



2023

KOREA

INTERCHANGE

SEOUL | 11-14 DECEMBER





Meet the Speaker

Dongchul Cha

Title: Director

Organization: NAVER Corporation

Insert your short bio here as text in paragraph form.



Disclaimer and Disclosures

- *The views and opinions expressed in this presentation are those of the author(s) and do not necessarily reflect the official policy or position of CDISC.*
- *The author has conflicts of interest to report, as follows:*
 - Director, NAVER corporation



Agenda

1. Emerging use of LLMs in Healthcare
2. Comparison of various LLMs
3. NAVER Healthcare introduction
4. Difficulties proceeding to production level



Emerging use of LLMs in Healthcare



The 12 factors that drive up physician burnout

Medical record documentation and coding requirements

Electronic health records serve several functions, including the planning and evaluation of a patient's treatment, but federal and state laws and regulations impose specific documentation requirements on physicians and health professionals. Multiple sources of documentation requirements lead to duplicative and inconsistent requirements that are burdensome and time consuming for physicians.

[The 12 factors that drive up physician burnout | American Medical Association \(ama-assn.org\)](https://www.ama-assn.org)

[nature](#) > [articles](#) > [article](#)

Article | [Open Access](#) | [Published: 07 June 2023](#)

Health system-scale language models are all-purpose prediction engines

[nature](#) > [articles](#) > [article](#)

[Lavender Yao Jiang](#), [Xujin C](#)

[Kevin Eaton](#), [Howard Anton](#)

[Orillac](#), [Zane Schnurman](#), [C](#)

[Douglas Kondziolka](#), [Alexa](#)

[Yindalon Aphinyanaphong](#)

Nature **619**, 357–362 (2023)

Article | [Open Access](#) | [Published: 12 July 2023](#)

Large language models encode clinical knowledge

[Karan Singhal](#) , [Shekoofeh Azizi](#) , [Tao Tu](#), [S. Sara Mahdavi](#), [Jason Wei](#), [Hyung Won Chung](#), [Nathan Scales](#), [Ajay Tanwani](#), [Heather Cole-Lewis](#), [Stephen Pfohl](#), [Perry Payne](#), [Martin Seneviratne](#), [Paul Gamble](#), [Chris Kelly](#), [Abubakr Babiker](#), [Nathanael Schärli](#), [Aakanksha Chowdhery](#), [Philip Mansfield](#), [Dina Demner-Fushman](#), [Blaise Agüera y Arcas](#), [Dale Webster](#), [Greg S. Corrado](#), [Yossi Matias](#), [Katherine Chou](#), [Juraj Gottweis](#), [Nenad Tomasev](#), [Yun Liu](#), [Alvin Rajkumar](#), [Joelle Barral](#), [Christopher Semturs](#), [Alan Karthikesalingam](#)  & [Vivek Natarajan](#)  Show fewer authors

Nature **620**, 172–180 (2023) | [Cite this article](#)

Introducing ChatGPT

We've trained a model called ChatGPT which interacts in a conversational way. The dialogue format makes it possible for ChatGPT to answer followup questions, admit its mistakes, challenge incorrect premises, and reject inappropriate requests.

[Try ChatGPT ↗](#)[Read about ChatGPT Plus](#)

You

Illustrate how to use inhaled corticosteroids (example: Symbicort)

ChatGPT

Using inhaled corticosteroids, such as Symbicort, typically involves the following steps:

1. **Shake the Inhaler:** Before each use, it's important to shake the inhaler well for a few seconds. This ensures that the medication is properly mixed.
2. **Check the Dose Counter:** Many inhalers have a dose counter that shows how many doses are left. Always check it before use to make sure you have enough medication.
3. **Breathe Out Fully:** Before putting the inhaler in your mouth, exhale completely to empty your lungs. This helps create more space for the inhaled medication.
4. **Position the Inhaler:** Hold the inhaler upright with the mouthpiece at the bottom. Place the mouthpiece in your mouth and close your lips around it to form a tight seal.
5. **Inhale Slowly and Deeply:** While pressing down on the top of the inhaler to release the medication, take a slow, deep breath. This helps the medication reach deep into your lungs.
6. **Hold Your Breath:** After inhaling the medication, hold your breath for about 10 seconds, or as long as comfortably possible. This allows the medication to settle in your lungs.
7. **Exhale Slowly:** Exhale gently and slowly away from the inhaler.
8. **Rinse Your Mouth:** After using the inhaler, it's advisable to rinse your mouth with water and spit it out. This helps prevent irritation and possible oral infections like thrush.
9. **Clean the Inhaler:** Regularly clean the mouthpiece of the inhaler to prevent medication buildup and potential blockages.
10. **Store Properly:** Store the inhaler at room temperature, away from heat and direct sunlight, and keep the cap on when not in use.

Remember, it's important to follow your healthcare provider's instructions regarding the use and dosage of Symbicort or any other inhaled corticosteroid. They may have specific recommendations tailored to your health needs.

You

Draw it

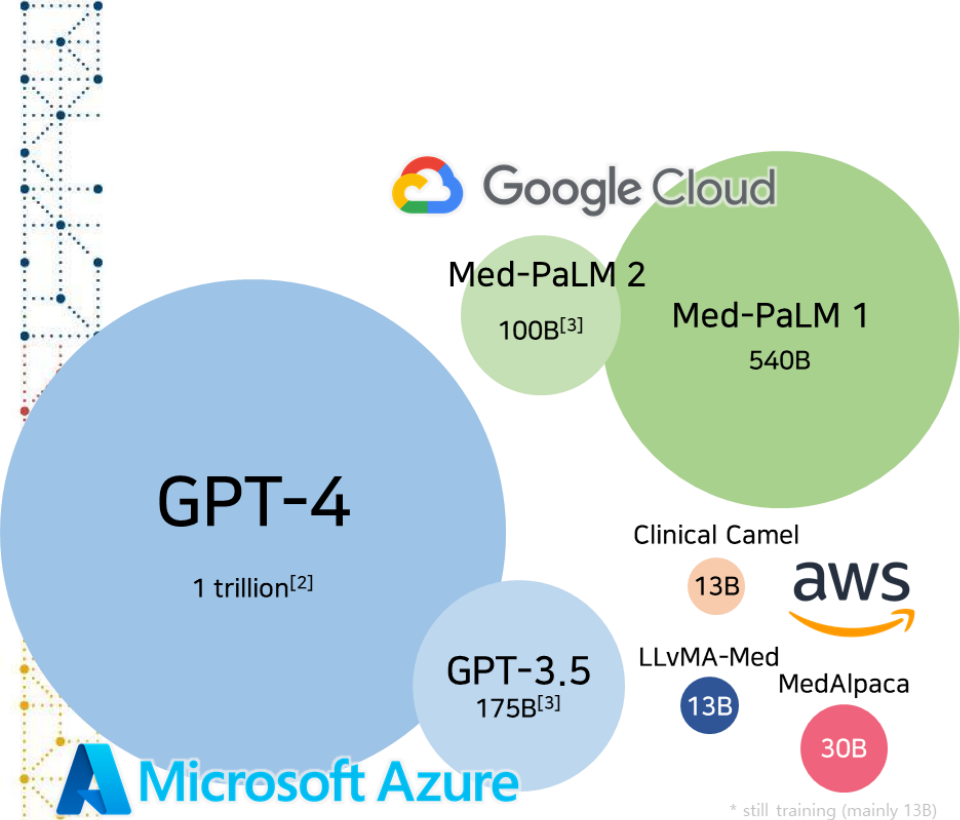
ChatGPT



Here is the step-by-step illustration showing the use of inhaled corticosteroids, specifically Symbicort, following the instructions provided. Each step is depicted in a sequential manner to highlight the correct usage of the inhaler.

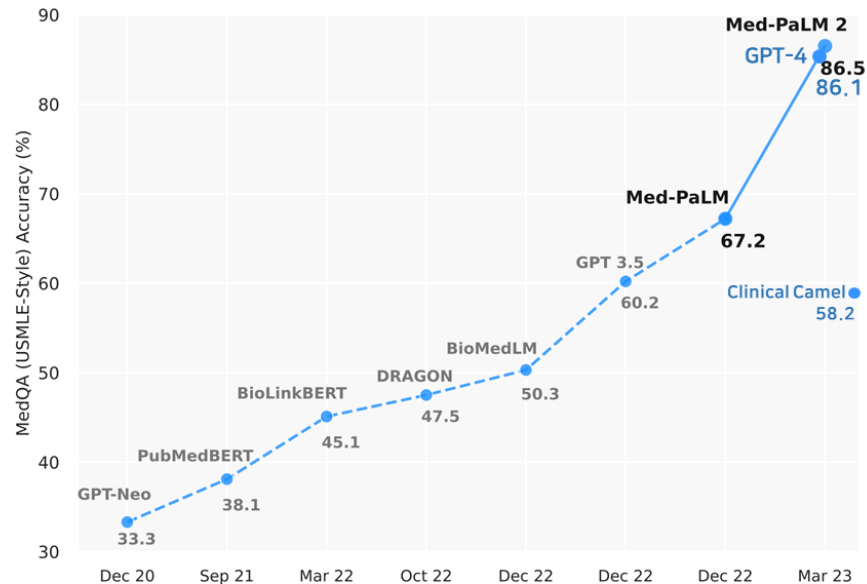


Comparison of various LLMs



Evaluation on MedQA (USMLE style)

* USMLE: United States Medical Licensing Examination



원출처에 후편집 / 원출처: Singhal, Karan, et al. "Towards Expert-Level Medical Question Answering with Large Language Models." arXiv preprint arXiv:2305.09617 (2023).

[1] "Global Healthcare Cloud Computing Market Size over Time", CB insights

[2] <https://www.semafor.com/article/03/24/2023/the-secret-history-of-elon-musk-sam-altman-and-openai>

[3] <https://twitter.com/amansanger/status/1656421689130102784>



NAVER Healthcare introduction

In-house Clinic - NAVER CARE

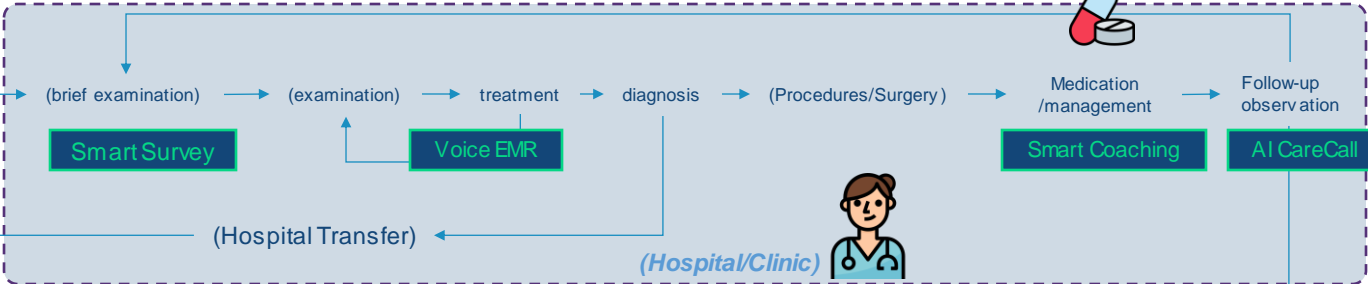
- Medical Specialties : Family Medicine (Primary Care), Rehabilitation, Health consultation/Internal Medicine, ENT clinic, Urology
- Main Facilities : 960.3m2, Body measurement, thermoelectric treatment, MSK rehabilitation exercise, cardiac rehabilitation treatment, infusion room
- Provides with total musculoskeletal solutions and personalized health consultation/management solution specialized for employees of IT company
- Provides online/offline concurrent health counseling (HC professionals in charge of VIP check-up)



NAVER Patient Journey Helping Healthcare Professionals



Symptom → Search → (reservation)



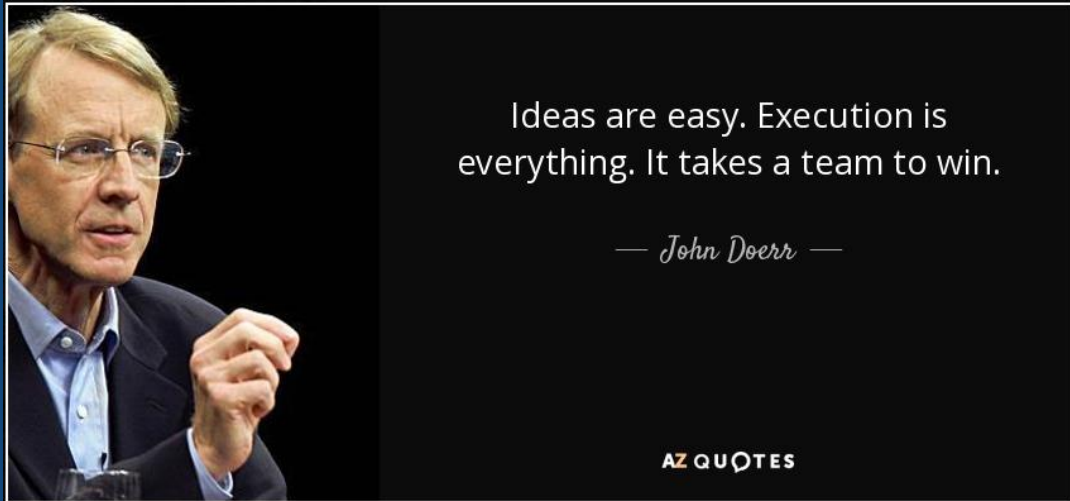
examination → diagnosis → (counseling)

Medical examination/
Health care center



Patient Summary

Difficulties proceeding to production level



Ideas are easy. Execution is everything. It takes a team to win.

— *John Doerr* —

AZ QUOTES

Usability

Money transfer

1980



2000



2015

A collage of mobile banking app screens. The central screen is 'Bank Money' by KAKAO, showing a balance of 85,100 원 and buttons for '송전하기' (Send) and '내 계좌로' (To my account). Callouts point to various features: '계좌에서 뱅크머니를 바로 송전할 수 있어요' (You can transfer Bank Money directly from your account), '뱅크머니를 원하는 만큼 친구에게 보낼 수 있어요' (You can send Bank Money to your friend for any amount), '인계돈 다시 계좌로 보낼 수 있어요' (You can send your change back to your account), and '친구가 보내준 뱅크머니를 바로 받을 수 있어요' (You can receive Bank Money from your friend immediately). Other screens show 'ATM 이용' (ATM use), '온라인 결제' (Online payment), '계좌 결제' (Account payment), '대납기' (Deposit), and a '생략카드' (Omission card) with a balance of 15,000 원.

Usability

Two company, different path...

Service Closure

7M users (doubled in 1 year)



Toss 송금 과정

1. 금액 입력



2. 받는사람 선택



3. 암호 입력



- 계좌로 송금 시(계좌송금 가능), 입력한 계좌로 입금 완료
- 문자로 송금 시(문자송금 가능), 링크가 포함된 문자 발송
 제목: Toss
 <Toss: 수수료 없는 간편한 송금>
 이승간님이 당신에게 Toss로 송금하였습니다. 아래 링크를 통해 받아주세요!
<https://toss.im/m/2yN8DB>
 - 받을 금액: [1원]
 오호, 11:33
 → 받는 사람이 입금받은 계좌번호를 모바일 앱에서 입력

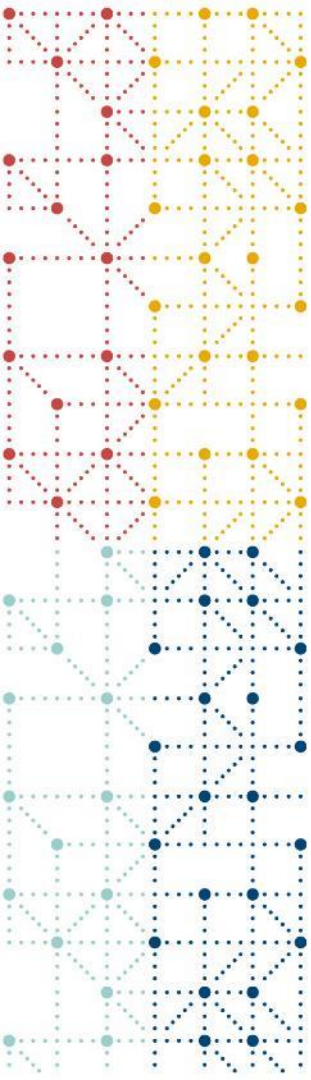
모바일 송금 '뱅크월렛카카오' 서비스 종료

토스뱅크 고객 수 700만 명 돌파, 1년 만에 두 배 늘어

송고시간 | 2016-07-27 18:14

cdisc

조운호 기자 uknow@businesspost.co.kr | 2023-08-01 15:18:43



Thank You!

