
Useful Tech for the Neonatologist

Anna Hedstrom, MD

June 8, 2025

AAP District VIII SONPM Conference

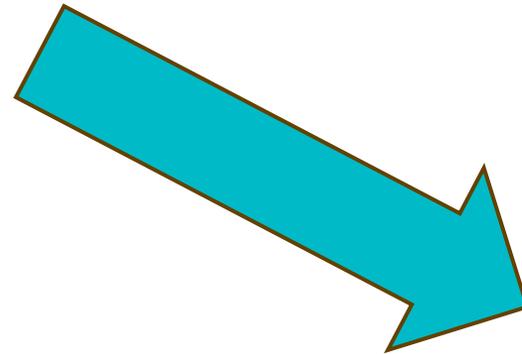
Boise, ID

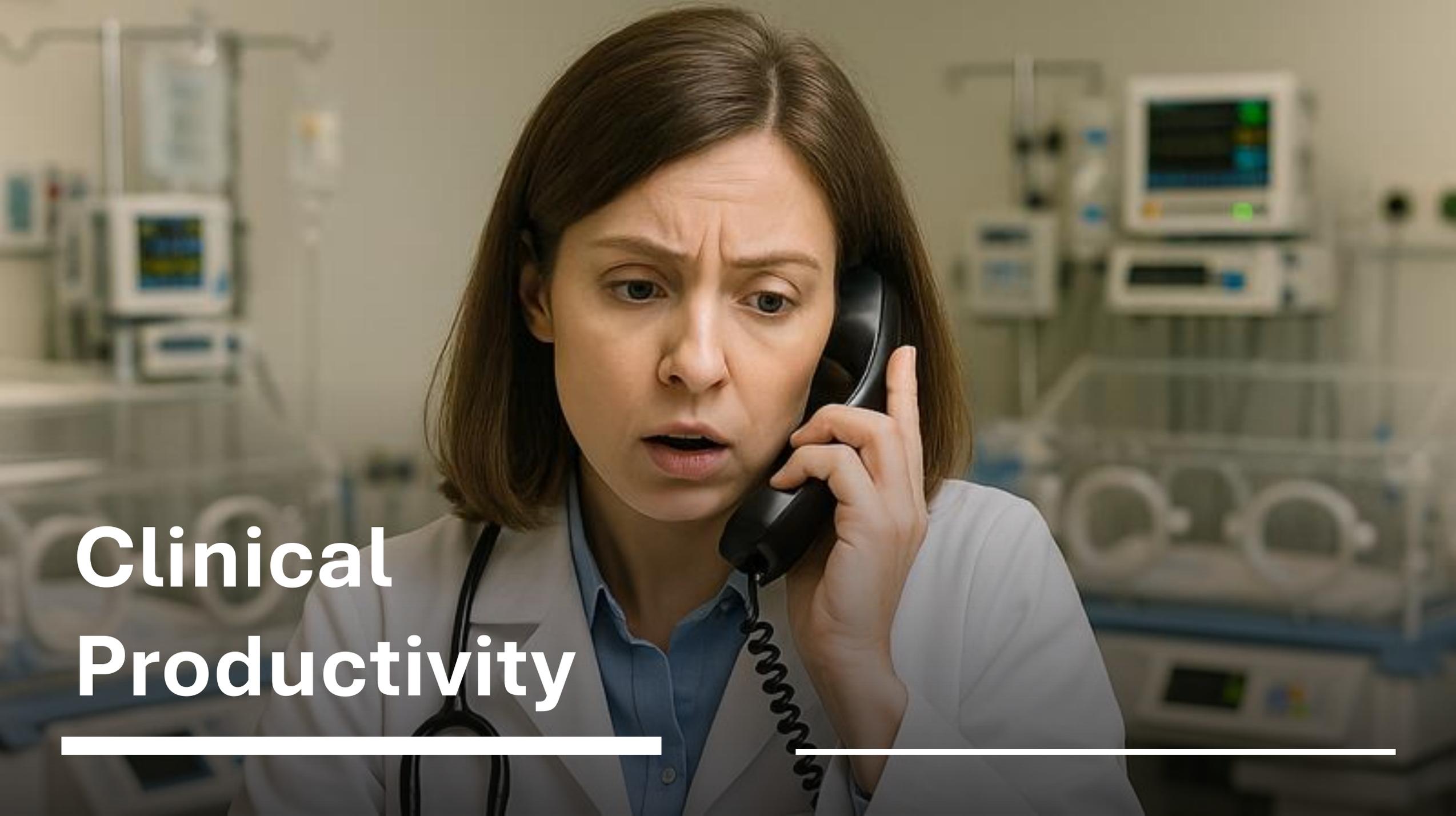


Slides/ Links

Tools we'll discuss

- Clinical Productivity
- Office Tools
- Chat GPT
- Image Generation
- AI for Academic Tasks
- AI for Assessing Evidence





Clinical Productivity



Orders

Active Orders

No Known Allergies

MEDICATIONS

breast milk
Oral, PRN (PAR), Use for Feedings, Starting on Fri 4/19/24 at 1627...
[Show More](#)

caffeine citrate (CAFCIT) 20 mg/mL IV syringe 12.8 mg
12.8 mg (rounded from 12.7 mg = 10 mg/kg x 1.27 kg), Intravenous, Adm...
[Show More](#)

cefepime (MAXIPIME) 64 mg in sodium chloride 0.9% IV syringe (40 mg/mL)
64 mg (rounded from 63.5 mg = 50 mg/kg x 1.27 kg), Intravenous, Adm...
[Show More](#)

Summary Orders Care Everywhere

Results Basic Metabolic Panel 05/17/24 0138

	3 d ago	2 wk ago	3 wk ago
NA	138	135	142
K	4.8	4.3	4.9 ^{RR}
CL	105	104	110 [^]
CO2	24	21	23
ANIO...	9	10	9
GLU	75	117 [^]	105 [^]
BUN	8	22 [^]	24 [^]
CREA	0.35 [^]	0.46 [^]	0.64 [^]
CA	9.6	8.7	10.2 [^]
BUN/...	22.9	47.8	37.5
eGFR			



Haiku App

9:34 90

Full Support | FA.4.325-N/I
Prematurity, 1,500-1,749 grams, 31-...

Epic

How?
Call your hospital's IT to set up

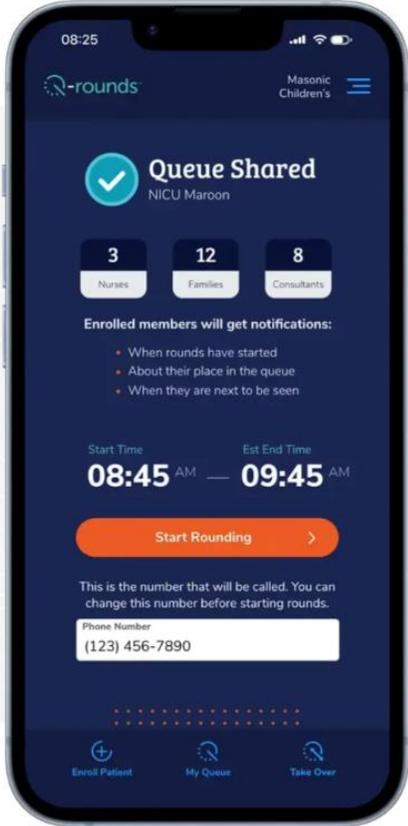
- Summary
- Video Vi...
- Encounters
- Problems
- Media
- Consents
- Care Team
- Orders
- Education
- Inf & Iso
- Flowsheets
- Resul...
- Notes
- Notes Entry
- Dictati...
- Care Every...
- Charges
- Links
- Monitor
- Handoff



Slides/ Links



Taking the Waiting Around out of Rounds



TELLS FAMILIES WHEN TO BE
PRESENT AT ROUNDS



NOTIFIES NURSE THEIR
PATIENT IS NEXT



CALLS INTERPRETER TO JOIN
ROUNDS



MARKS PATIENT AS SEEN IN
EHR



INVITES CONSULTANTS TO
JOIN ROUNDS



Office Tools

The screenshot shows a weekly calendar view from Monday (14th) to Friday (18th). A meeting titled "Discovery Call" by Anita Lev is scheduled for Tuesday, August 15th at 10:00 AM. The meeting details pop-up shows a 30-minute duration and a Zoom link. A date selection calendar is also visible, highlighting August 15th.

Scheduling meetings



Hi Halle,

I'm looking forward to catching up soon! Do any of these times work for you?

Event: 30 minute call
Time zone: Central Time - US & Canada [Change](#)

TUE Jul 16	WED Jul 17	THU Jul 18
9:30 AM	9:30 AM	9:30 AM
10:00 AM	10:00 AM	10:00 AM
12:30 PM	10:30 AM	10:30 AM

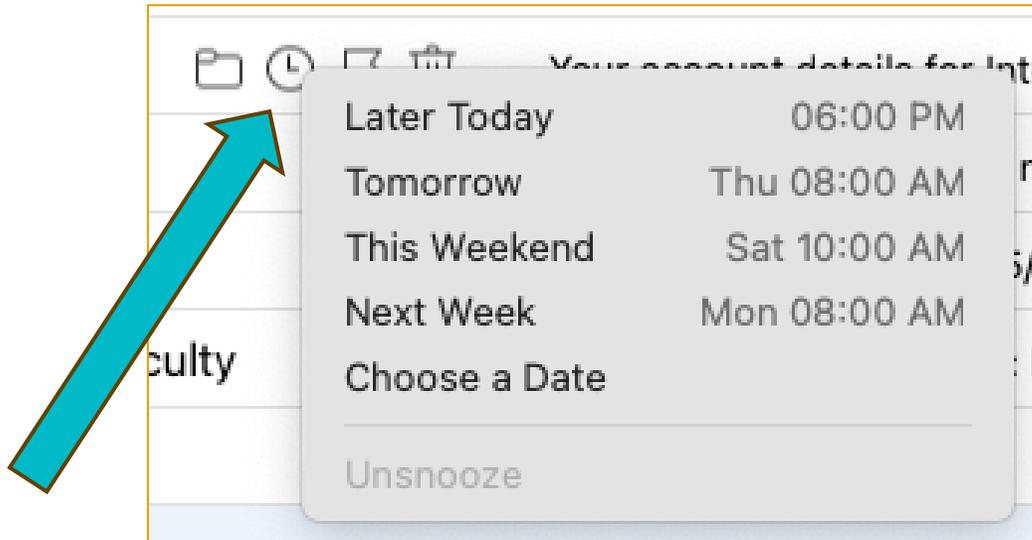




Slides/ Links

Too easily distracted?

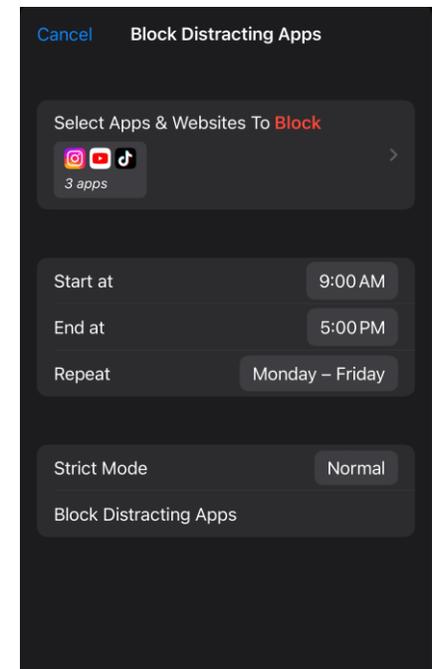
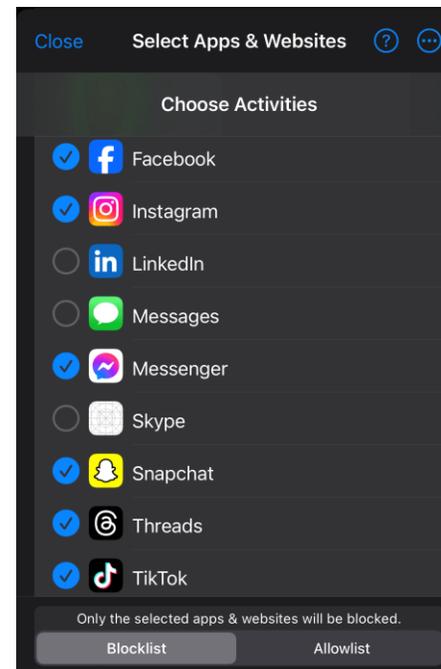
SNOOZE emails until you plan to deal with them



Parent yourself by installing

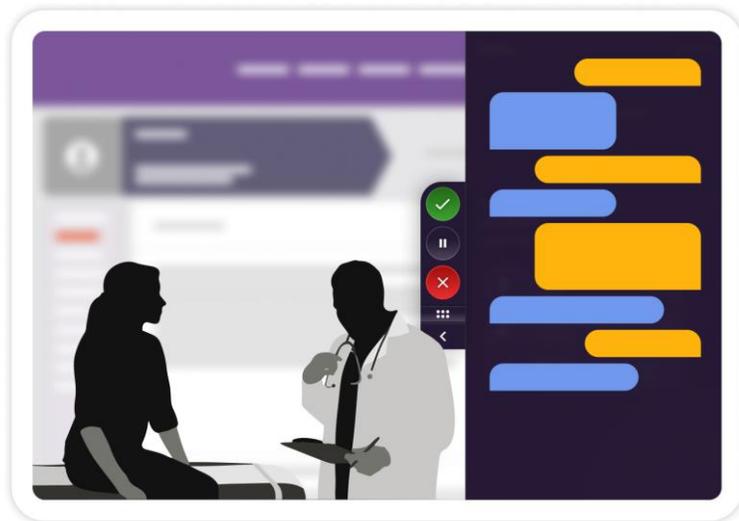


Blocks desired websites or apps for time intervals (Pomodoro technique)



“Ambient AI” Scribes to Generate Notes

Listens to, transcribes and summarizes patient-doctor conversations to generate clinical notes



 **Ambience**

Nabla





Chat GPT intro



Slides/ Links

AI as Admin: How to (Ethically?) Use ChatGPT as an Academic Pediatrician

 Saturday, May 4, 2024  2:00 PM – 3:30 PM ET  Location: Metro Toronto Convention Centre: 716 A

 CE: Live CME: 1.5
Ethics CME: 1.5

Leader(s)



Michael Pitt, MD (he/him/his)

Professor of Pediatrics
University of Minnesota
Minneapolis, Minnesota, United States

Slides



AI trained to generate human language by accurately predicting the next word and more recently version of these programs can perform reasoning and critical thinking.

Generates **NEW** text responses to answer your prompt

Google

How to best pack a cooler for camping?

All Videos Shopping Forums Images

AI Overview

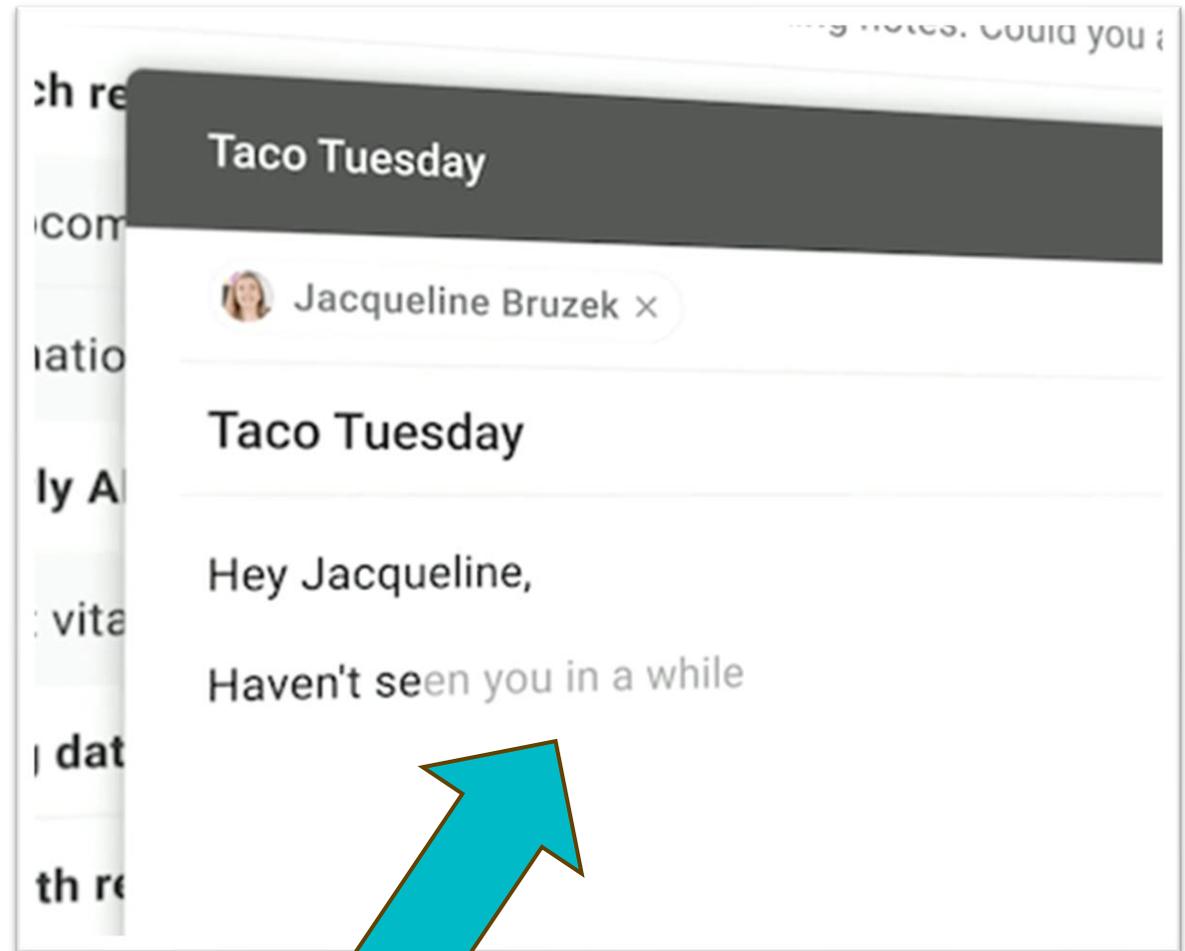
Here are some tips for packing a cooler

Freeze food

Freeze food like meat, drinks, muffins, bread
the bottom of the cooler.

Use ice

Fill empty spaces with smaller items and put
sinks, so items you want to keep cooler for l



Progression of AI thinking

“A 3-day-old term newborn is lethargic, jaundiced, and has a positive direct Coombs test. What is the most likely diagnosis, and what is the next best step?”

Older (GPT-2-style) Response

The newborn is jaundiced and tired. The doctor might want to treat the baby with something like light therapy or give medicine. It is important to help the baby.

Newer (ChatGPT-4) Response

- The combination of jaundice, lethargy, and a positive direct Coombs test suggests **hemolytic disease of the newborn**, most likely due to **ABO or Rh incompatibility**.
The **most likely diagnosis** is **isoimmune hemolytic anemia**.
The **next best step** is to evaluate **bilirubin level** and initiate treatment if indicated—this may include **phototherapy** or **exchange transfusion** depending on the severity.
Additionally, monitor for **kernicterus**,

Mimics text patterns

Shows reasoning



Slides/ Links

AI/ChatGPT can now perform reasoning and critical thinking

Feature	Older Model (GPT-2/3)	GPT-4 / GPT-4o
Understands context	✗ Partial	✓ Deep
Chains reasoning steps	✗ No	✓ Yes
Justifies diagnosis/action	✗ Vague	✓ Evidence-based
Handles ambiguity or edge cases	✗ Poorly	✓ Robustly



Slides/ Links

Chat GPT Versions

Currently ChatGPT version ~4 (Omni and Orion)



Slides/ Links

	Free Tier	ChatGPT Plus
Cost	Free	\$20/month
Speed	Standard	Faster
Availability	Limited	Priority
File Upload for Analysis	No	Yes
Image Generation	No	Yes



clinicians
“Artificial intelligence will not replace ~~radiologists~~...”

clinicians
but ~~radiologists~~ who use AI

clinicians
will replace ~~radiologists~~ who don’t.”

~Curtis Langlotz, MD, PhD

Professor, Center for Artificial Intelligence in Medicine and Imaging, Stanford University

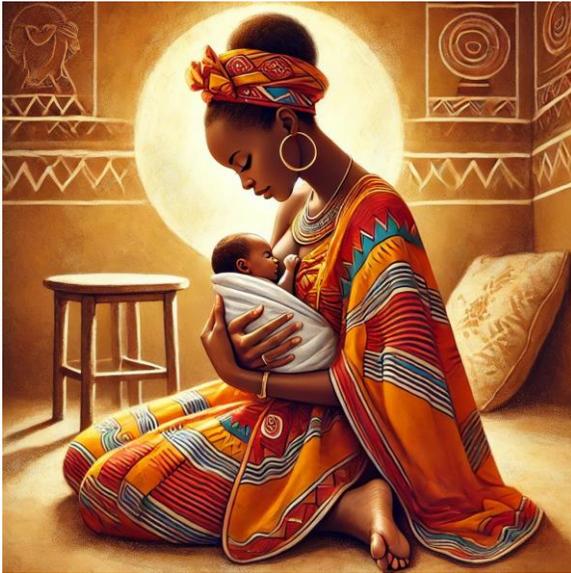


Image Generation

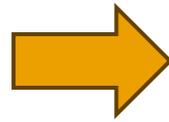


Slides/ Links

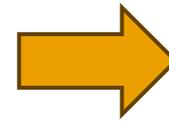
Refine your searches with follow-up prompts



“Make me an illustration of a Kenyan woman holding a baby in kangaroo care”



“Show a nurse training the mother”



“Make it a line drawing, and make the baby’s skin touching the mother’s skin”

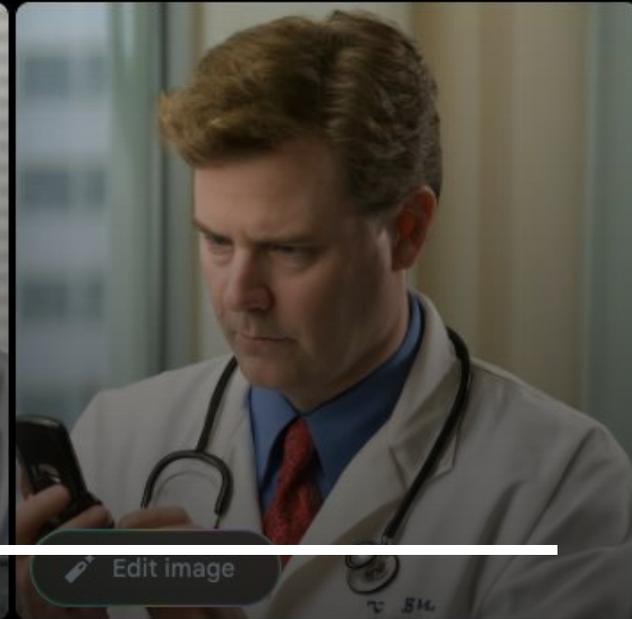
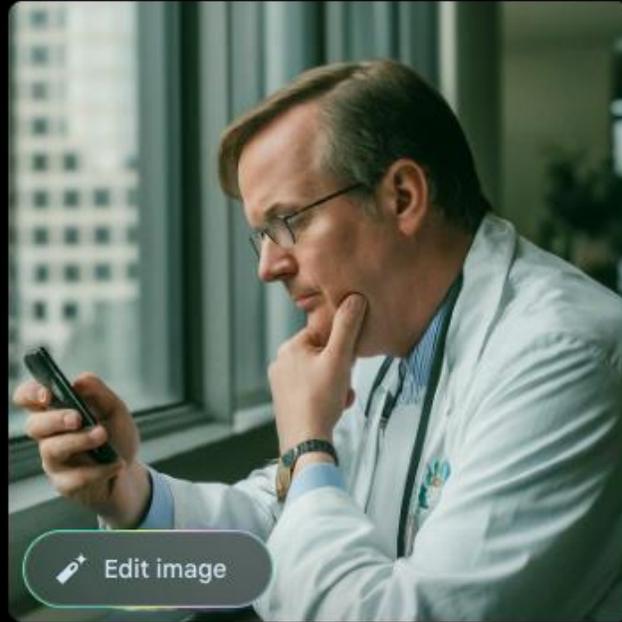
← 3 / 3 →



doctor ▾ in a seattle hospital ▾
looking at an cellular phone

Realize:

AI generates things with
all the **biases** of the
content put into it

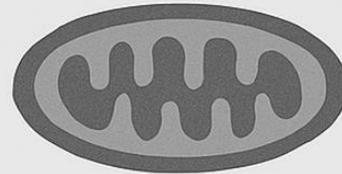


AI for Figure Generation

IMPLICATED IN NEONATAL HYPOXIC-ISCHEMIC ENCEPHALOPATHY

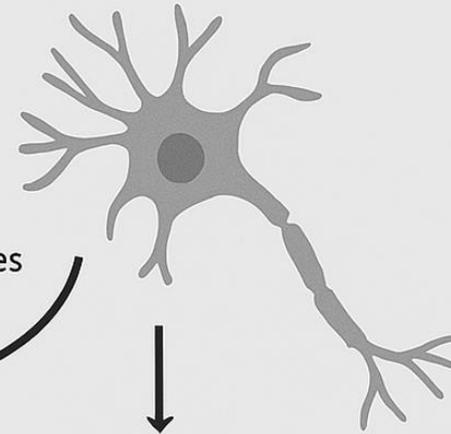
MITOCHONDRIAL DYSFUNCTION

- Impaired oxidative phosphorylation
- Reduced ATP production
- Accumulation of reactive oxygen species



CONCURRENT ANOMALIES

- Congenital heart disease
- Neuromuscular disorders
- Brain dysgenesis



GENETIC AND MOLECULAR REGULATORS

- Gene mutations in mitochondrial complexes
- Large chromosomal changes (i.e. 1p36 deletion syndrome)
- Single gene disorders (i.e. IL-6 gene polymorphisms)



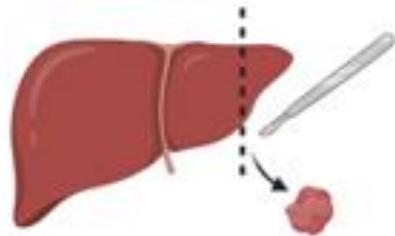
Slides/ Links

More AI for Figures

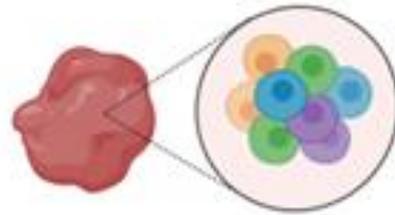
Biorender – schematic figures

Lucidchart – process flow maps

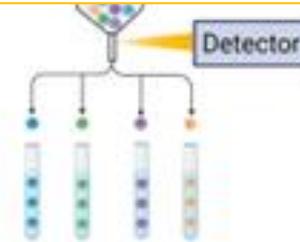
Visualparadigm – key driver diagrams



① Tissue dissection



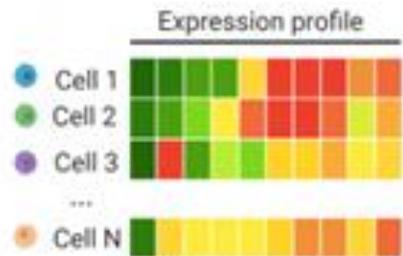
② Cellular composition of the dissected tissue



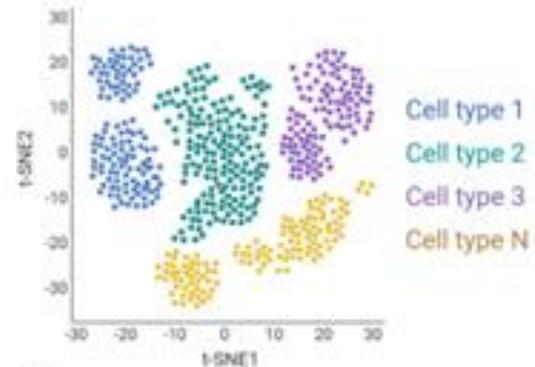
③ Single-cell sorting by FACS



④ Single-cell sequencing



⑤ Single-cell expression profile



⑥ Clustering & cell type identification

Katie Strobel and Biorender



Slides/ Links

How Can an Academic Ethically Leverage AI Tools?

Snazzy up your title



Slides/ Links



You

Research article title revamp for Teenager Understanding of Medicalized English



ChatGPT



"Cracking the Code: Demystifying Medical Terminology for Teens"

Make an acronym for a group or study?



Slides/ Links

Composing onerous emails

- “Write a rejection letter to a job candidate stating he was self-centered”

After careful consideration, we have decided to move forward with another candidate who more closely aligns with our current team dynamics and company culture. While we value individuality and self-confidence, we are looking for a team member who exhibits a strong sense of collaboration and collective effort.

During the interview process, we observed that your approach seemed more focused on personal achievements rather than on team-oriented success. At [Company Name], our emphasis is on fostering a collaborative environment where every team member contributes to and celebrates the accomplishments of the group as a whole.

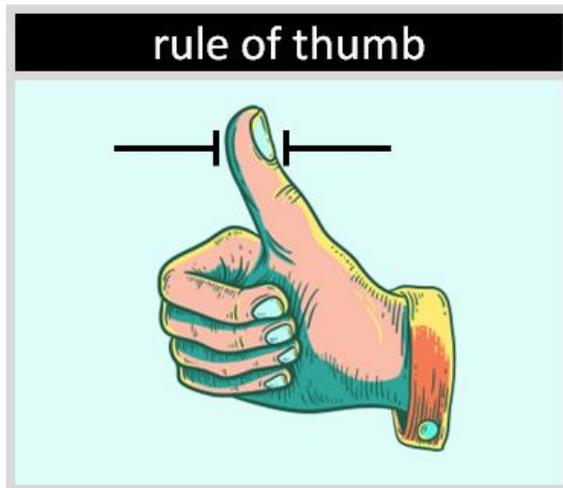
We encourage you to continue developing your skills and pursuing your career goals. Your



Slides/ Links

Ethical Considerations

- **DON'T PUT PATIENT IDENTIFIERS IN**
- Only use if you can fully check/verify the output
- Be ready to tell people the text was AI generated/cite the AI



If it would be unethical to have an administrative assistant draft what you are asking ChatGPT to do for you, it is unethical to ask ChatGPT to do it.

Re-writing things



Quick rewording of a sentence or two for readability purposes
“edit for an 8th grade reading level” or “for the lay public”

Shortening an abstract/ grant application

Be prepared to declare this for a manuscript submission!

*“During the preparation of this work the author used **** to improve the readability and language of this manuscript. After using this tool/service, the author reviewed and edited the content as needed and take(s) full responsibility for the content of the publication”*

Letters of rec starting with a previous letter?

- *<upload a last letter without a name attached>*
- *“Here is a letter of recommendation I wrote for a previous candidate. Please insert XXXX in all the places their first or last name or a gender pronoun occurs and remove any of the examples about their work.”*



Assessing Evidence- AI as a Lifelong Learning Partner



AI can act as a "co-pilot" helping us stay updated with the latest and most relevant medical knowledge.





Slides/ Links

Broaden a differential diagnosis



"give me a differential diagnosis for an infant with trisomy 21 who presents with hyponatremia."

Summarize Evidence/Literature



The New York Times



By Dani Blum and Maggie Astor

May 29, 2025

White House Health Report Included Fake Citations

A report on children's health released by the Make America Healthy Again Commission referred to scientific papers that did not exist.

Summarize Evidence/Literature



Slides/ Links



Consensus

”Is high flow nasal cannula inferior to bubble CPAP when weaning newborns from the ventilator?”

3 papers analyzed

These studies suggest high flow nasal cannula is not inferior to bubble CPAP for newborns weaning from the ventilator.

Clinical Decision Questions

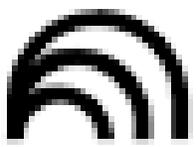


OpenEvidence[®]

”What is the criteria for surfactant administration in a preterm neonate?”

- **Preterm neonates (<32 weeks gestation)** with clinical and radiographic evidence of RDS who require increasing supplemental oxygen (typically $\text{FiO}_2 \geq 0.30-0.40$) and/or require intubation for respiratory failure despite non-invasive support. ^{[2][5-6]}

- **Preterm neonates <29 weeks gestation** may be considered for early surfactant administration within



NotebookLM



Slides/ Links

Turn a paper into your
own personal podcast



Listen and learn on the go

Create
podcast-style
overviews
with your AI
research
assistant 



Power study

Upload lecture recordings, textbook chapters, and research papers. Ask NotebookLM to explain complex concepts in simple terms, provide real-world examples, and reinforce your understanding.

Learn faster and deeper.

Thank You

- Michael Pitt
- Zeenia Billimoria
- Megan Gray
- Sandy Johng
- Janessa Law
- Sara Neches
- Taylor Sawyer
- Katie Strobel
- Rachel Umoren
- Kirti Upadhyay

Anna Hedstrom
Hedstrom@uw.edu

