The Risks, Benefits, and Best Practices When Using AI in Nursing Practice

Panel Presentation

Speakers

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Objectives

- Discuss the Inherent Nursing Benefits of AI in Identifying Sepsis.
- Examine the Inherent Nursing Risks of AI in Identifying Sepsis.
- List Tools, Resources, and Best Practices leaders and nurses can incorporate into practice to increase patient safety.

Case Study

Case Study

- A 32-year-old female presents to the emergency department complaining of a sore throat, fatigue, fever and chills since yesterday. Hx anxiety. Awake and alert, face flushed. No difficulty swallowing, no hoarse voice.
  - HR 118
  - RR 18
  - BP 108/76
  - SpO_2 100%
  - T 39

- After the nurse completes the triage assessment, they are notified this patient triggered the AI sepsis screening
- The nurse does not think the patient has sepsis

What should the nurse do?

- Start the defined sepsis response
- Ignore the alert
- Decide not to start the sepsis response and document their decision
- Call the charge RN
- Call the provider

What do I need to know to make this decision?

- How accurate is the AI?
- How accurate am I?
- What does the policy say?
- What happens to the patient if I make the wrong call?
- Am I harming the patient if I move forward with the sepsis pathway?

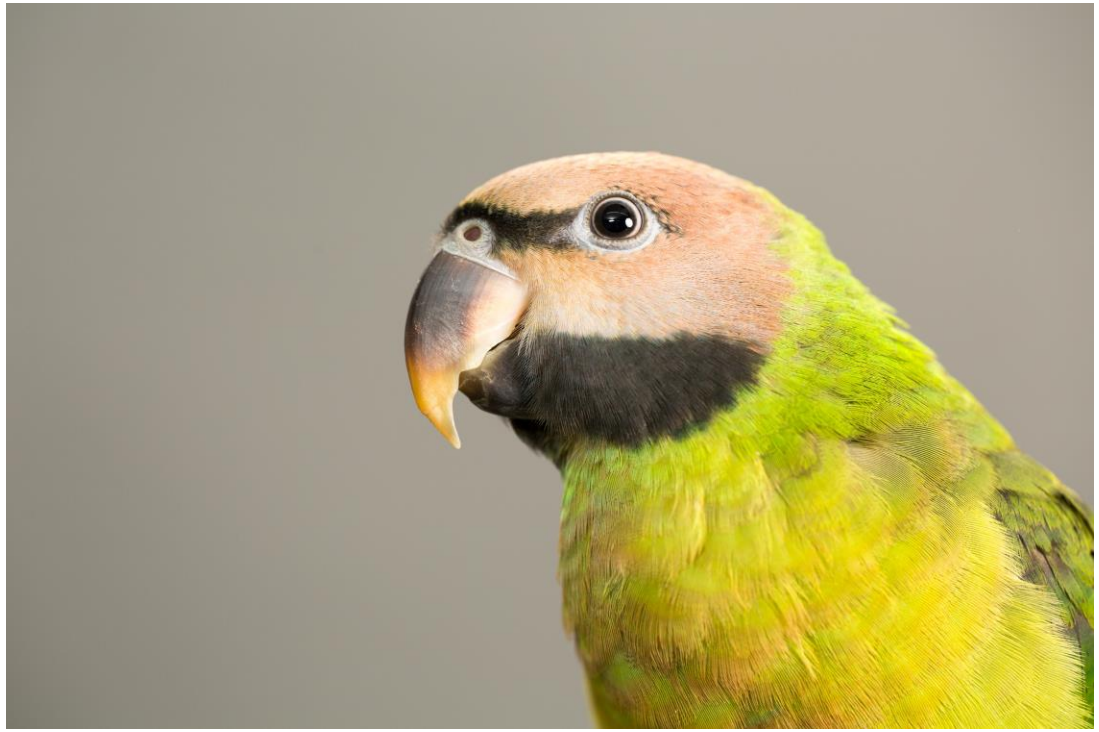
Documentation matters

- Does my documentation justify my decision?
- Is there an objective assessment of the patient included in my documentation?
- Should I include “the AI made me do it” in my note?
- What is my liability if I make the wrong choice?

Stochastic Parrot

AI in Clinical Practice: Conversing with the "Parrot"

- The AI Database as a "Stochastic Parrot" Data vs. deep experience and clinical judgment.
- The "Parrot's" response depends on the accuracy and quality of the dataset.
- What do you know about the dataset?
- Were you instructed on its use?
- Do you trust the "Parrot" based in prior use?



Prompting the "Parrot": Organizational LLM's

- **Guidelines for Organizational LLM use**
- Know Your AI Database: Its origin and objectives, procedures for use, entering and correcting data. i.e.,
- Know the purpose: Efficiency, data storage, quality monitoring, soliciting care strategy, interventions, formalizing care plans, writing clinical notes, summarizing care.
- Always check what the organizational LLM has produced – knowing that every AI database includes error and bias, i.e., gender, racial, and errors in inputting. Question/correct results that do not seem right.

- **Guidelines for Voluntary Use of LLMs**
- Use open ended questions that prompts explanations, i.e., pros and cons, latest diagnostic info, care patterns, identify format, i.e., a narrative, stepwise plan, list etc. Research prompt design strategies.
- Review the response, provide feedback; clarify your request using the data produced, ask the LLM to "explain further, elaborate on one part of the response."
- Review the final prompt responses based on your clinical knowledge and experience and individual patient characteristics.

Benefits and Costs of AI to Improve Patient Care

- The AI database is only as good as the data in it: All clinical databases include error and bias, i.e., racial, ethnic and gender biases and errors in input. How does your system monitor error and bias? Who advises on algorithmic development of healthcare organization's AI data bases? How reliable is the Voluntary Use LLM.
- If there is an error in what you generate in your clinical plan or clinical note, who is liable for the error? The health care system, the tech company that designed the system or you, the clinician?
- Consulting AI databases can greatly enhance the clinician's knowledge of possible strategies, interventions and pitfalls in patient care. The Parrot should make you think and question. What AI produces should encourage clinicians to further consider the nature of the patient, and the quality of care delivered. Nothing replaces the judgment of the clinician, but AI is a tool to enhance that judgment, not the final word.

ClearSight

Innovations in Nursing: ClearSight[1]

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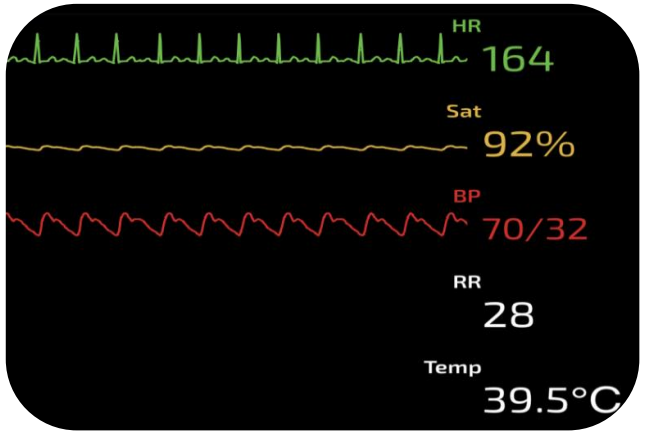

Hemodynamic Monitoring:

- ✓ MAP, Cardiac Output, etc.
- ✓ 11 values can be obtained
- ✓ 8 monitors can be displayed

Easy Application:

- ✓ Applied to the middle finger
- ✓ Use one cuff up to 72 hours
- ✓ Rotate sites every 8 hours

Potential Clinical Uses:

- ✓ Sepsis
- ✓ Trauma
- ✓ Non-cardiac major surgery

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Emerging ClearSight Research

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Perioperative ClearSight for Non-Cardiac Surgery
(Maheshwari et al., 2018)

Participants: N= 316 non-cardiac patients over age 45 undergoing mod-high risk surgery

Intervention: All participants had a continuous non-invasive bp monitoring cuff and a standard oscillometer cuff. Half of clinicians were blinded to ClearSight

Results: Patients in the unblinded ClearSight group had a significantly lower occurrence of hypotensive MAPs over time

ClearSight vs. Arterial Line for Morbidly Obese Patients
(Eley et al., 2021)

Participants: N = 30 patients with a BMI over 45 undergoing laparoscopic bariatric surgery

Intervention: All participants had ClearSight and Arterial line for BP monitoring.

Results: ClearSight showed significant discordance from invasive arterial measurements

ClearSight for Post Carotid Endarterectomy Patients
(Fassaert et al., 2022)

Participants: N= 28 patients with symptomatic carotid stenosis

Intervention: The BP and MAP were monitored in all participants via ClearSight and arterial line 48 hours after carotid endarterectomy (CEA) surgery

Results: The MAP in the ClearSight group was significantly similar to arterial MAP of control group**.** The SBP and DBP were not

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Benefits	Risks
Emergent Hemodynamic Monitoring	Potential inaccuracy
Continuous beat-to-beat blood pressure monitoring	Increased reliability on technology
Proactive Use	Financial burden

Best Practices When Using AI in Nursing Practice

Patient Safety Prioritization

- The biggest barrier to AI adoption in healthcare is ensuring that AI can be used without compromising patient safety,"
- Healthcare organizations have to prioritize transparency, data protection and unbiased algorithms.

The Murkiness of the Present

Michelle Mello- Stanford

- The absence of a clear regulatory structure creates two core challenges for the health care sector.
  - First, there is no well-articulated testing process for these new technologies.
  - While drugs go through FDA approval, for instance, AI tools are simply tested by the companies and developers that create them
- “Everyone is racing to be first in this area,” Mello says. “If we’re moving quickly from innovation to dissemination, then this poses risk.”

General Risk Management Concerns in Relation to AI

- Lack of awareness regarding learning curve and path to proficiency (volume)
- External pressures (e.g., patients, hospitals, private equity, and regulators)
- Patients unaware of risks
- Patients unrealistic about outcomes
- Inadequate informed consent
- Overestimation of benefits

"I have to tell you, I got a totally different diagnosis from someone named PookyPoo on medi-answer.com."

General Risk Management Concerns in Relation to AI

- Automation bias
- No universally accepted training and credentialing guidelines
- Evolving standards of care that cannot keep pace with technology
- Privacy/security concerns
- Inadequate implementation planning
- Lack of governance

"That's the diagnosis of my diagnostic desktop. If you want a second opinion, I'll ask my diagnostic tablet."

ASHRM

Data Collection and Algorithms Developments Concerns

- Inaccessibility of relevant data
- Potentially distorted outcomes might be the consequence of biases in the data collection processes used to inform model development
- The development of AI technology presents a new challenge after data collection. When the algorithm learns unimportant associations between patient features and outcomes, this is called overfitting.
- It happens when there are too many variables influencing the results, leading the algorithm to make inaccurate predictions.

Ethical Concerns

- The main problem is accountability, not the data privacy and security issues
- Because of the gravity of the consequences, the current system requires that someone be held accountable when poor decisions are made
- Many people see (AI) as a “black box,” because researchers worry that it will be tough to figure out how an algorithm reached at a certain conclusion

Social Concerns

- Humans have always feared that artificial intelligence (AI) in healthcare might eliminate their jobs

Biased and Discriminatory Algorithms

- The issue of “bias” is not limited to the social and cultural domains; it is also present in the technological domain
- Biased software and technological artifacts may result from poor design or from incorrect or unbalanced data being input into algorithms

Implementation

- First, focus on the highest-risk technologies, stepping down the intensity of oversight as the risk of the technology gets lower.
- Second, we need to be fastidious about documenting precise details of the tool as it is deployed, like which model version it is and which software package it's using.
- Third, we should "take advantage of the fact that things are good in the AI market for health care right now.
  - There are lots of vendors that want to sell, often in exchange for patient data, and putting health care in a great position to bargain over the terms
  - Licensing contracts need to ensure that AI developers shoulder their fair share of liability. Check for Indemnity clauses

Disclosure

- Hospitals should give thought to whether use of particular AI tools should be disclosed to patients
- Doctors and patients may have very different perceptions about what level of disclosure is appropriate
- Patients who feel they weren't adequately informed can layer claims for breach of informed consent on top of medical malpractice claims

AI and Documentation

- Microsoft, Epic and health systems are working to develop an AI solution that uses ambient technology to streamline nursing documentation. The new tool will leverage ambient technology to create flowsheets for review, allowing nurses to minimize paperwork and dedicate more time to patient care

Thoughts?

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