AI Chatbot Toolkit for the Medical Student on Clinical Clerkships

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Introduction

Medical students shoulder many responsibilities during their general clerkships. Navigating new environments in the clinic and on the ward, keeping up with assignments, and preparing for shelf exams can be difficult. This toolkit was created to provide students with ideas, examples, and practical applications of artificial intelligence (AI) chatbots such as Chat Generative Pre-trained Transformer (GPT), Claude, and Gemini while on clinical rotations. The toolkit has been split into the subsections of **Wellness, Scheduling, Studying, Clerkship Preparation, Goal Setting, and Other.**

How to use this guide

The ability to create effective prompts is an important skill to develop in order to efficiently use generative AI. Many medical students have not received training in this skill as part of their medical school curriculum. However, as generative AI continues to become integrated into medical education, it will become more important to be able to interface with it effectively.

We have split this guide into large subsections and provided example use cases for AI chatbots. The **blue underlined** terms within the “Example Use Cases” subsection can be clicked to jump to the corresponding **Chatbot Prompts** section of this guide that contains example prompts.

The example prompts we provide here are designed to be copied and pasted directly into an AI chatbot of your choice. The prompts can be modified to tailor to the student’s situation and needs. Ensure that the prompt is entered into a fresh chat to generate a response of the intended form. The chatbot will often request further information after returning a response to clarify or offer further assistance, so be sure to read chatbot messages fully.

Example Use Cases

Wellness

Studies have demonstrated the importance of implementing wellness education as part of the medical school experience [1,2]. A pilot study was conducted examining the effects of a wellness curriculum during an emergency medicine clerkship, with the study ultimately yielding positive student reactions, attitudes, and self-reported learning and behavioral changes [1]. The curriculum emphasized discussion and mindfulness in the form of 2-minute meditation breath techniques, body scan techniques, and mindful eating [1]. Additionally, a mind-body medicine elective promoting meditation techniques was shown to result in high participant satisfaction among students, with notable improvements in mindfulness, relationships with medical school peers, and access to a safe environment in medical school [2]. Here, we have constructed prompts to assist students as they integrate wellness into their daily routines. Ideas include:

- Create short resilience or **mindfulness exercises**.
- Generate **journaling templates**.

Note: Using a chatbot is not a substitute for a trained healthcare professional, including certified health and wellness coaches, licensed therapists, or physicians. The chatbot is meant to facilitate ease of implementation of wellness techniques by providing students with structured guidance.

Scheduling

While clinic and ward schedules may be fixed, it can be difficult for the busy clerkship student to manage the remaining time outside of clinical obligations. Chatbots can aid students in efficiently utilizing their time outside of rotations to balance work, rest, and physical and mental well-being. Some ideas include:

- Create **morning or bedtime routines** to promote healthy sleep habits.
- Offer **meal prep planning** and **recipe ideas** (e.g., “What can I make with what’s in my fridge?” or “What should I buy from the grocery store?”).
- Build a **weekly schedule** that balances studying, relaxing, and personal activities outside of rotations, and exporting this schedule into digital calendars (e.g., Google Calendar, Apple Calendar).
- **Map out assignment deadlines** and set checkpoints for completion.

Studying

Chatbots can be useful in maintaining organization and keeping track of study progress through high level timeline visualizations and day-to-day study plans. Care should be taken when using chatbots for initial learning of fundamental concepts, question generation, and exam review due to possible falsification of information by the chatbot. Cross-check responses with validated sources. Some ideas include:

- Planning and Coaching
  - Create a **study plan** and checklist to prepare for exams.
  - Request **exam strategy coaching** for assistance with time management, approach, and prioritization when test-taking.
- Content Review
  - Create **quicksheets** or high level overviews for quick review before exams.
  - **Mnemonic generation**.
- Practice
  - **Integrate clinical cases** encountered on clinical rotations into case-based questions to solidify and assess concept understanding.
  - Use existing **study documents** to create quizzes or questions.

Preparation

The well-prepared student is better equipped to excel on clinical rotations. Chatbots can assist rotation preparation by giving introductory explanations to expected patient presentations or by assisting with administrative tasks.

- **Preparing for Surgical Cases**
  - Summarize the procedure, steps, key indications, and relevant anatomy.
  - List key indications and common complications of the procedure.
  - Anticipate possible questions that could be asked during the case.
  - Identify further resources to read.
- **Preparing for Clinic or Wards**
  - Review common diagnoses and high-yield emergency conditions.
  - Create a reference for commonly encountered medications (both generic and brand names).
  - Review technical skills and physical exam maneuvers that may be required for the rotation.
- **First Day on Rotation Checklist**
  - Generate badge/electronic medical record (EMR) access reminders
  - Confirm location and time of arrival.
  - Prepare appropriate attire (e.g. scrubs, business casual, white coat), equipment (e.g. stethoscope, reflex hammer), and etiquette.
  - Plan transportation (parking, public transportation timetables) and know your points of contact.

Goal Setting

Having goals can help orient the clerkship student to the purpose and desired outcomes of a given clinical rotation. AI chatbots can help **develop SMART goals**, which are Specific, Measurable, Attainable, Relevant, and Time-bound. [3]

Specific: What exactly do you want to achieve, and who is involved?
Measurable: How will you track progress and determine whether you have achieved your goal?
Attainable: Is your goal realistic and achievable?
Relevant: Does this goal align with your objectives and priorities?
Time-bound: What is the timeline and deadline for your goal?

Chatbot Prompts

Wellness

- **Body scan**

<Context>
The user is a medical student on clinical clerkships that has to juggle many responsibilities and seeks personalized guidance to maintain emotional and mental well-being. Your goal is to create a short, relaxing body scan that can fit a demanding and stressful schedule.
</Context>

<Instructions>
Create a brief read-along body scan to help the user ground themselves.
</Instructions>

<Constraints>
Avoid jargon or instructions that require special equipment.
Maintain a neutral, calming, and inclusive tone.
Ensure accessibility for listeners with no meditation experience.

Tips, if any, should be concise and given at the end of the response, limited to 4 or 5 bullet points.
</Constraints>

<User_Input>
Current position: seated/standing/walking
Preferred breathing pace: slow/moderate
Energy level: low/medium/high
Time available: (default: 2 minutes)
</User_Input>

- **Journaling templates**

<Context>
The user is a medical student on clerkship rotations who would like to engage in journaling for mindfulness.
</Context>

<Instructions>
Ask the user how much time they would like to spend on this journal entry today. Create a journaling prompt for a medical student on clerkship rotations based on mindfulness and wellness curriculums focused on medical school students. Aim for this prompt to be completed within the user's stated time duration.
</Instructions>

<Constraints>
If the prompt has multiple subsections, no more than 2 bullet points per subsection.
</Constraints>

<User_Input>
Time spent journaling: (minutes, hours)
</User_Input>

Scheduling

- **Morning or Bedtime Routines**

<Context>
The user is a medical student on clinical clerkships that has to juggle many responsibilities and seeks personalized guidance to maintain healthy sleeping habits. Your goal is to create a morning and bedtime routine that can help the user maintain good sleep hygiene while fitting a demanding schedule.
</Context>

<Instructions>
Prompt user for user input information.

Create a bedtime routine that matches the user's circumstances and encourages good sleep hygiene.

Create a morning routine that maximizes the user's quality of sleep while ensuring the user has adequate time for travel and arrival.
</Instructions>

<Constraints>
Keep schedule streamlined - one line per time slot

Ideally the schedule should be able to be read without scrolling on a phone.

Tips, if any, should be concise and given at the end of the response, limited to 4 or 5 bullet points.
</Constraints>

<User_Input>
Age: (in years)

Target sleep duration: (default: 8 hours)

Time of morning arrival: (default: 8am)

Energy level: low / moderate / high

Include these items in my routine: (optional)
</User_Input>

- **Meal Prep Guidance**

<Context>
The user is a medical student on clinical clerkships that has to juggle many responsibilities and seeks personalized guidance to decrease the temporal burden of cooking. Your goal is to create a meal prep menu that can be created in large batches and kept refrigerated for multiple days while fitting a demanding schedule.
</Context>

<Instructions>
Prompt user for user input information.

Create a meal prep menu that matches the user's preferences.

Add in time considerations for grocery shopping or meat thawing.

Respond with dish names and streamlined descriptions - one line per item, expected time commitment, streamlined schedule (one line per time slot), ingredient list, estimated price of ingredients, equipment.

Ask user if they want recipe instructions based on the provided meal prep overview. Provide recipe instruction if prompted.
</Instructions>

<Constraints>
Keep cookware basic, or limit the number of required cookware items.

Tips, if any, should be concise and given at the end of the response, limited to 4 or 5 bullet points.
</Constraints>

<User_Input>
Number of meals per batch:

Meal: breakfast/lunch/dinner/combination

Dietary restrictions: (default: none)

Style of cuisine (optional):
Include these ingredients (optional):
Level of cooking expertise (optional): beginner/intermediate/advanced
Preferred grocery store (optional):
</User_Input>

- **Recipe Generation**

<Context>
The user is a medical student on clinical clerkships that has to juggle many responsibilities and seeks personalized guidance to make meal preparation more efficient. Your goal is to create a recipe that maximally utilizes what the user already has on hand while fitting a demanding schedule.
</Context>

<Instructions>
Prompt user for user input information.

Create a recipe that matches the user's preferences.

Add in time considerations for grocery shopping or meat thawing.

Respond with dish names and streamlined descriptions - one line per item, expected time commitment, streamlined schedule (one line per time slot), ingredient list, estimated price of ingredients, equipment.

Ask user if they want recipe instructions based on the provided meal prep overview. Provide recipe instructions if prompted.
</Instructions>

<Constraints>
Keep cookware basic, or limit the number of required cookware items.

Minimize the amount of extra ingredients the user needs to acquire.

Tips, if any, should be concise and given at the end of the response, limited to 4 or 5 bullet points.
</Constraints>

<User_Input>
Ingredients on hand:

Meal: breakfast/lunch/dinner/combination

Dietary restrictions: (default: none)

Style of cuisine (optional):
Level of cooking expertise (optional): beginner/intermediate/advanced
Preferred grocery store (optional):
</User_Input>

- **Weekly Schedule Builder**

<Context>
The user is a medical student on clinical clerkships that has to juggle many responsibilities and seeks personalized guidance on creating a weekly schedule. Your goal is to create a weeklong agenda that efficiently utilizes the user's time outside of fixed rotation hours to maintain a healthy balance of work, relaxation, and personal activities.
</Context>

<Instructions>
Prompt user for user input information.

Create a schedule that matches the user's preferences.

Add in time considerations for traveling. If location based commitments are included in user input but no commute time is given, prompt for commute time for each individual event.

Respond with the schedule in a table that is readable both on a computer screen and on a phone screen.

Ask the user if they want to export this schedule to their preferred calendar app, and provide if prompted.
</Instructions>

<Constraints>
Ensure adequate hours to maintain proper sleep habits.

If possible, incorporate study blocks daily.

If possible, include dedicated blocks for chores and housework on the weekends.

Balance work with relaxation and rest.

Tips, if any, should be concise and given at the end of the response, limited to 4 or 5 bullet points.
</Constraints>

<User_Input>
Daily work hours:

Morning commute length: (minutes or hours)
Afternoon commute length: (default: same as morning commute length)

Transportation method:

Location based commitments with day and duration:

Study goals (optional):
Zoom meetings (optional):
Personal activities with frequency (optional):
Meal prep? (optional):
Bedtime routine length (optional):
Morning routine length (optional):
</User_Input>

- **Assignment Tracker**

<Context>
The user is a medical student on clinical clerkships that has to juggle many responsibilities and seeks personalized guidance on keeping track of assignment requirements and deadlines. Your goal is to create a visualization of the user's assignment timeline in a table.
</Context>

<Instructions>
Prompt user for user input information.

Create checkpoints to pace assignment completion.

Use today's date as the starting point.

Respond with the assignment schedule and checkpoints in a table that is readable both on a computer screen and on a phone screen.

Ask the user if they want to create phone reminders and provide if prompted.
</Instructions>

<Constraints>
Use specific dates for checkpoints, avoid using "day 1-5" for example.

Tips, if any, should be concise and given at the end of the response, limited to 4 or 5 bullet points.
</Constraints>

<User_Input>
Assignments with due dates:
</User_Input>

Studying

- **Study Plan**

<Context>
The user is a medical student on clinical clerkships with the goal of learning high-yield points relevant to USMLE exams, NBME shelf exams, and standard of care clinical practice from study guides or other documents. Your goal is to create a study plan that will help the user pace their studying during rotations while on demanding rotations.
</Context>

<Instructions>
Prompt the user for information.

Create a study plan that incorporates learning sessions, practice, and assessments.

Respond with the schedule in an easy-to-read table.
</Instructions>

<Constraints>
Use today's date as the starting point for the study plan.
Incorporate flexibility into the schedule to account for variations in clinical rotation schedule.
Keep responses concise and readable with minimal scrolling.
</Constraints>

<User_Input>
Exam:
Exam date:
Preferred study resources:
Time per day to study:
Study plan layout: Calendar/milestones/daily or weekly checklist
</User_Input>

- **Exam Strategy Coaching**

<Context>
The user is a medical student on clinical clerkships with the goal of learning high-yield points relevant to USMLE exams, NBME shelf exams, and standard of care clinical practice. You are a test-taking coach, and your goal is to improve the user's test-taking strategies.
</Context>

<Instructions>
Ask the user for the problem they are experiencing while taking exams. From the viewpoint of a test-taking coach, educate the user in time management, pacing, and prioritization during test-

taking. Highlight key points that address common challenges for students taking the USMLE or NBME exams. With each key point, include 1 exercise that the user can incorporate into their study routine.
</Instructions>

<Constraints>
Keep responses concise and readable with minimal scrolling.
Present key points one at a time. Check for user understanding and prompt for questions before moving on to the next key point.
No more than 3 bullet points per key point.
</Constraints>

<User_Input>
Problem:
</User_Input>

- **Quicksheet Creation**

<Context>
The user is a medical student on clinical clerkships with the goal of learning high-yield points relevant to USMLE exams, NBME shelf exams, and standard of care clinical practice from study guides or other documents. Your goal is to create a quick review sheet of information that can be reviewed 1-3 days before exam day.
</Context>

<Instructions>
Create a quick review sheet of information with high-yield points for NBME shelves and USMLE Step 1 and Step 2.
Ask the user if they would like a list of academic resources for each of these points. No more than 2 bullet points describing the resource.
</Instructions>

<Constraints>
This sheet should be a 1-page document that can fit comfortably on the average laptop screen. Format as a table. Keep responses concise and readable with minimal scrolling.
</Constraints>

<User_Input>
Discipline: (surgery, internal medicine, pediatrics, obstetrics/gynecology, neurology, psychiatry, family medicine, emergency medicine, all disciplines, other)
Topics (optional): (default: none)
</User_Input>

- **Mnemonic Generation**

<Context>
The user is a medical student on clinical clerkships with the goal of learning high-yield points relevant to USMLE exams, NBME shelf exams, and standard of care clinical practice from study guides or other documents. Your goal is to create helpful, easy-to-memorize mnemonics that can help the user retain important concepts for recall during exams.
</Context>

<Instructions>
Prompt user to input information.

Create a mnemonic that encompasses the important aspects of the user's chosen concept.
</Instructions>

<Constraints>
Avoid inappropriate, complex, or esoteric terms and references.
Keep responses concise and readable with minimal scrolling.
</Constraints>

<User_Input>
Concept:
</User_Input>

- **Questions from Study Guides**

<Context>
The user is a medical student on clinical clerkships with the goal of learning high-yield points relevant to USMLE exams, NBME shelf exams, and standard of care clinical practice from study guides or other documents. Your goal is to generate appropriate questions from the user's existing study material to reinforce learned concepts.
</Context>

<Instructions>
Prompt the user for input.

Request user to upload document.

Based on the study material provided by the user, create 3 anonymized case-based questions in the style of USMLE/NBME questions based on the material presented in the uploaded document for the purpose of active recall and critical thinking.

Present the first question to the user, then prompt the user for an answer to the generated questions.

Based on the user input:
provide an explanation and an academic resource supporting that explanation either
1) immediately after the user inputs an answer
or
2) after the user has been presented with and answered all case-based questions.
</Instructions>

<Constraints>
Each question should be 5-7 sentences.
List questions sequentially following the user providing an answer to the previous question.
Answers must be multiple choice format with at least 5 answer options.
Do not report the correct answer until the user has input their answer.
No more than 2 bullet points describing the resource.
</Constraints>

<User_Input>
Exam: (shelf vs STEP)
Question setup: (The correct answer is revealed upon answer submission/revealed after all questions have been answered) (default: revealed upon answer submission)
</User_Input>

- **Integration of Clinical Cases**

<Context>
The user is a medical student on clinical clerkships with the goal of learning high-yield points relevant to USMLE exams, NBME shelf exams, and standard of care clinical practice from patient encounters.
</Context>

<Instructions>
Based on the clinical case provided by the user, create 3 anonymized case-based questions in the style of USMLE/NBME questions for the purpose of active recall. After the user has input their answer, provide an explanation and an academic resource supporting that explanation.
</Instructions>

<Constraints>
Each question should be 5-7 sentences.
List questions sequentially following the user providing an answer to the previous question.
Answers must be multiple choice format with at least 5 answer options.
Do not list the correct answer until the user has input their answer.

No more than 2 bullet points describing the resource.
</Constraints>

<User_Input>
Patient history: (patient demographics, patient history of present illness including Onset, Location, Duration, Characteristics, Aggravating factors, Relieving factors, Timing, and Severity)
</User_Input>

Clerkship Preparation

- **Preparing for the OR**

<Context>
The user is a medical student on a surgical clerkship with the goal of being fully prepared with regard to content review prior to the start of the clerkship.
</Context>

<Instructions>
Create a table with the most common diagnoses and high-yield procedures used to treat these diagnoses for this surgical field. Walk through the basic steps in numbered, chronological order at the level of understanding of a medical student on their core clinical clerkships. For each procedure, highlight important anatomy (function, risk of injury). Highlight conditions that warrant emergency treatment. Highlight information that is exam-relevant for NBME shelves and USMLE Step 1 and Step 2.

After this table, create a list of 5-7 common questions that may be asked to a medical student by physicians. Following the list of common questions, create the list of common questions with the answers included. At the end, list 2-3 key resources that would be helpful at the level of a medical student, with a bullet point description of each of those key resources including the format of the resource and the content covered.
</Instructions>

<Constraints>
Use neutral, inoffensive language.
Do not include more than 5-6 steps per procedure.
Do not include more than 2 bullet points for each of the key resources.
</Constraints>

<User_Input>
Clinical Rotation: (surgical field)
</User_Input>

- **Preparing for Clinic or Wards**

<Context>
The user is a medical student on a clinical clerkship with the goal of being fully prepared with regard to content review prior to the start of the clerkship.
</Context>

<Instructions>
Create a table with the most common diagnoses and high-yield treatments used to treat these diagnoses. Include common medications used (generic and brand names) and their mechanism. Highlight conditions that warrant emergency treatment. Highlight information that is exam-relevant for NBME shelves and USMLE Step 1 and Step 2.

After this table, create a list of 5-7 common questions that may be asked to a medical student by physicians. Following the list of common questions, create the list of common questions with the answers included. At the end, list 2-3 key resources that would be helpful at the level of a medical student, with a bullet point description of each of those key resources including the format of the resource and the content covered.
</Instructions>

<Constraints>
Use neutral, inoffensive language.
Do not include more than 2 bullet points for each of the key resources.
</Constraints>

<User_Input>
Clinical Rotation: (specialty)
Setting: (inpatient, outpatient)
</User_Input>

- **First Day of Clerkship Prep**

<Context>
The user is a medical student about to begin a clinical clerkship and with the goal of being fully prepared with regard to logistics for the first day of the clerkship.
</Context>

<Instructions>
Based on the user input, create a table checklist of the following: badge access reminders, electronic medical record access reminders, location and time of arrival, appropriate attire (e.g. scrubs, business casual, white coat), equipment (e.g. stethoscope, reflex hammer), professionalism tips, alarm setting, transportation (parking, public transportation timetables), points of contact (resident, attending).

</Instructions>

<Constraints>
Only create the table after user input has been provided.
No more than 3-4 checkboxes per category.
Do not list more than 1-2 clinical points of contact and 1 administrative point of contact.
Keep responses concise and readable with minimal scrolling.
</Constraints>

<User_Input>
Clinical Rotation: (specialty)
Setting: (inpatient, outpatient)
Location:
Start Time:
Attire: (scrubs, business casual, white coat, other)
Transportation: (car, train, bus, other)
</User_Input>

Goal Setting

<Context>
The user is a medical student on clinical clerkships. They would like to achieve a goal within a specified time frame.
</Context>

<Instructions>
Prompt user for user input information.

Create a goal that is specific, measurable, attainable, realistic, and time-bound (SMART goal). Given the user's priorities, time constraints, and barriers to meeting their goal, assess whether the current goal meets the requirements of a SMART goal. If the user's goal does not meet SMART goal criteria, prompt the user for further information in order to refine the goal until it meets SMART goal criteria.

When the final goal is created, ask the user if they feel able to commit to that goal. If not, ask the user to identify barriers to goal completion.

Once the user is able to commit to the goal created, state the final goal in 1-2 sentences and create a sample schedule that adheres to the established timeline of the final SMART goal. Ask the user if they would like a daily, weekly, or monthly schedule.

</Instructions>

<Constraints>
When asking for additional details from the user, ask each of the elements of the SMART goal 1 question at a time.
State the final goal at the end in 1-2 sentences.
Present the sample schedule in a table format.
Additional tips at the end should not exceed 4 bullet points, 1 line per bullet point.
</Constraints>

<User_Input>
Your goal:
Your timeline: (in days, weeks, months)
Time constraints: (hourly schedule)
</User_Input>

References

1. Chung AS, Felber R, Han E, Mathew T, Rebillot K, Likourezos A. A Targeted Mindfulness Curriculum for Medical Students During Their Emergency Medicine Clerkship Experience. West J Emerg Med. 2018 Jul;19(4):762-766. doi: 10.5811/westjem.2018.4.37018. Epub 2018 May 15. PMID: 30013717; PMCID: PMC6040904.
2. Williams MK, Estores IM, Merlo LJ. Promoting Resilience in Medicine: The Effects of a Mind–Body Medicine Elective to Improve Medical Student Well-being. Global Advances in Health and Medicine. 2020;9. doi:10.1177/2164956120927367
3. Poe LF, Brooks NG, Korzaan M, Hulshult AR, Woods DM. Promoting Positive Student Outcomes: The Use of Reflection and Planning Activities with a Growth-Mindset Focus and SMART Goals. *Information Systems Education Journal*. 2021;19(4):13-22.