

# Reclaiming Medicine: How AI Can Restore Physician Agency and rebalance our power

**Faranak Kamangar, MD**

Founder, DermGPT

Department of Dermatology, Palo Alto Medical Foundation

Chair, SF Dermatological Society



# Who is this talk for:

## Physicians Across All Specialties, With Focus on Dermatologists



Dermatology represents **less than 1.5%** of the house of medicine.

Dermatology is too niche for tech companies to build dedicated products, but too specialized for general medical solutions to be useful.



Despite our small numbers, as specialists we handle **exceptionally high patient volumes** and serve as critical entry points into healthcare systems.



Dermatologists have experienced the pain points of inefficient workflows more acutely than most specialties, making them particularly sensitive to operational challenges.

## WHAT WE'LL COVER

**The Current Crisis:** How technology has fueled physician burnout & Why AI engagement is now a must and not optional

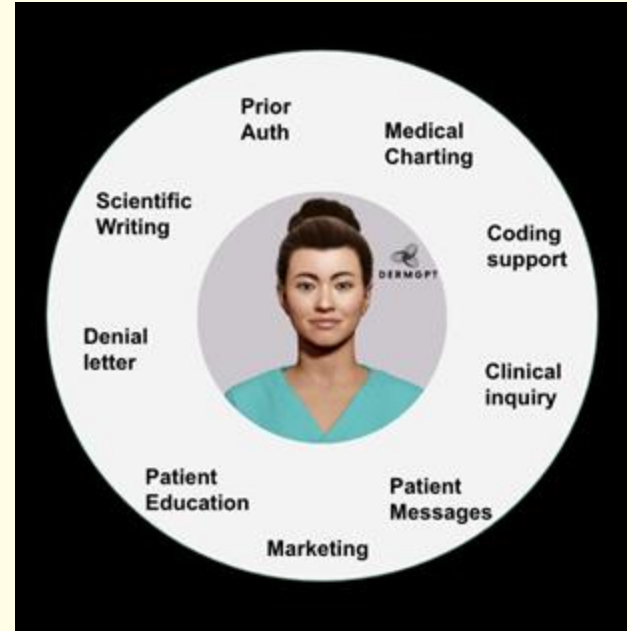
**The Transformation Ahead:** Which healthcare roles will AI replace?

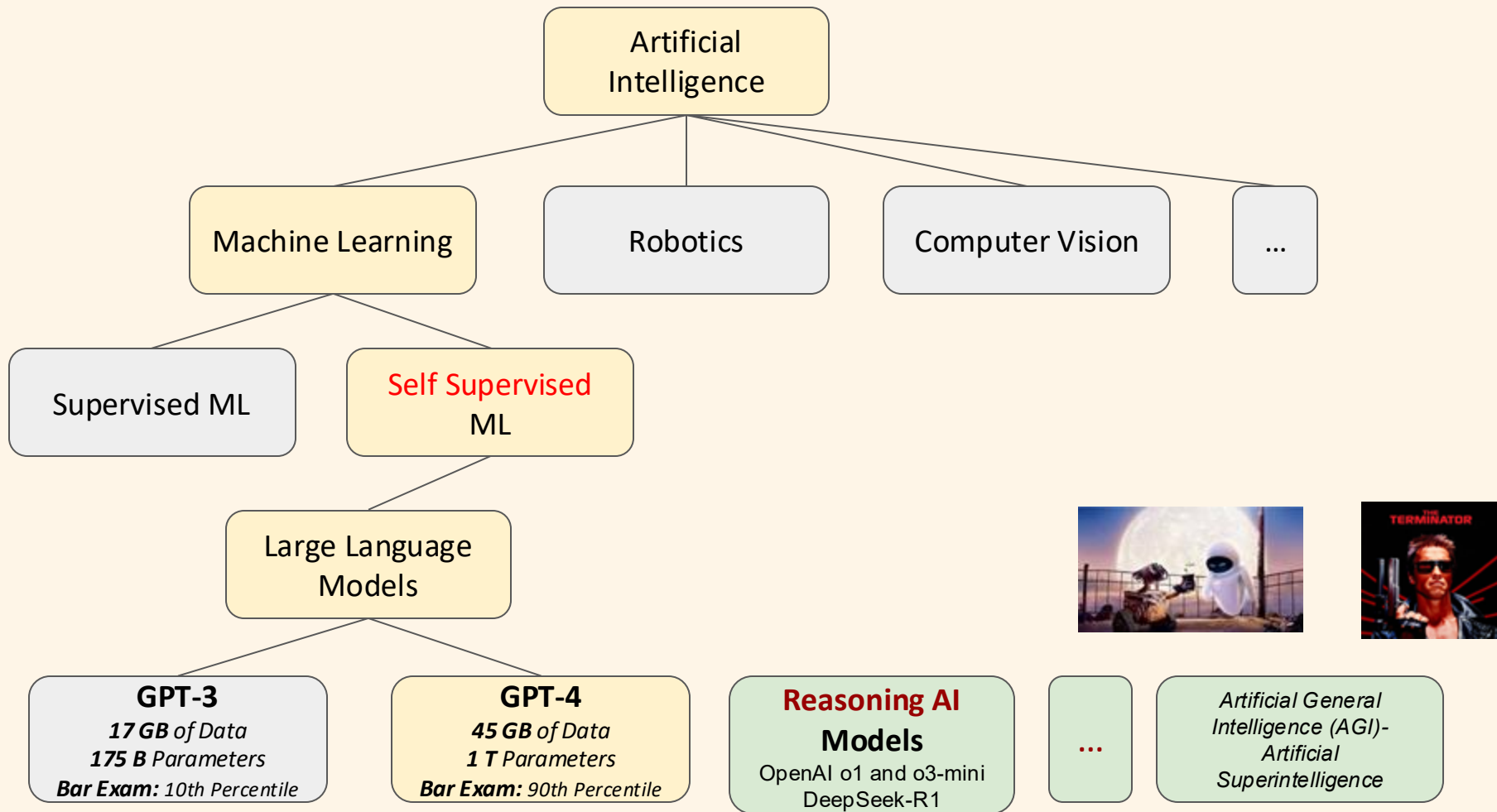
**The Competitive Landscape:** Clinical AI platform battle, Insurers vs. physicians: the new arms race

**Practical Implementation:** Prompt engineering for physicians

# Disclosures

Founder- DermGPT, a dermatology focused  
large language model





## The Current Crisis: How technology has fueled physician burnout

actual photo of a doctor seen smiling in  
1996 before the advent of patient portals

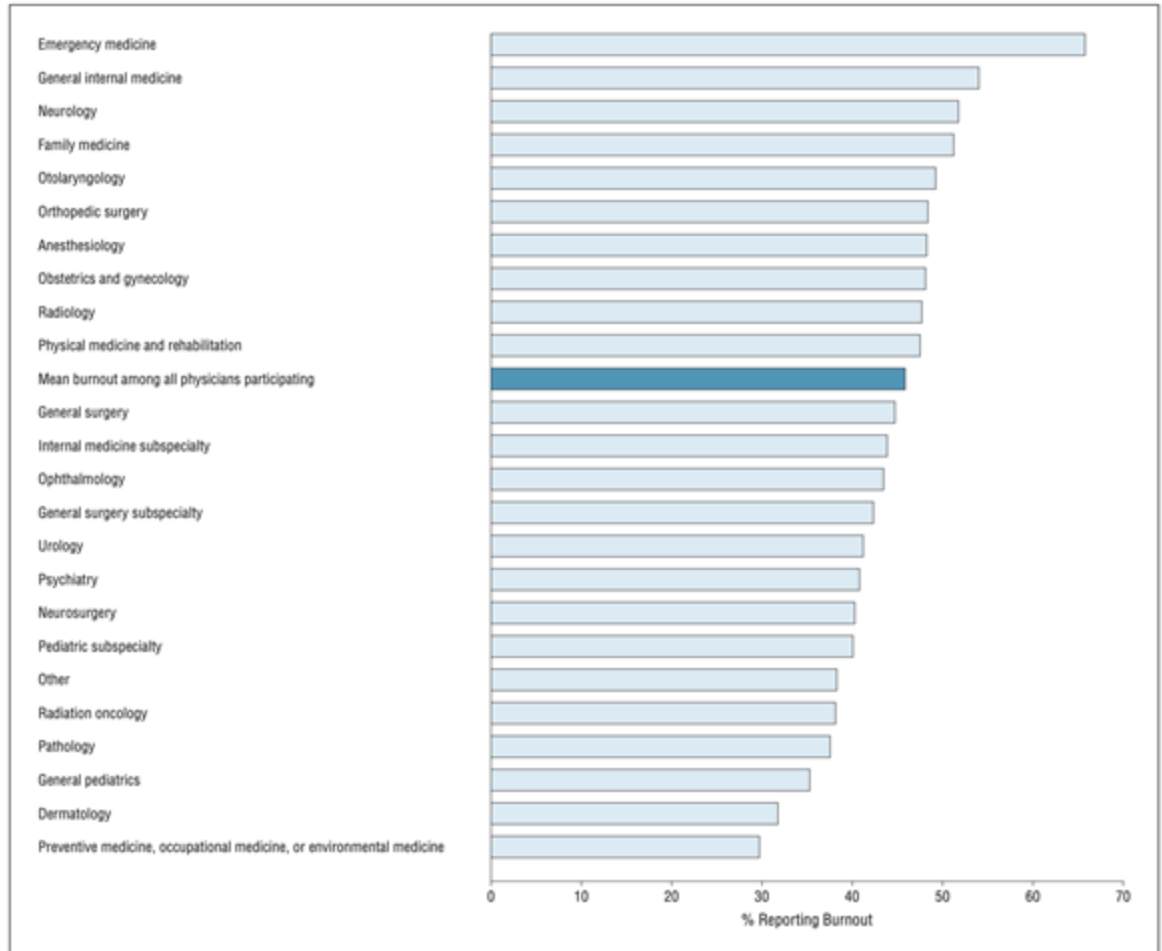


# Burnout by Specialty 2012

**We were the LEAST  
burnout**

**Life was good!**

**Dermatology is now  
along the ranks of  
the most burnout  
specialty.**



**Figure 1.** Burnout by specialty.

A photograph of a dirt road winding through a forest. The trees are mostly bare, with some showing autumn colors like yellow and orange. The road is light-colored and leads into the distance. The overall tone is somewhat somber and contemplative.

You can't really know where  
you are going until you  
know where you have been.

Maya Angelou



# Where in this tech journey did we lose our mojo as physicians?



**Healthcare 1.0**  
1970-1990



**Healthcare 2.0**  
2000's

- ❖ Advanced imaging
- ❖ Digital tracking (pulse ox, arterial lines)
- ❖ Da Vinci Robot



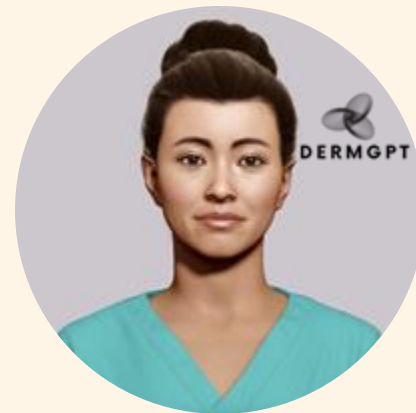
**Healthcare 3.0**  
2006-2015

- ❖ **EHR- Operational inefficiencies disproportionately affected high-volume specialty departments**



**Healthcare 4.0**  
2016

- ❖ AI, IoT, Fog computing, mobile technologies, blockchain, machine learning, virtual reality and augmented reality, robotics, big data analytics, smart devices
- ❖ Social Media
- ❖ empowering patients, diminishing “medical paternalism”
- ❖ Genomic sequencing, vaccine dev

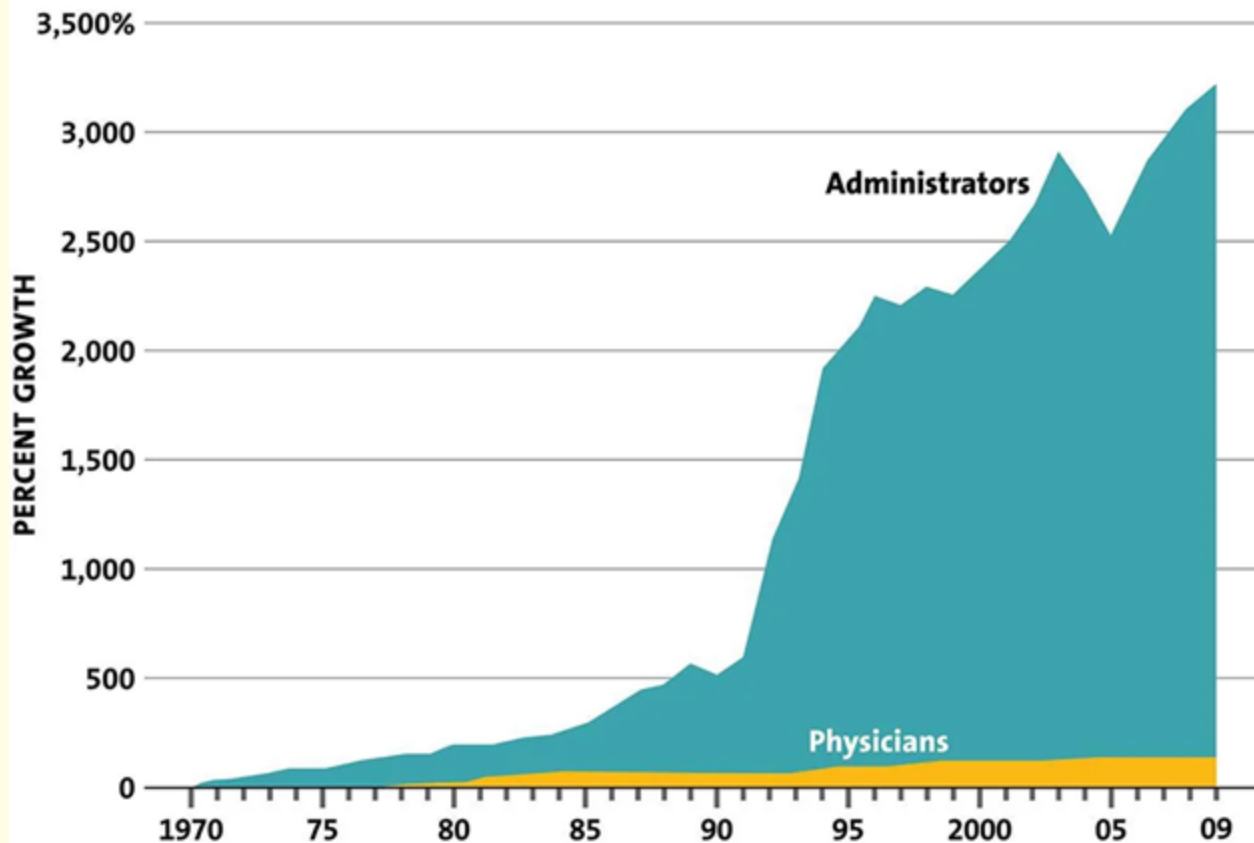


**Healthcare 5.0**

- ❖ Generative AI
- ❖ patient-centric ecosystems
- ❖ Shift—traditional doctor's office visits → mobile app-based solutions
- ❖ AI assist solutions for practice management

**For every 8 hours of scheduled patient time, ambulatory physicians spend more than 5 hours on the EHR.**

## GROWTH IN PHYSICIANS AND ADMINISTRATORS



SOURCE: Bureau of Labor Statistics; NCHS; Himmelstein/Woolhandler analysis of CPS

## What comprises Administrators?

**Insurance and Billing Operations** The largest component involves managing the complex web of insurance relationships. Teams dedicated to **prior authorizations**, claims processing, billing specialists, coding experts, and revenue cycle management.

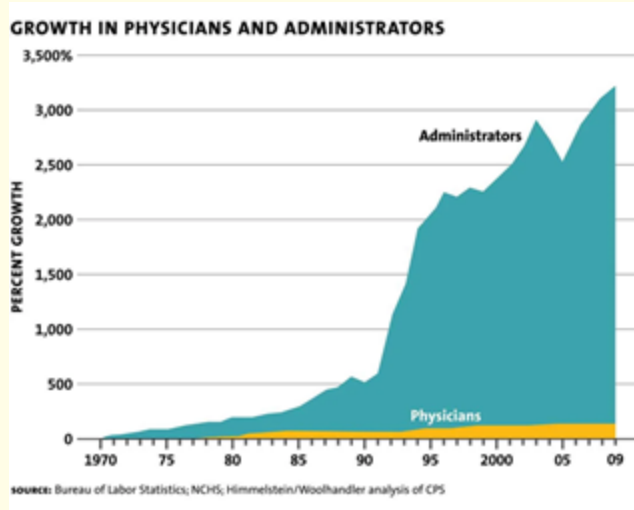
**Regulatory Compliance and Quality Reporting** Healthcare organizations must comply with numerous federal and state regulations, requiring compliance officers, quality assurance teams, and staff dedicated to meeting reporting requirements for programs like Medicare, Medicaid, and various quality metrics mandated by government and private payers.

**Information Technology and Data Management** The digitization of healthcare has created large IT departments managing electronic health records, data security, system integration.

### Human Resources and Credentialing

**Executive and Middle Management** This includes C-suite executives, department heads, supervisors, and project managers who oversee operations but **don't provide direct patient care**.

**Financial Operations** Beyond basic accounting, this includes financial analysts, budget planners, contract negotiators with payers and vendors, and staff managing the complex reimbursement landscape.



# Which Healthcare Roles Will AI Replace First?

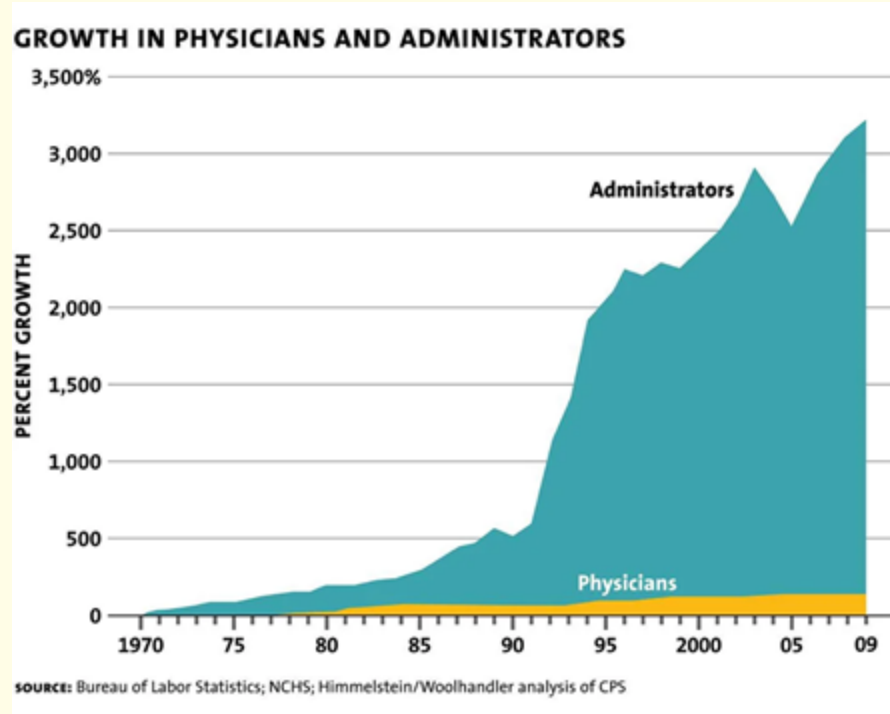
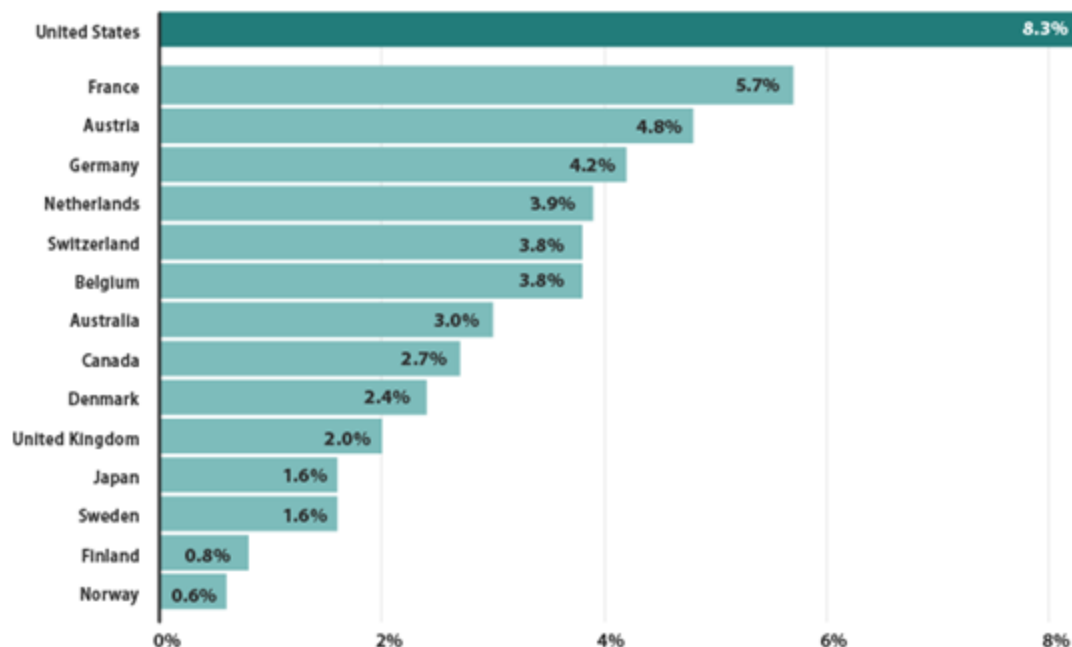


FIGURE 1

## Administrative costs comprise a larger share of health care spending in the United States than in other high-income countries

Administrative spending as a percentage of total health expenditures, 2016\*



\*Note: Data for Australia and Japan are for 2015; data for all other countries are for 2016.

Source: Organisation for Economic Co-operation and Development, "Health expenditure and financing," available at <https://stats.oecd.org/index.aspx?DataSetCode=SHA> (last accessed January 2019).

# Can AI improve or possibly take over any of these operations?

**Insurance and Billing Operations, Prior Authorization** → Yes these processes are already underway with FHIR (Fast Healthcare Interoperability Resources) & push for automation such as ePA

**Regulatory Compliance and Quality Reporting** → Data reporting is a very strong skill set of AI

**Information Technology and Data Management** The digitization of healthcare has created large IT departments managing electronic health records, data security, system integration → I imagine this will increase

**Human Resources and Credentialing** → It may be hard for AI to work through an interoffice romance, but AI can most definitely handle credentialing and at a faster rate

**Executive and Middle Management** → The effective ones will stay, these teams will become lean

**Financial Operations** → the accountants are safe, but they likely will acquire AI software to help find holes that they may have missed



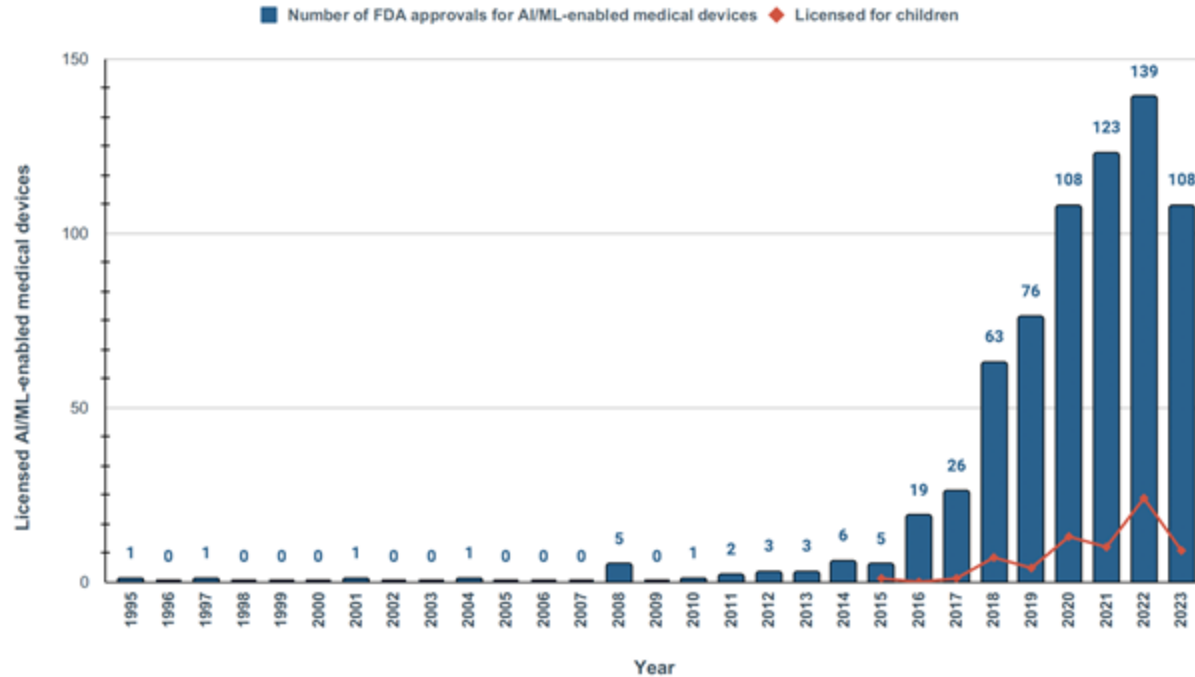
**What about Physicians:**

**Will AI take our jobs?**

**(we're mostly safe, except for...)**



## FDA approval of AI/ML enabled medical devices



Medical specialty	Number of approval (%)
Radiology	532 (76.9)
Cardiovascular	70 (10.1)
Neurology	20 (2.9)
Hematology	15 (2.2)
Gastroenterology/urology	11 (1.6)

**The Competitive Landscape:**

**Clinical AI platform battle**

**Insurers vs. physicians: the new arms race**

## USMLE Scores: The Wrong Metric for AI in Medicine



## The Global Arms Race Parallel to Prior Authorization Dynamics

**"Rx pad= Suggestion Pad"**

**vs. Goal to manage resources**



---

# Federal Health & Welfare Updates

## Court Allows Lawsuit Over AI Use in Benefit Denials to Proceed

April 22, 2025

On March 31, 2025, a U.S. District Court for the Eastern District of California allowed a class action to proceed over the use of an insurer's automated, AI-based algorithm called PxDx.

In 2023, Cigna Corporation and Cigna Health and Life Insurance Company (Cigna) were sued in U.S. District Court following the release of a ProPublica report that they relied on PxDx algorithms to reject plan participant claims without review by Cigna doctors. The case cited reporting by ProPublica that PxDx denied more than 300,000 requests for payments over two months in 2022, with Cigna doctors spending an average of 1.2 seconds reviewing each claim. The participants argued that

# Ideal AI Solutions on the provider side vs. The Reality Today



# The Fax Paradox: Unpredictable, Labor-Intensive, and Still Dominant in Healthcare



**The fax is still king in healthcare — and it's not going away anytime soon**

Feature

May 22, 2023 • 8 mins

# Evolution of Prior Authorization Communication Technology



Early Fax  
Year 1843



1980-1990's

- ❖ Computer based Fax
- ❖ Electronic Fax



Healthcare 3.0  
2006-2015

- ❖ EHR
- ❖ 2013: ePA in pharmacies



Healthcare 4.0  
2016

- ❖ 2016-2018 ePA growth to medical services, beyond pharmacy. Development of the **FHIR (Fast Healthcare Interoperability Resources)**
- ❖ 2021- Present: CMS push for payers to implement electronic prior authorization (**Jan 2027**)



Healthcare 5.0

- ❖ Once uniform healthcare interoperability infrastructure in place- Generative AI can help to take this to the next level of precision and **real time decisions**



# If we have global ePA, why do we need AI?

- There are very few standards, particularly when it comes to payer rules, so it's difficult to codify prior auth into a system suitable for technology to address.
- Payer rules often change and need to be constantly monitored and revised.
- There are thousands of payers and health plans.

**You need a dynamic adaptable system (AI) vs traditional automation (ePa) → Generative AI can be the answer- but still needs structured data**



## Ambient Intelligence in Healthcare- Voice-Activated Documentation Systems

- **Clinic notes** are vital to the prior authorization process, but this is unstructured data and it may miss important criteria that lead to automatic denials
- **Real-time transcription** of clinical conversations via **Natural Language Processing (NLP)** to identify key medical terms and actions
- **Structure data:** Automatic **categorization** of information into appropriate EHR fields, Clinic note
- **Automated Prior Authorization Initiation-** System listens to provider-patient conversation and automatically identifies procedures, medications, or services that will require prior authorization
- **Automatically captures and documents medical necessity criteria** from natural clinical conversations (failed therapies, etc.)
- Organizes captured information into **payer-specific formats**

# Implementation Roadblocks

## Technical Debt

Legacy systems difficult to replace, payers need to adhere to standardized data formats like FHIR to facilitate seamless data exchange with providers

## Workflow Integration

Staff resistant to process changes (ex. eFax printing)

## Cost Concerns

Initial investment can be substantial

## Regulatory Uncertainty

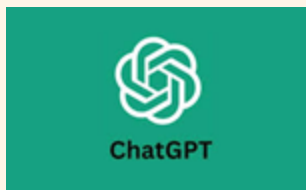
Evolving compliance requirements



California Gov. Gavin Newsom approved **Senate Bill (SB) 1120** and **Assembly Bill (AB) 3030**

- **AI Software During the Utilization Review Process (SB 1120)**
  - Requires a qualified human individual to review utilization review (UR) and utilization management (UM) coverage determinations for medical necessity
  - Healthcare providers must be the ultimate decision-makers
  - The AI systems must be periodically reviewed and open to inspection
  - Plans must disclose their use of AI in written policies and procedures
  
- **Assembly Bill (AB) 3030 - AI in Patient Communications**
  - Requires disclosure when generative AI is used in patient communications containing clinical information
  - Exception: If a licensed healthcare provider reviews the AI-generated communication first

Large Language Models Available now  
Please leverage this technology NOW- **Do Not Use PHI**



what is the most important thing dermatologists need to know about AI when it comes to prior authorizations?

When it comes to prior authorizations, the most important thing dermatologists need to know about AI is its ability to streamline the process by automating documentation, predicting approval likelihood, and reducing administrative burden. Prior authorizations—required by insurers to approve certain treatments, medications, or procedures like biologics for psoriasis or Mohs surgery—can be time-consuming, often delaying patient care. AI can analyze historical data, patient records, and insurer criteria to generate precise, evidence-based submissions faster than manual methods.

For instance, AI tools can extract relevant clinical details from electronic health records (EHRs)—like lesion characteristics, treatment history, or failed therapies—and match them to payer-specific guidelines, flagging potential issues before submission. Some systems even predict the probability of approval based on past outcomes, allowing dermatologists to adjust plans proactively (e.g., opting for an alternative drug like adalimumab over infliximab if denial risk is high). This cuts down on back-and-forth with insurers, which is critical given that dermatology often involves costly or specialty treatments.

The key benefit is time: a process that might take hours or days can shrink to minutes, letting dermatologists focus on patients rather than paperwork. However, they should be aware of limitations—AI relies on accurate input data and may not handle rare cases or evolving payer policies well. Dermatologists need to oversee outputs to ensure clinical relevance and compliance, treating AI as a powerful assistant rather than a full replacement for their expertise. Familiarity with tools like these (some integrated into EHRs like Epic) can turn a pain point into a practice

F what is the most important thing dermatologists need to know about AI when it comes to prior authorizations?



As a dermatologist dealing with prior authorizations, the most important thing to know about AI is that it can significantly streamline the documentation and submission process while ensuring you meet specific clinical criteria.

AI tools can:

1. Analyze patient records to automatically extract relevant clinical information needed for prior authorization submissions
2. Identify gaps in documentation that might lead to denials
3. Match patient conditions with appropriate billing codes and clinical criteria
4. Generate structured documentation that aligns with payer-specific requirements
5. Predict approval likelihood based on historical patterns

However, you should be aware that:

- AI systems require proper training on dermatology-specific terminology and imaging
- The criteria AI uses to make recommendations may not always be transparent
- You'll still need to review AI-generated documentation for accuracy
- Different insurance companies may have varying levels of AI integration in their prior authorization systems

For dermatologists specifically, AI can be particularly helpful with photographic documentation of skin conditions, which is often required for biologics and other high-cost treatments.

Would you like me to elaborate on any specific aspect of using AI for dermatology prior



Dermatologists should be aware that artificial intelligence (AI) is being increasingly incorporated into the prior authorization (PA) process, with 65% of private payers planning to use AI in the next 3 to 5 years <sup>1</sup>. The automation of the PA process, including the use of AI, is seen as a way to reduce costs, improve efficiency, and potentially alleviate workforce burnout associated with PA <sup>2</sup>. AI could offer a unique opportunity to streamline the PA process, reduce costs, and enhance the overall experience for both patients and providers <sup>2</sup>.

Citation: 1. PMC11425057.pdf#page=1 2. PMC11425057.pdf#page=10



# DermGPT

Agentic AI Revolution in Dermatology



National Library  
of Medicine

Thought Process Supporting Content Citation

98424a48-7328-4b... 1 / 14 55% + -

1

2

Perceptions of prior authorization burden and solutions

**Abstract**

The prior authorization (PA) process consumes time and money on the part of patients, providers, and payers. While some research shows substantial possible savings in the PA process, identifying what different groups can do is not as well known. Thus, organizations have struggled to capture this opportunity. To understand different perspectives on PA burden and exploring to possible changes in the PA process, we surveyed 1000 patients, 1010 provider employees, and 110 private payer employees. Patients reported the longest perceived wait times but indicated the highest perceived approval rates and lowest perceived burden. The relatively low burden for patients is because most do not have to engage in PA directly. Provider respondents reported spending time equivalent of more than 100 000 full-time registered nurses per year on prior authorization. Artificial intelligence (AI) represents a possible solution. 85% of private payer respondents reported that their organizations planned to incorporate AI into the process in the next 3 to 5 years. Intended adoption by provider respondents is much smaller (27%). Private payer respondents cited cybersecurity concerns and a lack of technical infrastructure as barriers, provider respondents cited lack of budget and limited trust in the technology.

**Introduction**

Prior authorization (PA), defined as the process by which payers determine the medical necessity of specific procedures before allowing clinicians to provide the service, is estimated to account for \$50 billion of US health care administrative spending. Prior authorization acts like a check and balance for payers to ensure the medical necessity of treatments prescribed by clinicians before they are completed. From the payer perspective, the primary goal of PA is to flag newer and better treatments for patients, improve the quality of care, and prevent excessive and unnecessary utilization and spending, thereby improving the overall cost-quality balance of care. This is done by assessing the medical necessity and coverage of services and procedures requested by providers. In the United



# Prompt Crafting Tips for Dermatologists

Effective prompts in dermatology prior authorization requests include:

1. **Specific patient demographics and diagnosis codes** (age, ICD-10)
2. **Quantifiable disease severity** (BSA, PASI, EASI scores)
3. **Documented treatment history** with specific medications, durations, and outcomes
4. **References to clinical guidelines** supporting medical necessity
5. **Functional impairment details** showing impact on quality of life
6. **Clear request objectives** (initial approval, appeal, specific documentation)

## **Prompt Crafting: Basic vs. Effective Prompts**

### **Example : Requesting Authorization for Biologic Therapy**

#### **Basic Prompt:**

"I need prior authorization for Ebglyss for my patient with eczema."

#### **Effective Prompt:**

"I need assistance drafting a prior authorization letter for Ebglyss for a 42-year-old patient with severe atopic dermatitis. The patient has documented failure of three topical steroids (triamcinolone 0.1%, clobetasol 0.05%, and tacrolimus 0.1%) over 6 months, with BSA involvement of 40% and an EASI score of 28. The patient reports severe pruritus (8/10) affecting sleep and daily activities. Please include relevant ICD-10 codes, medication history with dates, and clinical guidelines supporting biologic therapy for moderate-to-severe cases unresponsive to conventional treatments."

# Prompt Engineering based on Grounded Data

## Effective Prompt:

"I need assistance drafting a prior authorization letter for Ebglyss for a {42-year-old} patient with {severe atopic dermatitis}. The patient has documented failure of three topical steroids {(triamcinolone 0.1%, clobetasol 0.05%, and tacrolimus 0.1%)} over 6 months, with BSA involvement of {40%} and an EASI score of {28}. The patient reports severe pruritus (8/10) affecting sleep and daily activities. Please include relevant ICD-10 codes, medication history with dates, and clinical guidelines supporting biologic therapy for moderate-to-severe cases unresponsive to conventional treatments."

Structured text from organized datasets:

{Age} {Severity} {ICD-10} {Prior Tx} {BSA} {EASI}

**Need for structured Grounded data**

## **Prompt Crafting: Basic vs. Effective Prompts**

### **Example: Patient Education Materials**

**Basic Prompt:** "Write a handout about eczema."

**Effective Prompt:** "Create a one-page patient education handout on atopic dermatitis for adults with newly diagnosed moderate disease. Include sections on: daily skincare routine, common triggers to avoid, proper application of topical corticosteroids (with finger-tip unit guidance), and when to contact the office. Use 8th-grade reading level language with supportive tone."



- Eczema is a term that encompasses disorders such as dyshidrotic eczema, nummular eczema, and atopic dermatitis <sup>1</sup>.
- Acute eczema lesions present as red edematous plaques with small grouped vesicles, while subacute lesions present as erythematous plaques with scale or crusting <sup>1</sup>.
- Severe pruritus is a prominent symptom in most eczematous reactions, and itching is often prominent at bedtime, leading to insomnia. Stress can lower the itch threshold, and heat and sweating may provoke episodes of itching <sup>1</sup>.
- Chronic Hand Eczema (CHE) is an inflammatory skin disease of the hands or wrists, often caused by contact dermatitis. It is characterized by signs of erythema, infiltration, hyperkeratosis, vesicles, scaling, fissures, and erosions <sup>2</sup>.
- Approximately 70.0% of CHE patients have moderate to severe disease, which can persist over several years. Core symptoms of CHE include itch and pain, which negatively impact patients' psychological wellbeing, physical functioning, daily life activities, and ability to work <sup>2</sup>.
- Hand eczema is a typical symptom of atopic dermatitis in adults and may be associated with occupational exposure. Atopic dermatitis is a precursor to the development of food allergies, allergic rhinitis, and asthma <sup>3</sup>.
- The diagnosis of atopic dermatitis in adults is traditionally based on the Hanifin and Rajka diagnostic criteria, which consist of 4 major and 23 minor criteria <sup>3</sup>.

Create a one-page patient education handout on atopic dermatitis for adults with newly diagnosed moderate disease. Include sections on: daily skincare routine, common triggers to avoid, proper application of topical corticosteroids (with finger-tip unit guidance), and when to contact the office. Use 8th-grade reading level language with supportive tone.



## Patient Education Handout: Atopic Dermatitis in Adults

### Daily Skincare Routine:

- Keep your skin moisturized by applying a thick, fragrance-free moisturizer at least twice a day.
- Use mild, unscented soap and lukewarm water for bathing to avoid drying out your skin.
- Pat your skin dry after bathing and apply moisturizer immediately to lock in moisture.
- Wear soft, breathable fabrics like cotton and avoid tight clothing that can irritate your skin.

### Common Triggers to Avoid:

- Stay away from harsh soaps, detergents, and other products with fragrances that can irritate your skin.
- Avoid sudden temperature changes and excessive sweating, as these can trigger flare-ups.
- Identify and avoid specific triggers that worsen your symptoms, such as certain foods or environmental factors.



Agentic AI Revolution in Dermatology



## Folleto de Educación para Pacientes: Dermatitis Atópica

### Rutina Diaria de Cuidado de la Piel:

- Utilice limpiadores y humectantes suaves y sin fragancia.
- Aplique humectante inmediatamente después del baño para retener la humedad.
- Evite las duchas calientes que pueden reseca la piel.
- Use telas suaves y transpirables como el algodón.

### Disparadores Comunes a Evitar:

- Irritantes como jabones y detergentes fuertes.
- Alergenos como ácaros del polvo, caspa de mascotas y polen.
- Cambios bruscos de temperatura.
- Estrés y ansiedad.

### Aplicación Correcta de Corticosteroides Tópicos:

- Utilice el método de la unidad de la yema del dedo (FTU) para medir la cantidad necesaria.
- Una FTU es la cantidad que cabe desde la punta del dedo hasta la primera articulación.
- Aplique suavemente una capa delgada en las áreas afectadas, evitando los ojos y la boca.



Agentic AI Revolution in Dermatology



## 患者教育手册：特发性皮炎

### 日常皮肤护理程序：

- 使用温和、无香料的洁面乳和保湿霜。
- 洗澡后立即涂抹保湿霜以锁住水分。
- 避免热水淋浴，可能会使皮肤干燥。
- 穿着柔软、透气的棉质衣物。

### 常见触发因素避免：

- 刺激物，如刺激性肥皂和洗涤剂。
- 过敏原，如尘螨、宠物皮屑和花粉。
- 突然的温度变化。
- 压力和焦虑。

### 局部皮质类固醇正确涂抹方法：

- 使用指尖单位（FTU）方法测量所需量。
- 一单位FTU是指从指尖到第一个皱褶的长度。



Agentic AI Revolution in Dermatology



F

now make it in "Minion-speak" from Despicable Me



## UNDERSTANDY ME ITCHY SKIN BWAAAAA!

### BANANA GUIDE FOR BIG MINIONS WITH SCRATCHY-SCRATCHY

Atopic dermatitis (eczema) me crazee skin bobo that make skin dry-dry, itchy-itchy, and red-red. But don't worry-worry! Minion help you fixy-fix with proper care-care! BANANA!

### DAY-DAY SKINNY ROUTINE

#### Splishy-Splashy:

- Tak short-short (5-10 minutos) warm-warm bathies or showeries
- Use gentle-gentle, no stinky soap on needies spots only
- Pat-pat skin soft-soft with fluffy towel til damp-damp (no dry-dry completamente!)

#### Moisty-Moisty:

- Put gloopy-gloop after splishy-splashy in 3 minutos RAPIDO!
- Use thick-thick creamy-cream or oily-oil (no thin-thin lotion-potion!)
- Moisty-moisty two times every day-day, especially on ouchy spots
- Goody choices: petroleum jelly-belly, no stinky creamy-cream, or products for sensitive-wensive skin

### NO-NO TRIGGER THINGS TO STAY AWAY-AWAY!

These make itchy-scratchy WORSE:

- Strong-strong soap-soap, detergy-detergy, and cleany stuff (PWAAAH! NO LIKE!)

Thank you!