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Impact of Aflatoxin Exposure to Children during the first 1000 Days of Life

EXECUTIVE SUMMARY

The most vulnerable group of population is exposed to Aflatoxins within 1000 days of life from conception to the child's second birthday. This population group is highly affected because their body systems have not fully developed to allow for detoxification[1]. Exposure to aflatoxin during the first 1000 days of a Child leads to wasting, stunting and underweight.

Consumption of safe and quality food is essential for all, but it is of significant importance in children. Aflatoxin contamination of children food must therefore be prevented.

Aflatoxin metabolites have been detected in samples of blood and urine of newborns and pregnant women respectively in Kenya, Uganda, Sierra Leone, Nigeria, Gambia and Ghana. Children between zero and two years continue to be exposed to aflatoxin through breast milk and complimentary food in EAC region.

Given the high rates malnutrition in EAC Partner States, there is urgent need for Government intervention to prevent and control aflatoxin contamination, particularly for Maternal, Neonatal and Child Health Services as well as aflatoxin safe foods.

THE PROBLEM

Aflatoxins are harmful substances produced by certain types of fungi that exist in the environment. The fungi grow on staple foods such as maize, peanuts and some animal products and produce aflatoxin that contaminates food.

Aflatoxins are particularly harmful to children during the first 1000 days of life from conception to the child's second birthday because they are more vulnerable to the adverse effects of toxins as their body systems have not fully developed to allow for detoxification[1]. Exposure to Aflatoxin during the first 1000 days of life cause negative health impacts to children including wasting, stunting, underweight and later in life leads to cardiovascular diseases and cancer.

Kwashiorkor and Marasmic Children

SIZE OF THE PROBLEM

It is estimated that 156 million children are stunted and 52 million are wasted worldwide[2]. Thirty six (36) countries with a high burden of malnutrition are located in Africa and South Asia including all the EAC Countries[3].

Aflatoxin exposure can occur as early as at the in-utero stage through placental barrier, during breastfeeding and complementary feeding with aflatoxin contaminated food and food products. In Gambia, aflatoxin exposure in pregnancy was associated with reduced body weight in babies[4]. In addition, aflatoxin metabolites were found in serum samples of pregnant women and in the blood of newborns in Kenya (53%, n=125)[5] and 77% (n=26)[6]. Aflatoxin was also detected in serum and urine samples of pregnant women in Kenya, Uganda, Nigeria, Sierra Leone, Gambia and Ghana[7]. In Tanzania, aflatoxin were detected in more than 90% of the samples of breast milk from lactating mothers of infants less than six months of age[8].

In the EAC region, exposure of aflatoxin to children from complementary food is common and increases with age. For example, 84% and 99% of blood samples from 146 children in Tanzania were found to contain aflatoxins at six months and twelve months respectively[9]. A related study conducted in Uganda in 2014 found that, 96% of the blood samples from 96 children of the age between zero to three (0-3 years) contained aflatoxins[10].

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CAUSE OF THE PROBLEM

Toxins interfere with child development processes for various body organs and growth milestones. Some of the root causes of aflatoxin exposure to foods include poor agricultural practices (*poor quality seeds, untimely harvest, poor drying and storage facilities*) that favor growth of fungi.

Climate change has also caused unpredictable and unreliable rainfall, high temperatures and humidity, which favor the growth of fungi and further contamination to food and food products.

The socio economic situation and food insecurity status of the majority of inhabitant of EAC leaves them with few options for choosing low risk foods.

Another major factor is weak regulatory and monitoring systems for food products coupled with limited availability of standards and regulation for aflatoxin prevention and control. Additionally there is shortage of trained personnel and infrastructure for monitoring aflatoxin.

There is limited awareness of aflatoxin risks and insufficient knowledge of options to reduce contamination of food crops from the farm to fork.

POLICY OPTIONS

Policy Option 1: Integrate Aflatoxin Prevention and Control Strategies, Guidelines and Standards into National Maternal, Neonatal and Child Health Services.

Currently, aflatoxin prevention and control measures are not addressed and mainstreamed in the National Maternal, neonatal and child health delivery systems. The mainstreaming of aflatoxin interventions in this service will lead to increased awareness of the harmful effects of Aflatoxin and facilitate reduction of exposure by expectant mothers and children. This will also lead to increased access to diagnosis and treatment.

Policy Option 2: Ministries of Health of Partner States to incorporate Aflatoxin Prevention and Control in National Nutritional policies, guidelines and strategies.

The existing national nutritional programmes do not address aflatoxin prevention and control interventions in children yet it is one of the major causes of low birth weight, slow growth in children, which hinders normal body and brain development especially from conception to the first two years of age.

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