

**Patient Information Leaflet**  
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**Study title:**

CSAR-AI – a comparative study of the accuracy and reliability of artificial intelligence large language models versus human healthcare workers in the interpretation of handwritten medical notes

**Principal investigator's name:**

George-Paul O'Byrne

**Principal investigator's title:**

Academic Track Intern, UHL

**Telephone number of principal investigator:**

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**Co-investigator's name:**

Christina Fleming, Colin Peirce (co-supervisors)

**Co-investigator's title:**

Professor, Consultant General / Colorectal Surgeon

You are being invited to take part in a research study carried out at *University Hospital Limerick*.

Before you decide whether or not you wish to take part, you should read the information provided below carefully if you have any questions, please feel free to contact the research team using the details provided.

You should clearly understand the risks and benefits of taking part in this study so that you can make a decision that is right for you. This process is part of 'Informed Consent'.

**You do not have to take part in this study and a decision not to take part will not affect your employment or medical care now or in the future.** You can change your mind about taking part in the study any time you like, even if the study has started. You do not have to give us a reason in order to opt out.

### **Why is this study being done?**

This study aims to compare the accuracy and consistency of an Artificial Intelligence (AI) model with human healthcare workers in interpreting anonymised handwritten clinical notes. We also want to explore if demographic factors (e.g., age-range, gender, occupation, first language) influence how accurately human healthcare workers interpret these notes. This is a pilot study led by a group of intern doctors at University Hospital Limerick, involving a software engineering student at University of Limerick, and co-supervised by two consultant surgeons.

### **Who is organising and funding this study?**

This study is organised by a group of intern doctors working in Midwest Regional Hospital Limerick (UHL). The Principal Investigator is Dr. George-Paul O'Byrne, and the project is supervised by Prof. Christina Fleming (Consultant - General/Colorectal Surgeon) and Prof. Colin Peirce (Consultant General/Colorectal Surgeon) at University Hospital Limerick. No external funding was received for this study.

### **Why am I being asked to take part?**

You are invited because you are a healthcare worker (including clinical staff, allied health professionals, hospital, and administrative staff) whose professional duties may involve interpreting medical notes. We would like to assess your accuracy when asked to interpret some examples of poorly-legible clinical handwriting. We aim to include at least 32 participants, whose aggregate performance will be compared against that of a locally-trained AI model designed to interpret handwritten text.

### **Do I have to take part?**

No, participation is entirely voluntary. You can choose not to take part or withdraw at any time without giving a reason, and without penalty. If you withdraw, any anonymised data you submitted up to that point may be retained, as it cannot be identified as yours.

### **How will the study be carried out?**

This is a comparative study with two main parts. One part involves training and evaluating an AI model. The other part (which you are invited to participate in) evaluates human performance. Your participation involves completing an online survey using a GDPR-compliant platform (e.g., Qualtrics). You will be presented with 20 anonymised images of handwritten clinical notes and asked to type your interpretation of each. You will also be invited to provide basic, anonymised demographic data (age-range, gender, occupation, first language) via drop-down forms.

### What will happen to me if I agree to take part?

If you agree to participate, you will:

- View a brief explanation (video and text) of the study and instructions.
- Complete an informed consent process by ticking a box ("I have read the information and consent to participate").
- Be shown 20 separate images of fully anonymised handwritten medical notes.
- For each image, you will be asked to type your interpretation of the note into a text box.
- Be invited to provide basic, anonymised demographic data (age-range, gender, occupation, first language) via drop-down forms. You can decline to provide this information, for example if you do not have time, or you do not wish to provide it.

Your responses will be analyzed statistically in order to determine whether our AI model performs better, the same as, or worse than human healthcare workers.

The findings of this study, regardless of outcome, will be shared publicly in the following forms:

- Internal hospital reports and presentations at UHL grand rounds.
- Publication in peer-reviewed medical journals.
- Presentations at local and international conferences.

### Video/and or Audio recordings?

No video or audio records will be created or used in this study.

### What are the benefits of taking part in this study?

- **For you:** You will further medical research in AI and healthcare, and contribute to local research in the direct clinical application of this technology.
- **For the hospital / HSE:** Your participation helps us understand whether AI can be used clinically to improve the accuracy of medical note interpretation. This could lead to enhanced patient safety and efficiency, aiding both hospital staff and patients by making it faster and easier to understand handwritten medical notes.

### What are the risks?

The risks associated with this survey are minimal. We do not anticipate any professional or psychological harm. The primary disadvantage is the brief time commitment required for participation. While the survey is designed to be brief and reasonable in length, it will require a time commitment of approx. 15 minutes to complete. Participation in this study can be done at your own pace; the survey will be hosted online and should be accessible 24/7, either via the HSE computers at UHL, or via your personal desktop/laptop/tablet/smartphone device.

### What happens if something goes wrong?

This study has been submitted for review and approval by a local Research Ethics Board, ensuring it meets ethical standards and prioritises participant safety. All researchers are committed to reporting any adverse events or protocol deviations to the Research Ethics Board. If you have a concern or issue and wish to contact the research team directly, you can do so at any time via the contact details included in this leaflet.

### Will it cost me anything to take part?

This study has no associated financial cost for either the hospital or those who agree to participate.

### Is the study confidential?

Yes. Your privacy and the confidentiality of your responses are strictly protected, via the following means:

- **Anonymisation:** No direct personal identifiers will be collected from you. The demographic data you provide will be aggregated and anonymised. Survey responses will be linked only to these anonymised demographic categories.
- **Data Security:** The survey will be conducted using a GDPR-compliant online platform (e.g., Qualtrics). No IP addresses or other potentially identifying information beyond the specified demographics will be collected or retained from participants.
- **Storage & Retention:** All anonymised data will be stored securely on encrypted hospital servers, accessible only to the primary research team via secure login. Data will be retained for a maximum of 5 years post-study completion, after which it will be securely deleted. All procedures comply with University Hospital Limerick data protection policies and GDPR legislation.

### Where can I get further information?

If you have any further questions about the study or if you want to opt out of the study, you can rest assured it won't affect the quality of treatment you get in the future.

If you need any further information now or at any time in the future, please contact:

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