

# Prenatal and Postnatal Lipid-Based Nutrient Supplementation and Cognitive, Socio-emotional and Motor Function in Preschool-Aged Children.

**Potential date:** 24/04/2024 at 10:00 am.

**Potential venue:** Lokaal 0.8 – Together, The Core, Campus UZ Gent

**Public lecture:** Prenatal and Postnatal Lipid-Based Nutrient Supplementation and Cognitive, Socio-emotional and Motor Function in Preschool-Aged Children.

**Presenter:** Dr. Maku Demuyakor.

**Topic:** The public lecture will be presented by the guest speaker, Dr. Maku Demuyakor, focusing on her research regarding the effects of prenatal and postnatal lipid-based nutrient supplementation on the cognitive, socio-emotional, and motor functions in preschool-aged children. Neurodevelopmental processes occur rapidly during gestation and the first 2 years of life. Adequate nutrition is important to support these processes and for the long-term development of cognitive, motor, and social-emotional skills. This lecture will report on a follow-up study assessing the effects of lipid-based nutrient supplements on cognitive, motor, and social-emotional development at age 4–6 y in the local Ghanaian setting.

**Format:** The lecture will be given in a format of PowerPoint slides, data presentation from the community trials as well evidence synthesis. At the end of the lecture, interactive Q&A session will be moderated by Dr. Souheila Abbeddou, the co-promoter of the PhD student.

**Target Group:** The target audience for this lecture includes researchers including professors, PhD students, and Master students in the fields of nutrition, child development, psychology, public health, and related disciplines, as well as interested members of the public who may have a general interest in the topic. Students from the Masters in Biomedical Sciences, Global Health, and Nutrition and Food Systems will be invited. Invitation to other colleagues working in international aspects such as to the group of Prof. Bruno Levecké will be sent.

**Expected Turnout:** We expect at least 50% of the invited audience to attend and will adjust the suggested time of the presentation accordingly.

**Interaction with PhD Researchers:** we will combine the event with other activities to enable more interaction with PhD researchers, facilitate knowledge exchange, collaboration opportunities, and deeper exploration of the research presented during the lecture.

We will use this opportunity and invite Dr. Maki Demuyakor to Meet Your Future Colleague session with the Masters students in Global Health.

## Program

10:00-10:05 Introduction by PhD candidate Befikadu Tariku Gutema

10:05-10:50 Lecture by dr. Maku Demuyakor

10:50-11:05 Reflection by discussant, prof. dr. Souheila Abbeddou

11:05- 11:30 Q&A

## Short Bio of Maku Demuyakor

Maku Demuyakor was born and raised in Accra, Ghana, where she had much of her education, attending the University of Ghana for both her Bachelors and Master's degrees in Community Nutrition and Food Science. Maku started her career as a young scientist in Ghana, where she spent close to a decade working on two multi-disciplinary intervention projects focused on developing cost-effective, early, sustainable, and culturally appropriate integrated nutrition interventions for improving the nutritional status of mothers and to enable young children reach their developmental potential. Thereafter, she pursued doctoral studies in International and Community Nutrition (with a minor emphasis in Child Development) at the University of California, Davis, US. Taking this cross-disciplinary approach, her research aimed at demonstrating the potential for nutrient supplementation very early in life to improve developmental outcomes in the long-term, particularly in low-middle-income country (LMIC) settings. Since finishing her PhD in 2018, Maku has been working as a Nutrition Scientist for the International Micronutrient Malnutrition Prevention and Control (IMMPaCt) Team in the Nutrition Branch at the US Centers for Disease Control and Prevention (CDC). There, she supports collaborative efforts with governments and global partners towards the planning, implementation, monitoring, and evaluation of nutrition intervention projects in LMICs.

## List of publications

### Selected Peer reviewed Manuscripts

1. Demuyakor, M. E., Jalal, C., Williams, A. M., Bouckaert, K. P., Whitehead Jr, R. D., Bhuiyan, M. M., ... & Jefferds, M. E. D. (2023). Design, Methods, and Select Baseline Results from a School Nutrition Project for Adolescents in Bangladesh. *Current Developments in Nutrition*, 7(4), 100070
2. Prado EL, Adu-Afarwuah S, Arnold CD, Adjetey E, Amponsah B, Bentil H, Dewey KG, Guyer AE, Manu A, Mensah M, Oaks BM, Ocansey M, Tan X, Hastings PD. Prenatal and postnatal small-quantity lipid-based nutrient supplements and children's social-emotional difficulties at ages 9-11 y in Ghana: follow-up of a randomized controlled trial. *Am J Clin Nutr*. 2023 Aug;118(2):433-442. doi:10.1016/j.ajcnut.2023.05.025. Epub 2023 May 29. PMID: 37257564
3. Bentil, H., Adu-Afarwuah S; Prado, E. L., Arnold, C. D., Ocansey M; Oaks B. (2023) Effect of Small Quantity Lipid-Based Nutrient Supplements Provided During the First

1000 Days on Linear Growth From Birth to 9–11 Years in a Randomized Controlled Trial in Ghana. *Current Developments in Nutrition*

4. Demuyakor, M., Jalal, C., Williams, A., Bouckaert, K., Whitehead, R., Bhuiyan, M., ... & Jefferds, M. E. (2022). Micronutrient Status and Select Characteristics of Adolescents: Results From a School Nutrition Program in Bangladesh. *Current Developments in Nutrition*, 6, 6009514
5. Prado, E. L., Arnold, C. D., Wessells, K. R., Stewart, C. P., Abbeddou, S., Adu-Afarwuah, S., ... & Dewey, K. G. (2021). Small-quantity lipid-based nutrient supplements for children age 6–24 months: a systematic review and individual participant data meta-analysis of effects on developmental outcomes and effect modifiers. *The American journal of clinical nutrition*, 114(Supplement\_1), 43S- 67S
6. Yuan H; Ocansey M; Oaks B; Sheridan M; Okronipa H; Hamoudi A; Kumordzie S; Seth Adu-Afarwuah S; and Prado E. Feasibility of Using Tablet-Based Cognitive Assessments in a Large Randomized Trial in Ghana. *Current Developments in Nutrition*. 2020 June; 4(2): 1110. [https://doi.org/10.1093/cdn/nzaa054\\_182](https://doi.org/10.1093/cdn/nzaa054_182)
7. Oaks B; Adu-Afarwuah S; Kumordzie S; Laudenslager ML; Smith DL; Lin J; Young RR; Arnold CD; Bentil H; Okronipa H; Ocansey M; and Dewey KG. Impact of a nutritional supplement during gestation and early childhood on child salivary cortisol, hair cortisol, and telomere length at 4–6 years of age: a follow-up of a randomized controlled trial. *Stress*. 2020. <https://doi.org/10.1080/10253890.2020.1728528>
8. Adams PK, Adu-Afarwuah, S., Mridha, MK., Oaks, B., Matias, SL., Arnold CD., Kumordzie, SM., Okronipa H., Ocansey, M. E., and Dewey, K. G. The impact of maternal supplementation during pregnancy and the first six months postpartum on the growth status of the next child conceived and born after the intervention period: follow-up results of two randomized controlled trials in Bangladesh and Ghana. *Matern Child Nutr*. 2020
9. Ocansey, ME; Pulakka, A; Adu-Afarwuah, S; Kumordzie, SM; Okronipa,H; Young, RR; Oaks, B; Dewey, KG; and Prado, EL. The effects of supplementing maternal and infant diets with micronutrient fortified lipid-based nutrient supplements on physical activity and sedentary behavior at preschool age in Ghana. *B J Nutr*. 2019 September; 122(8): 884-894. <https://doi.org/10.1017/S0007114519001636>
10. Nguyen, PH; Ocansey, ME; Miller, M; Le, DTK; Schmidt, RJ; and Prado, EL. The Reliability and Validity of the Social Responsiveness Scale to Measure Autism Symptomology in Vietnamese Children. *Autism Res*. 2019; 00: 1–13
11. Ocansey, ME; Adu-Afarwuah, S; Kumordzie, SM; Okronipa,H; Young, RR; Tamakloe, SM; Oaks, B; Arimond, M; Dewey, KG; and Prado, EL. The Association of Early Linear Growth and Hemoglobin Concentration with Later Cognitive, Motor and Social-emotional development at preschool age in Ghana. *Matern Child Nutr*. 2019 June; 15(4): <https://doi.org/10.1111/mcn.12834>
12. Ocansey ME, Adu-Afarwuah S, Kumordzie SM, Okronipa H, Young RR, Tamakloe SM, Oaks BM, Dewey KG, Prado EL. Prenatal and postnatal lipid-based nutrient supplementation and cognitive, social-emotional and motor function in preschool-aged children in Ghana: A follow-up of a randomized controlled trial. *Am J Clin Nutr*. 2019 February; 109(2):322-334. <https://doi.org/10.1093/ajcn/nqy303>
13. Kumordzie SM, Adu-Afarwuah S, Arimond M, Young RR, Adom T, Boatin R, Ocansey ME, Okronipa H, Prado EL, Oaks BM, Dewey KG. Maternal and Infant Lipid-Based Nutritional Supplementation Increases Height of Ghanaian Children at 4-6 Years Only if the Mother Was Not Overweight Before Conception. *J Nutr*. 2019 May 1;149(5):847-855.

14. Okronipa H, Arimond M, Arnold CD, Young RR, Adu-Afarwuah S, Tamakloe SM, Ocansey ME, Kumordzie SM, Oaks BM, Mennella JA, Dewey KG. Exposure to a slightly sweet lipid-based nutrient supplement during early life does not increase the level of sweet taste most preferred among 4 to 6- year-old Ghanaian children: follow-up of a randomized controlled trial. *Am J Clin Nutr.* 2019 April; 109(4):1224-1232. <https://doi.org/10.1093/ajcn/nqy352P>
15. Kumordzie SM, Adu-Afarwuah S, Young RR, Oaks BM, Tamakloe SM, Ocansey ME, Okronipa H, Prado EL, Dewey KG. Maternal-infant supplementation with small-quantity lipid-based nutrient supplements did not affect child blood pressure at 4-6 y in Ghana: follow-up of a randomized trial. *J Nutr.* 2019 Mar 1;149(3):522-531.
16. Prado EL, Phuka J, Ocansey E, Maleta K, Ashorn P, Ashorn U, et al. A method to develop vocabulary checklists in new languages and their validity to assess early language development. *Journal of Health, Population and Nutrition.* 2018;37(1):13. doi: 10.1186/s41043-018-0145-1
17. Arimond M., Abbeddou S., Kumwenda C., Okronipa H., Hemsworth J., Jimenez E.Y., Ocansey E., Lartey A., Ashorn U., Adu-Afarwuah S., Vosti S.A., Hess S.Y., Dewey K.G. Impact of small quantity lipid-based nutrient supplements on infant and young child feeding practices at 18 months of age: Results from four randomized controlled trials in Africa. *Matern Child Nutr.* 2017 Jul; 13 (3):e12377.
18. Prado E.L., Abbeddou S., Adu-Afarwuah S., Arimond M., Ashorn P., Ashorn U., Bendabenda J., Brown K.H., Hess S.Y., Kortekangas E., Lartey A., Maleta K., Oaks B.M., Ocansey E., Okronipa H., Ouédraogo J.B., Pulakka A., Somé J.W., Stewart C.P., Stewart R.C., Vosti S.A., Yakes Jimenez E., Dewey K.G. Predictors and pathways of language and motor development in four prospective cohorts of young children in Ghana, Malawi, and Burkina Faso. *J Child Psychol Psychiatry.* 2017 May 23.
19. Prado E.L., Abbeddou S., Adu-Afarwuah S., Arimond M., Ashorn P., Ashorn U., Brown K.H., Hess S.Y., Lartey A., Maleta K., Ocansey E., Ouédraogo J.B., Phuka J., Somé J.W., Vosti S.A., Yakes Jimenez E., Dewey K.G. Linear Growth and Child Development in Burkina Faso, Ghana, and Malawi. *Pediatrics.* 2016 Aug; 138 (2).
20. Prado E.L., Adu-Afarwuah S., Lartey A., Ocansey E., Ashorn P., Vosti S.A., Dewey K.G. Effects of pre-and post-natal lipid-based nutrient supplements on infant development in a randomized trial in Ghana. *Early Hum Dev.* 2016 Jul 5; 99: 43-51.

## Name of the PhD candidate

Befikadu Tariku Gutema