CPH 100:
Foundations for Computational Precision Health

9/4/25

Ida Sim, MD, PhD
UCSF Professor of Medicine &
Computational Precision Health

Computational
PRECISION HEALTH
Berkeley | UCSF

Disclosures

- JupyterHealth - cofounder
- Vivli - cofounder and consultant
- Open mHealth - cofounder
- Past
  - 98point6, virtual primary care - Medical Advisory Board, stock
  - Myovant, biotech - scientific advisor
  - Myia, remote care - advisor

“Under the skin”: Computational Biology/Biomed

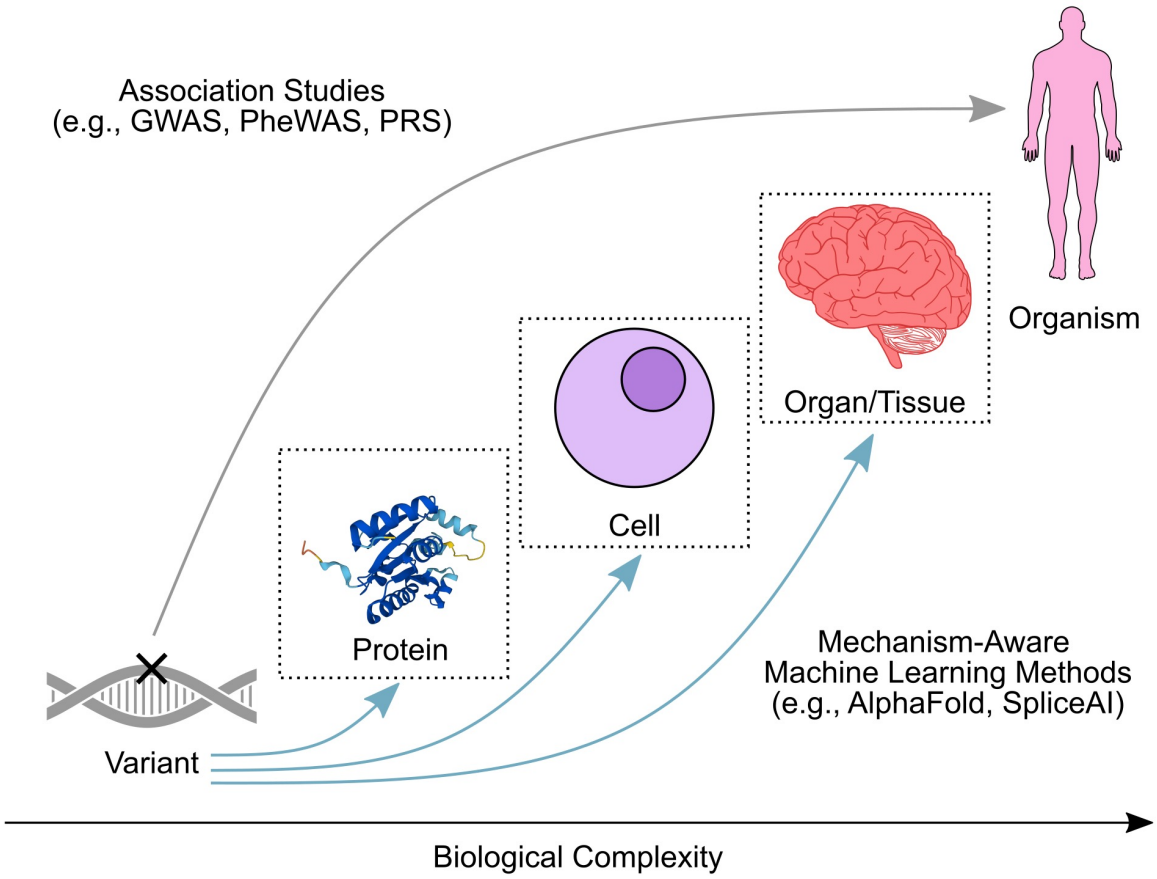
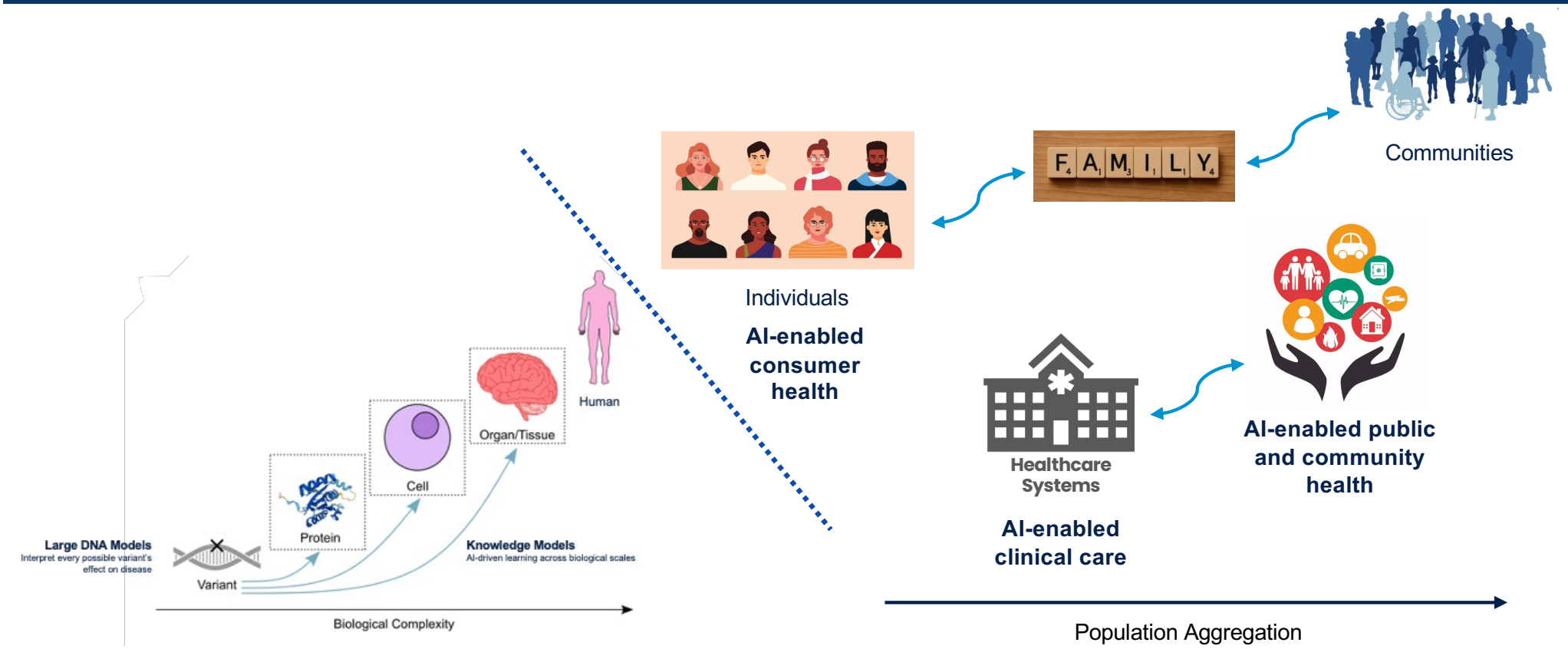


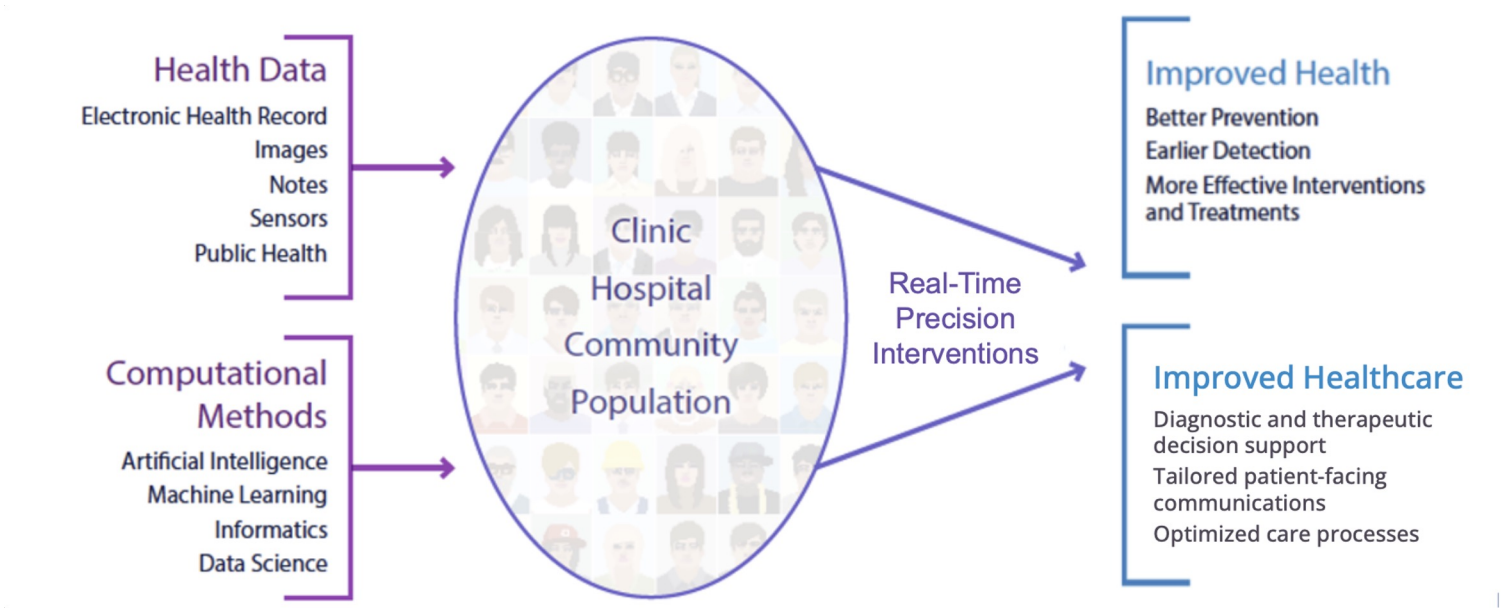
Image credit: Tony Capra, UCSF

“Above the skin”: Computational Health



What is Computational Precision Health?

A new discipline at the intersection of machine learning, statistics, medicine, and population health



Precision Questions: What interventions work best for which patients/communities and when?
Precision Solutions: Machine Learning + Statistics + Causality; HCI & Augmented Intelligence
Precision Deployment: Learning systems embedded in real-world health settings

Agenda

- Setting the Context: Healthcare in America today
- Frontline Practice: Complexities and Burdens
- Epic Electronic Health Record Demo
- AI Scribing

Setting the Context

- Whole person care
- Workforce shortage
- Health care access
- Payment models

Burden of Disease

80% of all premature non-communicable disease deaths worldwide

Multiple Chronic Conditions (MCC)

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Setting the Context

- Whole person care
- Clinician shortage / LLMs for healthcare
- Health care access
- Payment models

Clinician Shortage

United States

- Older sicker population (55% in those > 75 years)
- 20% of physicians are > 65 y/o
- Projecting shortage of 54,000 to 139,000 physicians by 2033
  - Short 48,000 primary care physicians by 2034
- Nursing shortage of >100,000 in 2025

UCSF and Local

- Months to get in to a new Primary Care Physician (PCP)
- Specialty appointments are booking months out
- Staff are overworked, burnout decreased after pandemic but now increasing again

LLMs for Healthcare

AI AND MACHINE LEARNING

OpenAI's Sam Altman touts benefit of GPT-5 for healthcare

INNOVATION > HEALTHCARE

Electronic Health Record Giant Epic Rolling Out New AI Tools

By Bruce Japsen, Senior Contributor. Bruce Japsen writes...

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Published Aug 19, 2025 at 02:21pm EDT, Updated Aug 19, 2025 at 03:09pm EDT

Hartford HealthCare Selects Abridge to Reduce Clinician Burnout with AI Documentation

by Syed Hamza Sohail 09/02/2025 — Leave a Comment

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Some generative A.I. tips for patients
www.wsj.com/opinion/a-ch...

A Chatbot Can Be Part of Your Medical Team

By Tom Rosenblatt

I was a click away from buying what looked like a government-sanctioned health insurance plan—until I pasted the policy into Claude, Anthropic's artificial-intelligence chatbot. In seconds it warned: "I need to be very direct with you: This is not legitimate insurance. Here are the major red flags."

The broker, who had suggested the plan after receiving my data from HealthCare.gov, played down the issue: "No need to worry. It's considered the minimum essential coverage." Claude flagged the discrepancy. Though the policy was pitched as "minimum essential coverage," its disclaimers repeatedly stated it is "not insurance coverage" and "does not meet the minimum creditable coverage requirements." Fortunately, 10 minutes of AI vetting spared me from the dubious plan and its likely cascade of surprise bills.

My near-miss illustrates how large language model AI systems are helping patients spot errors, understand lab reports, and stick to care plans. A 2016 Johns Hopkins study estimated that medical mistakes kill 250,000 Americans a year—behind only heart disease and cancer, though some researchers argue that figure runs too high. Either way, much of the checking now falls on patients.

AI can shoulder part of the load. In research published in June, Microsoft's experimental Diagnostic Orchestrator solved New England Journal of Medicine case studies with 85% accuracy, roughly four times as well as primary-care doctors using the same data. AI models can hallucinate, miss context or miscalculate doses. But with the following four tactics, which I tested on my migraines, gut issues and fatigue, you can enlist AI in your health care.

• *Keep a health diary.* Open a new AI chat (Claude, ChatGPT, Gemini, Grok or another top model) and paste in your health information: diagnoses, medicines and doses, wearable data, and even stubborn "mystery" symptoms. Privacy is crucial, so before sharing health data, open Settings and in Data Controls, turn off "Use my data to improve the model" in Claude, ChatGPT or Grok. Gemini doesn't provide an easy opt-out option. These conversations aren't protected by the Health Insurance Portability and Accountability Act.

AI systems are helping patients spot errors, understand lab reports and stick to care plans.

Ask the bot: "What patterns jump out? What's overdue, and which gaps should I address first?" Because the model ingests research from every specialty, it connects dots that siloed clinicians may miss, such as a lipid panel blood test not repeated since 2022 or a beta blocker that blunts a migraine drug. If the answer is confusing, push back: "Explain that in simpler terms and give an example."

• *Enlist AI's analysis.* Whatever your health concerns—back pain from red-eye flights, arthritis stiffness on long drives, 3 p.m. brain fog at work—let AI know. Record how you slept, how intense pain has been, how your mood is holding up. Then ask: "Spot triggers behind these flare-ups, rank likely culprits, and offer standard and unconventional fixes." AI might flag skipped meals or a hidden medication side effect—or, in rare cases, suggest a disorder that doctors missed. Treat AI guidance as a starting point, not a diagnosis.

• *Clarity communications.* AI can decode doctor-speak. When my gastroenterologist wanted to treat my stomach pain with an anxiety drug, his assistant couldn't explain why. The chatbot put it plainly: The drug calms overactive gut nerves. When you, prompt it: "Write a concise note to my doctors summarizing the idea, why it could help, any safety flags, and asking for their take." Once you have doctors' opinions in hand, AI can compare them. Paste two specialists' notes into the model and ask for a side-by-side table of agreements, disagreements and citations.

• *Ask your chatbot for second opinions.* Seek counter-evidence to any significant AI suggestion by asking: "Show peer-reviewed studies—especially clinical trials—that argue against this recommendation." Read the abstracts. If they are dense, have the AI summarize key points. Try running your health dilemma through another AI model; if answers diverge, dig deeper. For life-altering decisions, use the most advanced AI system you can. Condense the AI advice into a short paragraph and run it by your clinician. A 2025 study reduced ChatGPT and Claude's diagnostic accuracy by up to 8% simply by adding irrelevant sentences to patient histories—proof that clear facts and a second opinion matter. Before making an important decision, secure human sign-off.

An AI bot isn't a physician. It can't feel a swollen abdomen, order a CT scan or catch every nuance of family history. Electronic health record systems barely talk to consumer chatbots, though Epic, Google, OpenAI and more than 60 major health systems and tech firms recently pledged to share data as common standard. Food and Drug Administration rules for AI-driven software are inching ahead.

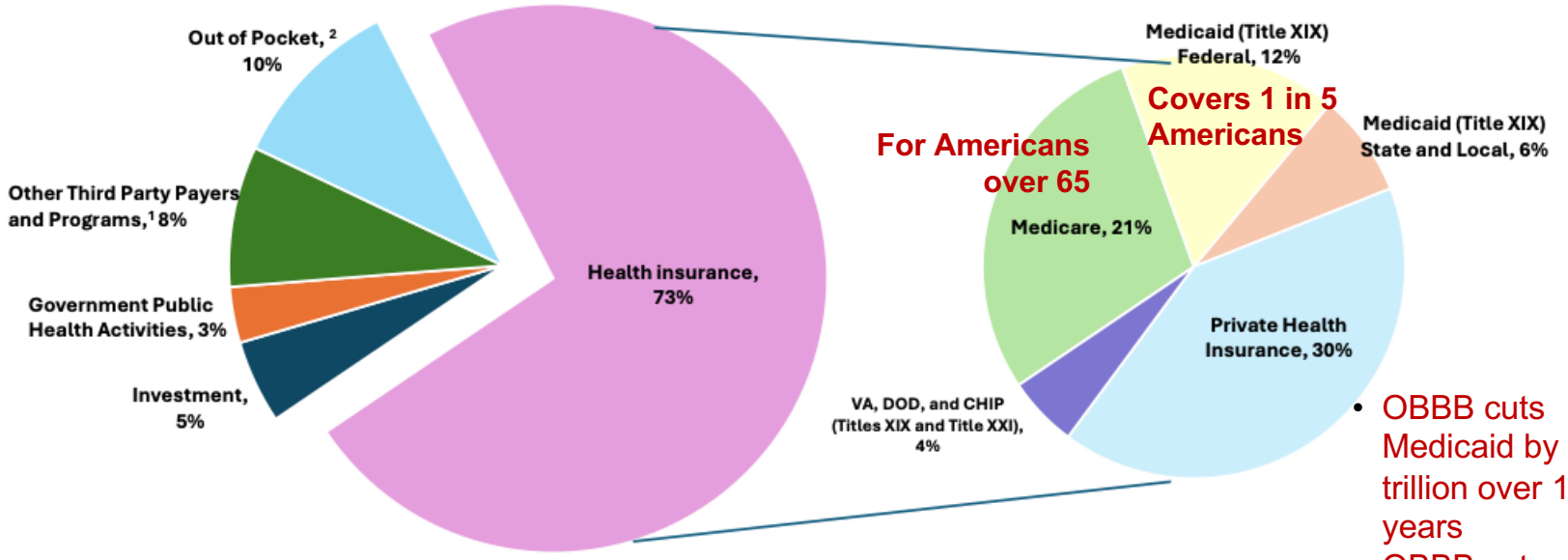
Chatbots one day will pull images, physician notes and prescription histories in real time. Until then, treat today's models like gifted but untested med-school grads: brilliant, tireless, occasionally overconfident. Put them to work—then double-check the big calls.

Mr. Rosenblatt serves on the HCPLAN Tech-Enabled Health Care Workgroup, a federal advisory panel convened by the Centers for Medicare and Medicaid Services, and is founder of Being, a health-longevity company.

Setting the Context

- Whole person care
- Workforce shortage / LLMs for healthcare
- Health care access
- Payment models

THE NATION'S HEALTH DOLLAR ($4.9 TRILLION), CALENDAR YEAR 2023: WHERE IT CAME FROM

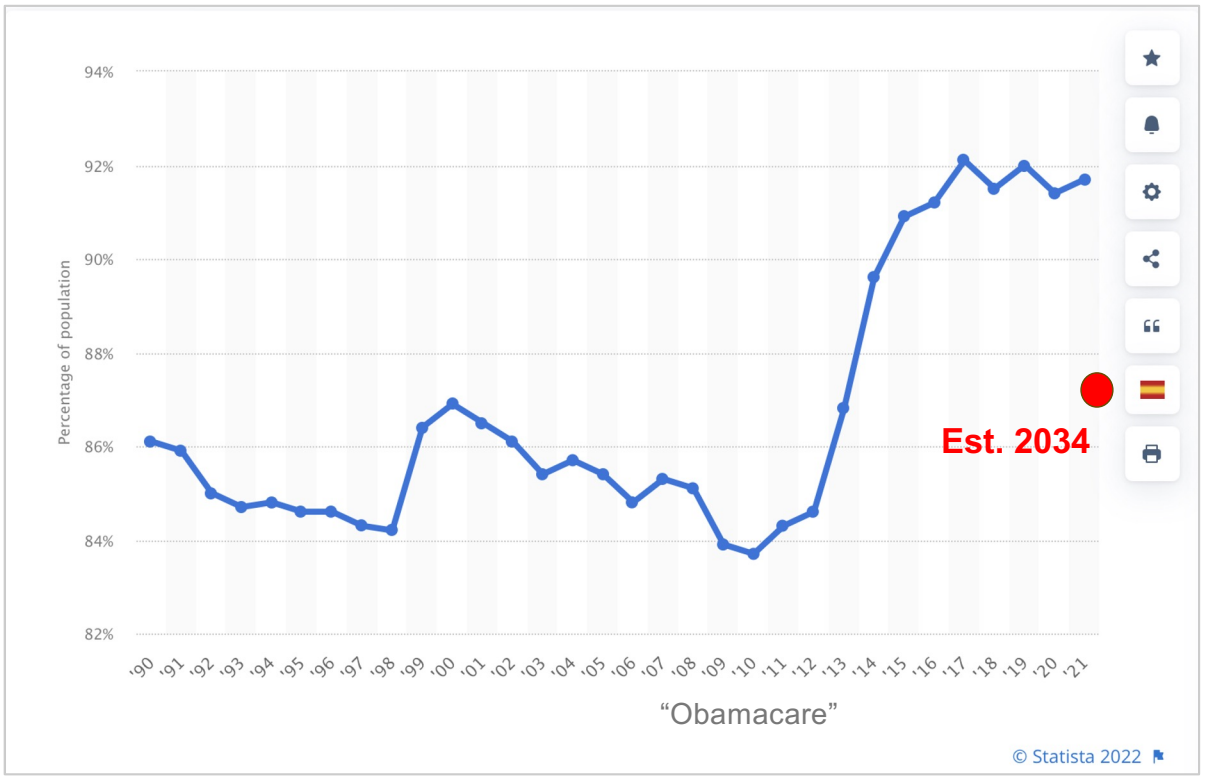


[1] Includes worksite health care, other private revenues, Indian Health Service, workers' compensation, general assistance, maternal and child health, vocational rehabilitation, Substance Abuse and Mental Health Services Administration, school health, and other federal and state and local programs.
[2] Includes co-payments, deductibles, and any amounts not covered by health insurance.
Note: Sum of pieces may not equal 100% due to rounding.

SOURCE: Centers for Medicare & Medicaid Services, Office of the Actuary, National Health Statistics Group.

- OBBB cuts Medicaid by $1 trillion over 10 years
- OBBB cuts Medicare by $45 billion in 2026, $75 billion in 2034

Health Insurance and Access



2022

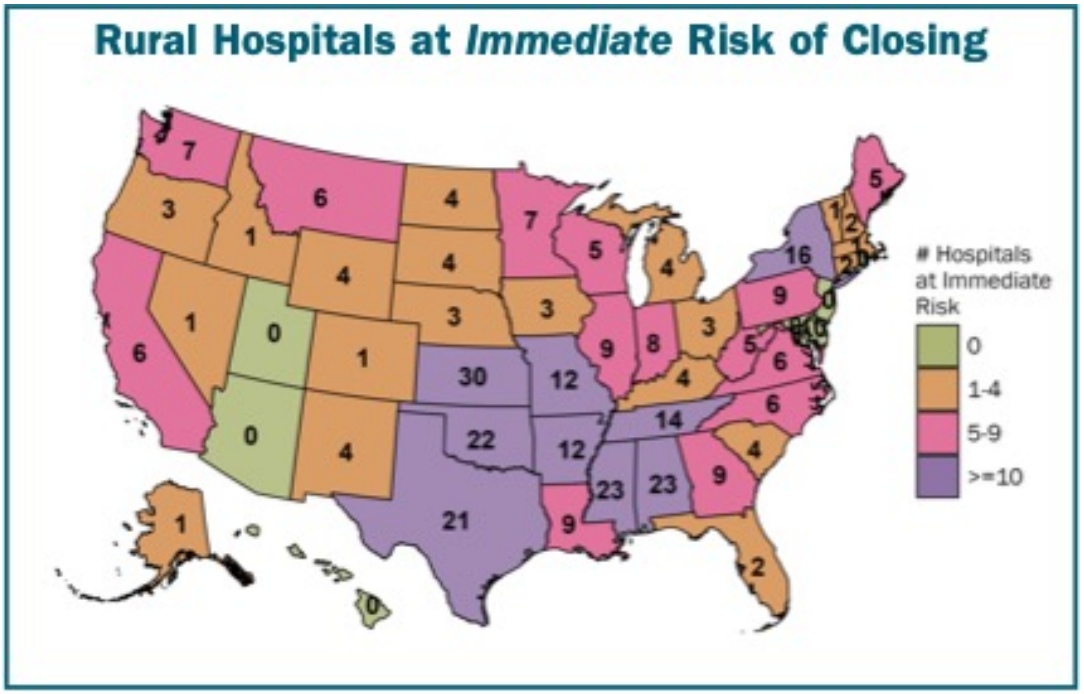
- Almost 92% of Americans had some form of health insurance
- 8% were underinsured

By 2034 (with passage of One Big Beautiful Bill)

- 3–5+% of Americans will have lost health insurance
- ~14 million more will be uninsured (1.7m in CA)

Hospital Closures

- OBBB expected to reduce rural Medicaid spending by $137 billion over 10 years*



https://chqpr.org/downloads/Rural_Hospitals_at_Risk_of_Closing.pdf

*Total 2024 Medicaid budget $900B

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Health Care Payment Models

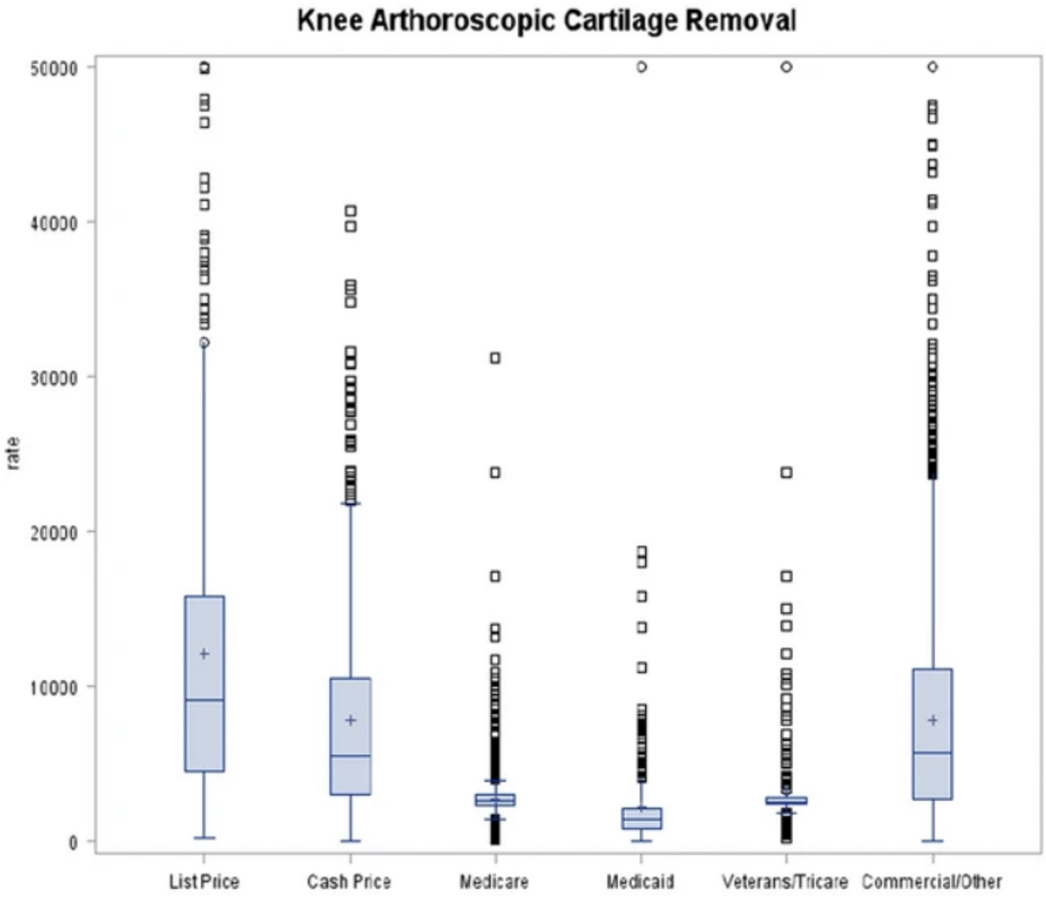
Capitated

- Doctor or health system paid a flat sum for services, e.g.,
  - bundled payment: flat fee for knee cartilage removal
  - Pmpm: set $ per patient per month
  - Carveout: set $ per patient per month for primary care, or behavioral health

Health Care Payment Models

Fee-for-Service (FFS)

- Doctor/health system is paid for services provided
- Price ≠ cost, e.g., MRI at MGH
  - $1,019, Cigna plan
  - $3101, Aetna plan
  - $3809, Humana



Health Care Payment Models

Pay for Performance (P4P)

- Doctor/health system rewarded for achieving health metrics (still under FFS)
- Penalties
  - Lose $ if goals not met
- Extra payments
  - Paid lower global FFS amount, get bonus if meets goals
- E.g., BP, A1c (diabetes), hospital readmission, hospital infections

P4P Example

Pneumonia*			
Performance Measure	**Measure Description**	**Criterion Met or Acceptable Alternative**	**Rate Calculation****
Initial Antibiotic Timing (Less time is better for this measure.)	Average (mean) time from hospital arrival to first dose of antibiotics at the hospital for pneumonia patients.	Time, in minutes, from hospital arrival to any antibiotic administration in the hospital.	Continuous Variable Statement; Average (mean) time from hospital arrival to first dose of antibiotics at the hospital for pneumonia patients.

- For patients with pneumonia, receiving antibiotics within 4 hours of presentation in Emergency Room correlated with better outcomes

P4P Perverse Effects

Academic Emergency Medicine
A GLOBAL JOURNAL OF EMERGENCY CARE

Free Access

The Centers for Medicare and Medicaid Services (CMS) Community-Acquired Pneumonia Core Measures Lead to Unnecessary Antibiotic Administration by Emergency Physicians

Results: A total of 121 EPs completed the study instrument (81%). All respondents were aware of the CMS CAP guidelines. Of these, 95% (95% confidence interval [CI] = 92% to 98%) correctly understood the time-based guidelines for antibiotic administration, although 24% (95% CI = 17% to 31%) incorrectly identified the onset of this time period. Nearly all physicians (96%; 95% CI = 93% to 99%) reported institutional commitment to meet these core measures, and 84% (95% CI = 78% to 90%) stated that they had a department-based CAP protocol. More than half of the respondents (55%; 95% CI = 47% to 70%) reported prescribing antibiotics to patients they did not believe had pneumonia in an effort to comply with the CMS guidelines, and 42% (95% CI = 34% to 50%) of these stated that they did so more than three times per month. Only 40% (95% CI = 32% to 48%) of respondents indicated a belief that the guidelines improve patient care. Of those, this was believed to occur by increasing pneumonia awareness (60%; 95% CI = 52% to 68%) and improving hospital processes when pneumonia is suspected (86%; 95% CI = 80% to 92%).

Setting the Context

- Whole person care – most patients have more than one chronic disease
- Clinician shortage - need to upskill patients, families, generalists, specialists, everyone. Role of AI is TBD.
- Health care access – long delays, decreasing access to specialists, hospital and clinic closures, worsening especially in rural areas and for marginalized communities
- Perverse health care payment models - FFS incentivizes more care; P4P incentivizes weakly and can be gamed; $$$ rules

Agenda

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- Frontline Practice: Complexities and Burdens
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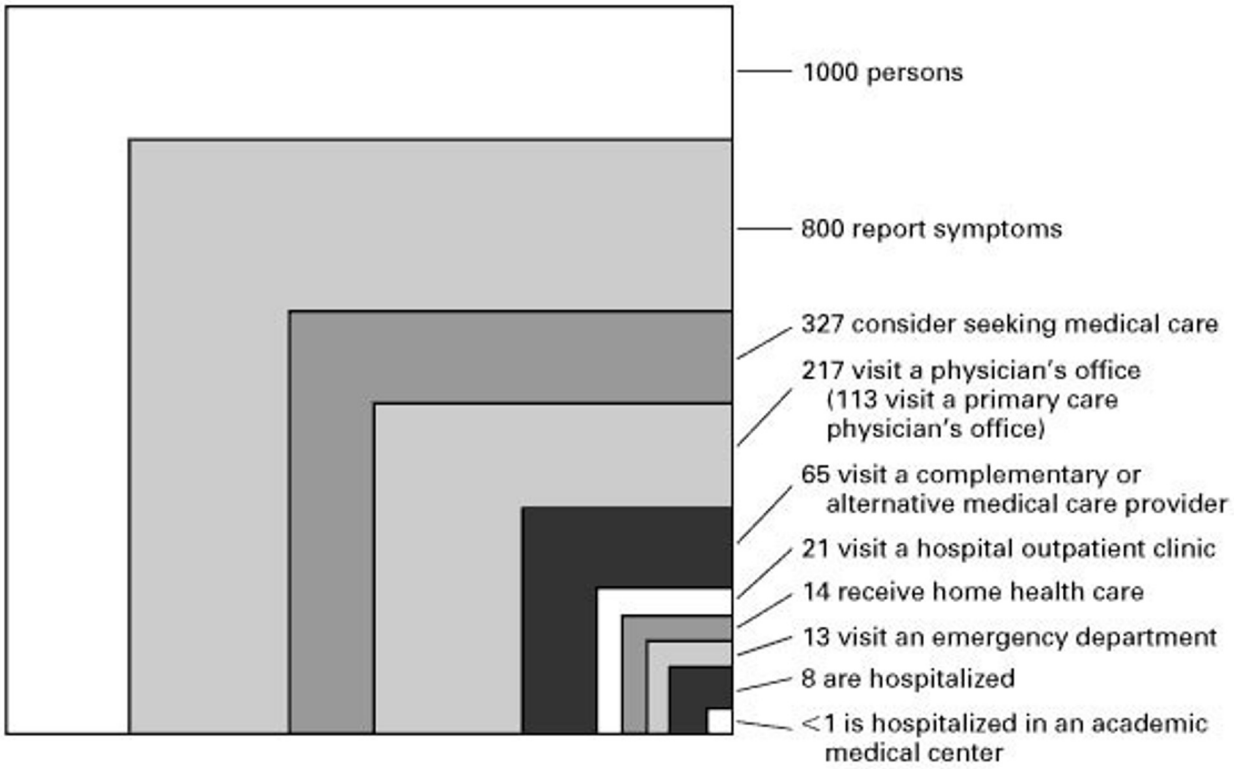
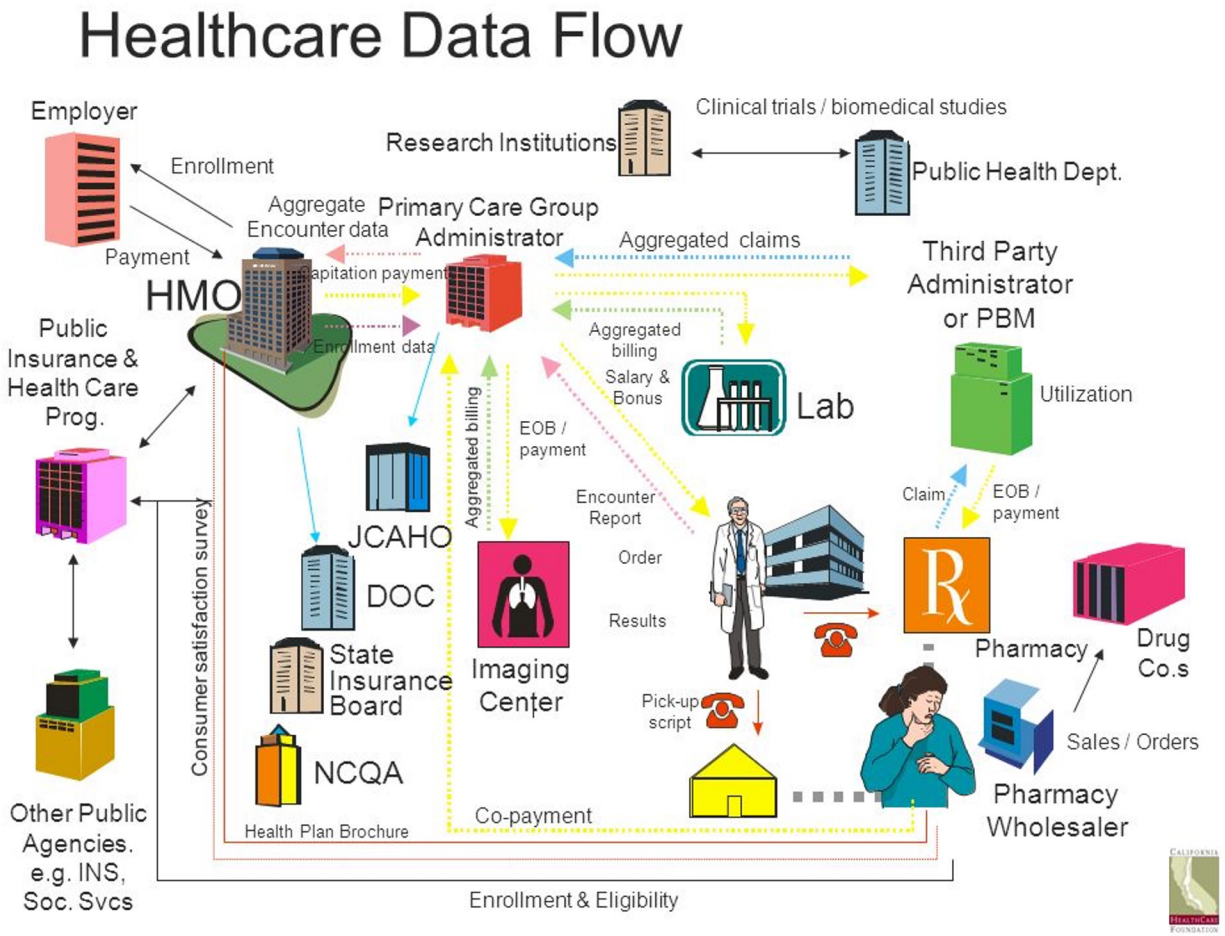
Ecology of Medical Care



- Most health and disease occurs outside of health care
- Deployment settings: home, school, community, public health, clinics, urgent care, hospital

- Electronic Health Record (EHR) only captures data and transactions in healthcare systems

Health Care System Complexity



1. Patient enrollment/eligiblity verified, set up in EHR
2. MD reviews data (may get CareEverywhere data from other Epics)
3. Orders a drug
    a. Formulary, Prior Authorization, PBM, Pharmacy, pickup
4. EHR information blocking rule in effect Oct 6, 2022
5. EHR FHIR API requirement in effect Aug, 2022

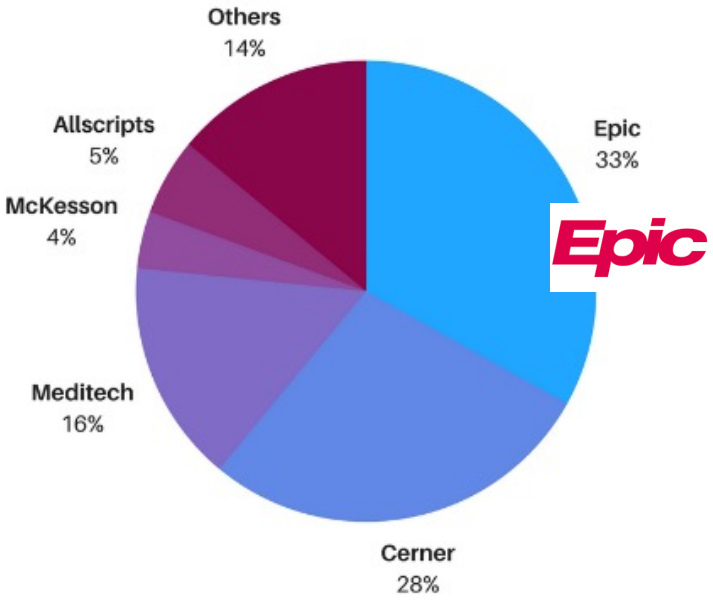
Outpatient Primary Care Clinic Session

Visit Time	Age	Primary Care: Reason for visit
1:05	70M	Stable heart disease, high cholesterol, high BP, pre-diabetes, chronic joint pain, preventive care, **end-of-life discussion**
1:25	92F	**Mild dementia,** HTN, Syndrome X (cardiac), high chol, osteoporosis
1:45	52M	**Hole in his heart (PFO)** ?surgery, hx of stroke, anticoagulated, s/p prostatis, foot pain, trigger thumb
2:05	71F	**s/p right hip fracture** and pin, diabetes, **unexplained weight loss with high cancer marker,** s/p resection for pancreatic neuroendocrine cancer, chronic kidney failure, HTN, back and neck pain on opioids, etc.
2:25	87F	**Poorly controlled diabetes**, HTN, heart disease, aortic stenosis & regurgitation, eczema, unstable gait, s/p stroke, carotid stenosis, left knee and shoulder pain, insomnia
3:05	91F	**Episodes of whole body weakness,** HTN with labile blood pressure, CAD, DM, vertigo, hx of falls, esophageal stricture, profound hearing loss, **moderate dementia**
3:25	89F	Hx of stroke with spasticity and gait disorder, HTN, s/p aortic valve surgery, osteoporosis, **needs COVID Booster**
3:45	97M	**Decreased kidney function, new abdominal mass,** HTN, heart failure, vertigo, r/o aortic stenosis, skin sun damage, large prostate
4:05	65M	Degenerative neck and lumbar spine, **left and right arm/hand neuropathy,** carpal tunnel syndrome, **needs COVID Booster**

Practice Burdens

- Mental pressure
  - Mental bandwidth, vast clinical knowledge base, administrivia, practicing at top of license
- Time pressure/workflow burdens
  - 20 minute primary care visits
  - 10-hour ER shift: 43% time spent on data entry, 28% on patient contact. Average 4000 clicks per shift (Hill, 2013)
  - 2 hours of time on computer for every 1 hour of patient-facing time
  - Daily average of 45 minutes spent searching for orders, reconciling orders, and navigating order decision support tools.
- Emotional pressure/moral injury
  - human connection with patients, social/economic/pandemic difficulties

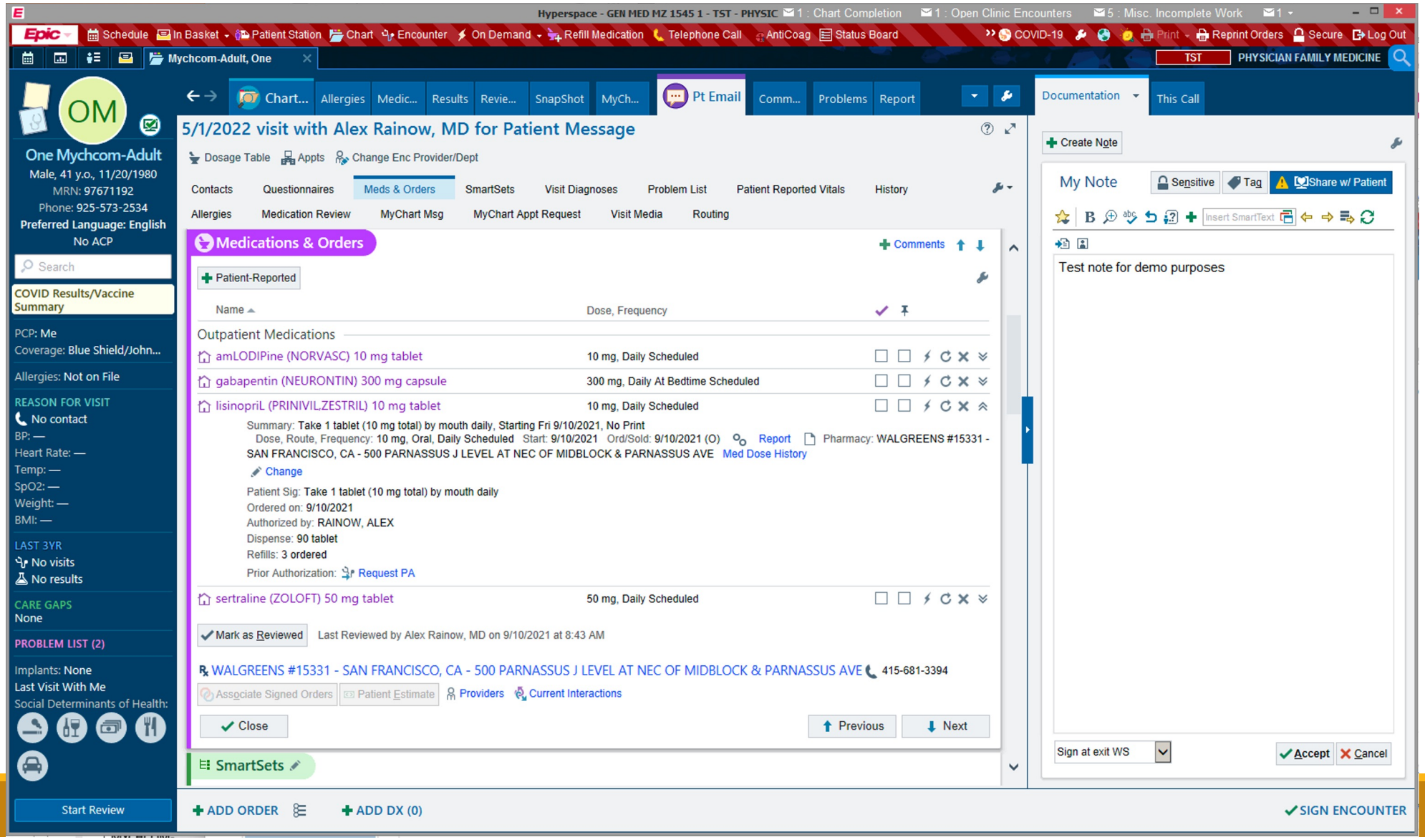
“Electronic Health Record”



2025 EHR Market Share

EHR is two components

- Workflow engine
  - ”APeX” name of UCSF’s Epic installation, for doctors
  - MyChart is Epic’s patient-facing EHR
- Database of clinical data and clinical transactions


Hyperspace - GEN MED MZ 1545 1 - TST - PHYSIC
1 : Chart Completion
1 : Open Clinic Encounters
5 : Misc. Incomplete Work
Schedule
In Basket
Patient Station
Chart
Encounter
On Demand
Refill Medication
Telephone Call
AntiCoag
Status Board
COVID-19
Print
Reprint Orders
Secure
Log Out
Mychcom-Adult, One
TST
PHYSICIAN FAMILY MEDICINE
Chart...
Allergies
Medic...
Results
Revie...
SnapShot
MyCh...
Pt Email
Comm...
Problems
Report
Documentation
This Call
OM
One Mychcom-Adult
Male, 41 y.o., 11/20/1980
MRN: 97671192
Phone: 925-573-2534
Preferred Language: English
No ACP
Search
COVID Results/Vaccine Summary
PCP: Me
Coverage: Blue Shield/John...
Allergies: Not on File
REASON FOR VISIT
No contact
BP: —
Heart Rate: —
Temp: —
SpO2: —
Weight: —
BMI: —
LAST 3YR
No visits
No results
CARE GAPS
None
PROBLEM LIST (2)
Implants: None
Last Visit With Me
Social Determinants of Health:
Start Review
5/1/2022 visit with Alex Rainow, MD for Patient Message
Dosage Table
Appts
Change Enc Provider/Dept
Contacts
Questionnaires
Meds & Orders
SmartSets
Visit Diagnoses
Problem List
Patient Reported Vitals
History
Allergies
Medication Review
MyChart Msg
MyChart Appt Request
Visit Media
Routing
Medications & Orders
Comments
Patient-Reported
Name
Dose, Frequency
Outpatient Medications
amLODIPine (NORVASC) 10 mg tablet
10 mg, Daily Scheduled
gabapentin (NEURONTIN) 300 mg capsule
300 mg, Daily At Bedtime Scheduled
lisinopriL (PRINIVIL,ZESTRIL) 10 mg tablet
10 mg, Daily Scheduled
Summary: Take 1 tablet (10 mg total) by mouth daily, Starting Fri 9/10/2021, No Print
Dose, Route, Frequency: 10 mg, Oral, Daily Scheduled Start: 9/10/2021 Ord/Sold: 9/10/2021 (O) Report Pharmacy: WALGREENS #15331 - SAN FRANCISCO, CA - 500 PARNASSUS J LEVEL AT NEC OF MIDBLOCK & PARNASSUS AVE Med Dose History
Change
Patient Sig: Take 1 tablet (10 mg total) by mouth daily
Ordered on: 9/10/2021
Authorized by: RAINOW, ALEX
Dispense: 90 tablet
Refills: 3 ordered
Prior Authorization: Request PA
sertraline (ZOLOFT) 50 mg tablet
50 mg, Daily Scheduled
Mark as Reviewed
Last Reviewed by Alex Rainow, MD on 9/10/2021 at 8:43 AM
WALGREENS #15331 - SAN FRANCISCO, CA - 500 PARNASSUS J LEVEL AT NEC OF MIDBLOCK & PARNASSUS AVE 415-681-3394
Associate Signed Orders
Patient Estimate
Providers
Current Interactions
Close
Previous
Next
SmartSets
Create Note
My Note
Sensitive
Tag
Share w/ Patient
Insert SmartText
Test note for demo purposes
Sign at exit WS
Accept
Cancel
ADD ORDER
ADD DX (0)
SIGN ENCOUNTER

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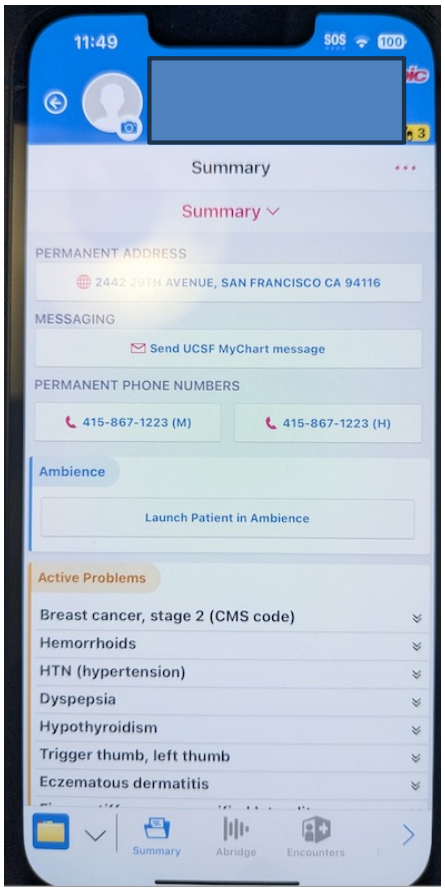
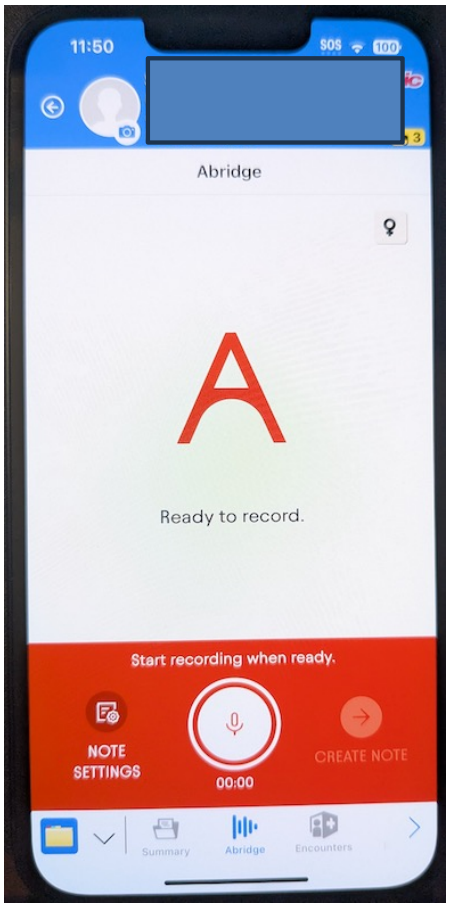
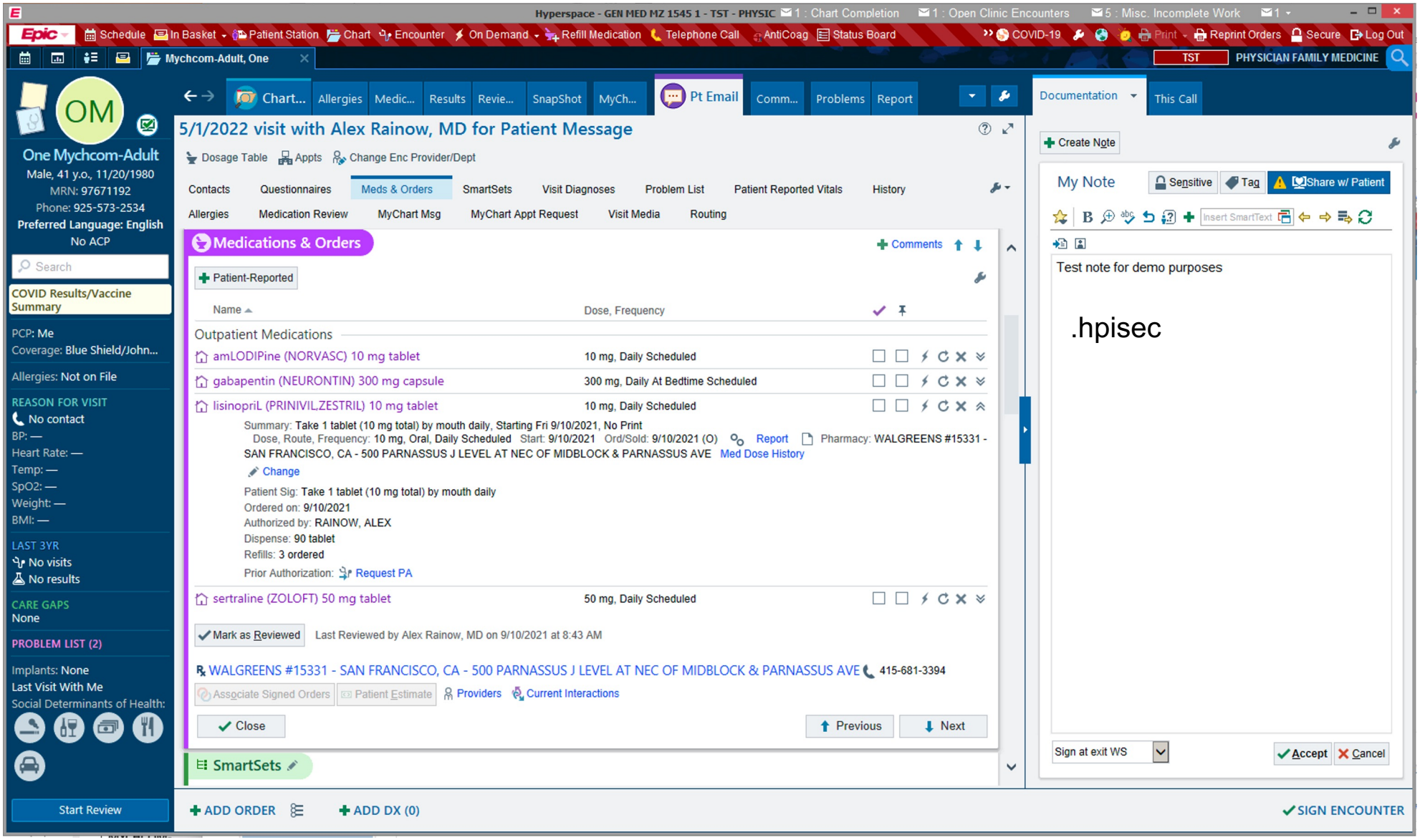
Abridge AI Scribing



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Print
Reprint Orders
Secure
Log Out
Mychcom-Adult, One
TST
PHYSICIAN FAMILY MEDICINE
OM
One Mychcom-Adult
Male, 41 y.o., 11/20/1980
MRN: 97671192
Phone: 925-573-2534
Preferred Language: English
No ACP
Search
COVID Results/Vaccine Summary
PCP: Me
Coverage: Blue Shield/John...
Allergies: Not on File
REASON FOR VISIT
No contact
BP: —
Heart Rate: —
Temp: —
SpO2: —
Weight: —
BMI: —
LAST 3YR
No visits
No results
CARE GAPS
None
PROBLEM LIST (2)
Implants: None
Last Visit With Me
Social Determinants of Health:
Start Review
Chart...
Allergies
Medic...
Results
Revie...
SnapShot
MyCh...
Pt Email
Comm...
Problems
Report
Documentation
This Call
5/1/2022 visit with Alex Rainow, MD for Patient Message
Dosage Table
Appts
Change Enc Provider/Dept
Contacts
Questionnaires
Meds & Orders
SmartSets
Visit Diagnoses
Problem List
Patient Reported Vitals
History
Allergies
Medication Review
MyChart Msg
MyChart Appt Request
Visit Media
Routing
Medications & Orders
Comments
Patient-Reported
Name
Dose, Frequency
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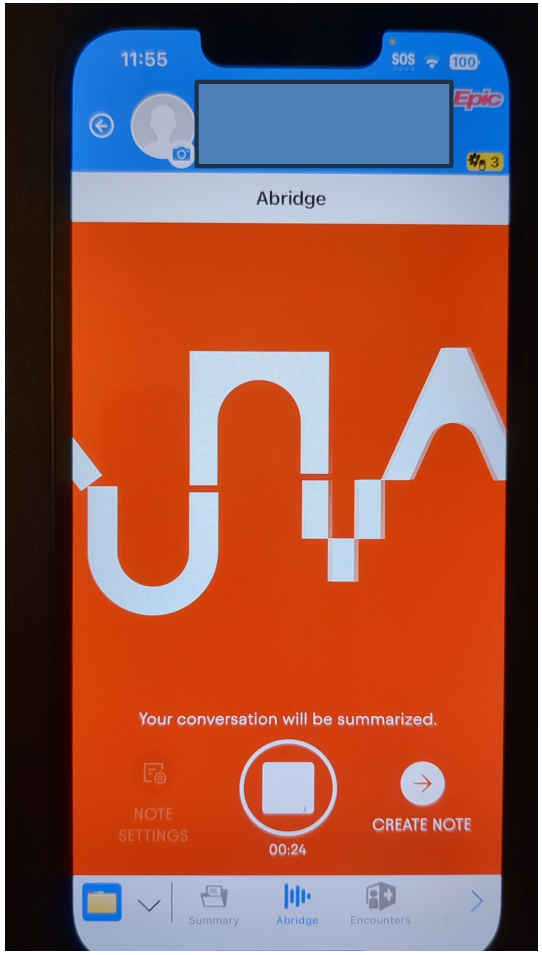
Patient Estimate
Providers
Current Interactions
Close
Previous
Next
SmartSets
Create Note
My Note
Sensitive
Tag
Share w/ Patient
Insert SmartText
Test note for demo purposes
.hpisec
Sign at exit WS
Accept
Cancel
ADD ORDER
ADD DX (0)
SIGN ENCOUNTER

Abridge AI Scribing



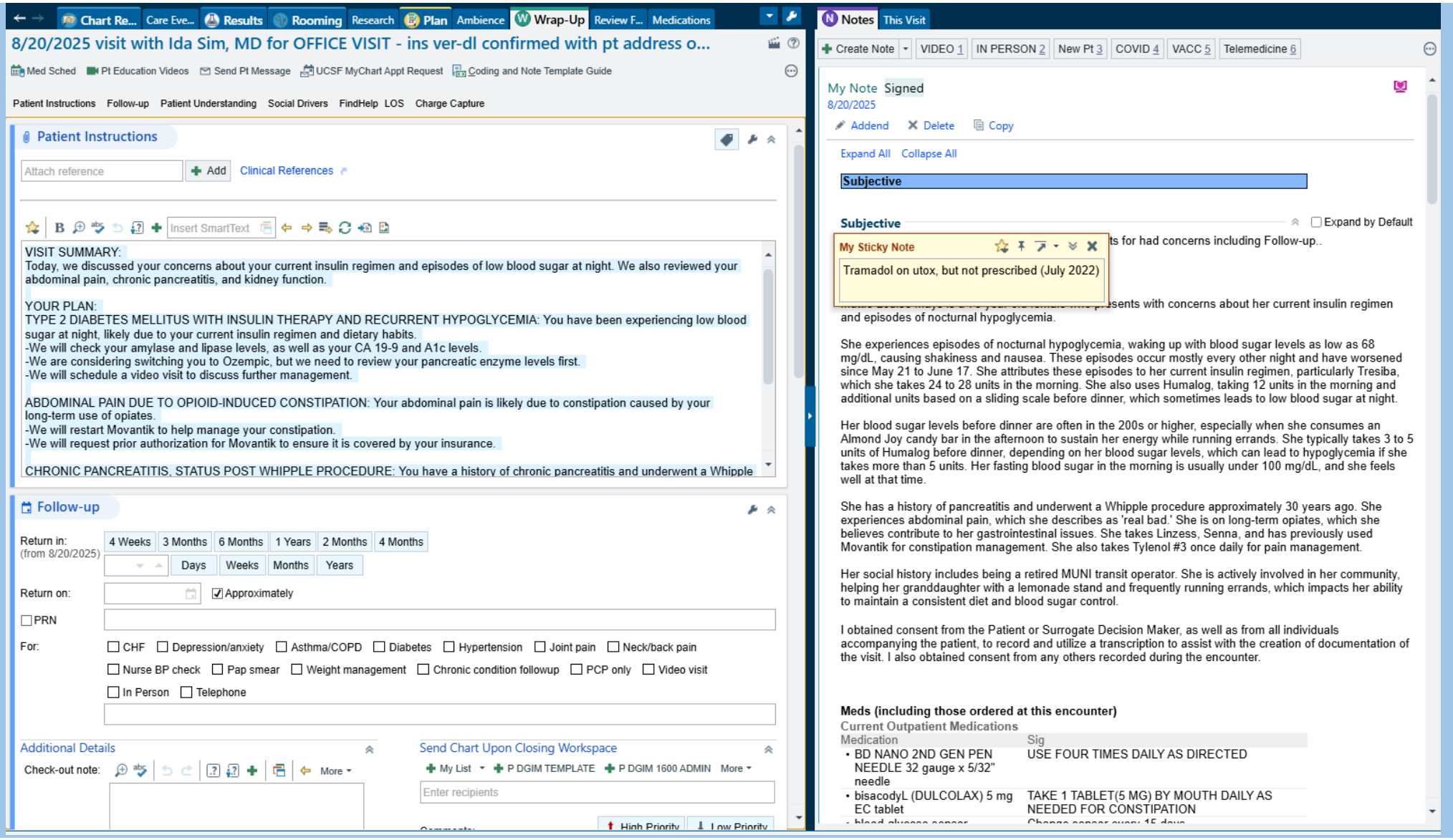


Chart Re...
Care Eve...
Results
Rooming
Research
Plan
Ambience
Wrap-Up
Review F...
Medications
8/20/2025 visit with Ida Sim, MD for OFFICE VISIT - ins ver-dl confirmed with pt address o...
Med Sched
Pt Education Videos
Send Pt Message
UCSF MyChart Appt Request
Coding and Note Template Guide
Patient Instructions
Follow-up
Patient Understanding
Social Drivers
FindHelp
LOS
Charge Capture
Patient Instructions
Attach reference
Add
Clinical References
Insert SmartText
VISIT SUMMARY:
Today, we discussed your concerns about your current insulin regimen and episodes of low blood sugar at night. We also reviewed your abdominal pain, chronic pancreatitis, and kidney function.
YOUR PLAN:
TYPE 2 DIABETES MELLITUS WITH INSULIN THERAPY AND RECURRENT HYPOGLYCEMIA: You have been experiencing low blood sugar at night, likely due to your current insulin regimen and dietary habits.
-We will check your amylase and lipase levels, as well as your CA 19-9 and A1c levels.
-We are considering switching you to Ozempic, but we need to review your pancreatic enzyme levels first.
-We will schedule a video visit to discuss further management.
ABDOMINAL PAIN DUE TO OPIOID-INDUCED CONSTIPATION: Your abdominal pain is likely due to constipation caused by your long-term use of opiates.
-We will restart Movantik to help manage your constipation.
-We will request prior authorization for Movantik to ensure it is covered by your insurance.
CHRONIC PANCREATITIS, STATUS POST WHIPPLE PROCEDURE: You have a history of chronic pancreatitis and underwent a Whipple
Follow-up
Return in:
(from 8/20/2025)
4 Weeks
3 Months
6 Months
1 Years
2 Months
4 Months
Days
Weeks
Months
Years
Return on:
Approximately
PRN
For:
CHF
Depression/anxiety
Asthma/COPD
Diabetes
Hypertension
Joint pain
Neck/back pain
Nurse BP check
Pap smear
Weight management
Chronic condition followup
PCP only
Video visit
In Person
Telephone
Additional Details
Check-out note:
More
Send Chart Upon Closing Workspace
My List
P DGIM TEMPLATE
P DGIM 1600 ADMIN
More
Enter recipients
High Priority
Low Priority
Notes
This Visit
Create Note
VIDEO 1
IN PERSON 2
New Pt 3
COVID 4
VACC 5
Telemedicine 6
My Note
Signed
8/20/2025
Addend
Delete
Copy
Expand All
Collapse All
Subjective
Subjective
Expand by Default
My Sticky Note
Tramadol on utox, but not prescribed (July 2022)
ts for had concerns including Follow-up..
sents with concerns about her current insulin regimen and episodes of nocturnal hypoglycemia.
She experiences episodes of nocturnal hypoglycemia, waking up with blood sugar levels as low as 68 mg/dL, causing shakiness and nausea. These episodes occur mostly every other night and have worsened since May 21 to June 17. She attributes these episodes to her current insulin regimen, particularly Tresiba, which she takes 24 to 28 units in the morning. She also uses Humalog, taking 12 units in the morning and additional units based on a sliding scale before dinner, which sometimes leads to low blood sugar at night.
Her blood sugar levels before dinner are often in the 200s or higher, especially when she consumes an Almond Joy candy bar in the afternoon to sustain her energy while running errands. She typically takes 3 to 5 units of Humalog before dinner, depending on her blood sugar levels, which can lead to hypoglycemia if she takes more than 5 units. Her fasting blood sugar in the morning is usually under 100 mg/dL, and she feels well at that time.
She has a history of pancreatitis and underwent a Whipple procedure approximately 30 years ago. She experiences abdominal pain, which she describes as 'real bad.' She is on long-term opiates, which she believes contribute to her gastrointestinal issues. She takes Linzess, Senna, and has previously used Movantik for constipation management. She also takes Tylenol #3 once daily for pain management.
Her social history includes being a retired MUNI transit operator. She is actively involved in her community, helping her granddaughter with a lemonade stand and frequently running errands, which impacts her ability to maintain a consistent diet and blood sugar control.
I obtained consent from the Patient or Surrogate Decision Maker, as well as from all individuals accompanying the patient, to record and utilize a transcription to assist with the creation of documentation of the visit. I also obtained consent from any others recorded during the encounter.
Meds (including those ordered at this encounter)
Current Outpatient Medications
Medication
Sig
BD NANO 2ND GEN PEN NEEDLE 32 gauge x 5/32" needle
USE FOUR TIMES DAILY AS DIRECTED
bisacodyL (DULCOLAX) 5 mg EC tablet
TAKE 1 TABLET(5 MG) BY MOUTH DAILY AS NEEDED FOR CONSTIPATION

Abridge™ AI Scribe

"Subjective"/History part of the note

Summary from a 30+ minute conversation

I edited as shown.

Subjective Expand by Default

My Sticky Note

Tramadol on utox, but not prescribed (July 2022)

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Abridge™ AI Scribe

"After Visit Summary"

Summary from a 30+ minute conversation

I edited as shown.

VISIT SUMMARY:
Today, we discussed your concerns about your current insulin regimen and episodes of low blood sugar at night. We also reviewed your abdominal pain, chronic pancreatitis, and kidney function.

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CHRONIC PANCREATITIS, STATUS POST WHIPPLE PROCEDURE: You have a history of chronic pancreatitis and underwent a Whipple procedure.
-We will check your amylase and lipase levels to monitor your condition.

PRIMARY PANCREATIC NEUROENDOCRINE MICROADENOMA: You have a small pancreatic tumor that we are monitoring.
-We will check your CA 19-9 levels to monitor the tumor.

CHRONIC KIDNEY DISEASE, UNSPECIFIED STAGE: You have chronic kidney disease with variable kidney function.
-We will continue to monitor your kidney function with routine labs.

Conclusions

- Six chronic diseases account for 90% of healthcare expenses, and 40% of Americans have more than one chronic disease.
- Healthcare system is under tremendous stress: workforce shortages, lack of access, deeply threatened finances, and perverse payment models that do not reward better care or better outcomes
- Clinicians practice under high mental, time/workflow, and emotional pressures.
- Epic is the dominant electronic health record (EHR). EHRs serve as medicine's workflow system with a database attached to it.
- We are in the very early days of AI for health and healthcare.

Take Home Points

- Treat the whole patient not individual diseases! Find the optimal solution for the *set of diseases* each patient has, not the local single-disease optimum.
- Most of healthcare is delivered outside the healthcare system
- Do not add net mental, time, or emotional burden to the health system or health workers
- Partner with clinicians and patients to understand the real problems that need solving
- We must shape AI to preserve humanity in health and healthcare

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