Advancing the Use of Artificial Intelligence & Machine Learning in Primary Care: Roles & Opportunities for DFMs

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The Opportunity

PRIMARY CARE is

"the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community"







The Opportunity

AI/ML has

- Revolutionized industries, including medicine, but has yet to transform primary care.
 - Review of primary care & AI/ML concluded...the field remains in "early stages of maturity," despite a 35 yr history
 - Only 1 out of every 7 of these papers includes a primary care author; therefore, one barrier to greater impact is engagement from the primary care community.
- Infrequently involved PC end-users and researchers in development to date
- Scarcely tapped the wealth of data & technology available from PC practices

*Kueper J, Terry AL, Zwarenstein M, Lizotte DJ. Artificial Intelligence and Primary Care Research: A Scoping Review. *Ann Fam Med*.





The Opportunity

The **Quintuple Aim*** for U.S. Healthcare includes

- Better Health
- Better Patient Experience
- Lower Costs
- Improved Clinician Wellbeing
- Equity in Outcomes

*https://www.ahrq.gov/ncepcr/tools/workforce-financing/white-paper.html





Pathways connecting PC, AI/ML, & the Quintuple Aim?



We aim to align how the professions are valued with the values of the professions

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SETTING A RESEARCH AGENDA FOR THE USE OF ARTIFICIAL INTELLIGENCE & MACHINE LEARNING IN PRIMARY CARE

Virtual Summit: March 18-19, 2021

FOR QUESTIONS CONTACT: Andrew Bazemore, & Mikel Severson at 1-202-600-9447

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Infrastructure upgrade

- > Construct multidisciplinary longitudinal research data platform
- Facilitate collaboration in data generation within and outside of health sector



Better Health



Delivery transformation

- > Move beyond develop Al ON primary care to FOR primary care
- > Diagnostics and risk prediction
- > Holistic patient-centered disease management
- > Medication and treatment plan optimization

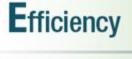


Better Experience



Evaluation modernization

- > Health risk adjustment
- > SDOH risk adjustment
- > Heterogeneity of SDOH risk



Effectiveness









Algorithm marketing authorization and reimbursement

- > Trust building with PCP and patients
- > Understand clinicians need in workflow
- > Data update and algorithm improvement



Better Provider Wellness



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Social justice

- > Develop AI/ML application to mitigate health equity in primary care
- > Collaborative for ethical algorithm development
- > Social epidemiology research for marginalized populations





Ongoing ABFM Investment in Advancement of AI/ML in Depts of Family Medicine

- Primary Care Specific Data Laboratories
 - PRIME Registry, Supporting National Labs(AHRQ)
- Convenings
- Presentations in AI/ML Communities
- Human Capital Investment



Enterprise Artificial Intelligence and Building Long-term Capacity (EnAIBL-Capacity) for Family Medicine Program



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Lost in Translation



Charlotte, Al can't solve every problem













Family Medicine Artificial Intelligence and Machine Learning Research Program

Family Medicine Artificial Intelligence and Machine Learning Faculty Support

Family Medicine Artificial Intelligence and Machine Learning Dyadic Exploration

Family Medicine Artificial Intelligence and Machine Learning Stanford Collaboration



Faculty Support

- Grants to four Family Medicine Departments
- Support for an embedded AI/ML researcher with goal of putting down roots and securing long-term funding
- Funding covers four years and requires institutional commitment for a fifth
- The purpose is to enhance the capacity for AI/ML methods in Family
 Medicine to study primary care research questions using real-world, primary
 care data



Dyadic Exploration

- Form research dyads between AI/ML researchers and family medicine researchers
- Use primary care data to answer questions important to primary care over one year
- Produce preliminary studies for follow-on K, R21, or R01 type research application
- Four grants with the expectation that they each work on at least one of our questions and one of their own design but focused on primary care.
- \$100k grants with an additional \$10k for indirects and \$15k if a follow-on research proposal is submitted to a funding agency or philanthropy
- Solicit questions important to primary care from Family Medicine organizations



Stanford Support

- Dr Stephen Lin will coordinate a learning collaborative for all three projects
- Stanford will support Faculty and Dyad projects with PRIME Registry data
- 3-year effort, dedicated effort by post-docs to develop and complete large data projects, especially with PRIME data
- Internal RFP process with ABFM staff helping with selection
- orient work to primary care questions and to working with family medicine mentors/collaborators in designing the studies

American Board of Family Medicine Inc.

Finding Partners

The Gordon and Betty Moore Foundation interested in supporting this capacity-building initiative

Likely to enhance the learning collaborative and support proposal development with potential to fund more projects

How should we shape this collaboration? NAPCRG? AHRQ partnership?





Faculty Support Grantees

University of Houston: Winston Liaw, MD, MPH

University of Pittsburgh: John Maier PhD, MD

University of California-San Diego: Gene A. Kallenberg, MD

University of Texas-San Antonio: Carlos Roberto Jaén, MD, PhD

