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Lead

AI and Healthcare Delivery: Navigating the Clinical Reality and Expectations

March 26, 2024

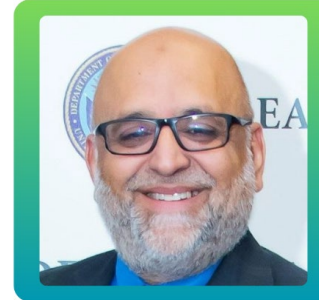


Association of
American Medical Colleges

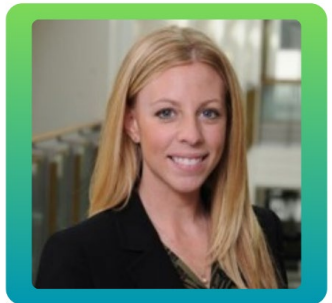
Speakers



Keith Horvath, MD
Senior Director, Clinical
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AI & Healthcare Delivery: Navigating the Clinical Reality and Expectations



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Disclosures



- Dr. Rehman has funding for research studies by VA and NIH
- Opinion expressed in this presentations are not official statements of the Department of Veterans Affairs or Federal Government but only represent Dr. Rehman's view
- AI is not utilized for the preparation of this presentation





- ChatGPT (Chat Generative Pre-trained Transformer), OpenAI's chatbot powered by artificial intelligence (AI), has become the fastest-growing Internet application in history

Hu K. ChatGPT sets record for fastest-growing user base — analyst note. Reuters. February 2, 2023





Doom and Gloom

- “Hallucination”
- Implications for patient privacy
- Risk of biases (due to faulty source data)
- Tesla Crashed to autopilot features
- Microsoft’s AI chatbot turned sexist & racist
- Amazon’s AI recruiting tool showed bias against women
- False facial recognition match leads to Black man’s arrest

Beam AL, Drazen JM, Kohane IS, Leong T-Y, Manrai AK, Rubin EJ. Artificial intelligence in medicine. N Engl J Med 2023;388:1220
[AI Gone Wrong: 5 Biggest AI Failures Of All Time - Jumpstart Magazine](#)





Doom and Gloom

- “The end of the college essay,” and medical school personal statements.
- Chatbots intended to replace physicians for some medical encounters will imminently be commercially available.





- Major health care companies are partnering with technology firms to deploy AI widely and rapidly throughout the U.S. health care system, including by integrating it into electronic health records and voice-recognition software.



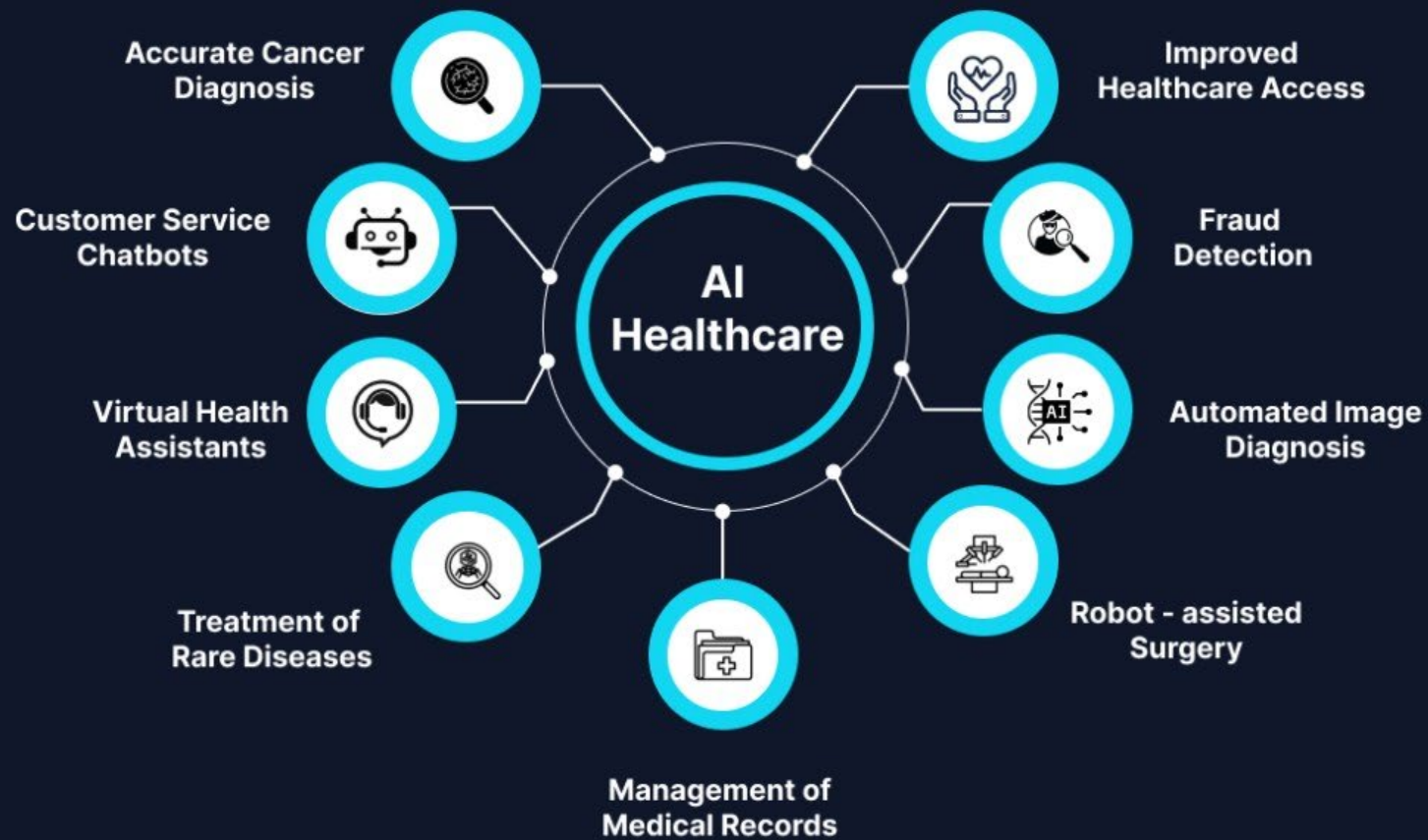


We, the medical education as a system, should lead the way when it comes to integrating AI into clinical practice, teaching and research





Role of AI in Healthcare



<https://www.linkedin.com/pulse/role-ai-healthcare-infosense-ai/>





Examples of AI Uses



- Online Scheduling/Registration/Payment/Check-in
- Chatbots
- Symptom Triage
- Wait-time estimations
- Video Visits
- AI Enabled Medical Coding
- AI built to forecast demand on facilities Supplies, staffing
- Prior Authorizations





AI Applications



- Facilitate Diagnosis
- Predict Pathology
- Risk Stratify Patients
- Enhance Practice Management
- Imaging Applications (prosthetics, surgical planning, disease predicting)
- Enhancing Surgical Aide





VA's AI Solutions to Address Burnout Among Health Care Workers

- VA's health care professionals provide lifesaving and life-changing care for Veterans every day.
- **Reducing burnout** among health care workers is a top priority for VA, especially at a time when VA is delivering more care and more benefits to more Veterans than ever before.
- The **Tech Sprint** is a part of President Biden's new executive order on safe, secure, and trustworthy artificial intelligence
- And VA's efforts to use **trustworthy AI solutions** to improve health care and benefits for Veterans, their families, caregivers, and survivors.





Ambient Scribes

- These AI scribes will *listen in* to the conversation, and piece together the note but also suggest billing codes, diagnoses, and orders based on where conversation goes. This takes Clinical Decision Support (CDS) to another level.
- The Ambient Dictation for Clinical Encounters track focuses on speech-to-text solutions that can be used to automatically take notes for both the doctor and their patient and upload key excerpts to medical files.





Document Processing Track

- The **Community Care** Document Processing track looks for an AI tool that can reduce the time needed to integrate non-VA medical records into patients' VA records in an easy to access way.





GI Genius

- An FDA-approved system that aids in detecting concerning polyps during colonoscopies, leading to a 50% reduction in missed colorectal polyps compared to standard procedures.
- The VA has deployed these cutting-edge artificial intelligence devices for over 100,000 colonoscopies at 106 facilities to improve the detection and removal of precancerous polyps.
- VA funded purchases of GI Genius at an approximate cost of \$19 million over the past few years, with deployment targeted to complete by the Fall of CY24.





The Recovery Engagement and Coordination for Health - Veterans Enhanced Treatment (REACH VET)

- REACH VET initiative uses AI to identify Veterans who are in the **top risk** tier of predicted risk for **suicide**.
- REACH VET **reviews** data from the prior two years of VHA health care services to **identify** at-risk Veterans.
-
- Since the program began in 2017, REACH VET has identified more than **117,000** VHA patients.
-





REACH VET



- Consistent monitoring of performance indicators show that **evaluation** and **outreach** occur for almost all of these patients.
- Inclusion in REACH VET is found to be associated with **improved suicide prevention**.





Improved Suicide Prevention



- These improvements include
 - Increased receipt of completed outpatient appointments,
 - Fewer documented suicide attempts,
 - Fewer inpatient mental health admissions,
 - Fewer emergency department days
 - And greater completion of new suicide prevention safety plans.





AI and UME

- Medical students are already starting to **apply** AI in their learning.
- Faculty are contemplating how AI can help them **design** courses and **evaluations**.





UME's Dual Challenge

- **Teach** students how to utilize AI in their practice
- **Adapt** to the emerging academic use of AI by students and faculty.
- Medical school curriculum **built by humans** is now in doubt:
 - How will a medical school provide **quality control** for components of its curriculum that didn't originate from a human mind?
- How can schools maintain academic standards **if students use AI** to complete assignments?





Incorporating Didactics on the Use of AI into Clinical Skills



- Curricular standards to integrate AI?
- AI Generated Curriculum?
- Shouldn't these then be rigorously assessed, peer-reviewed and published?



Russell RG, Lovett Novak L, Patel M, et al. Competencies for the use of artificial intelligence-based tools by health care professionals. Acad Med 2023;98:348-356.



Graduate Medical Education (GME)



- Prepare for a future in which AI tools are integral components of their independent practice.
- Residents and fellows have 30 to 40 years of practice ahead of them and will need to adjust to evolutions in clinical care.
- Trainees will have to become comfortable working with AI and will have to understand its capabilities and limitations, both to support their own clinical skills and because their patients are already using it.





AI-Powered Patients

- ChatGPT can produce advice on cancer screening in patient-friendly language, though not with 100% accuracy.
- Will AI powered patients start a revolution of the patient–doctor relationship?





Accreditation Council for Graduate Medical Education

- Currently have no formal policies on AI
- AI education into common program requirements?
- Which would compel programs to make changes to their training approaches.







AT THE FOREFRONT

**UChicago
Medicine**

Data and Analytics Steering Committee

March 26, 2024

AI and Governance



AT THE FOREFRONT
UChicago
Medicine

Governance Structure

Data and Analytics Steering Committee
(Strategic Decision Making, Prioritization, & Vision)

Data Governance Council
(Policies, Procedures, Standards & Guidelines)

AIU

AI Governance



AT THE FOREFRONT

UChicago Medicine

Analytics Intervention Unit (AIU) Goals

1. **Optimize clinical outcomes** through the implementation of predictive tools that have clear clinical and operational interventions through application of model data.
2. **Identify clear priority areas** for the medical center where predictive analytics may enhance decision-support.
3. **Support collaboration** among clinical, research, administrative and ancillary support staff across the health system and university, in the development, evaluation and deployment of predictive analytic initiatives.
4. **Serve as a valuable resource** to model developers and provide expertise in clinical informatics, data science, and health system technology/architecture.
5. **Deliver safe and effective** predictive software functionality that improves the patient care.
6. **Develop and refine evaluation criteria** for models entering hospital operations.
7. **Monitor and ensure** data utilized for each model in UChicago Medicine production is validated on an on-going basis.
8. **Serve as a national leader** in predictive model planning, development and deployment in healthcare delivery.



AT THE FOREFRONT

UChicago Medicine

AIU Scope

- Provides subject matter expertise
- Provides strategic direction and operational support for all predictive and interventional models that impact patient care from development to deployment
- Is an advisory body, but it is empowered to reject unsafe models

Inclusion:

- » Predictive tools including, but not limited to, those that treat, diagnose, cure, mitigate, or prevent disease or other conditions
- » All predictive and prescriptive tools intended for implementation at UChicago Medicine to support healthcare delivery
- » Models that align with patient quality of care and patient safety goals

Exclusion:

- » Models without a direct patient care component
- » Research models that will not be implemented for patient care

AIU Membership

Core (~10 people)

- Clinical Operations
- Data Analyst/Scientist
- IT Systems Engineer
- Frontline Staff
- Diversity, Equity & Inclusion

Ad-hoc

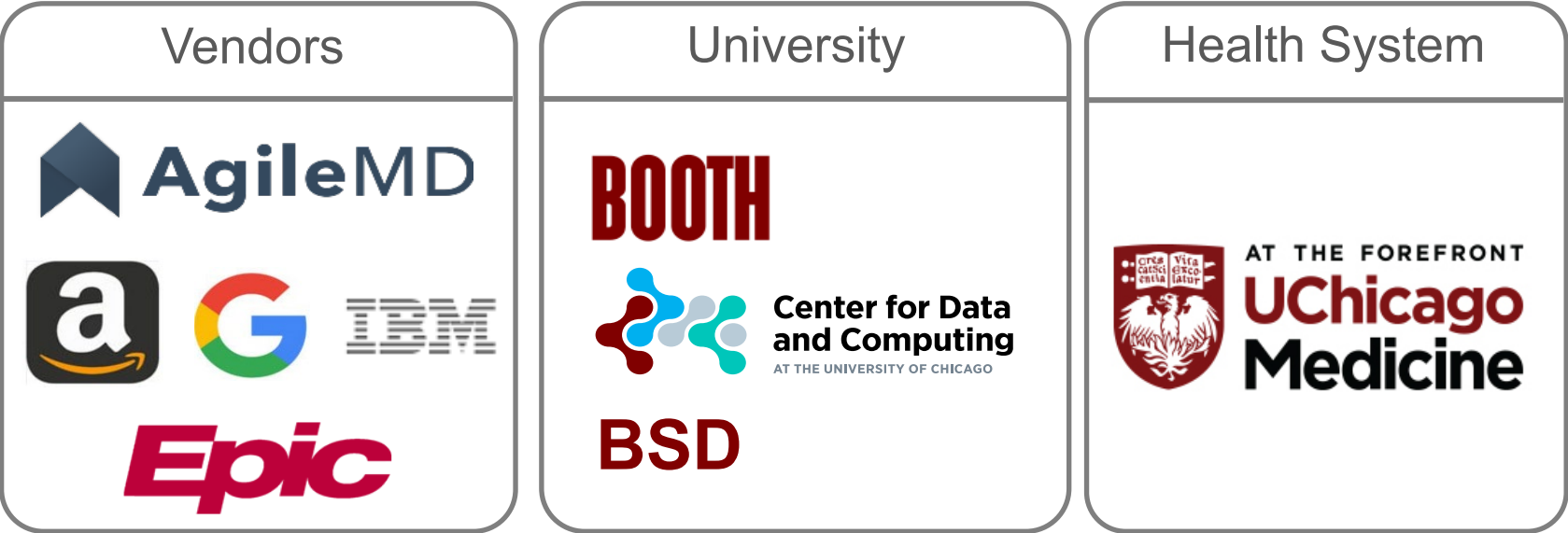
- Operations Unit / SME



AT THE FOREFRONT

UChicago Medicine

Where do AI tools come from?



Buy, Partner, or Build?

Accounting for the Limitations of AI

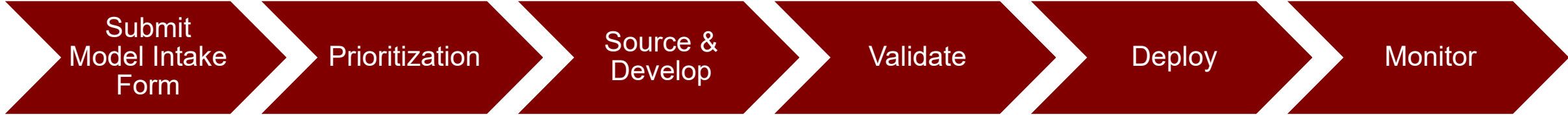
- **Understanding training sets of models**
- **Testing for bias**
- **Continuously validating outcomes**



AT THE FOREFRONT

UChicago Medicine

Model Life Cycle



CHICAGO Center for Healthcare Delivery Science and Innovation

Analytic Interventions Unit Intake Form

Home | Analytic Interventions Unit Intake Form

() indicates required fields

Please complete the intake Form below to begin a conversation with the AIU about your model. Whether you have an existing model or just an idea for one, this form is the first step for the AIU to evaluate its safety and feasibility. We look forward to working with you to improve patient care here at UChicago Medicine. If you have any questions, please email Kimisha.Cassidy@uchicagomedicine.org Thank you!

Stakeholder *

Email *

Model or Project Title *

```
# main
def main(config, directory, granularity, templateType):
    inputDirectory = directory + "Input"
    outputDirectory = directory + "Output"
    logDirectory = directory + "Logs"

    print("")
    print("Configuration: ", config)
    print(" Granularity [min]")
    print(" Input directory")
    print(" Output directory")
    print(" Log directory")
    print(" Template type")
    print("")

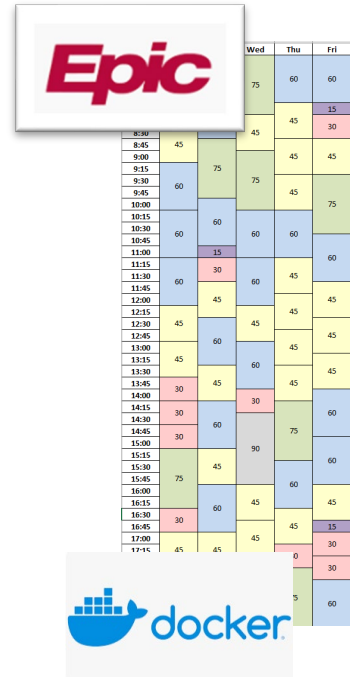
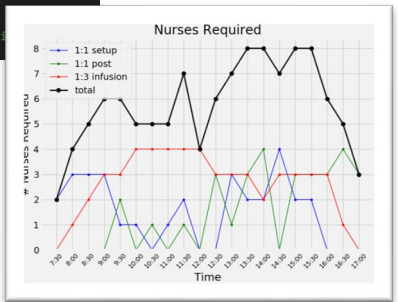
    #-- parameters to set based on config
    constraintMaxNumApptsStarting = None
    constraintNurseTimeAtStartOfAppt = None
    constraintNurseTimeAfterAppt = None
    constraintNurseToPatientRatioInfusion = None # nurse # nurse can be with max 3 patient
    constraintEvenApptLengthsAcrossWeek = False
    constraintEvenApptLengthsAcrossDay = False
    constraintNoApptStartTime = None # 24 hr clock, tied to next variable
    constraintNoApptEndTime = None # 24 hr clock
```

Validation of the Operating Room Nurse Assignment Model

D. Adelman, C. Keceli, H. Witmer, J. Morris-Levenson, K. Turaga

This version: May 26, 2021

1. Teaming scores
The correlation between teaming scores and operative performance metrics (e.g. operative time) was validated by a Booth student project team in 2014 and documented in a Booth working paper "Surgeon-Nurse Teaming Effects on Efficiency and Length of Stay," 2017, by Feng, Yang, Roynica, Adelman, and Langerman. The relationship between teaming



IVTH Scheduling Outcomes Dashboard

IVTH Pre/Post Analysis: Percentage Overbooks
Rate at which infusions are scheduled into full slots

Scanner Comparisons

Scans Completed, No Show, Late-Cancel Exam

Pilot Performance
6/16/2021 to 7/16/2021

Scanner	Percent Utilization by Time	Fraction Number by Show + Late-Cancel Exam
RAD MRI SCAN 1530-17	88%	23.1%
RAD MRI SCAN 1530-17	98%	28.7%
RAD MRI SCAN 1700-17	101%	22.1%
RAD MRI SCAN 1530-17	99%	18.3%
RAD MRI SCAN 1530-17	97%	16.1%

Scanner	Time for to get exam (H)	Fraction of time that appointment goes (30 mins or less)	# 15-minute pass	# 30-minute pass
RAD MRI SCAN 1530-17	267	4.88%	28	13
RAD MRI SCAN 1530-17	266	4.61%	24	13
RAD MRI SCAN 1700-17	219	4.61%	21	8
RAD MRI SCAN 1530-17	227	4.23%	28	18
RAD MRI SCAN 1530-17	209	3.73%	21	16

Example: Validation of 6-month mortality model

- Model development internally in collaboration with the Palliative Care group to predict the probability of patient mortality within 6 months
- Updating existing model, as previous model trained before COVID and before system expansion

Validation Check	Description
Comparing Train and Test	Hospital data can have time dependence therefore check that features appear similarly in the train and test data.
Trends in False Negatives	For this model minimize false negatives (model predictions that a patient will live but they die within 6 months). Reviewed characteristics of those patients to ensure no bias.
Specificity in Imputed Lab Values	Model inputs cannot have missing values so missing values are imputed (typically using mean or median). However for lab values the population mean or median may have a bias based on the motivation for the order. Analysis validated imputed lab values where within normal reference range.
Percentage of Missing Values	The percentage of encounters with missing values for each feature was made. This is especially important to track over time (ex: Sunquest to Beaker lab system change).
Comparison to eCART	Compared scores and outcomes against eCART, which identifies patient deterioration within the encounter.
New Context	Evaluated if a Covid-flag would improve results. It is important to consider other model features based on new external factors (ex. Covid) or new clinical markers that may increase the model performance.

Focus for 2024

Governance and increased transparency

- Develop procedures and standards for each model work flow step
- Example: Documentation standards for model validation

Implement a central model monitoring system

- Collaboration with data science, business intelligence, analytics engineering, UCMIT

Demonstrated experience: Metric monitoring for CE Scorecard

```

class ComputeThreshold:
#-----
# Constructor
#-----
def __init__(self, measure, rule):
    print("Computing Threshold for: ", measure, ":", rule )
    self.measure = measure
    self.rule = rule

# set certain variables based on rule name:
self.position = self.setAndGetRulePosition(rule) # ex. lower, upper, ch
self.grouping = self.setAndGetRuleGrouping(rule) # ex. aggregate or sin
self.column = self.setAndGetRelevantColumn(rule)

# how verbose write-out is
self.verbosity = 0 # 0 = minimal

# some initial and default values - can change if you want
self.pvalueThreshold = 0.68 # pvalue fit to line above which claim sl
self.removeOutliersNStd = 2.0 # remove all data rows for which calculat
sel
sel
sel
    
```

Scorecard Measure Rule Threshold Methodology

Louise Heelan
June 6, 2019

1 Introduction

The University of Chicago Medicine has developed over 150 measures that are used to quantify and evaluate hospital operational and clinical performance over time. These measures are produced on a regular cadence by the Data and Analytics department in conjunction with stakeholders, using a diverse pool of data types and sources that are manipulated to meet the measure definition.

There are data quality reviews on each measure and underlying data to validate the resulting numbers. Previously the data quality rules and associated thresholds above/below which data would be flagged for manual inspection were manually defined by each measure owner. A lack of formal methodology to define these rules created the potential for inconsistent data quality across measures, and required more time for each measure owner to regularly and manually maintain the tolerable limits.

For Fiscal Year 2020 (FY20) the data quality checks for the measures will be automated, making the rules more consistent, and ultimately saving person-power hours.

The final rules are numerical values stored in a table with a date range of validity.

There are several classes of rules that are described in the sections below. At the time of writing this document the measures are updated monthly.

2 Aggregate Rules

There are several aggregation rules for the measure numerator, denominator, and other values over the update cadence (currently: monthly). Each of these rules defines an upper and lower bound of the normal allowed range.

To establish the thresholds the quantity is studied as a function of time. There are several possible trends the historical data could present:

- No historical data.
- Historical data is constant with time.
- Historical data is changing with time.
- Historical data wildly varies with time.
- Historical data appears in clusters with time.

To establish if the rule is constant in time or changing, a linear fit is made to the data. The fit to a slope and intercept returns a p-value. The p-value is the likelihood the data is consistent

FY24 Valid

Flag & Measure Status

165	95	66	270	SYSTEM Ambulatory Care: Depression Screening and Follow-up	UCMC Clinical Length of Stay - Adult	UCMC Readmissions: 30-day all-cause, unplanned
Total Measures	Measures Flagged	Priority Flags	Total Flags	2 3 (5)	2 3 (5)	2 1 (3)

Measure Title	Measure ID	DSA Measure Owner	Priority Non-Priority (Total)
SYSTEM Ambulatory Care: Depression Screening and Follow-up	DEPRESSION_SCREEN_SYSTEM	Jessica Street	2 3 (5)
UCMC Clinical Length of Stay - Adult	LOS_ADULT	Mike Binder	2 3 (5)
UCMC Readmissions: 30-day all-cause, unplanned	READMIT_ALL	Mike Binder	2 1 (3)
SYSTEM New Patient Appointments within 14 Days	NEW_PT_APPTS_SYSTEM	Jessica Street	2 0 (2)
IMH Clinical Length of Stay	IMH_CLIN_LOS	Alina Choudhury	1 3 (4)
UCMC PX Adult Inpatient Composite	PEEP_INPT_ADULT_COMPOSITE	Sean Bolourchi	1 3 (4)
IMH HAI Composite: CLABSI, CAUTI, C diff, SSI	IMH_HAI_COMPOSITE	Sean Bolourchi	1 1 (2)
UCMC Observed:Expected Mortality	MORT_OE_2022	Louise Heelan	0 5 (5)
IMH Readmissions: 30-day all-cause, unplanned	IMH_READMIT_ALL_EPIC	Sean Bolourchi	0 4 (4)
IMH Urgent Aid Patients Who Leave Without Being Seen	IMH_UA_LWBS	Sean Bolourchi	0 3 (3)

By the Numbers

Stage	# of models	Details
In queue	5	<ul style="list-style-type: none"> Scheduling Template (IVTH Silver Cross, IVTH River East) Total Joint Arthroplasty Risk Assessment Lab Draws Epic Falls Model for Ingalls
In development or validation	3	<ul style="list-style-type: none"> Scheduling Template IVTH DCAM re-optimization 6-month mortality No Show
In production	14	<ul style="list-style-type: none"> Orland Park Infusion Scheduling Template Acute Stroke Risk Predictor AKI Risk Algorithm eCART IVTH DCAM Infusion Scheduling HOSPITAL score Epic General Risk Score Epic Fall Risk Peds Nationwide Sepsis 6 month mortality Chorio Re-hospitalization Oncology Readmission Risk Score pCART
Turned off	5	<ul style="list-style-type: none"> Operating Room Nurse Assignment Model MRI Scheduling Epic Remaining Length of Stay (LOS) Internal Length of Stay (LOS) LACE+



AI in Medical Education

- **FY25 Initiatives:**
 - **Ambient Listening**
 - **Template standardization for documentation**

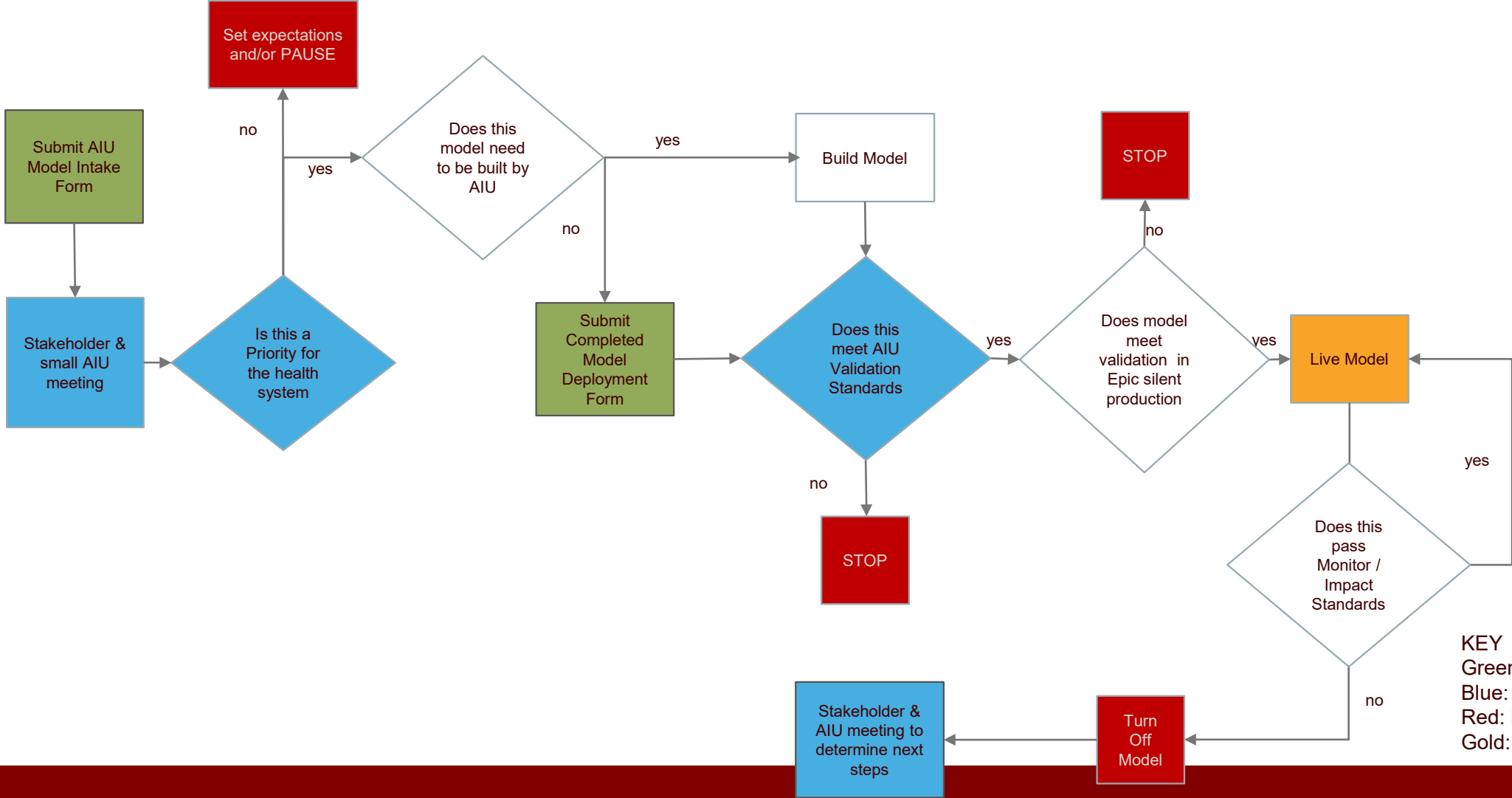
Appendix



AT THE FOREFRONT

UChicago
Medicine

Process Map



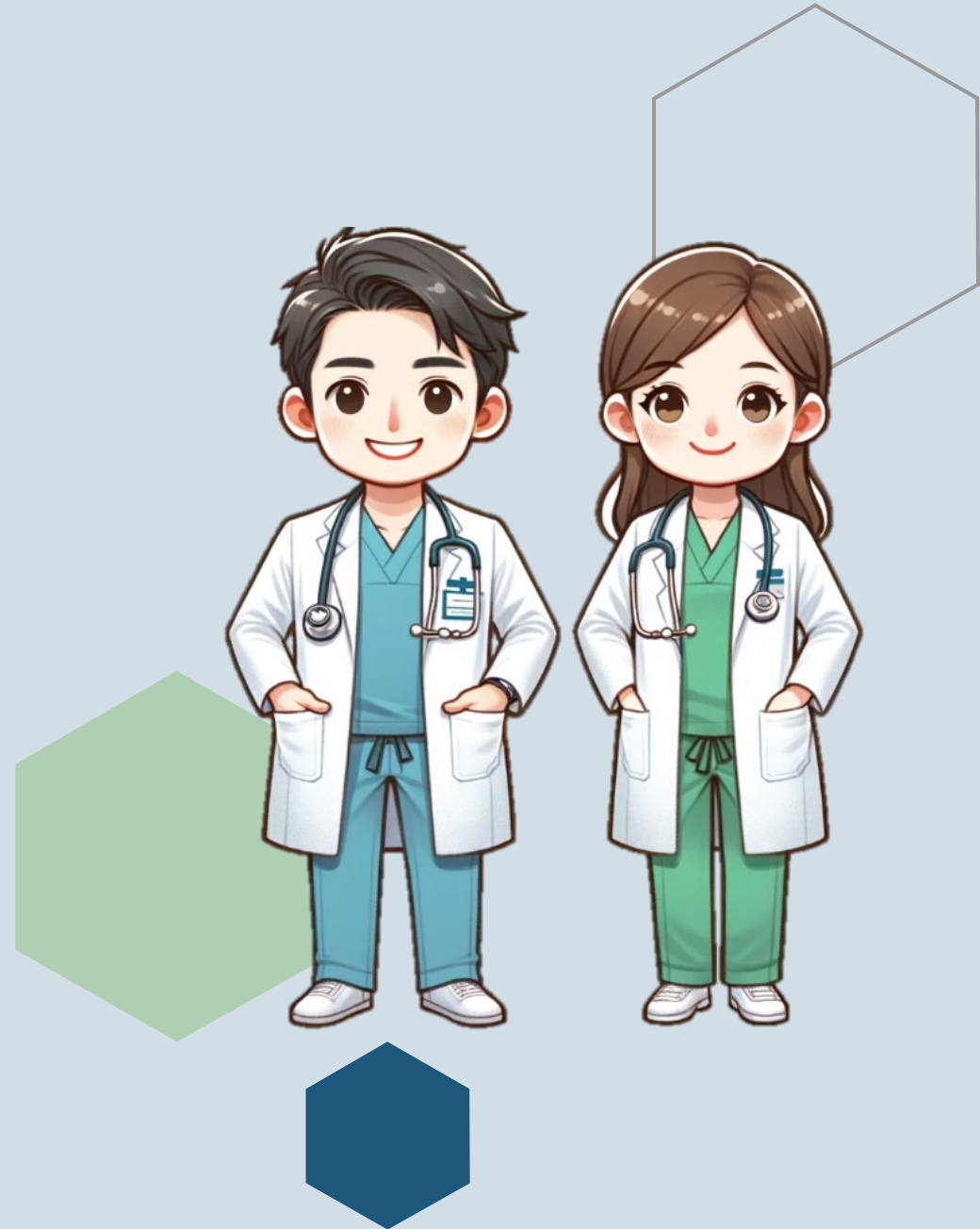
KEY
 Green: Submit Form
 Blue: AIU Meeting
 Red: Hold/Stops
 Gold: Live

Model Deployment Process

<i>Intake; Determine and Align on Clinical Priorities</i>	<i>Source and Develop (for models that have not yet been built)</i>	<i>Review and Validate</i>	<i>Test, Deploy and Communicate</i>	<i>Monitor Results and Effectiveness</i>
<p>Identify areas of need / priority where predictive data may provide clear steps for clinical intervention</p> <p>Determine whether implementation aligns with the goal of delivering safe, effective care</p>	<p>Identify external sources for model procurement or development</p> <p>OR</p> <p>Develop model internally with UCM data</p>	<p>Review the scientific validity and operational value of each model to be implemented</p> <p>Provide feedback and acceptance, rejection or concerns for deployment</p>	<p>Conduct integration / interface development</p> <p>Validate within Epic or other deployment system</p> <p>Identify appropriate security and access</p> <p>Shift model to full production</p> <p>Training and communication to stakeholders</p>	<p>Track on-going results and clinical effectiveness metrics</p> <p>Conduct periodic review and evaluation of clinical outcomes as a result of predictive data</p>

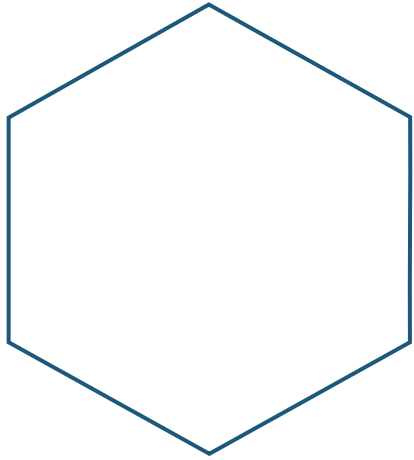
AI: The Resident Perspective

Tauhid Mahmud MD MPH
Stony Brook Medicine

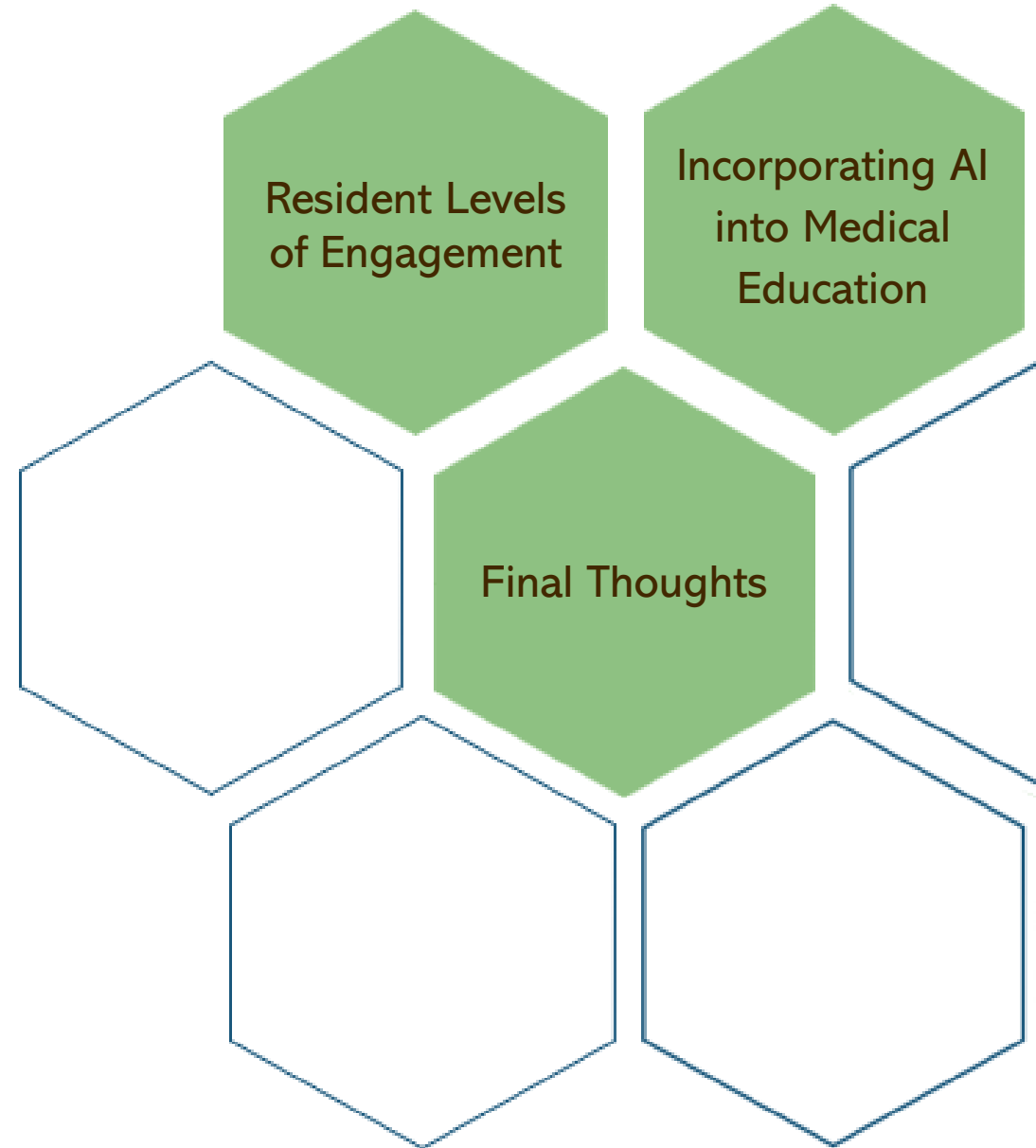


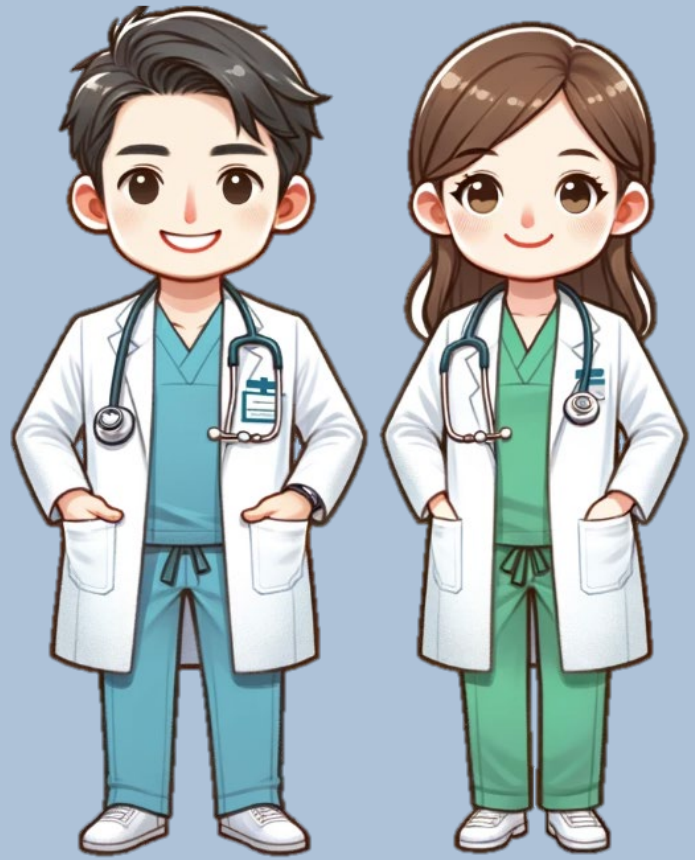
I have no actual or potential conflict of interest in relation to this program/presentation.

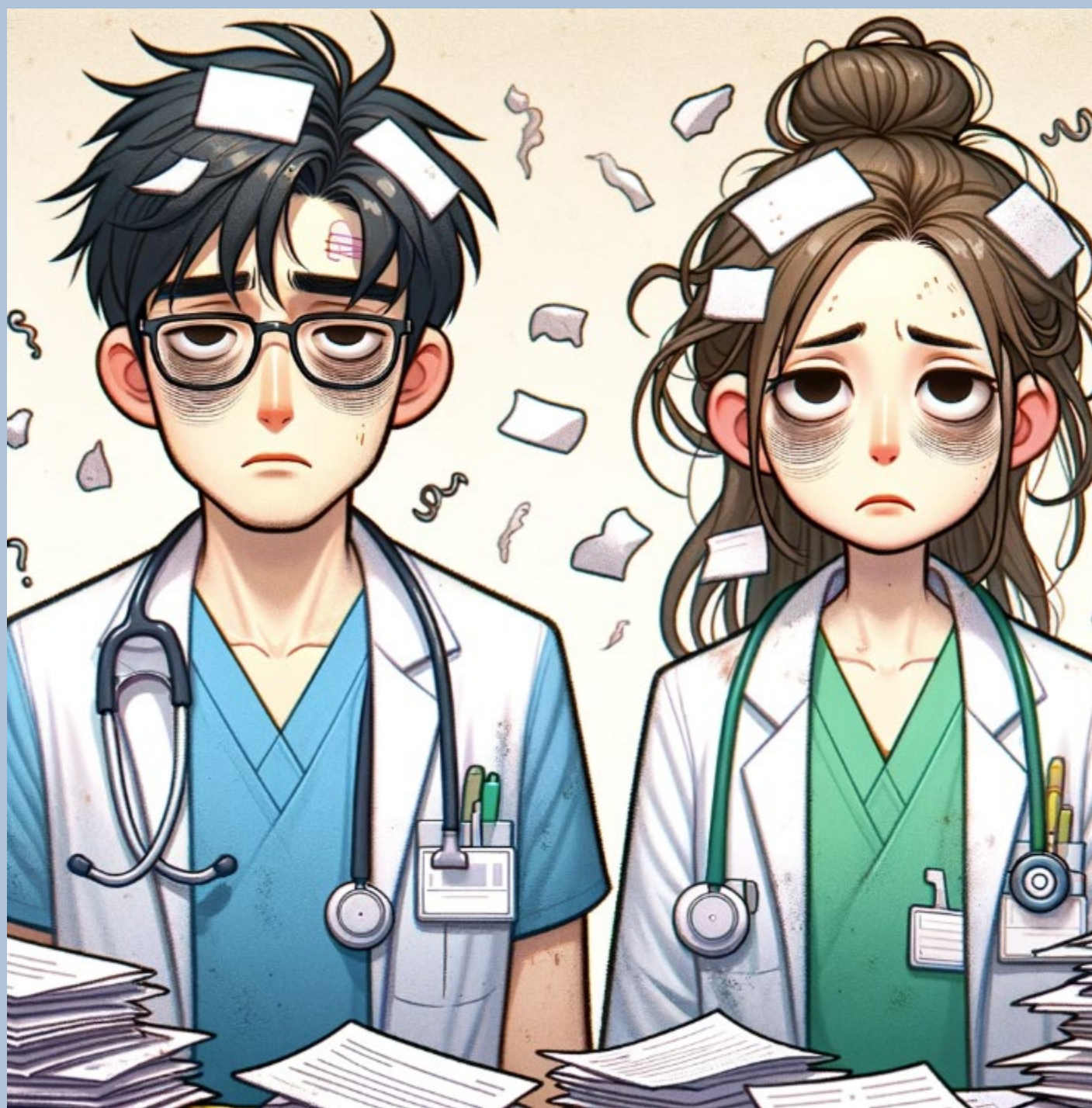
Disclosures



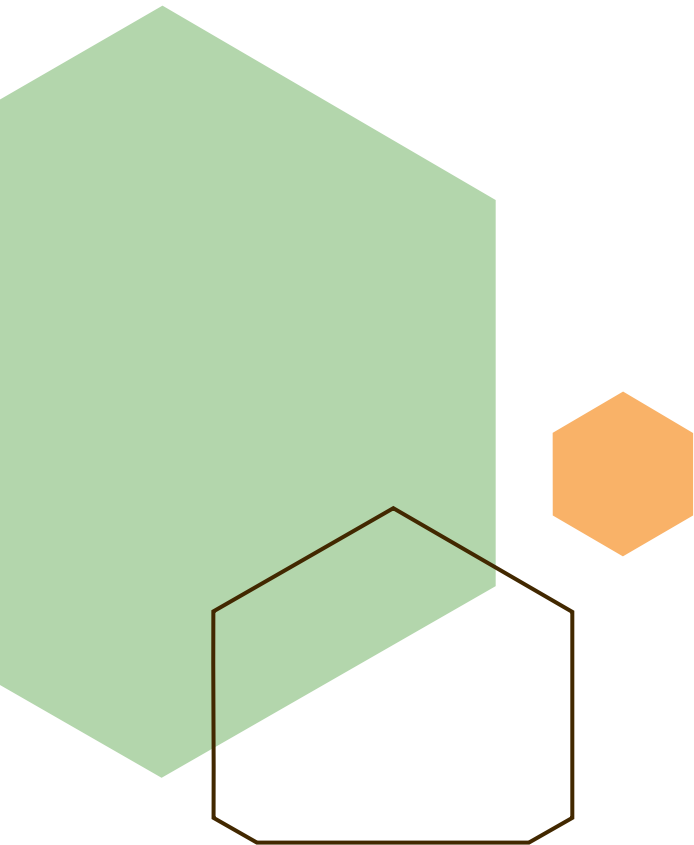
Agenda







Levels of AI Engagement



Observers

Peripherally aware of AI and institutional AI initiatives

Some firsthand experience with AI tools

Adopters

Use AI-powered tools for tasks such as patient education, lab order templates, and drafting letters

Pragmatic approach to incorporating AI into their work

Innovators

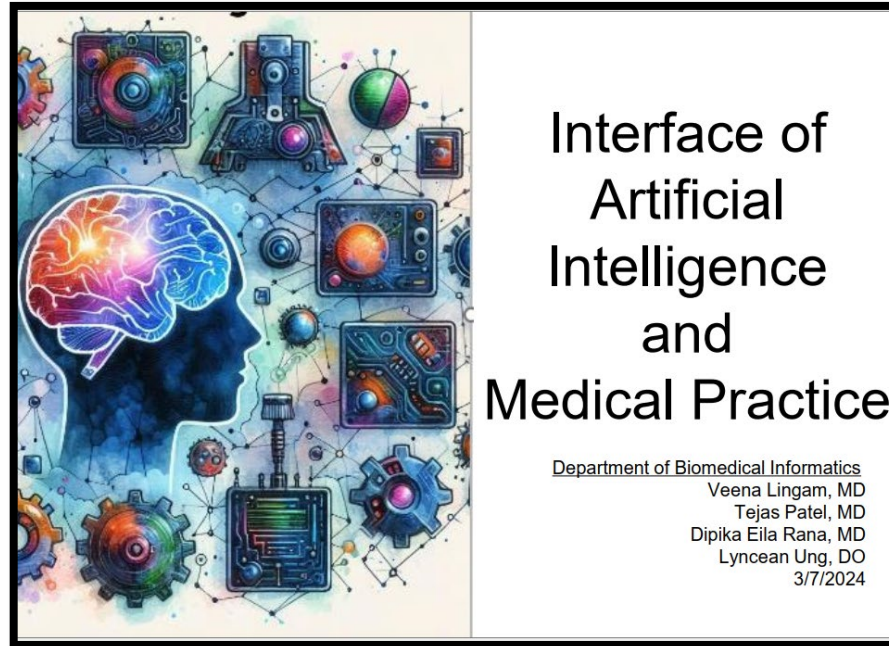
Participate in research projects to develop and validate new AI models

Provide clinical expertise to inform the development of AI algorithms.

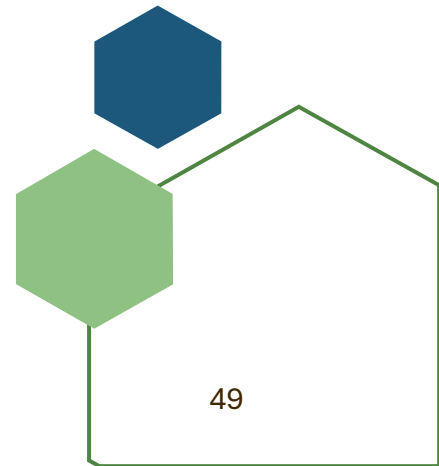
Advocate for the use of AI in their specialty and educate peers on potential applications.



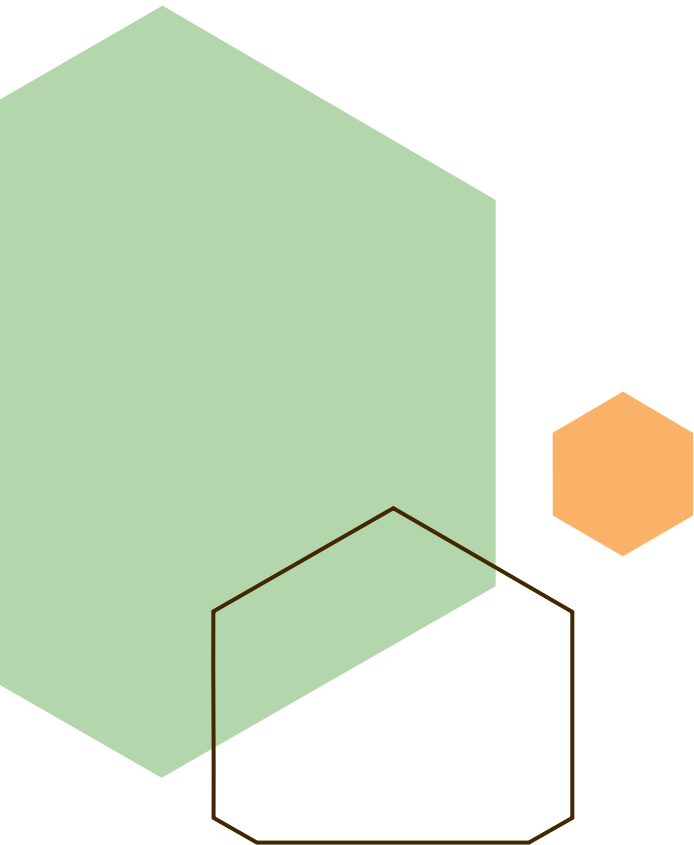
Ambient AI Scribe Initiative



Annual Family Medicine Update



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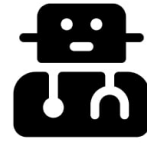
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Doximity GPT

Prev Med Board Buddy ▾



Prev Med Board Buddy

By Tauhid Mahmud 



An assistant for ACPM board exam prep, clarifying concepts and offering study strategies.


Quiz me on epidemiology topics.


Quiz on USPSTF Guidelines


Motivational Interviewing Cases

Quiz on CPSTF Guidelines

 Message Prev Med Board Buddy... 



Please write a short note to my patient explaining why we can't give them fluids during a CHF exacerbation.

Subject: Understanding Fluid Restriction in CHF Exacerbation

Dear [Patient's Name],

I hope this message finds you well. I am writing on behalf of Dr. [Doctor's Name] to explain why we can't provide you with excess fluids during an exacerbation of your Congestive Heart Failure (CHF).

In CHF, your heart struggles to pump blood efficiently, which can lead to buildup of fluid in your body, especially in the lungs and lower extremities. This excess fluid can worsen your symptoms, leading to difficulty in breathing, swelling (edema), and other complications.

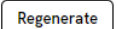
During a CHF exacerbation, your condition becomes more unstable, and it is crucial to carefully manage your fluid intake to prevent further strain on your heart. Providing additional fluids during this time could exacerbate your symptoms and potentially lead to a serious condition known as acute pulmonary edema, which can be life-threatening.

We understand that this may be challenging, but it is an essential part of managing your condition. We recommend you to adhere to the prescribed fluid restriction, take your medications as directed, and monitor your weight daily.


Please do not hesitate to contact us if you have any questions or concerns. Your health and well-being are our utmost priority.

Best regards,

Tauhid Mahmud, MD

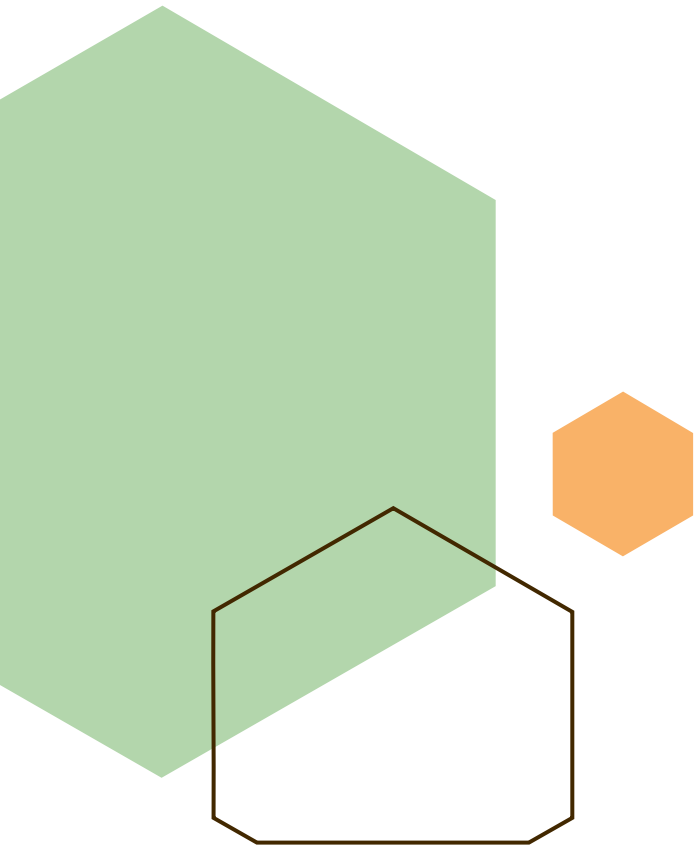


Open Prompt Library

Tap on prompt library or type here. 



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Pragmatic approach to incorporating AI into their work

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Provide clinical expertise to inform the development of AI algorithms.

Advocate for the use of AI in their specialty and educate peers on potential applications.



Renaissance School of Medicine

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The Role of Natural Language Processing in Primary Care: A Scoping Review

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Contributors: [Tauhid Mahmud](#), [Laurel Scheinfeld](#), [Lyncean Ung](#), [Jonathan Ambut](#), [Dipika Rana](#), [Tejas Patel](#), [Sritha Rajupet](#)

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Category: Project

Description:

Scoping review focused on the intersection of natural language processing and primary care.

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Primary research question(s)

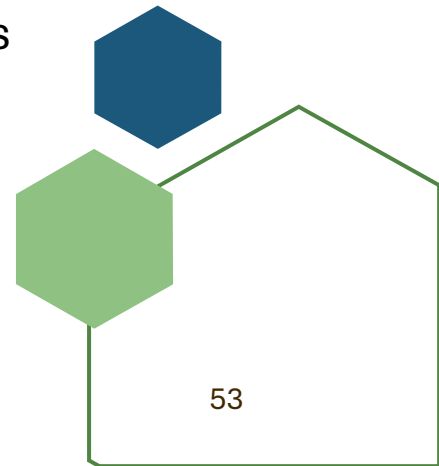
What is the scope of research on the application of NLP technologies in primary care settings, and what are the key themes and methodologies identified in this body of literature?

Type of review

The proposed scoping review will be conducted in accordance with the Joanna Briggs Institute (JBI) methodology for scoping reviews and presented in the format as suggested by P...

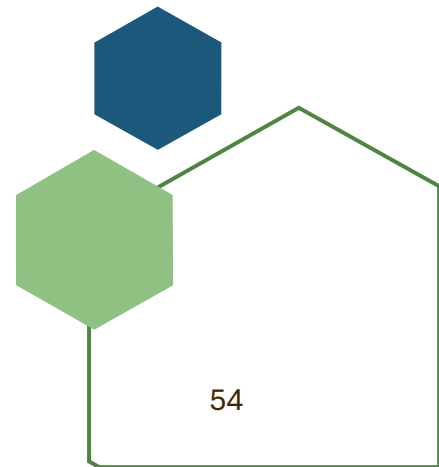
Additional Projects:

- Utilizing natural language processing models for radiology reports
- Thinking through clinical AI infrastructure on new databases
- Comparing AI readouts to academic reviewers of journal articles



Incorporating AI into Medical Education

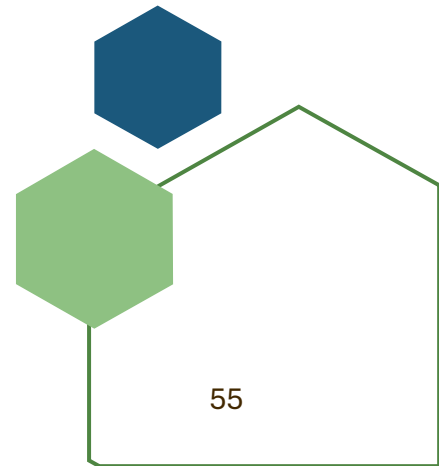
- Premed
 - Undergraduate and graduate degree students are already regularly engaging with AI
 - Personal statement writing
 - Interview preparation
- Medical Schools
 - University of Texas: Doctor of Medicine (M.D.) and Master of Science in Artificial Intelligence (M.S.A.I.) will form a five-year M.D./M.S.
 - Students are building tools



Incorporating AI into Medical Education

Graduate Medical Education

- Morning Report / Noon Lectures
- Conferences
- Online workshops and webinars
- Research Electives with Informatics Department
- Review Articles
- Model building



Radiologic Resident Education

AI-RADS: An Artificial Intelligence Curriculum for Residents

Alexander L. Lindqwister, Saeed Hassanpour, Petra J. Lewis, Jessica M. Sin

Rationale and Objectives: Artificial intelligence (AI) has rapidly emerged as a field poised to affect nearly every aspect of medicine, especially radiology. A PubMed search for the terms “artificial intelligence radiology” demonstrates an exponential increase in publications on this topic in recent years. Despite these impending changes, medical education designed for future radiologists have only recently begun. We present our institution’s efforts to address this problem as a model for a successful introductory curriculum into artificial intelligence in radiology titled AI-RADS.

Materials and Methods: The course was based on a sequence of foundational algorithms in AI; these algorithms were presented as logical extensions of each other and were introduced as familiar examples (spam filters, movie recommendations, etc.). Since most trainees enter residency without computational backgrounds, secondary lessons, such as pixel mathematics, were integrated in this progression. Didactic sessions were reinforced with a concurrent journal club highlighting the algorithm discussed in the previous lecture. To circumvent often intimidating technical descriptions, study guides for these papers were produced. Questionnaires were administered before and after each lecture to assess confidence in the material. Surveys were also submitted at each journal club assessing learner preparedness and appropriateness of the article.

Results: The course received a 9.8/10 rating from residents for overall satisfaction. With the exception of the final lecture, there were significant increases in learner confidence in reading journal articles on AI after each lecture. Residents demonstrated significant increases in perceived understanding of foundational concepts in artificial intelligence across all mastery questions for every lecture.

Conclusion: The success of our institution’s pilot AI-RADS course demonstrates a workable model of including AI in resident education.

Key Words: Artificial intelligence; Education; Residency training; Machine learning; Radiology.

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Abbreviations: AI Artificial Intelligence, ML Machine Learning

AI-RADS Curricula Outline

This 7 lecture series covered seven seminal algorithms in artificial intelligence. Each lecture was mapped to a secondary computational lesson. Lectures were designed to build upon each other in a logical progression with recurring concepts and themes.

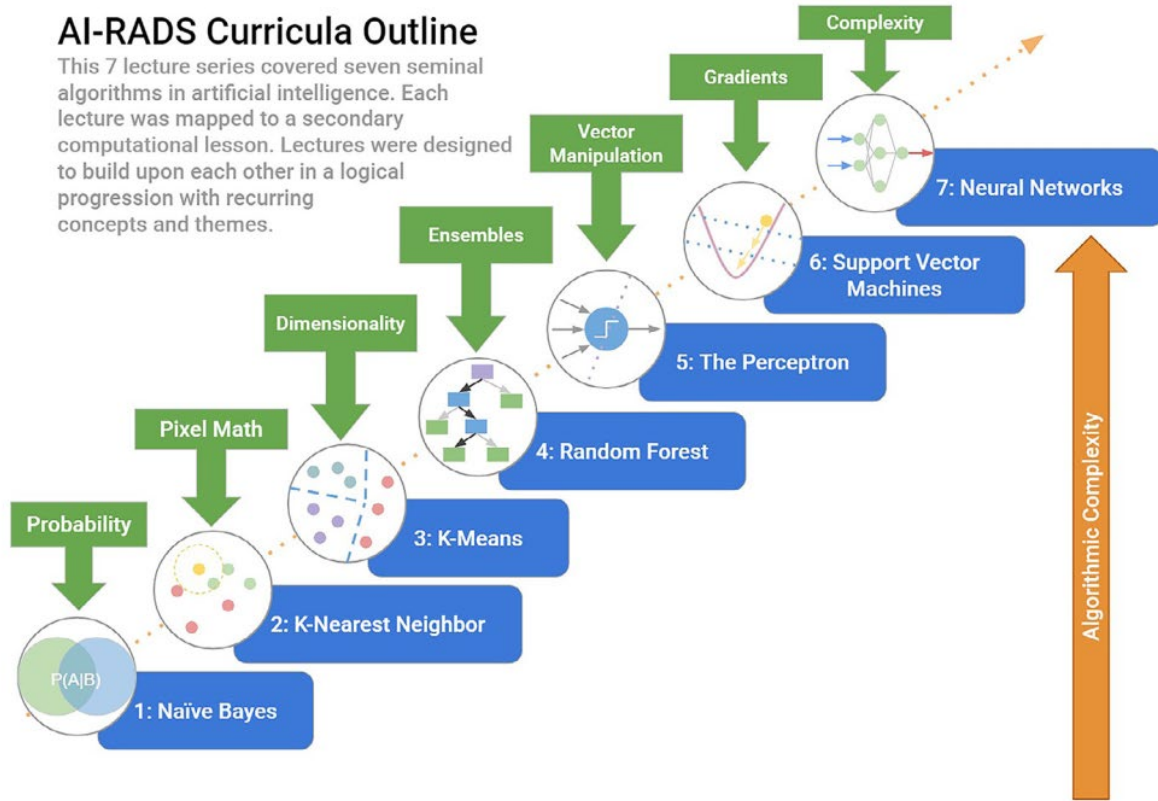
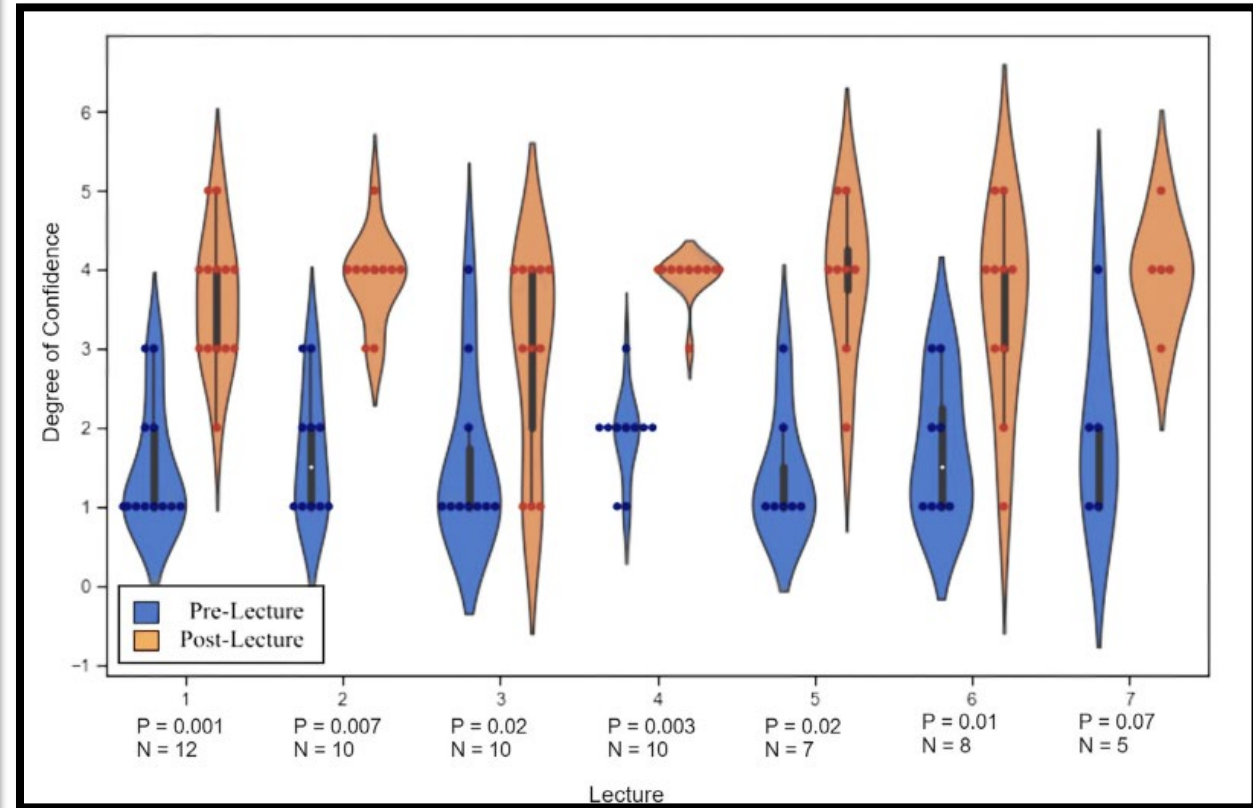


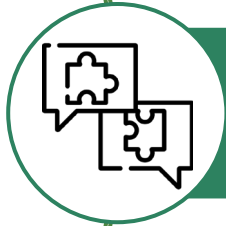
Figure 2. Curriculum. Overall AI-RADS course objectives.



Future Direction



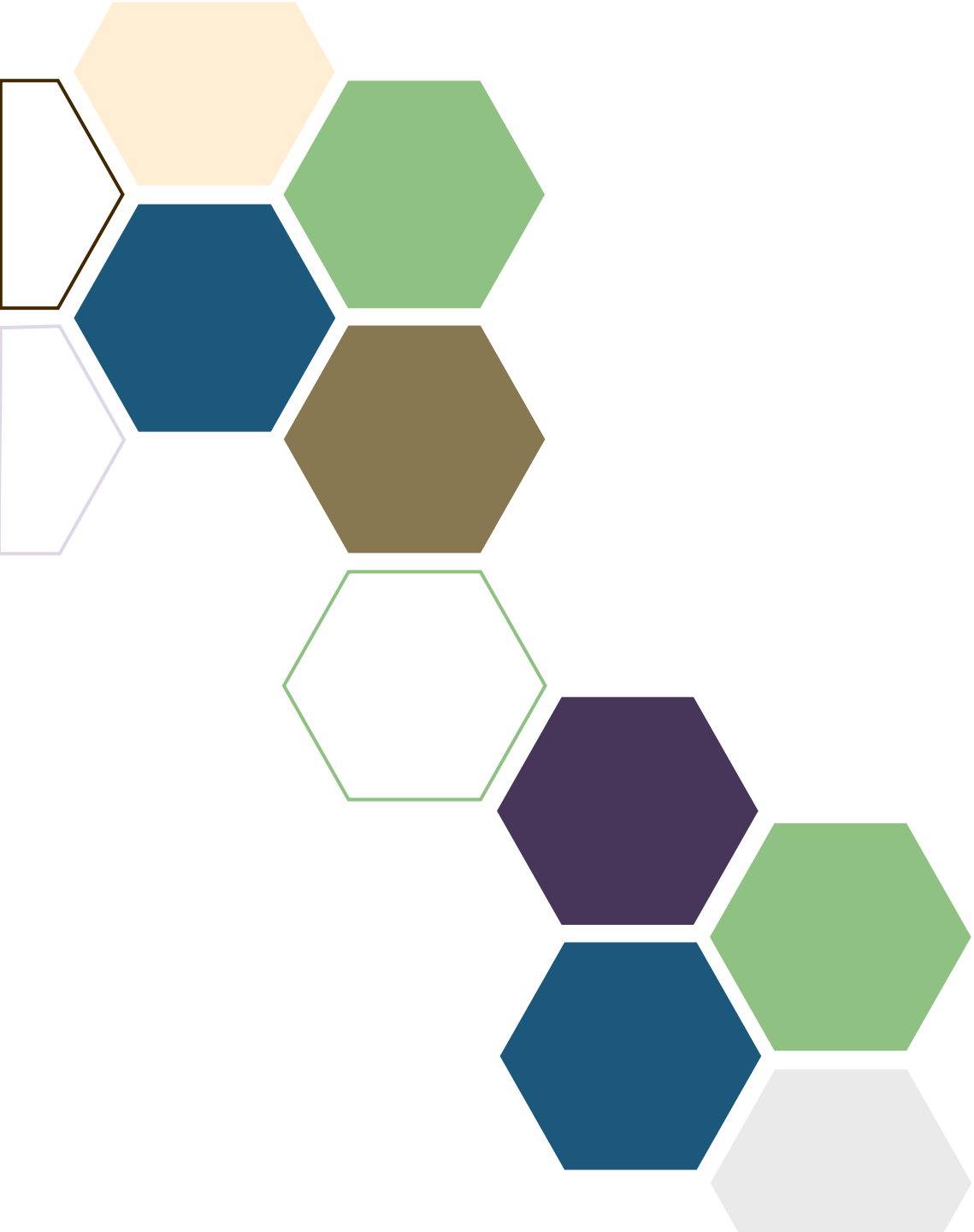
Regardless of the level of engagement, trainees are considering the role of AI in their clinical future.



Institutions should meet trainees and learners where they are to promote AI engagement.



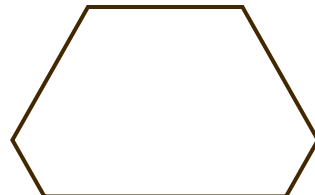
“It is clear to me that AI will never replace physicians — but physicians who use AI will replace those who don’t.” - Dr Jesse Ehrenfeld, AMA President



Thank you

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Thank you!

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AI in Medical Education: Using the Missions of Medical Education as a Guide – January 2024

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The screenshot shows the MedEdPORTAL website interface. At the top left is the logo 'MedEdPORTAL® The Journal of Teaching and Learning Resources'. To the right are navigation links: 'AUTHORS', 'ABOUT', and 'COLLECTIONS'. Below this is a dark teal header bar. The main content area is titled 'FEATURED PUBLICATIONS' and displays three articles in a grid. Each article includes a representative image, a title, a date, and a short summary.

Image	Title	Date	Summary
	Be ExPeRT (Behavioral Health Expansion in Pediatric Residency Training): A Case-Based Seminar	August 1, 2023	A novel interactive training program using role-play and case discussion improves resident confidence in managing common pediatric behavioral or mental health conditions.
	Policy Advocacy Workshop Tools for Training Medical Students to Act on Climate Change	August 17, 2023	These three 90-minute workshops cover climate policies and advocacy guidance and utilize example factsheets and active learning exercises to significantly improve learners' readiness to advocate for climate legislation.
	Considering Culture and Conflict: A Novel Approach to Active Bystander Intervention	August 29, 2023	This workshop uses a psychologically informed approach to microaggression training to increase participants' ability and willingness to intervene as active bystanders.

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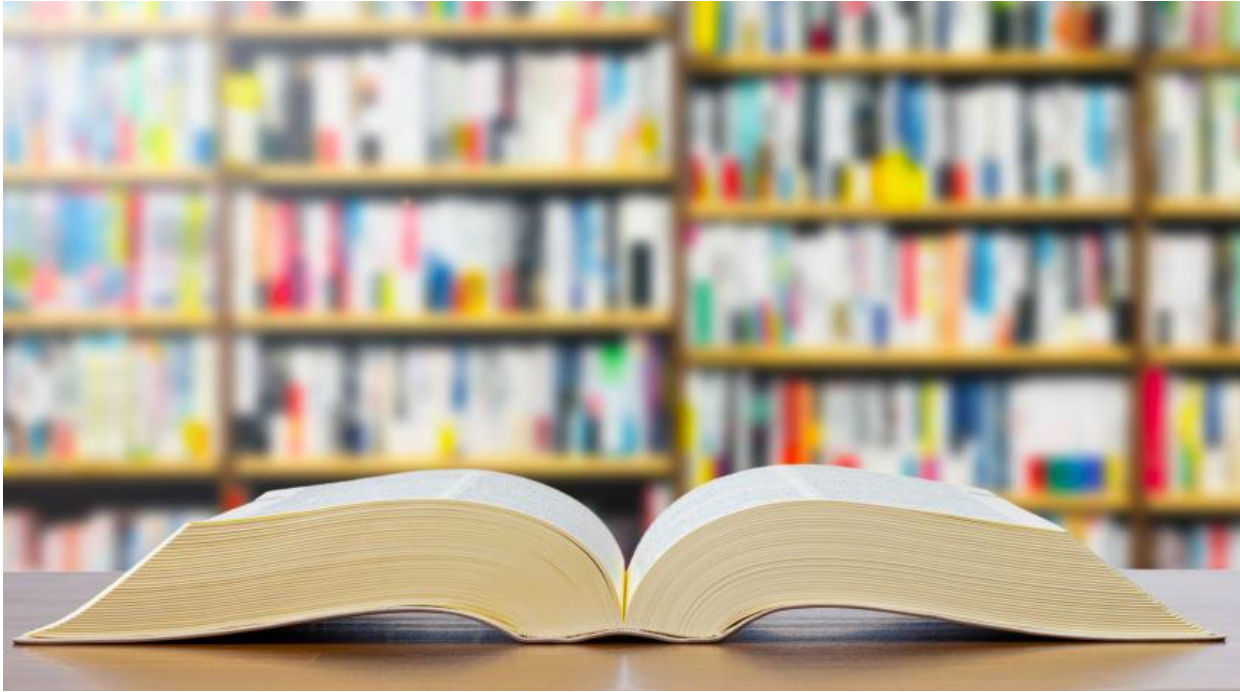




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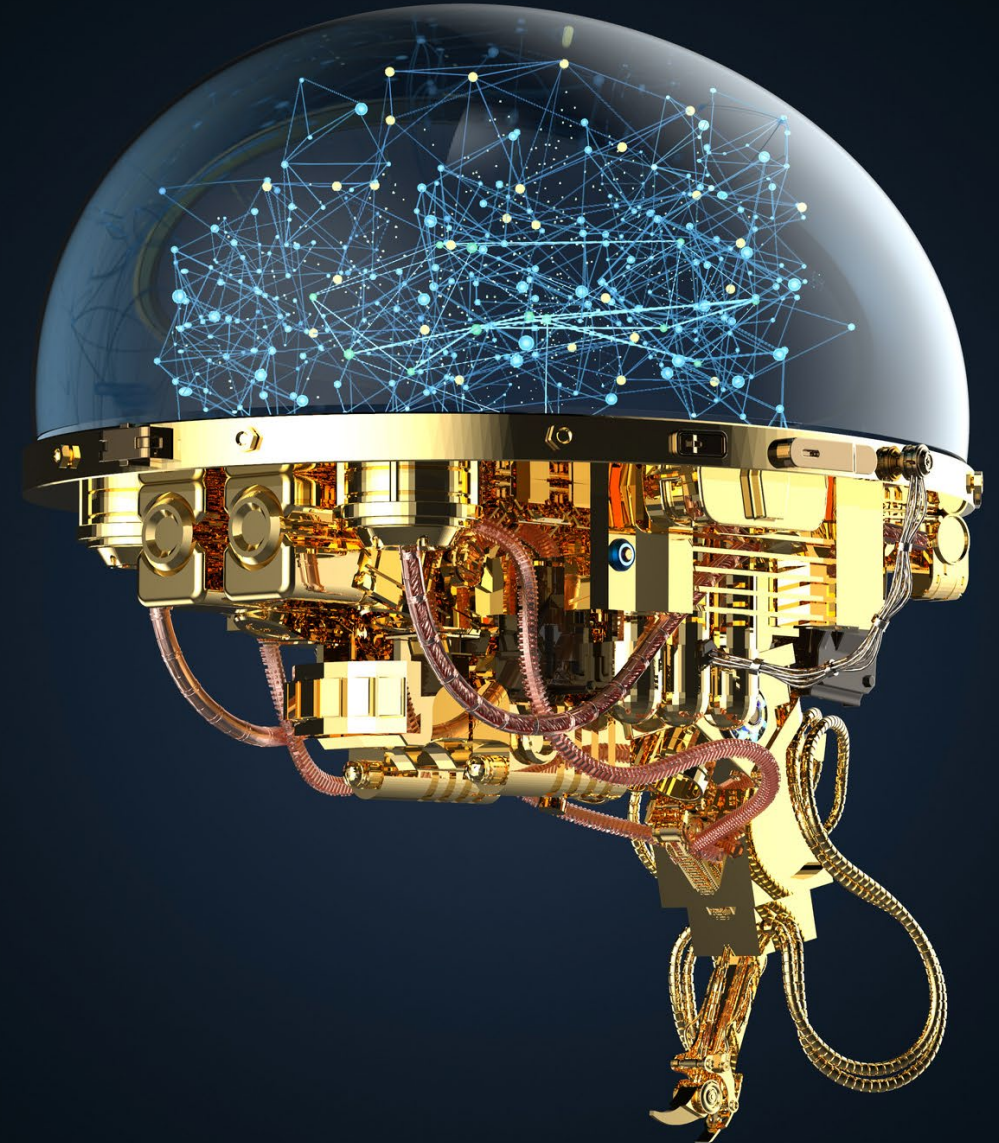
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