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### Evaluating the educational quality of ChatGPT as a health information resource for patients with acute myeloid leukemia (AML)

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**OBJECTIVES/GOALS:** Upon diagnosis, patients with acute myeloid leukemia (AML) have significant information needs. Given its recent increase in popularity, patients may use ChatGPT to access information about AML. We will examine the quality, reliability, and readability of information that ChatGPT provides in response to frequently asked questions (FAQs) about AML. **METHODS/STUDY POPULATION:** From FAQs on the top 3 patient-facing websites about AML, we derived 26 questions, written in lay terms, about AML diagnosis, treatment, prognosis, and functional impact. We queried ChatGPT-4o on 10/14/2024 using a new Google account with no prior history. We asked each question in a separate chat window once, verbatim, and without prompt engineering. After calibration, 5 oncologists independently reviewed ChatGPT responses. We assessed quality via the Global Quality Scale (GQS), scored from 1 (poor) to 5 (excellent) based on flow, topic coverage, and usefulness. For reliability, we assessed whether each response addresses the query and is factually accurate, elaborating on specific inaccuracies. For readability, we assessed Flesch-Kincaid Grade Level, Gunning Fog Index, and Simple Measure of Gobbledygook. **RESULTS/ANTICIPATED RESULTS:** This will be a descriptive analysis of ChatGPT responses. For quality and reliability assessments, we will report Fleiss' kappa for inter-rater reliability and expect substantial agreement or greater ( $\geq 0.61$ ). Per prior studies in other domains, we hypothesize that ChatGPT responses will have good quality on average (i.e., GQS score near 4). We hypothesize that nearly all responses will address their query and will mostly be accurate; a minority of responses may have partial inaccuracies. Finally, we hypothesize that readability metrics will suggest that a higher educational level (e.g., college-level education) is required for comprehension. Overall, these findings will help elucidate strengths and limitations of ChatGPT for AML and guide discussion of factors patients should be aware of when using ChatGPT. **DISCUSSION/SIGNIFICANCE OF IMPACT:** No prior study has examined the educational quality of ChatGPT for AML. Our study will detail whether patients are receiving trustworthy and meaningful information, identify misinformation, and provide guidance to oncologists when recommending information resources to patients or fielding questions that patients may raise after using ChatGPT.

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### The art and science of data navigation for translational research

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**OBJECTIVES/GOALS:** Translational researchers spend significant amounts of time finding available datasets and other research data resources for their purposes. Objectives of this program are develop and evaluate a multipronged approach to supporting researchers

with existing data resources. **METHODS/STUDY POPULATION:** We established a dedicated service with expertise in data resources to increase awareness, understanding, and utilization of existing data resources. This program assists investigators and trainees discover appropriate data resources, formulate scientific problems in computable formats, advise on state-of-the-art data analytics, data management, build collaborations, mentor data users, and develop a service pipeline for streamlined data resource project management. This is accomplished through these essential functions: (1) Discover, catalog, document, and manage metadata resources, (2) train and present data resources to the research community, (3) provide individual consultations, and (4) explore and assess novel data resources. **RESULTS/ANTICIPATED RESULTS:** In a phased approach, the data navigation program is performing outreach to the research community and integrating with existing data efforts on campus, presenting and demonstrating existing data resources, established a consultation service, and building core competencies into long-term usage and navigation of resources across campus. Evaluating the program monthly has shown an increase in various metrics for evaluating commitment and engagement including number of requests for access to data resource, consultations, publications and presentations, co-authorship, and proposals. Unawareness and inappropriate use of data resources leads to delays in performing research and potentially unnecessary duplications of efforts. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Our data navigation program has increased use of data resources in research. Next steps are to continue evaluation and further streamline informatics approaches to data discovery, abstraction, formulation, and analysis. Harmonized data resource programs are important translational science approach to foster the next generation of research.

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### Childhood Exposure to Violence and Adolescent Depression: The Role of Epigenetic Aging in Risk Identification

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**OBJECTIVES/GOALS:** This study examines associations between childhood violence exposure, accelerated biological aging, and adolescent depression using DNA methylation-based epigenetic clocks. Findings aim to identify biomarkers for early detection, guide interventions, and address youth mental health disparities. **METHODS/STUDY POPULATION:** Data from the Future of Families and Child Wellbeing Study (N = 4,898), a diverse urban U.S. cohort, were analyzed. Childhood violence exposure, assessed using the Parent-Child Conflict Tactics Scale, included measures of physical, emotional, and psychological aggression and neglect. Biological aging at age 15 was evaluated using second-generation epigenetic clocks derived from saliva DNA methylation patterns, while depressive symptoms were measured with the CES-D scale. Multiple linear regression models tested associations between early violence exposure, epigenetic aging, and depressive symptoms, adjusting for socioeconomic status, caregiver mental health, and other key covariates. **RESULTS/ANTICIPATED RESULTS:** Preliminary results suggest that early violence exposure may be linked to accelerated biological aging and depressive symptoms during adolescence, a critical developmental period. Epigenetic clocks offer an objective method for identifying high-risk youth, complementing mental health evaluations. With further validation and participatory action research, these findings could guide the development of biomarkers for longitudinal testing