



Using AI to Improve the Patient and Provider Experience in Outpatient Behavioral Health Service Delivery

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WHY IS THE FLASHPOINT RIGHT NOW?

AI/ML Has Been Around for Years

- » 70 years if you want to be very literal about it
- » In the last five years, it's become more commonly deployed as a tool to gain competitive advantage
- » Was and is difficult to access because it required significant programming and training work

ChatGPT changes the game

- » Released on November 30th, 2022; is the most prolific Large Language Model (LLM) to date
- » Trained on the internet (sometimes the internet is wrong!)
- » Passed numerous Turing Test analogs (e.g. the Bar, Medical Exams, got a 64% on an MSW exam)

How's it going to be used?

- » Should be used to support the quadruple aim
- » Should be used to solve systemic problems (e.g. alleviating workforce shortage, triaging folks for immediate or near-term risk of harm)
- » Will not replace clinicians; but instead supplement
- » Can help sort through data points in real-time.

DIFFERENT KINDS OF AI

Predictive AI

- » Forecasts future outcomes based on past and present data.
- » **Applications:** Financial forecasting, weather predictions, healthcare outcome predictions, etc.
- » **Notable Feature:** Primarily concerned with forecasting future values rather than classifying input data or generating new data.

Discriminative AI

- » Differentiates or classifies given data into defined categories.
- » **Applications:** Image classification, spam detection, sentiment analysis, etc.
- » **Notable Feature:** Focuses on differentiating or distinguishing between data categories rather than generating new data.

Generative AI

- » Creates new data samples similar to its training data.
- » **Applications:** Language responses, Deepfake creation, artwork generation, data augmentation, etc.
- » **Notable Feature:** Unlike discriminative models, generative models can generate new data points from the learned data distribution.

OBLIGATORY PHOTO DROP



THE GENERATIVE POWER OF AI

Prompt: Write a song about why CCBHCs are so great?

We asked ChatGPT to write a song.

Verse 1

In a world where minds need healing light, A place emerged, standing strong and bright, CCBHCs, a haven for us all, Where hearts find hope and spirits stand tall. They offer care, both day and night, Guiding us through struggles, into the light, With open doors and hearts that believe, CCBHCs are here, a lifeline we receive.

Chorus

CCBHCs, where souls find solace, A refuge from life's stormy palace, Mending minds with love and care, A beacon of hope, always there.

Verse 2

Comprehensive services they provide, In times of crisis, they're by our side, From counseling to recovery's grace, CCBHCs create a safe embrace. With integrated care, they break the chains, Healing hearts from sorrows and pains, Empowering lives with every stride, CCBHCs are there, walking by our side.

Chorus/Bridge

CCBHCs, where souls find solace, A refuge from life's stormy palace, Mending minds with love and care, A beacon of hope, always there.

With evidence-based practices they lead, A promise to serve those in need, Their workforce strong, their hearts aligned, CCBHCs, the love they bind.

THE GENERATIVE POWER OF AI (SLIDE 2)

Prompt: Write a song about why CCBHCs are so great?

Verse 3

No matter your journey or where you've been, CCBHCs welcome you in, A place where person-centered's the way, Together we heal, side by side, day by day. In this symphony of care we play, CCBHCs shine in the light of day, With quality, compassion, and kindness true, They're the strength that sees us through.

Chorus

CCBHCs, where souls find solace, A refuge from life's stormy palace, Mending minds with love and care, A beacon of hope, always there.

Outro

So let's raise our voices, strong and clear, For CCBHCs, let's cheer and cheer, In unity, we stand, we rise, With CCBHCs, hope never dies.

HOW DOES AI WORK?

AI must be trained. In the case of ChatGPT and Gemini, these models have been trained on the internet.

To optimize performance for your organization, a model should be trained on your important data points.

ChatGPT introduced ChatGPT Enterprise in August of 2023; this allows you to train models of your own.

AI will continue to be integrated into new pieces of software over time.

THE BIGGEST CHALLENGE WITH GIVING THIS TALK TODAY

What is the Future of AI?

- » No one knows
- » Technology will outpace regulation; that's likely to get worse, not better
- » The speed of integration is going to rely on our imaginations and budgets

Technologists and Data Folks overpromise and underdeliver

- » Remember big data?
- » What about unstructured data?
- » How about Machine Learning?
- » Questions are so much more important than the actual implementation

Avoiding Garbage In, Garbage Out (GIGO)

- » Data Analytics/AI can only be as good as what goes into the machine
- » The value in these new AI models is the processing power to work through bad data
- » GIGO will always be an issue

MEET CHEWY.COM



- » We all laughed at Pets.com in the late 90s
- » It's not that pets.com was wrong, it needed Amazon to normalize two day shipping. We needed to fundamentally change how packages are delivered
- » Similar structural changes will need to happen with AI before we reach maturity

**HOW CAN AI HELP DELIVER
BEHAVIORAL HEALTH SERVICES IN THE
OUTPATIENT SETTING?**

WHAT ARE THE GOALS OF INTEGRATING ARTIFICIAL INTELLIGENCE



**Making Human
Interactions More Human**



**Personalizing experiences
for patients and providers**



**Relieving administrative
burden**

QUADRUPLE AIM: PATIENT EXPERIENCE

Immediate Access and Support

Personalized Care

Curating Education and Information

Tailored Self-Management Tools

QUADRUPLE AIM: PROVIDER EXPERIENCE

Enhanced Clinical
Decision Support

Improved Training
and Supervision

Reduced Burnout

Streamlining
Administrative Tasks

QUADRUPLE AIM: POPULATION HEALTH

Predictive Analytics

Tailored Interventions

Resource Optimization

Real-Time Crisis Response

QUADRUPLE AIM: REDUCING COSTS

**Optimizing
Resource
Allocation**

**Enhancing Clinical
Decision Support**

**Virtual Care
Platforms**

**Training and
Supervision**

CASE STUDY: CRISIS RESPONSE

How can AI be used to improve Crisis Response?

988 and Other Triageing Situations

When clients are in crisis and interacting with our text-message enabled platforms, LLM AIs like ChatGPT/Bard can examine the language in use to determine risk to clients of self-harm.

In-Person Crisis Response

Similarly, with in-person interactions if the clinician can gain consent to record the session, the interactions between the clinician and the patient can be mined for risk, diagnosis, etc. Most algorithms today rely on prior history using EMR or claims data to determine risk.

Tailoring Next Steps

For patients with access to smartphones, app developers will be able to deploy tools that reach out to clients to “check in” throughout treatment. The AI will be able to manage and adjust on when to reach out, how to reach out, and whether the condition has changed.

CASE STUDY: OPERATIONAL MANAGEMENT

How can AI be used to relieve administrative burden?

Managing Acuity within Clinician Workload

We can use existing risk stratification technologies along with some of the tools in Natural Language Processing to determine an established risk along with rising risk to balance workloads for clinicians

Avoiding Missed Appointments

AI algorithms can help determine which patients are likely to miss appointments. Similarly, AI algorithms can assign risk scores quickly for individuals who are likely to miss appointments.

Creating Progress Notes

An AI tool like the one previously discussed will allow the creation of suggested progress notes. While it would still be incumbent on clinicians to make sure that the note accurately reflects the progress the patient is making.

Clinical Decision Support

After entering the progress notes and reviewing the course of treatment, AI will be capable of proposing additional decision support on future treatment paths.

CASE STUDY: IMPROVING PATIENT EXPERIENCE

How can AI be used to improve patient experience?

Managing Patient Outreach

AI can identify tools and profiles for managing administrative interactions with patients. Tailored outreach can help meet the patient where they are in terms of best methods for managing appointments and reminders.

The WebMD example

How do I know when I am in behavioral health crisis? Am I reacting “normally” to a situation? Do I need help right now? Can it wait until morning? A language sensitive chatbot connected to a body of evidence can help me sift through these answers at 3am?

Removing Stigma

With adequate and apparent protections and disclaimers in place, a patient can ask questions they might not be willing to divulge to a person sitting across the table.

Manage Rising Risk

Can use output of recorded sessions to predict risk of bad outcomes without an extensive clinical history to compare it against other extensive clinical histories. Will be very useful for newer patients.

CASE STUDY: SPEEDING UP DIAGNOSIS OF RARE CONDITIONS

How can AI be used to more rapidly find rare conditions

Combine Session Based Info

Tools that can comb through spoken notes from a session can provide a sense of where people are today, in this minute, to determine immediate treatment and profiling for a client.

With Patient Profiling

With the data profiles we have from other individuals, we can create a profile using today's info, along with other similar patients to identify people at risk of rare and/or severe outcomes.

Image Analysis

While more common in diagnosing physical conditions, some behavioral health conditions may also have associated neurological findings visible through imaging techniques like MRI or fMRI. AI can help in identifying subtle abnormalities or patterns in these images that might correlate with rare conditions.

Manage Rising Risk

AI models can be trained on global datasets, ensuring they have exposure to a wide variety of conditions, including rare ones. As more data becomes available, these models can be continually refined and updated, enhancing their diagnostic accuracy over time.

THE FOIBLES OF AI

AN EXPERIMENT IN AI. “HOW SHOULD AI BE USED TO IMPROVE OUTPATIENT BEHAVIORAL HEALTH DELIVERY?”

Answer #1: AI should be used for Early Detection and Risk Stratification, Treatment Personalization, Enhanced Monitoring, Virtual Assistants and Chatbots, Decision Support for Clinician, Teletherapy Enhancement, Reducing Administrative Burden, Training and Supervision, Outcome Prediction, Post-Treatment Follow-Up, Public Health Insights, Stigma Reduction.

Answer #2: AI should be used for **Assessment And Diagnosis**, Treatment Planning, **Therapeutic Interventions**, Remote Monitoring, Post-Treatment Support, Administrative Tasks, Training and Supervision, and Research

Answer #3: AI should be used for Assessment And Diagnostics, Tailored Treatment Plans, Monitoring and Feedback, Digital Therapeutics, **Resource Optimization**, Training and Supervision, **preventing burnout**, Outreach and Education, **Data Protection and Ethics**, Integration and Coordination, Continuous Improvement.

** - **Bolded text in answers #2 and 3 are conceptually different than items raised in previous answers.***

AN EXPERIMENT IN AI. “WHO KILLED JOHN F. KENNEDY?”

Answer #1: John F. Kennedy, the 35th President of the United States, was assassinated in Dallas, Texas, on November 22, 1963. He was fatally shot while riding in a motorcade in Dealey Plaza. The Warren Commission, which was established to investigate his assassination, concluded that Lee Harvey Oswald acted alone in shooting Kennedy from a sixth-floor window of the Texas School Book Depository building as the motorcade passed by.

Answer #2: The assassination of President John F. Kennedy on November 22, 1963, in Dallas, Texas, remains a topic of debate, intrigue, and numerous conspiracy theories. However, based on official investigations, the following is what's broadly accepted: It was Lee Harvey Oswald, it might have been a second gunman, there are a lot of conspiracy theories about it.

Answer #3: Gives the official account, then spends four paragraphs describing why this is wrong.

VARIABILITY IN ANSWERS IS BAD FOR RELIABILITY

Upholding a standard of care in behavioral health service delivery

Creates legal issues in the case of litigation

Unintended bias in service delivery

Incomplete research

LEARNING MADE EASY



ChatGPT™

for
dummies
A Wiley Brand



Take a peek under
the ChatGPT™ hood

Learn to write prompts that
produce excellent results

Explore how AI affects
knowledge industries

Pam Baker

Author of *Decision Intelligence
For Dummies*

ANALOGY: CHATGPT CAN GIVE YOU A DUMMY LEVEL KNOWLEDGE TODAY

- » Brilliant for turning no knowledge into some knowledge quickly.
- » Great for getting over initial inertia of writing new information
- » Will continue to improve and become more reliable

KEYS FOR USING AI IN THE FUTURE

ROLLING OUT AI IN THE YEARS TO COME

Start Small But Think Big

- » There isn't a better candidate for a quality improvement project
- » Focus on relief of administrative burden first
- » As your trust of AI solutions grow continue developing a joint AI/BH set of offerings.

Use AI to supplement human interactions

- » Technology should always focus itself on allowing humans to connect in new ways
- » Use as a quality review tool.

Monitor for Unintended Consequences

- » Cannot increase bias in service delivery
- » Be cautious of adopting unnecessary legal risk
- » Stay focused on upholding evolving best practices in service delivery

QUESTIONS



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