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Nutrition Research Task Force Call MINUTES
Friday, October 23, 2020
9:00 a.m. Eastern

Participants: Sylvia Rowe, Rick Mattes, *co-chairs*; Lindsay Allen, Andrew Brown, Jaapna Dhillon, Len Epstein, Edith Feskens, Daniel Hoffman, Mike Kelley, DeAnn Liska, Roger Sunde, Katy Tucker, Steve Zeisel, Naomi Fukagawa, Alison Brown

ASN Staff: Sarah Ohlhorst, Alexa Sabie

The call convened at 8:58am and was called to order at 9:01am.

Co-chair Rick Mattes thanked Task Force members who had provided input on the major challenges in the field of nutrition science assignment. From that input, the idea of the use of precision nutrition as an example for the white paper was popular. There was less consensus around any other theme. Precision nutrition is also the current focus of a recent National Institutes of Health (NIH) initiative to emphasize personalized nutrition and the Common Fund Request for the new "Nutrition for Public Health concept, "Data Science Challenges and Opportunities in the Field of Precision Nutrition." Thus, given the Task Force's most consistently stated major challenge to the future of nutrition research, which centered on precision nutrition, and since the NIH has made this the key element of its latest strategic plan for nutrition research, precision nutrition was proposed as a path forward for Task Force members to react to. The Task Force seemed to agree that it was a reasonable approach.

The Task Force will use this call to make decisions regarding the writing plan with the theme of precision nutrition as the primary white paper example to highlight the value of many different nutrition research methods and the harmonization of them all to help solve important nutrition research questions.

Writing Sections
Potential writing groups were proposed:

- ***Writing Group #1:*** Genetics/ Epigenetics
- ***Writing Group #2:*** Microbiome ecologies/ Biology (circadian rhythms)
- ***Writing Group #3:*** Nutritional status (diet composition, intake, biomarkers)
- ***Writing Group #4:*** Behaviors (neuroscience)/ Environments

- ***Writing Group #5*:** Socioeconomic influences/ Disparities (may influence these interrelationships; also cross-cutting)

- ***Writing Group #6:*** Cross-cutting (informatics, AI, machine learning, data/systems science, single case experimental designs)

It was also proposed that an additional writing group should focus on cross-cutting research approaches within nutrition science, particularly informatics, artificial intelligence, machine learning, data/systems science, and single case experimental designs.

It was further clarified that health disparities are also cross-cutting, although it is best lumped with socioeconomic influences rather than the cross-cutting writing group for the purposes of this white paper.

Task Force members elaborated that the writing section on behaviors includes neuroscience; biology includes circadian rhythms; and nutritional status includes diet composition, intake, and biomarkers.

It was noted that the nutrition research techniques (listed below) that fall under each approach will be covered within that writing section, along with their strengths and weaknesses for that specific approach. Some techniques will not be applicable to certain approaches. For example, metabolomics could be covered under nutritional status and transcriptomics could be covered under genetics/ epigenetics.

- "Omic" approaches
    - Including genomics, epigenomics, proteomics, metabolomics, transcriptomics, metagenomics, etc.
- Continuous or discontinuous metabolic measures
- Endocrinologic measures
- Physiological measures
- Cognitive measures
- Behavioral measures
- Surveys
- Questionnaires
- Electronic health records
- Data from social media apps and wearable devices
- Community/environmental data

Additional Areas of Emphasis for White Paper

The Task Force also discussed the limitations of using precision nutrition as the primary example to showcase the many different research approaches within the field of nutrition science. This will be made abundantly clear in the introductory section of the white paper, but the introductory section will also be clear that nutrition research must also consider population-level data and issues in affluent, as well as less affluent nations. An important advancement of precision nutrition is being able to lump large groups of people and determine a set of explainable

variables that make responders respond and therefore provide more targeted nutrition advice for those groups, which is an improvement from the current one size fits all approach.
However, Task Force members discussed the challenge of moving precision nutrition research findings to the individual level. This is where single case experimental designs and other advances in nutrition research can help. Task Force members noted that single person studies, for example, are a privilege mainly for high income nations, and that it is important that the white paper also discuss low and middle-income populations. It was also suggested that the white paper define precision nutrition and show how it differs from "personalized" nutrition.

The programmatic aspects of nutrition science (such as global nutrition), public health recommendations, and how public health practitioners view nutrition, were all discussed and are important to include in the white paper. It is hard for investigators currently to think across all the various methods and pull it all together for precision nutrition currently, although this will be necessary.

It was further established that the Task Force is asked to write a white paper on nutrition methods, not on precision nutrition. Precision nutrition is simply the topical issue to be used as the vehicle since it is a topic that appears to call for a wide array of research approaches. Precision nutrition was one of many examples that could have been used. The closing section of the white paper will be used to touch on other major challenges within nutrition research where these various methods can converge to bring innovation and advancement. The closing section will bring all the various research methods highlighted back together to highlight the many methodologies used in nutrition research and how, collectively, they provide a sound evidence base.

Next Steps

Task Force members were asked to identify their first, second and third choice writing groups and volunteer if they are interested in serving as a writing group lead. Writing groups of 3-4 people will be identified, with every effort made to accommodate these selections. Writing groups will then be asked to prepare an outline of their respective sections to share prior to the next call. Co-chairs Rick Mattes and Sylvia Rowe plan to share the introductory section outline with the Task Force for input. The next call will be used to finalize content for each section, prior to writing commencing. All sections of the white paper once drafted will be circulated among all Task Force members for input and revision as the white paper is developed. A few pages are expected for each section, but the goal is to stay succinct in highlighting uses, strengths, and weaknesses.

The next call will take place on *Wednesday, November 18th at 10:00am Eastern*.

The call adjourned at 9:50am.