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Exploring disease-specific funding for systemic lupus erythematosus (SLE) and the associations between funding, research productivity, and health disparities

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OBJECTIVES/GOALS: * To analyze and compare disease support (funding, research productivity, drug development) and burden between systemic lupus erythematosus (SLE), which particularly affects Black women, and similar conditions that affect other groups of Americans. * To address the discrepancy of prevalence estimates of SLE in America. METHODS/STUDY POPULATION: This cross-sectional study examined publicly available data on disease funding metrics and research productivity indicators. We utilized the NIH Report database to calculate the total NIH funding and career development awards for SLE from January 1, 2008, to December 31, 2023 (estimated). We reviewed Form 990-T tax returns of SLE organizations to calculate private funding. We examined US-based interventional trials related to SLE on ClinicalTrials.gov between 2008 and 2024, using the terms SLE and lupus. We assessed FDA drug approvals for SLE from 2008 to 2024. We reviewed publicly available SLE disease characteristics such as prevalence, incidence, demographics, costs, and mortality rates. We repeated these methods for conditions like SLE but with different patient demographics. RESULTS/ANTICIPATED RESULTS: We will formulate SLE support based on its avaialble federal and private funding, clinical trials, and drug approvals. We will determine the ratio of SLE support to disease burden and compare it to other conditions that affect different demographics in the US. There is currently a discrepancy in the range of prevalence of SLE in the US (178,362 to 1.5 million), so we will work with specialists to provide a better understanding of the actual prevalence. DISCUSSION/SIGNIFICANCE: SLE is a chronic disorder that is associated with hospitalizations, organ failure, and premature mortality. It has established disparities in incidence, treatment, and outcomes along gender, racial, and socioeconomic lines. Our study highlights the need for policy changes within research funding to address disparities and improve outcomes.

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Life Cycle Analysis of a Single Use Laryngoscope – A Target to Reduce Operating Room Environmental Impact

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OBJECTIVES/GOALS: Health care accounts for an estimated 10% of U.S. greenhouse gas (GHG) emissions. Concerted efforts to decrease waste are needed including critical appraisal of single use items. The purpose of this study was to conduct life cycle analyses (LCA) of a pediatric single use laryngoscope to inform environmental impact and identify targets to reduce waste. METHODS/STUDY POPULATION: LCA was used to quantify the environmental impact of a single use pediatric laryngoscope. LCA is an industry standard measure of energy consumption, water consumption, and GHG emissions encompassing a "cradle-to-grave" assessment. The GREET model (Greenhouse gases, Regulated Emissions and Energy use in Technologies) and Open LCA model were used as sources for product/raw material data. Separate analysis was completed for the battery powering the light emitting diode (LED) lights. RESULTS/ANTICIPATED RESULTS: The LCA revealed 598.2 g of CO2 equivalents for the 121g single use pediatric laryngoscope. There were an estimated 26,849 cases that used single use laryngoscope last year at our free-standing children's hospital resulting in 16.1 metric tons of CO2 equivalents. This is equivalent to 41,273 miles driven by an average gasoline powered vehicle. The 1.5 V battery was the highest contributor to the laryngoscope's GHG emissions. While the battery has an estimated 2,800 hours of life, single use laryngoscopes are reported in the literature as being used for only an average of 30 seconds to 2 minutes. DISCUSSION/SIGNIFICANCE: Single use laryngoscopes are high contributors to GHGs. Specifically, the batteries contained in the laryngoscopes are wasteful and challenging to remove and recycle. Future efforts to decrease waste in the OR should target use of similar items that have reusable battery components to improve environmental sustainability.

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Identifying best practices: Content analysis of Plain Language Summary (PLS) resources for disseminating study results to participants

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OBJECTIVES/GOALS: Investigators have an ethical obligation to return study results back to participants in a timely and layperson-friendly manner, but most do not. This lack of communication can erode trust in the research enterprise. One solution to this issue is Plain Language Summaries (PLS). METHODS/STUDY POPULATION: We investigated and collected best practices for PLS and results dissemination as part of formative research for a pilot PLS project. This pilot was used to inform the development of our own PLS resources, which we will share broadly with other CTSAs. We employed a two-part system for analysis. First, we examined extant PLS resources from five major, publicly accessible sources spanning academia, government, publishing, and nonprofits for themes and best practices. Then, we examined actual PLS from each source and collected more specific feedback. We examined PLS structure, length, inclusion of graphics, multiple language availability, readability, and potential for improvement. RESULTS/ANTICIPATED RESULTS: Guidance sources recommended that PLS have logical and organized structures, and included essential trial information (e.g., study drug, adverse events). Suggestions for length varied widely, from 250 words to 15 pages. Guidance also recommended the use of media, including infographics, audio,

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and video. Only pharma guidance recommended multilingual PLS. Actual PLS included many common trial elements, including study purpose, treatment description, results, and adverse events. PLS in our analyses were 10-12 pages, and contained many infographics, including flow charts of study phases, visual explanations of treatment and participant demographics, and adverse event tables. None were multilingual, and most were readable at the 7th grade level, although one used undergraduate-level language. DISCUSSION/SIGNIFICANCE: General guidance was similar across sources. In our analyses of PLS, we found novel recommendations, such as including auditory pronunciation guides, and personalized thank you letters to participants. In future research, we recommend focusing on novel dissemination methods such as short interactive videos and patient-actor testimonials.

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Diversifying SC CTSI's Message: Successfully Leveraging Multi-Platform Social Media for Multi-Audience Dissemination

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OBJECTIVES/GOALS: We explain our multi-platform, multi-audience approach to stakeholder engagement/communication, discuss KPIs for our Instagram accounts, and highlight five top performing posts. Finally, we provide tips to Hubs who would like to tailor and optimize their social media approach. METHODS/STUDY POPULATION: We employed Uses & Gratifications theory and formative research with stakeholders to inform our social media strategy. We run two Instagram accounts (main CTSI & Community Engagement [CE]), one Facebook page (CE), and one Twitter/X page (main CTSI). To understand impact, we collected social media analytics on both Instagram accounts (main CTSI and Community Engagement-specific accounts) to ascertain four social media-related Key Performance Indicators since the inception of the two accounts: reach, impressions, growth rate, and engagement. Additionally, we examined the five top-performing posts on each account that gave us insights into trending topics and ideas for future content. RESULTS/ANTICIPATED RESULTS: From January 2023 to October 2023, the reach for the main account was 3,578 and 38,235 for CE. The number of profile visits for the main account was 474 and 2,703 for CE. Engagement data on Instagram is only available for the last 90 days. For the main account, the number of post likes, comments and shares was 622 and 2,700 for CE. The views and reach for the five top-performing posts on the main and CE accounts ranged in the thousands. The content of the top-performing posts for the main CTSI account varied between highlighting our KL2 scholars' accomplishments, recap of campus-wide research events, and advertisements for upcoming educational webinars. CE's top posts varied between highlighting their work in a South LA housing community, recaps of large community health events, and interviews with local key leaders. DISCUSSION/SIGNIFICANCE: CTSA Hubs have an ethical obligation to keep their local academic and community audiences apprised of their activities. Creating a formative research and theoretically-informed social media plan that varies by platform, and regularly evaluating performance insights allows us to track the type of content that appeals to our multiple audiences.

Team Science

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A Framework for Multicultural and Multidisciplinary Near-Peer Mentoring for Artificial Intelligence in Healthcare Education: A University of Florida Friend Group

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OBJECTIVES/GOALS: This work aims to explore how citizen science serves as a transformative frame work to bridge scientific knowledge, focusing on its potential to enhance transdisciplinary learning in artificial intelligence (AI) biomedical and clinical sciences by facilitating near-peer mentoring. METHODS/STUDY POPULATION: Our group of eight friends comprise a multicultural and multidisciplinary cohort including students from the USA, Philippines, Indonesia, and Guatemala pursuing PhD degrees in electrical and computer engineering, epidemiology, physics, and MD, PharmD, and DMD degrees. We engage in shared online courses, collaborative projects, and abstract submissions. Employing our collective knowledge, we design interactive learning experiences, support each other's initiatives, and collaboratively develop lectures and presentations. We in tend to expand collaborations in biomedical AI education while fostering principles of experiential and collaborativelearning, constructivism, and authentic inquiry. RESULTS/ANTICIPATED RESULTS: Our recent successes include submittedconference abstracts on data science and AI education in pharmacy and the facilitation of a guest lecture in health informatics. Additionally, we are currently collaborating on seven biomedical machine learning projects in radio frequency engineering, aiming for conference submissions. Moving forward, our goal

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