



The CMS Artificial Intelligence (AI) Health Outcomes Challenge

APPLICATION FORM

The CMS AI Health Outcomes Challenge invites you to submit innovative AI solutions that accurately predict health outcomes while enabling Human-AI collaboration. This is a multi-stage competition that will award up to \$1,650,000. Enter the competition by completing this application form online at cmschallenge.ai by June 18, 2019, 5:00 p.m. ET. Applications must be submitted on the online platform to be considered eligible. Emailed applications will not be accepted. Multiple submissions are allowed, but each one must be a unique approach, sufficiently differentiated, and in compliance with the Challenge Requirements.

PARTICIPANT INFORMATION

Please provide the following information for the individual or organization being entered into the Challenge.

1. Submission Title
2. First Name
3. Last Name
4. Job Title
5. Participant Contact Information
 - a. Address (Street, City, State, Zip)
 - b. Phone
 - c. Email
6. If you are submitting as part of a team or on behalf of an organization, please provide the following:
 - a. Registered name of your organization (if applicable)
 - b. Registered address of your organization (Street, City, State, Zip)
 - c. Which of the following best characterizes your organization? [Multiple Choice]
 - i. Not-for-profit organization (non-academic)
 - ii. Not-for-profit academic or research institution
 - iii. Medium sized or large sized business
 - iv. Start-up
 - v. Other (explain)

- d. Provide full names and associated organizations of all team members
- e. Is your organization partnering with other organizations on this challenge? If Yes, please provide the following details:
 - i. Registered name of organization(s)
 - ii. Registered address of the organization(s)
 - iii. Names of team members (if different from above)

BACKGROUND & PRIOR EXPERIENCE

1. Briefly describe yourself and your team's professional background.
2. Describe your experience in Artificial Intelligence/deep learning with complex data sets.
3. Describe your experience with health care-specific data, including experiences with and knowledge in hospital admissions data and measures of clinical quality.
4. Describe your experience, if any, with administrative claims data from CMS or other payers/plans.

PROPOSAL & METHODOLOGY

1. Describe your proposed solution, such as an AI model that uses deep learning techniques and neural networks, to achieve the following:
 - a. To predict unplanned hospital and skilled nursing facility (SNF) admission and adverse events within 30 days for Medicare beneficiaries, based on a data set of Medicare administrative claims data, including Medicare Part A (hospital) and Medicare Part B (professional services).
 - b. To develop innovative strategies and methodologies to: explain the AI-derived predictions to front-line clinicians and patients to aid in providing appropriate clinical resources to model participants; and increase use of AI-enhanced data feedback for quality improvement activities among model participants.
2. Describe the AI algorithm(s), framework(s), and technique(s) you plan to use.
3. Describe your approach to verify, validate, secure and control the proposed AI model.
4. What data would your model consume and what information or decisions would it produce?
5. Describe how the proposed model will learn and improve over time.

6. Describe to what extent the proposed model will work with clinicians and patients to explain AI-derived predictions in comprehensible and interpretable formats.
7. Describe your strategies to build trust and transparency with stakeholders to use the AI model.
8. Describe (if any) the intended impact your solution will have to current health care practices and delivery methods, especially to Medicare beneficiaries.
9. Describe how the solution will manage potential adverse effects of automation and AI.
10. Describe the metrics you propose to measure and forecast both the economic and technical success of the proposed AI model to predict and reduce unplanned hospital admissions and adverse events.
11. Describe what other data sets and/or types of information that would be useful to further refine the model following the competition.
12. If selected for subsequent stages of the competition, how will you make the results of the research derived from CMS data publicly available?
13. What interest prompted you to participate in the Artificial Intelligence Health Outcomes Challenge?
14. Submit a brief PowerPoint presentation of the detailed development timeline and business plan to meet the deadlines and requirements for Stage I and Stage II. Please address the following:
 - a. An introduction to the team
 - b. Description of the proposed model architecture including features, parameters, algorithms to be used
 - c. Description of how the model will function
 - d. Provide a development timeline that meets the deadlines and requirements for Stage I and II of the Challenge
 - e. Description of how the model will explain its predictions in comprehensible and interpretable formats
 - f. Detail how the model will be trained, and how your team will use a cross disciplinary-design process

The presentation may not exceed 10 slides in total length with font size of 11 pt or greater (for all text including figure legends).