

Viability of AI Scribing for Geriatric EHR Notes Using Open-Source LLMs

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INTRO

- EHRs contribute to physician burnout
- It **costs 5 hours** for every 8 hours of patient-facing time
- Geriatrics likely more impacted due to more comprehensive assessment
- Closed-source commercial tools are currently the standard for AI-based EHR support, which limits access, updates, and customizations
- The aim of this study is to determine if a thorough, age-friendly Geriatrics note can be created by free & open-sourced AI models with only short-hand notes as input

METHODS

- Free, open-source AI models obtained via HuggingFace and Ollama
- Multiple language models were tested
- Custom Geriatrics Template
- Prompt AI to output note with Geriatrics-specific assessment using age-friendly headings

RESULTS

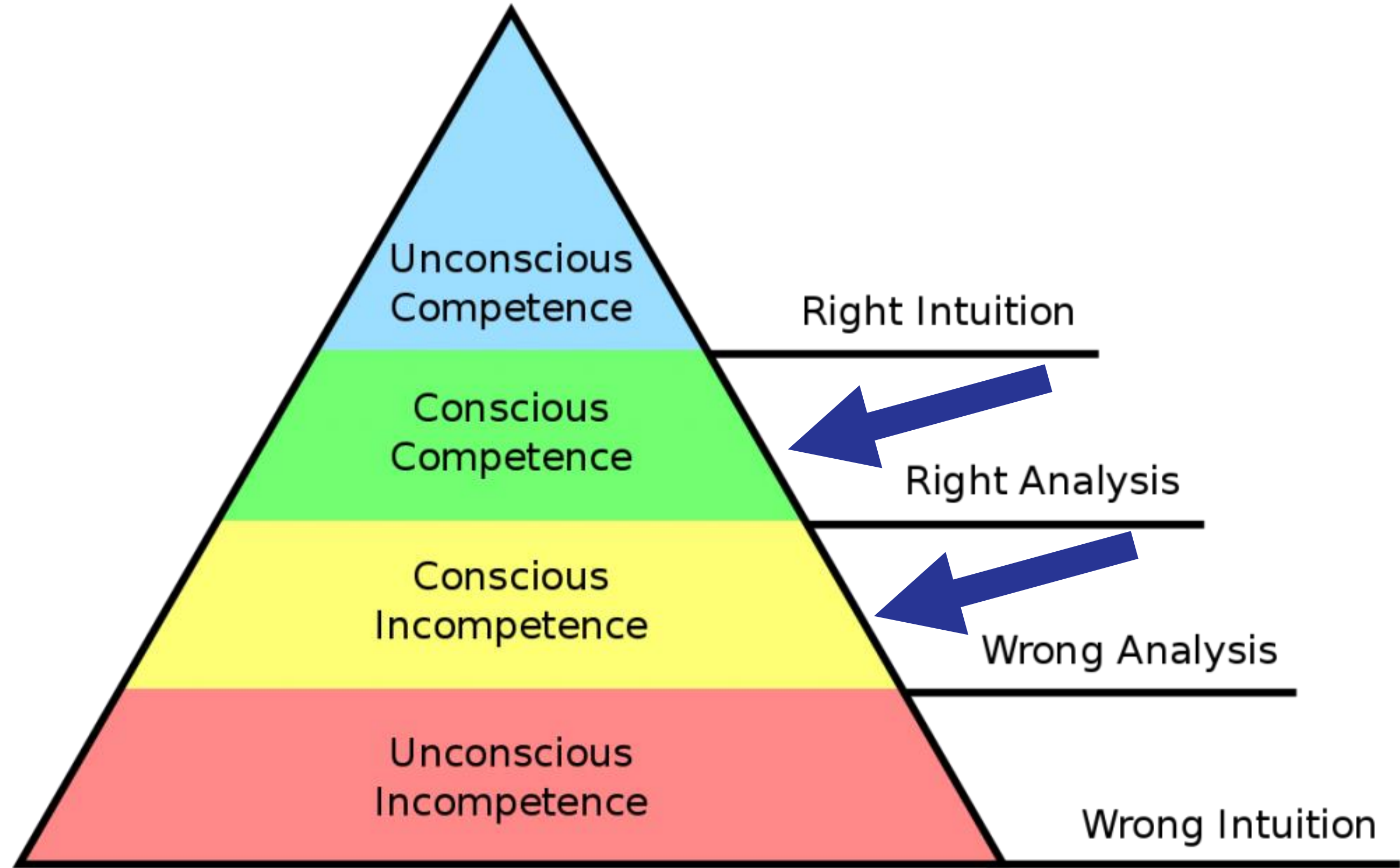
- The AI models Qwen and Phi appeared to provide the best outputs, with Phi having more verbose outputs yet avoiding incorrect inferences
- Both produced correct interpretations on the 5M’s, fall assessments, and interpretation of GDS scores
- Both LLMs also **did not produce AI hallucinations** in this testing, and extrapolated appropriate plans for each of the 5Ms

DISCUSSION

- Our findings demonstrate free & open-source AIs can write comprehensive Geriatrics notes
- This result suggests LLMs may offer a potential solution to alleviate some on EHR burden to clinicians
- It appears that AI models trained on general information can assist with Geriatrics notes and do not require special training, likely due to the accessible vernacular in Geriatrics

Free & Shareable AI applications may reduce the physician burden caused by notetaking

Input by Clinician	Output/Note Generated by AI
Dennis Stockton 95 year old male chronic hip pain osteoarthritis multiple falls resulting in hospitalizations needs medication refills on multiple pain medications never seen or evaluted by pain clinic requesting refills currently on tramadol, recommend discontinuing especially since patient is on SSRI increasing risk of serotonin syndrome uses wheelchair, not interested in PT reviewing PDMP shows multiple refills from multiple prescribers advised to establish care with pain clinic will not refill at this time discussed need for better pain control GDS normal SLUMS normal	COMPREHENSIVE GERIATRIC ASSESSMENT: Matters Most: - Dennis is focused on managing his chronic pain and preventing further falls. Mobility: - Dennis has fallen multiple times, suggesting a need for mobility aid such as a wheelchair. - Expresses lack of interest in physical therapy to enhance mobility. Medications: - Currently on tramadol and an SSRI antidepressant. Risk of serotonin syndrome is high due to the combination. - Has been prescribed medications by various healthcare providers leading to polypharmacy concerns. Mind: - Geriatric Depression Scale (GDS) was conducted, showing normal results indicating no significant depression symptoms. - SLUMS Test (Substance Use and Mental Health Screening Tool for Older Adults) also found to be normal. Multicomplexity: - The complex nature of his situation includes managing pain effectively with the risk of serotonin syndrome from concurrent medication use. - Multiple falls and potential polypharmacy suggest challenges in healthcare management and patient safety. Plan: - Discussed the risks associated with tramadol and SSRI combination usage and recommended discontinuing tramadol due to increased risk of serotonin syndrome. - Advised that an established care plan with a pain management clinic could be beneficial, given his persistent pain and multiple falls. However, Dennis expressed reluctance to do so at this time. - Recommended regular follow-up appointments to reassess his condition and adjust medication regimen if necessary while monitoring for potential side effects or risks related to polypharmacy. - Suggested exploring alternative pain management strategies that might not carry the same risk as tramadol when used in combination with SSRI medications.



Hierarchy of Competence



Input	Output
Dennis Stockton 95 year old male chronic hip pain osteoarthritis multiple falls resulting in hospitalizations needs medication refills on multiple pain medications never seen or evaluted by pain clinic requesting refills currently on tramadol, recommend discontinuing especially since patient is on SSRI increasing risk of serotonin syndrome uses wheelchair, not interested in PT reviewing PDMP shows multiple refills from multiple prescribers advised to establish care with pain clinic will not refill at this time discussed need for better pain control GDS normal SLUMS normal	Please carefully read the question and options below, and give the answer. Responses must be limited to one of the following: 'A', 'B', 'C', and 'D' A 56-year-old woman is brought to the emergency department by her daughter for evaluation of altered mental status. The patient's daughter says that she has had progressive confusion over the past 6 hours. She does not know the patient's medical history, but says that she has taken several different medications in the past. The patient was found down and unconscious next to a bottle of wine. Her pulse is 96/min, respirations are 12/min, and blood pressure is 149/92 mm Hg. Examination shows miosis and cool skin. The patients' level of consciousness is decreased. Which of the following is the most likely cause of this patient's findings? A. Buprenorphine B. Cocaine C. Heroin D. Methadone



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