition to make accurate predictions on new data.(6)*

*EU AI Act: a set of rules created by the European Union to regulate artificial intelligence. It aims to ensure that AI systems are safe, trustworthy, and respect people’s rights.(7)*

*Generative AI: Generative AI refers to deep-learning models that can generate high-quality text, images, and other content based on the data they were trained on.(8)*

*Machine Learning: Machine learning is the subset of artificial intelligence (AI) focused on algorithms that can “learn” the patterns of training data and, subsequently, make accurate inferences about new data. This pattern recognition ability enables machine learning models to make decisions or predictions without explicit, hard-coded instructions.(9)*

*Deep Learning: Deep learning is a subset of machine learning driven by multilayered neural networks whose design is inspired by the structure of the human brain. Deep learning models power most state-of-the-art artificial intelligence (AI) today, from computer vision and generative AI to self-driving cars and robotics.(10)*

Large Language Models (LLMs): Large language models (LLMs) are a category of deep learning models trained on immense amounts of data, making them capable of understanding and generating natural language and other types of content to perform a wide range of tasks.(11)

AI Hallucinations: a phenomenon where, in a large language model (LLM) often a generative AI chatbot or computer vision tool, perceives patterns or objects that are non-existent or imperceptible to human observers, creating outputs that are nonsensical or altogether inaccurate.(12)

Prompt Engineering: *Prompt engineering, or prompting, is a process of creating and refining instructions used as input to a generative AI system to get high-quality outputs.*(13)

AI Scribe: *An artificial intelligence (AI) scribe is a tool that can automate parts of the clinical documentation process for a medical practitioner. AI scribes can convert conversations with your patients into clinical notes, summaries, or letters that can then be incorporated into the patient's health record. AI scribes are also referred to as digital scribes, virtual scribes, ambient AI scribes, AI documentation assistants and digital/virtual/smart clinical assistants.*(14)

### **Sample of how a session on AI and Medical Technology could be structured**

Suggested Pre Reading:

AI in Healthcare – free to access on line module from the Royal College of Surgeons Ireland:

AI for Care – The Artificial Intelligence Strategy for Healthcare in Ireland:

[https://assets.gov.ie/static/documents/b13b9ebc/AI\\_for\\_Care\\_2026-2030\\_Final\\_for\\_web.pdf](https://assets.gov.ie/static/documents/b13b9ebc/AI_for_Care_2026-2030_Final_for_web.pdf)

The Use of Artificial Intelligence in Irish General Practice:

<https://www.irishcollegeofgps.ie/LinkClick.aspx?fileticket=rGiNT9WwkkA%3D&portalid=0>

Digital For Care – A digital Health Framework for Ireland -

<https://assets.gov.ie/static/documents/digital-for-care-a-digital-health-framework-for-ireland-2024-2030.pdf>

Shah SJ, Devon-Sand A, Ma SP, Jeong Y, Crowell T, Smith M, et al. Ambient artificial intelligence scribes: physician burnout and perspectives on usability and documentation burden. *J Am Med Inform Assoc.* 2025;32(3):375-380. doi:10.1093/jamia/ocae295.

Sasseville M, Yousefi F, Ouellet S, et al. The impact of AI scribes on streamlining clinical documentation: a systematic review. *Healthcare (Basel).* 2025;13(12):1447. doi:10.3390/healthcare13121447.

Tierney AA, Gayre G, Hoberman B, et al. Ambient artificial intelligence scribes to alleviate the burden of clinical documentation. *NEJM Catalyst Innov Care Deliv.* 2024;5. doi:10.1056/CAT.23.0404.

**Guidance on Safe Use of Artificial Intelligence:**

- Ensure use of AI aligns with local practice policies, trainer guidance, and national governance frameworks
- Ensure adequate AI literacy prior to use of AI tools in clinical settings.
- Ensure understand risks of using AI in healthcare, as per EU AI act.
- Don't enter confidential patient information into public or non-approved AI tools
- Ensure all AI outputs are verified prior to use.
- Be clear regarding who is responsible for use of AI in clinical settings
- Trainers and Trainees should also be aware of 'shadow AI' i.e. the use of unapproved or ungoverned AI tools outside any practice or training scheme policy. Trainees should declare any AI tools they are using to their trainer and ensure these are covered by appropriate governance.

*Facilitated Group Discussion*

Explore trainees perspectives and prior experiences with AI and Medical Technology

"where have you encountered AI and medical technology to date – what are the benefits and risks in clinical practice"

Allow trainees to discuss their perceptions and knowledge of AI and Medical Technology and the potential benefits and risks.

*Flipped Classroom*

Assign parts of the Digital for Care – A digital Health Framework for Ireland 2024-2030 available here <https://assets.gov.ie/static/documents/digital-for-care-a-digital-health-framework-for-ireland-2024-2030.pdf> to trainees.

There are 6 Principles for Digital Care; each principle could be assigned to one trainee to read, summarise, critically analyse and teach back to the class at day release:

- 1. Patients as an empowered partner**
- 2. Workforce and Workplace**
- 3. Digitally Enabled and Connected Care**

#### **4. Data Driven Services**

#### **5. Digital Health Ecosystem and Innovation**

#### **6. Secure Foundations and Digital Enablers**

##### *Reflective Questions*

*What are the pros and cons of patients having access to all of their own health information?*

*Is there a negative impact to the GP of multiple data points on each patient being available?*

*What are the barriers to Digital Inclusion?*

*What are the potential risks associated with a personalised patient health records app?*

*Discuss the positive impact that a singular digital health record may have for the health service.*

*What are the pros and cons of using telemedicine?*

*How confident are you in using telemedicine when consulting with patients?*

*Are there certain consultations that are more conducive to telemedicine than others?*

*What are your thoughts or experiences of a virtual ward?*

*What barriers do you perceive in the workplace to digitizing healthcare?*

*Do you feel prepared to work in a digitized health service?*

*What could you do to feel more prepared?*

*Is the Wifi in your current workplace adequate to support digital health?*

*Are the digital tools that are currently available to you user friendly?*

*“For non-consultant hospital doctors who rotate frequently between hospitals, they require access to the systems and technology they need to move seamlessly from site to site” – how does this compare to your experience of moving between hospitals in the health service?*

*Are there adequate numbers of computers in your current workplace/ workplaces you have worked in previously to facilitate your role?*

Assign parts of the AI for Care; The Artificial Intelligence Strategy for Healthcare in Ireland 2026-2030 available here:

[https://assets.gov.ie/static/documents/b13b9ebc/AI for Care 2026-2030 Final for web.pdf](https://assets.gov.ie/static/documents/b13b9ebc/AI_for_Care_2026-2030_Final_for_web.pdf)

There are 5 sections of this document each section could be assigned to one trainee to read, summarise and critically analyse and teach back to the class at day release:

#### **1. AI for Care Introduction**

#### **2. AI for Care Vision**

#### **3. AI for Care Strategic Pillars**

#### 4. AI for Care Strategic Roadmap

#### 5. AI for Care Activation

##### Further Trainee Discussions:

Open a discussion around the medical technologies currently in use in trainee practices. Do trainees use Portable ECG (e.g. Kardia) devices? Does the practice use Ambulatory Blood Pressure Monitors? Have trainees encountered patients bringing data from smart watches and smart devices for trainees to interpret such as heart rates/ heart rhythms etc.

*What are the trainee's thoughts around these technologies?*

*How can a trainee ensure that a device is appropriately calibrated and approved for medical use?*

*Who in the practice is responsible for ensuring that ABPMs/ ECG machines are appropriately calibrated?*

*What devices would trainees like to use/ are there any medical technologies that they are aware of that they would like to share with the group?*

The Use of AI scribes in practice is one of the most common ways that AI has been deployed so far in clinical practice.

*Do trainees believe this to be a positive or a negative development?*

*What constitutes a medical device in the Irish context, and could AI tools (e.g. AI scribes) fall under this definition?*

*What is the role of a Data Protection Impact Assessment (DPIA) when implementing AI tools?*

*How can AI scribes be monitored for accuracy and errors in practice? Who should be responsible for this?*

*How should errors or adverse events related to AI outputs be managed in practice?*

*What are the benefits and risks of using AI scribes?*

*Is there something that the GP will lose out on if they use a scribe rather than construct a note themselves?*

*Are there any times that a trainee can remember writing a note and gaining some clarity or insight in to a case that may have changed their management or plan?*

AI could be potentially used to aid clinical decision making

*What do trainees think of using AI as a clinical decision making tool?*

*What are the ethical implications of using AI to make clinical decisions?*

*Are there potential benefits to patients of using AI to aid clinical decisions?*

*Are there implications for the profession as a whole if clinical decision tools become common place?*

*Is there the potential that GPs will become deskilled by using such tools?*

*Is there a possibility that trainees will never gain the necessary clinical decision making skills if they use such tools?*

*How can trainers/trainees ensure that use of AI supports rather than replaces clinical judgement?*

*What strategies can be used to avoid over-reliance on AI tools?*

## References:

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