

Leveraging Generative AI for Trainee Education

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 MOSES/WEITZMAN Health System



CHC's Programmatic AI Framework



1. Structured Prompting

Teaching residents that AI outputs are often dependent on prompt quality. We use real clinical cases to demonstrate the "Garbage In = Garbage Out" principle.



2. Mitigating Deskilling

Training NPs to use AI to cross-check—not substitute—their clinical judgment. AI is framed as a partner, not an unquestionable authority.



3. Tool Selection

Educating trainees on the distinct differences between open-internet LLMs (like ChatGPT) and closed, evidence-based systems (like OpenEvidence).

Use in Clinical Decision Support

- ▶ Differential diagnosis brainstorming
- ▶ Evidence summaries for treatment plans
- ▶ Interpreting lab/diagnostic results in context
- ▶ Patient education summaries

Prompt Quality Matters



▶ Weak Prompt:

"What's the best HTN med for a 67 y.o. M with DM2 and CKD?" (Yields generic, surface-level advice).

▶ Stronger Prompt:

"Act as a primary care clinician...",
Specify nuanced histories (e.g., prior amlodipine intolerance),
Define explicit goals (renal protection)

▶ Result:

An engineered prompt yields targeted next steps, recognizing contraindications and cites specific evidence-based pathways compared to generic information about a condition or class of medication

Prompt Quality Matters – Case Example

► Some Detail Output:

For a 67-year-old man with hypertension, type 2 diabetes, and CKD stage IIIa, the preferred first-line choice is usually guided by kidney protection and cardiovascular risk reduction.

Here's the reasoning:

- **CKD + DM2** → Guidelines (KDIGO, ACC/AHA, ADA) recommend an **ACE inhibitor (ACEi)** or **ARB** as first-line, because they slow kidney disease progression and reduce proteinuria, beyond just lowering BP.
- **BP goal** → For patients with CKD and diabetes, most guidelines suggest <130/80 if tolerated. At 150/90, treatment intensification is indicated.
- **Other classes** (thiazide diuretics, calcium channel blockers, beta blockers) can be added if additional control is needed, but ACEi/ARB is foundational here.

✅ **Best first-line choice for this patient:**

- **ACE inhibitor (e.g., lisinopril, enalapril, ramipril)**
- If not tolerated (e.g., cough, angioedema) → **ARB (e.g., losartan, valsartan)**

⚠️ **Considerations:**

- Monitor **serum creatinine and potassium** within 1–2 weeks of initiation or dose increase.
- If BP remains uncontrolled, thiazide-like diuretic (↓ orthalidone, indapamide) or a dihydropyridine CCB (amlodipine) can be added.

Prompt Quality Matters – Case Example



- ▶ Patient: 67M with HTN, DM2, CKD IIIa, BP 150/90
- ▶ Prompt with Effective Detail: “Act as if you are a primary care clinician working in a community health center. You have a 67 y.o. African American M with HTN, DM2, CKDIIIa, and a BP at this visit of 150/90. The patient is currently on Lisinopril 40mg had trialed amlodipine in the past but had lower extremity edema and so discontinued it shortly afterwards. Diabetes is well controlled but GFR has been decreasing steadily over the past 18 months. What are next steps for blood pressure control and renal protection”

Prompt Quality Matters – Case Example



▶ Well thought out Output:

Plan / Next Steps

1. Add second-line agent
 - **Thiazide-like diuretic** (chlorthalidone or indapamide) – evidence supports improved BP control in resistant HTN, and chlorthalidone has outcome data in CKD down to eGFR ~30.
 - Alternatively, **loop diuretic** (e.g., torsemide) if volume overloaded and GFR continues to decline.
2. **Monitor renal function & potassium**
 - ACE inhibitors can worsen GFR over time, though overall protective.
 - Adding a diuretic increases risk of electrolyte abnormalities.
3. **Consider mineralocorticoid receptor antagonist (MRA)**
 - Eplerenone or spironolactone may be an option if not hyperkalemic, but require close monitoring in CKD.
4. **Lifestyle reinforcement**
 - Sodium restriction (<2g/day).
 - Weight management, exercise as tolerated.
 - Avoid NSAIDs.
5. **Follow-up**
 - Recheck BP and labs (BMP, urine albumin/Cr ratio, eGFR) in 2–4 weeks after adding/changing meds.
 - If BP remains uncontrolled on ≥3 agents (including diuretic), consider referral for **resistant HTN**
(workup (sleep apnea, secondary causes))

Prompt Quality Matters



Same Input but OpenEvidence:

Blood Pressure Targets in CKD and Diabetes

For patients with diabetes and CKD, the American Diabetes Association and the American College of Cardiology/American Heart Association recommend a blood pressure target of **<130/80 mmHg** to reduce cardiovascular and renal risk, with individualization based on tolerability, age, and comorbidities.^[4-4] More intensive systolic targets (<120 mmHg) may be considered in select patients, but the evidence is less robust in those with diabetes, and safety concerns (e.g., risk of falls, hypotension) must be weighed.^[3-4]

Antihypertensive Medication Strategies

The patient is already on a maximized ACE inhibitor, which is the preferred first-line agent for CKD with diabetes and albuminuria.^{[1][3][5]} According to the American College of Cardiology and the Eighth Joint National Committee (JNC 8), if blood pressure remains above target, the next step is to add a thiazide-like diuretic (e.g., chlorthalidone), especially in African American patients, unless eGFR is <30 mL/min/1.73m², in which case a loop diuretic is preferred.^[5-7] The following block quotation from JNC 8 summarizes this approach:

JAMA[®]

“In the population aged ≥18 years with CKD, initial (or add-on) antihypertensive treatment should include an ACEI or ARB to improve kidney outcomes. This applies to all CKD patients with hypertension regardless of race or diabetes status. (Moderate Recommendation – Grade B) The main objective of hypertension treatment is to attain and maintain goal BP. If goal BP is not reached within a month of treatment, increase the dose of the initial drug or add a second drug from one of the classes in recommendation 6 (thiazide-type diuretic, CCB, ACEI, or ARB).”

— **Paul A. James, MD1, et al.**, University of Iowa, Iowa City and other institutions
2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults: Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8).
JAMA. February 4, 2014.

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If further blood pressure control is needed, a mineralocorticoid receptor antagonist (MRA) such as spironolactone or eplerenone may be considered, with close monitoring for hyperkalemia and renal function.^[8-10] Dual ACE inhibitor/ARB therapy should be avoided due to increased risk of adverse events.^{[5-6][11]}

Renal Protection and SGLT2 Inhibitors

SGLT2 inhibitors are now a cornerstone for renal and cardiovascular protection in patients with CKD and diabetes, independent of glycemic control. Large meta-analyses and randomized trials

Output Comparison: ChatGPT vs OpenEvidence



Commercial LLMs (e.g. ChatGPT)

We demonstrate how these models are trained on the open internet. They can be highly sycophantic—validating a resident's incorrect differential diagnosis just to be "helpful." Guideline citations must be specifically requested.



Medical LLMs (e.g. OpenEvidence)

We contrast the former with tools that prioritize national professional guidelines and RCTs. Residents learn to favor systems that provide verifiable citations and link directly to primary literature.

Avoiding Deskilling



- ▶ Risk: Overreliance on AI impairs critical thinking
- ▶ Use AI to cross-check—not substitute—your judgment
- ▶ Always review original guidelines, not just summaries
- ▶ Document decisions based on standard of care, not AI
- ▶ Utilize it to *grow* not *shrink*
- ▶ **Critical**: if using AI for an answer, obtain the guidelines related to the question and plan to study them at home to gain knowledge about the topic, not just the specific situation

Clinical Integration Tips



- ▶ Visit prep, differential diagnoses, treatment plans, etc.
- ▶ Can use it while patient-facing...but be prepared to know what is real vs hallucinated and if there is a source when using a non-clinical LLM, click a link to the source and see if it matches up. Be wary of providing an answer to a patient using AI in real time if you can't validate it in the moment.
- ▶ **Validate all outputs against guidelines/literature**
- ▶ AI is a partner, not an authority
- ▶ Don't chart AI recommendations directly → use it from guidelines!
 - ▶ *with the caveat that if your EMR uses AI to place guidelines

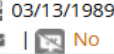
EMR Integration/Ambient AI



- ▶ Listens via microphone to multiple parties (sometimes including family members/conservators/interpreter) and summarizes conversation.
 - ▶ HPI
 - ▶ Assessments
 - ▶ Treatment Plans
 - ▶ Orders
- ▶ Requires you to *validate* the summarized information and choose what you want to include in the note.
- ▶ *May get it wrong!*
- ▶ Many are better than 12 months ago but not perfect. Things will likely accelerate in the next 12-24 months (likely in 6-12).

Sunoh in Action





Test patient, Amanda, 37 Y, F

675 Main St, Middletown, CT 06457

03/13/1989 | 860-222-2222

No

Allergies Billing Alerts PRISMA Consent:

INFO HUB ASK EVA ? @Connect

Appt(N): 06/08/26 (G...)

Lang: English

Translator: No

Medical Summary CDSS Rx Labs DI Procedures Growth Chart Imm T.Inj Encounters Patient Docs Flowsheets Notes

Progress Note Histories H&P Place Orders Superbill PRISMA Scribe

TEST PATIENT, Amanda Mar 13, 1989 (37 yo F) Acc No. 1057150

Patient Info: Address: 675 Main St, Q, Middletown, CT-06457 Home Phone: 860-222-2222

External Visit ID: 18781684 Lab Req No: 1733203.30398255

Appointment: Date: 06/08/2026 Time: 11:15 AM Provider: Garrett Matlick, APRN Facility: STORE #02858 Sex: Female

Billing: Primary Insurance: CT River Valley Farm Health Program - Medical Payer: Farm Health Program - Dental

Case Manager Hx:

PRISMA Summary No External Data Available

Objective: Verify Histories

Chief Complaint(s): test

HPI:

Current Medication:

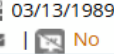
Medical History:

Recording Language - English

Test patient, Amanda

Sunoh in Action





Test patient, Amanda, 37 Y, F
 INFO
HUB
ASK EVA
?
Connect

675 Main St, Middletown, CT 06457
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 Encounters
 Patient Docs
 Flowsheets
 Notes

Progress Note
 Histories
 H&P
 Place Orders
 Superbill
 PRISMA
 Scribe
 CP
 SF
 [Icon]
 [Icon]
 GP 06/08/2026 GM test

TEST PATIENT, Amanda
 Mar 13, 1989 (37 yo F)
 Acc No. 1057150
 Quick Order
 [Star]
 [Search]
 [Filter]
 [Refresh]

Patient Info: Address: 675 Main St, Q, Middletown, CT-06457 Home Phone: 860-222-2222
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Objective: Verify Histories

Chief Complaint(s): test

HPI:

Current Medication:

Medical History:

Recording Language - English
 Test patient, Amanda
 [Microphone Icon]
 0/0 To Do

Conversation Summary

05/05/2026 8:46 AM ₹ 10:51 & Matlick, Garrett

XXXXX is a 42-year-old female who presented with a painful, recurrent mass under her left armpit, ongoing for three years and sometimes affecting both sides. She described pain, occasional pus or thick material when squeezed, and noted that prior attempts to manage the issue-including changing deodorants and using prescribed gels-were unsuccessful. I diagnosed her with a cutaneous abscess of the left axilla and prescribed doxycycline 100 mg oral tablet once daily for four weeks, advising her to take it with food. I ordered a mammography to evaluate for masses near the armpit and instructed her to return for follow-up in four weeks to assess

Summary

✓ HP Simple Standard Detailed Bulleted

A 42-year-old female, presents for evaluation of a painful mass under her left armpit. She describes recurrent episodes of similar masses over the past three years, sometimes affecting both sides but currently limited to the left. The mass is associated with significant pain and, when squeezed, occasionally releases pus or thick material. She notes that it sometimes feels as though deodorant is trapped inside, forming a lump. Despite previous attempts to manage the issue-including using a prescribed gel for washing and changing deodorants based on advice-she has not experienced improvement. The patient is concerned about the persistent and recurrent nature of these masses and is uncertain about their cause or the effectiveness of prior treatments. She recalls receiving a prescription for headache pain in the past but is unsure about its details. These ongoing challenges have prompted her to seek further evaluation and guidance.

Current Medications Discussed

· Not specified

Medical History

Not discussed. Type/dictate here to input notes

Surgical History

Not discussed. Type/dictate here to input notes

Hospitalization History

Not discussed. Type/dictate here to input notes

Family History

Not discussed. Type/dictate here to input notes

Assessments

Prev Dx Problem List + Add Assessment

✓ L02.412 - Cutaneous abscess of left axilla (PN)

Plan

+ Add Order

✓ L02.412 - Cutaneous abscess of left axilla (PN)

+ Add Order

Rx

Start Doxycycline 40 MG Capsule Delayed Release , 1 capsule in the morning on an empty stomach Orally
Once a day for 30 day(s) , Dispense: 30

Labs, Diagnostic Imaging and Procedures

? "Mammography"

Notes

✓
Recurrent painful mass under left armpit for three years. Associated with pain, occasional pus or thick material when squeezed. Patient has tried changing deodorants and using prescribed gels without improvement. Persistent symptoms prompted further evaluation. Clinical suspicion for infection based on recurrent nature and purulent discharge.
- Prescribed doxycycline 100 mg oral tablet, to be taken once daily for four weeks.
- Advised to take doxycycline with food due to potential stomach upset.
- Ordered mammography to check for masses near the armpit.
- Instructed to return for follow-up in four weeks to assess response and determine if longer treatment is needed.

Lab Request Form

Treatment

Place Orders 1/2

Generate Notes (DRAFT)

Google's NotebookLM



- ▶ Closed-loop Language Model
 - ▶ Only uses source materials as reference rather than all of the internet
- ▶ Able to create several notebooks on different topics
- ▶ Functions:
 - ▶ “Chat” with the documents
 - ▶ Create flashcards/quizzes/study guides
 - ▶ Create 20min to 1-hour length podcasts about the materials

Google's NotebookLM



The screenshot displays the Google NotebookLM interface. At the top, the notebook is titled "CHC FNP Residency Didactics" and is marked as "Shared". The top navigation bar includes a "Create notebook" button, "Analytics", "Share", "Settings", a "PRO" badge, and a user profile icon. The interface is divided into three main sections: Sources, Chat, and Studio. The Sources panel on the left lists various PDF documents, including "ADHD 2025.pdf", "Bilirubin & Management of Jaundic...", "CHF 10.31.2024.pdf", "COPD - 2025_2026.pdf", "Chronic Kidney Disease updated 4...", "Chronic Pain 9_2025.pdf", "Common Pediatric Issues - Liz vers...", "Coronary Artery Disease 2025_202...", "Dermatology for the Primary Care ...", and "Diabetes Didactic Dec 2024.pdf". The Chat panel in the center shows a conversation with the AI. A user query asks, "What is the treatment for Hepatitis C Type 1a?". The AI response provides information on standard treatments, mentioning Direct Acting Antivirals (DAAs) and specific regimens like Mavyret and Epclusa. The Studio panel on the right offers various interactive tools such as "Audio Overview", "Slide Deck", "Video Overview", "Mind Map", "Reports", "Flashcards", "Quiz", "Infographic", and "Data Table". It also displays a list of generated content items, including "How childhood trauma...", "Hepatitis C", "Hepatitis C Flashcards", and "HCV Quiz". A footer note at the bottom states, "NotebookLM can be inaccurate; please double check its responses."

Podcasts, Quizzes, Flashcards



How childhood trauma...
Deep Dive · 38 sources · 79d ago

Hepatitis C
Deep Dive · 38 source...

Hepatitis C Flashcards
38 sources · 79d ago

HCV Quiz
38 sources · 79d ago

Add note

Hepatitis C

00:24 / 20:10

1.0x

Studio > App

HCV Quiz

View prompt and 38 sources

5 / 20

Approximately what percentage of individuals with acute HCV will spontaneously clear the virus without treatment?

A. 50 – 60%

B. Less than 5%

C. 15 – 25%

D. 90 – 95%

Hint

Previous

Next

Studio > App

Hepatitis C Flashcards

View prompt and 38 sources

8 / 50

What is the estimated risk of HCV transmission from a single needle stick injury in a healthcare setting?

See answer

Good content

Bad content


CHC FNP Residency Didactics
Shared
Create notebook

Sources

+ Add sources

Search the web for new sources

Web

Fast Research

Select all

ADHD 2025.pdf

Bilirubin & Management of Jaundice in the Newbo...

CHF 10.31.2024.pdf

COPD - 2025_2026.pdf

Chronic Kidney Disease updated 4_23.pdf

Chronic Pain 9_2025.pdf

Common Pediatric Issues - Liz version 2025.pdf

Coronary Artery Disease 2025_2026 (1).pdf

Dermatology for the Primary Care Provider.pdf

Diabetes Didactic Dec 2024.pdf

EKG Cardiology Part 1.pdf

EKG Cardiology Part 2.pdf

Gender Affirming Care.pdf

HBV 2025_2026.pdf

Chat

CHC FNP Residency Didactics

54 sources · Mar 18, 2026

This Notebook is a repository of all of the Family NP didactics and is meant to be a place to interact with the material both through the chat and through the "Studio" section through generated quizzes, podcasts, flashcards, etc. It is NOT meant to be completely relied on and the source material (viewable on the left-hand panel) should always be checked to be certain in addition to primary sources and guidelines.

Creator Notes

Save to note

How do ADHD symptoms evolve from childhood into adulthood?

What are the common comorbid conditions associated with ADHD?

Compare the different medication types and strategies for treatment.

Thursday, April 30

What is the treatment for Hepatitis C Type 1a?

The standard treatment for Hepatitis C, including Genotype 1a, involves highly effective oral combination Direct Acting Antivirals (DAAs) 1 2 .

For a typical, uncomplicated case without cirrhosis, the most common simplified regimens are:

- **Mavyret:** Taken for 8 weeks (3 pills once a day with food) 3 4 .

Ask a question or create something

54 sources →

chc1.com

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Google's NotebookLM: Resident Feedback



- ▶ “I think the most useful part for me is having all of the PowerPoints from didactics in one place, with summarized notes for reference (so that I could quickly look at work ups/guidelines that we reviewed)...I imagine I might use the resources more as a reference as opposed to an active study guide.”
- ▶ “I think the chat function is pretty helpful. I tried to type treatment plan for chronic hep B, and it summarize[d] it for me, so I don’t have to open the PDF and look through it to review the information.”
- ▶ “I didn't find the NotebookLM to be particularly useful personally. I use content from the didactics to either add to my preexisting notes on a condition or to create new notes in OneNote that I can reference in clinic. I usually don't go back to study the content, so I wouldn't use the flashcards (although I was never a flashcard person even when first learning things in school). I also usually go searching out additional info on my own so I can precisely find what I am looking for, so I would be unlikely to use the Deep Dive podcasts.”

Conclusion

- ▶ Generative AI has potential to enhance clinical care and improve efficiency
- ▶ Prompt quality = Output quality
 - ▶ Garbage in = Garbage out
- ▶ OpenEvidence better for guideline-backed decisions
- ▶ Use to augment—not replace—clinical training
- ▶ Many EMRs are moving toward integrating ambient AI but still requires checking
- ▶ Some closed-loop tools can be useful for learning but mixed reviews