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Topic: Food and nutrition security

Title: Mycotoxin exposures of infants 0-6 months old living in rural areas of Eastern Cape Province, South Africa – PhilaSana Project

Presentation Type: Oral

Introduction Maize is a staple food source in rural areas in the Eastern Cape Province, South Africa and is a complementary food. The maize are contaminated with mycotoxins, fumonisin (FB) and Deoxynevelanol (DON) and pose a health risk to those exposed.

Methods Infants 0-6 months were recruited with snowball sampling. Habitual maize intake was determined with food frequency questionnaires and converted to daily raw intakes. Homegrown or commercial maize consumption depends on availability. Mycotoxin contamination levels of home grown/commercial maize was used to calculate two scenarios (1: total homegrown maize consumption and 2: total commercial maize consumption). Mycotoxin exposure was calculated by multiplying contamination levels of with raw intake divided by weight. Provisional maximum tolerable daily intake (PMTDI) for FB is 2ug/kg/day and DON is 1ug/kg/day.

Results 79 infants, 42 (53%) girls and 37 (47%) boys were included. Of these, 66 (84%) received maize. Scenario 1: total FB exposure was 3.4ug/kg/day (SD 3.13), for girls 3.70ug/kg/day (SD 3.13) and boys 3.12ug/kg/day (SD 3.12). Total DON exposure was 0.1ug/kg/day (SD 0.001), for girls 0.004ug/kg/day (SD 0.003) and boys 0.004ug/kg/day (SD 0.004). Scenario 2: total FB exposure was 2.1ug/kg/day (SD 3.16), girls 1.93ug/kg/day (SD 2.77) and boys 2.32ug/kg/day (SD 3.57). DON exposure was 0.6ug/kg/day (SD 0.88), girls 0.54ug/kg/day (SD 0.77) and boys 0.65ug/kg/day (SD 1.00).

Conclusion Infants 0-6 months are exposed to FB levels higher than PMTDI regardless of maize source. This could be detrimental to their health and development, especially since exclusive breastfeeding is required.